POMS
31st Annual
Conference
Online | April 30 - May 5, 2021
Building a sustainable, responsible, and resilient global future

CONFERENCE PROGRAM BOOK

Sponsored By:

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Indian School of Business

Editor
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Assistant Editors
Ram Tewari and Seema Singhania

Location: Virtual

POMS Conference 2021

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INSTRUCTIONS TO JOIN POMS CONFERENCE

1. Login to conference system.

   a. Go to https://pomsmeetings.org/conf-2021/

   b. Click on **Join Conference** button.

   c. Login using your POMS credentials
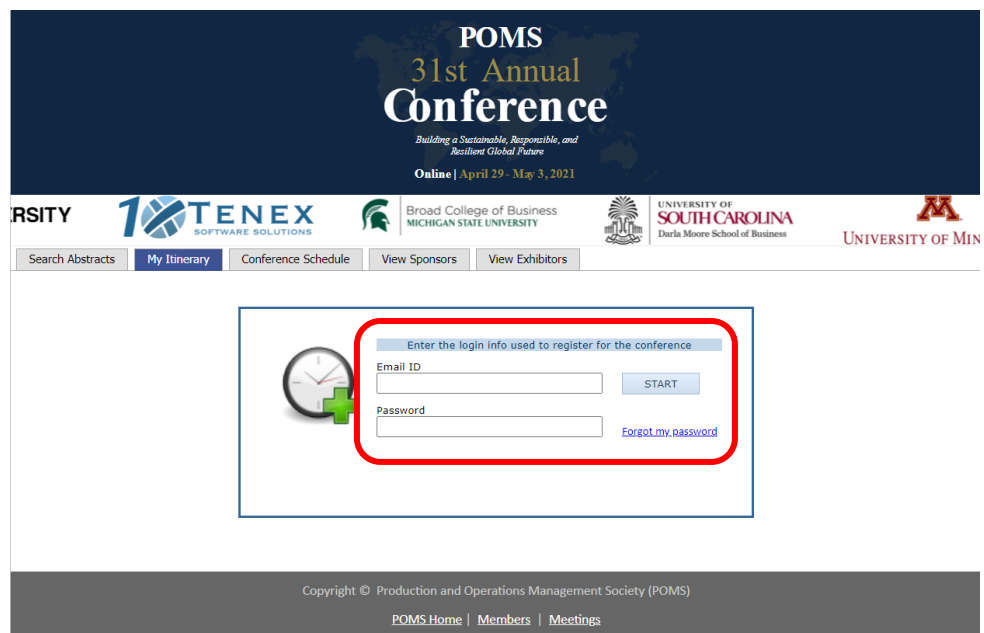
   d. After logging in, click on **Conference Schedule** tab to attend presentations, or click on **View Exhibitors** to connect with exhibitors. To search abstracts by author name, use the **Search Abstracts** tab and come back to the Conference schedule tab to join the conference.

2. In the conference schedule, can search by date and/or track. (if you want to search for an author, go to Search Abstracts).

To join the current session in a track, click on the blue box – **"CLICK HERE TO JOIN PRESENTATIONS IN THIS TRACK"**. This will take you to the zoom meeting room for the current session.

INSTRUCTIONS TO PRESENTERS:

3. If you are the presenter, you will have a choice to either present your research live during the session or play the recorded video. To play the recorded video from your computer, follow the below instructions.

   a. First step is to click on **share screen**. A pop-up window opens see below:
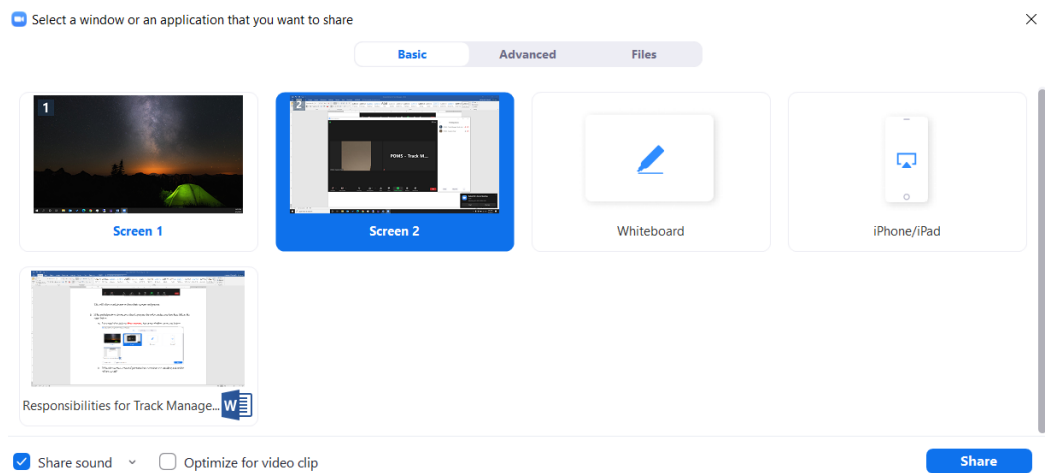
b. Select the correct screen (if presenter has more than one monitor) and enable **"Share sound"** and click on **Share.** You can now play the video.

It is important to click on "share sound" to allow the audience to listen to the sound on the video. Failure to do so will result in the attendees watching the video without audio.

NOTE:

The session chair will start the session on time. In case the session chair is not present in the session, one of presenters is asked to take over the role of the session chair. There will be a track technical manager to assist the session chair and speakers with zoom related questions.

Each session is 1hr long with 3 presentations. Each presentation is 15 minutes plus 5 minutes for Q&A).

Every session will also have a track technical manager to assist you with zoom related questions.

NEED HELP:

Please report your problem here:

https://docs.google.com/spreadsheets/d/1SiX1VQ5ctcYoVxdmbFbp8laOV-2Gueyam4Axih8sOao/edit?usp=sharing

VINUNIVERSITY

We welcome outstanding scholars to VinUniversity.

Unique research and teaching opportunities to create breakthrough knowledge and solutions.

College of Business and Management (CBM) at VinUniversity, inaugurated with its first batch of undergraduate students in the fall of 2020 has a vision to become the best business education provider in Vietnam and in the ASEAN region in the next decade.

With a goal of becoming a research-focused college, CBM will soon offer different graduate programs and desirable research environments for our faculty members to support them to conduct world-class research towards solving real-world problems and advancing business practices.

Moreover, with the advantage of being in the ecosystem of Vingroup with numerous leading companies such as Vinpearl, Vinhomes, VinHMS, VinFast, VinTech, Vincom Retail, and their close business partners, CBM will collaborate closely with these companies in research to create breakthrough knowledge and solutions.

Given Vietnam's strategic location to serve as the logistics hub for the global supply chain, CBM aims to be the hub for knowledge and solution creation on this topic area through breakthrough research. Hence, CBM invites outstanding scholars in this field, who are particularly interested in the unique research and teaching opportunities VinUni and Vietnam can offer.

Best wishes!

Rohit Verma, Provost, VinUni & Sunmee Choi, Dean, CBM

Find out more about our programs and faculty at **vinuni.edu.vn**

POMS 2021 INSTRUCTIONS FOR SESSION CHAIRS

Responsibilities of Session Chairs:

- Each session is 1hr long with 3 presentations (15mins each) + 15 mins of Q&A.

- Enter your session at least 5 mins before the session start time (see instructions below) and start it on time.

- A track tech manager will be in the zoom session to help with the technology. S/he will give co-host permissions to the session chair and the presenters so that they can share the screen.

  - If the tech manager is not present, report this in the following google sheet:

  - *https://docs.google.com/spreadsheets/d/1SiX1VQ5ctcYoVxdmbFbp8laOV-2Gueyam4Axih8sOao/edit?usp=sharing*

- *Verify if the presenters are present.* If the presenters are present in your session, the presenter has the option to play the recorded video or present live.

- If the presenter is not present, the session chair will automatically play the recorded video in the system. (see instructions below).

- Ensure that the session ends on time. Overflow of 5 minutes is acceptable. (Attendees may want to chat informally after the session, and that's OK until about 5 minutes before the next session starts.)

- Provide any help to the presenters and participants with zoom during the session.

Frequently Asked Questions

Q. What if the track tech manager is not present?

A. Please report your problem here:

https://docs.google.com/spreadsheets/d/1SiX1VQ5ctcYoVxdmbFbp8laOV-2Gueyam4Axih8sOao/edit?usp=sharing

Q. The length of the recorded video is more than 15 mins, what do I do?

A. As the session chair, use your discretion to either stop the video at 15mins or play it till the end.

Q. Can the session go beyond the finish time?

A. An overflow of up to 5 minutes is acceptable.

Instructions to the Session Chairs:

1. Login to conference system.

    a. Go to https://pomsmeetings.org/conf-2021/
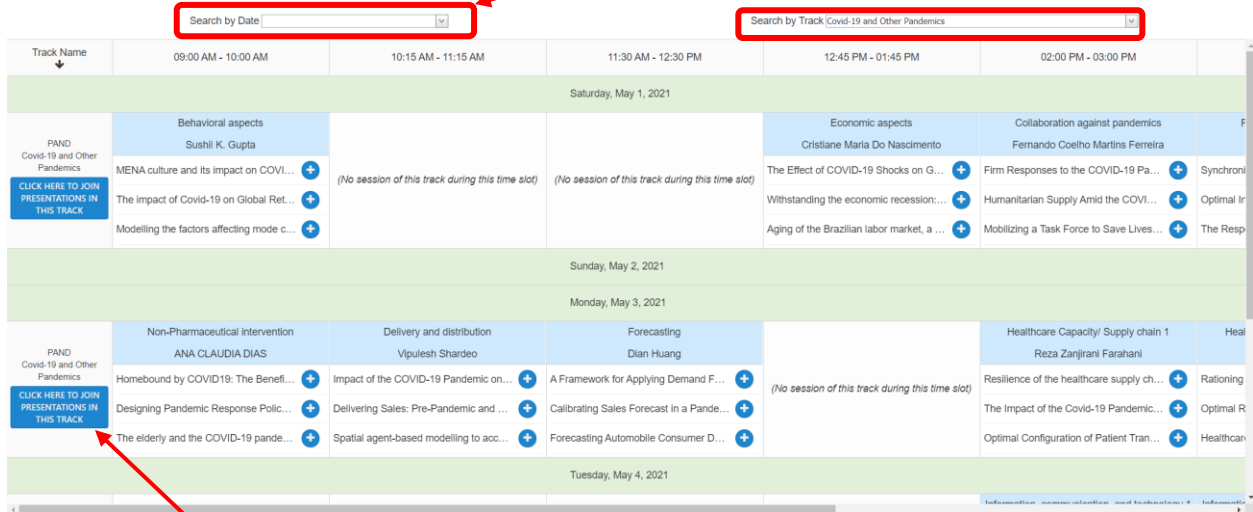
    b. Click on **Join Conference** button.

    c. Login using your POMS credentials

    d. After logging in, click on **Conference Schedule** tab to attend presentations or click on **View Exhibitors** to connect with exhibitors.

2. In the conference schedule, presentations can be searched by date and/or track (if you want to search for an author, go to Search Abstracts).


To join the current session in a track, click on the blue box – **"CLICK HERE TO JOIN PRESENTATIONS IN THIS TRACK"**. This will take you to the zoom meeting room for the current session.

3. The presenter will have a choice to either present their research live during the session or play the recorded video. Ask them to carefully, read the document: *"Instructions to Join the Conference.doc"* on how to play the recorded video from their computer correctly.

4. If the presenter is not in the session, the session chair will play the uploaded recording.

a. First step is to find the recorded video. Go to your session in the conference schedule page, and click on the title of the paper.

b. A pop-up window will appear. Click on View Recording to play the video.
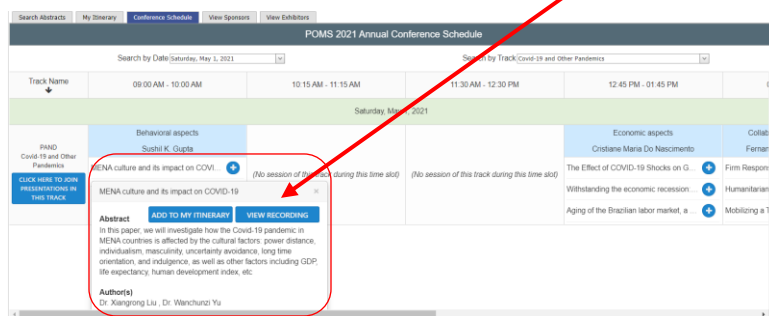
c. Pause the video and then go to zoom window and click on **share screen** to share the recording with the attendees. A pop-up window opens see below:
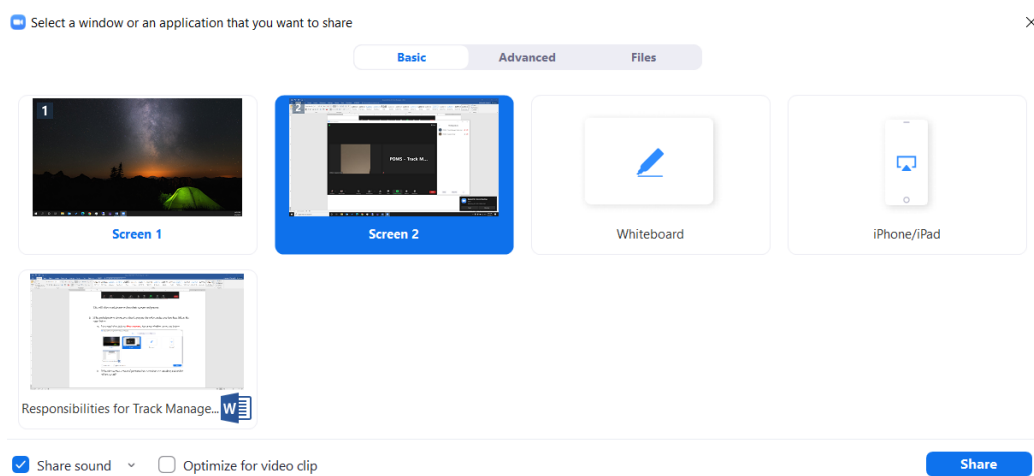
d. Select the correct screen (if you have more than one monitor) and enable **"Share sound".** It is important to click on "share sound" to allow the audience to listen to the sound on the video. Failure to do so will result in the attendees watching the video without audio.

MAYS BUSINESS SCHOOL
TEXAS A&M UNIVERSITY

#2 IN THE WORLD
ARTICLES IN JOM, POM, & MSOM, 2016-2021 (UT-D DATABASE)

Career 78 Co-Authorships in POM journal
2ⁿᵈ Most Published Faculty in POM

Publishing Supply Chain Faculty

James Abbey	Greg Heim	Rogelio Oliva
Anupam Agrawal	Andres Jola-Sanchez	Bala Shetty
Alexandar Angelus	Michael Ketzenberg	Chelliah
Tony Arreola-Risa	Xen Koufteros	Sriskandarajah
Neil Geismar	Laura Li	Jon Stauffer
Trevor Hale	Rich Metters	

PhD: https://mays.tamu.edu/phd-operations-and-supply-chain-management/

POM Journal and POM Society Service
President of POMS: Chelliah Sriskandarajah

➤ **Chelliah Sriskandarajah** 22 articles in POM
Fellow of POMS, Awarded 2012
President, 2020
Sushil Gupta Distinguished Service Award 2015
POM Departmental Editor, 2012 - Present
POM Senior Editor, 2006 – 2012
General Chair for national meeting 2011
VP-Finance, 2013-2016; VP-Publications 2018-2020
Associate Executive Director, 2004-2012

➤ **Rich Metters** Five articles in POM
POM Editorial Review Board 1999-
General Chair for national meeting, 2003
Board of Directors: Secretary, 2010-2012
Track co-chair 2009, 2011, 2013, 2014
Service Ops College President 2010-2011
Lifetime Achievement Award – Service Ops College

➤ **Neil Geismar** 12 articles in POM
POM Senior Editor, 2012 –
POMS Track Chair 2011, 2015
POMS Board of Directors, 2016-2017
Sponsorship & Exhibitors Committee 2009
College Sustainable Ops Conf. co-chair 2018

➤ **Xen Koufteros** POM Editorial Review Board 2016-
Co-track chair, 2016, 2017, 2018
Wickham Skinner teaching award, 2019

➤ **Jon Stauffer** three articles in POM
POM Editorial Review Board 2020-

➤ **Andres Jola-Sanchez**
VP-Meetings, College of Humanitarian Ops, 2020-22

➤ **Bala Shetty** VP-education, 2018-2021
AVP-Sponsorship, 2019-2021
POM Senior Editor, 2017-
Track chair, 2018-

➤ **Michael Ketzenberg** Nine articles in POM
POM Senior Editor, 2013-
POM Editorial Review Board, 2008-2013
Track Chair, 2003
Sustainability College Treasurer, 2008-2010

➤ **Greg Heim** Eight articles in POM
POM Editorial Review Board, 2007-2018
POM Senior Editor, 2018-

➤ **Rogelio Oliva** Four articles in POM
POM Senior Editor, 2015-
Program co-chair, 2016
Board of Directors, 2020-2021
College of Behavioral Ops, Treasurer 2009–11
Track co-chair, 2014
Wickham Skinner teaching award, 2016

➤ **James Abbey** Four articles in POM
Track chair, 2014, 2015
College Sustainable Ops conf. co-chair 2017, 2018
POM Editorial Review Board, 2015-
POM Senior Editor, 2019-

➤ **Anupam Agrawal** Four articles in POM
POM Senior Editor, 2018-
Editor, POMS Chronicle, 2019-

POMS 2021 INSTRUCTIONS FOR TRACK TECHNICAL MANAGERS

Responsibilities of Track Tech. Managers:

- For the first session of the day, please start the zoom session at 8:45 AM (EDT or current NEW YORK time). Leave the zoom session open for the rest of the day. For all sessions other than the 1st of the day, please arrive at the zoom meeting 10 minutes before the session is to start. If you are leaving the zoom room, please make sure to assign host privileges to another tech. manager before you leave the room.

- There may be a few times during the day that the zoom session may need to be restarted if it stops working.

- Give co-host permissions to the session chair and the presenters at the start of each session.

- Provide any help with zoom during the session.

- In case of emergency, *open the google sheet here and enter your issue. Someone will help you right away*

  https://docs.google.com/spreadsheets/d/1SiX1VQ5ctcYoVxdmbFbp8laOV-2Gueyam4Axih8sOao/edit?usp=sharing

Instructions to start the session are provided in Page 2 of this document. Also, on the last page of the document, I have answers to the questions that you may have.

Instructions to Track Tech. Managers on How to Start the Session:

1. Login to conference system.

   a. Go to https://pomsmeetings.org/conf-2021/

   b. Click on **Join Conference** button.

   c. Login using your POMS credentials

   d. After logging in, click on **Conference Schedule** tab

2. To start the session, navigate to your track by searching by track. Then, click on the blue box – "CLICK HERE TO JOIN PRESENTATIONS IN THIS TRACK" on the day of the session. This will take you to the zoom room meeting room. Use your own zoom credentials to start the zoom.

3. You can now claim the host of the zoom meeting. By following the below steps:

   a. Click on **Participants** in the zoom window.
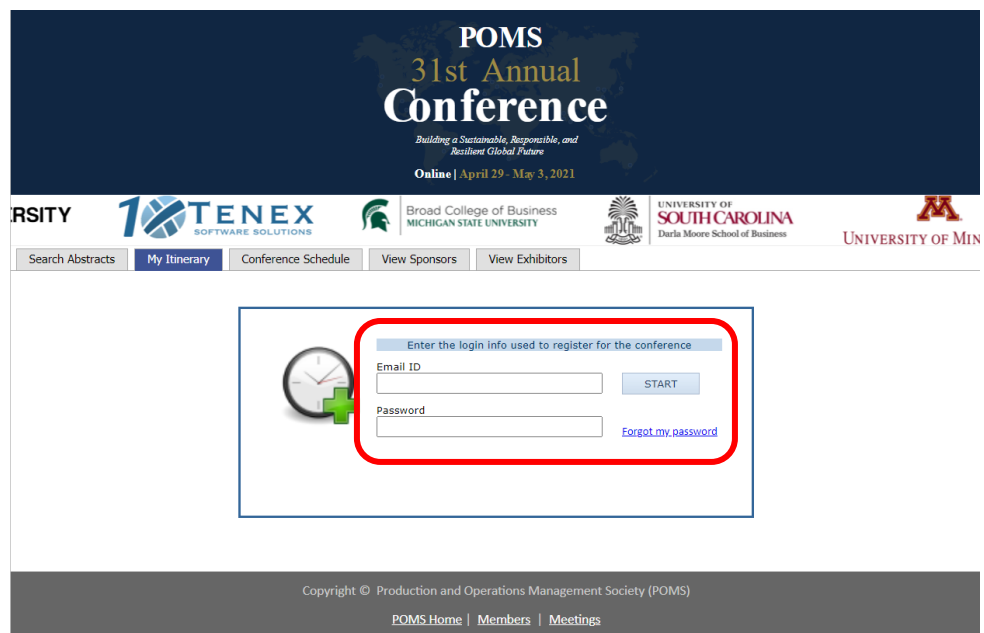
b. Under participants console, click on **Claim Host** button.
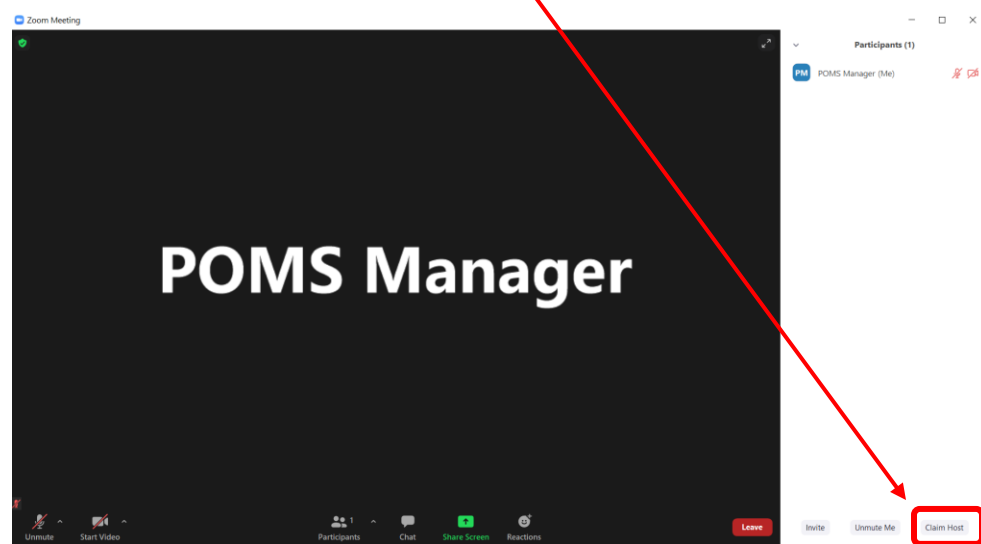
c. Enter your **Host Key**. This will be provided to you. You cannot share this key with anyone.
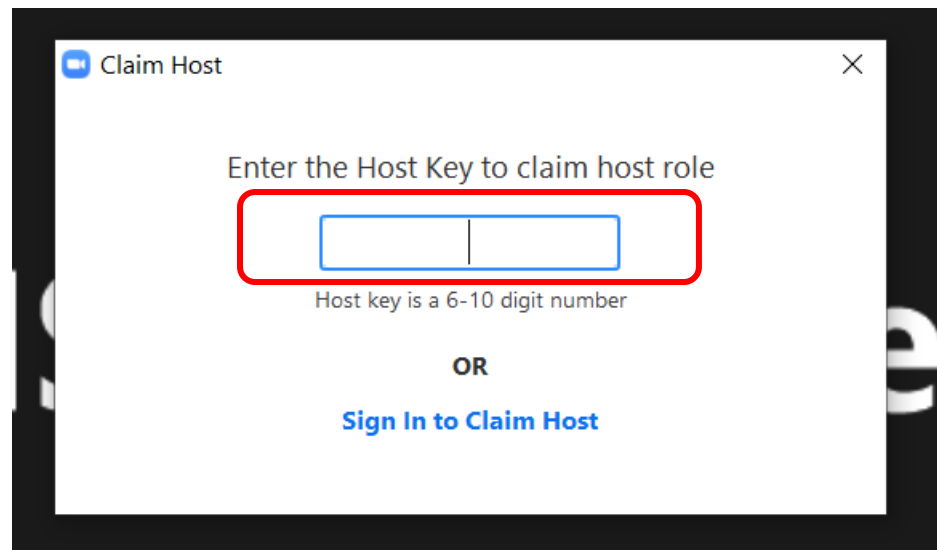
d. Check if you are the host. Host should appear beside your name.
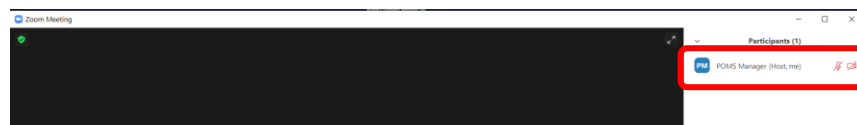
e. Change your name by moving your mouse pointer to your name and clicking on
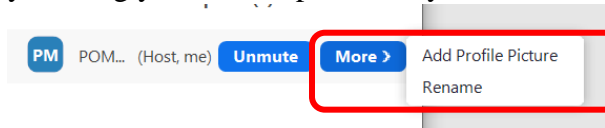
More and **Rename**.

f. Rename yourself as "POMS tech manager".
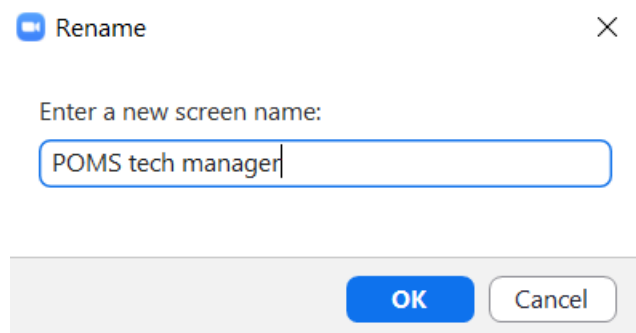
4. Assign co-host permissions to session chairs and presenters. To assign participants as co-hosts, follow the following steps.

a. Click on **Participants** in the zoom window:
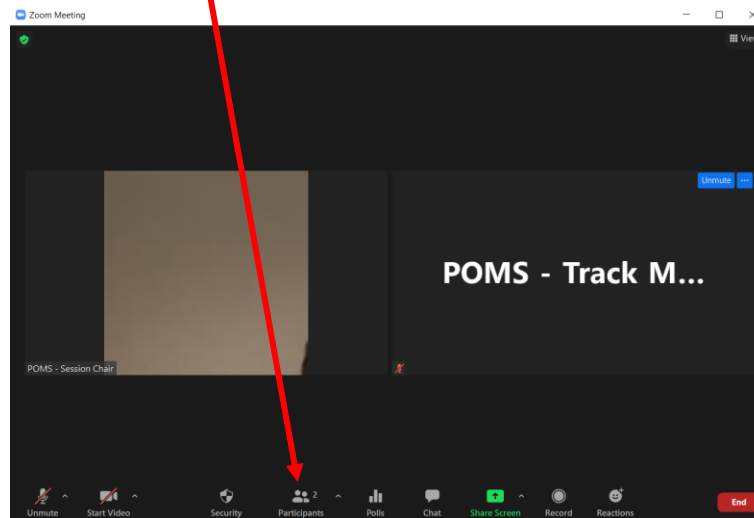
b. Hover your mouse pointer over the session chair's name and click on "**More**". Next click on **"Make Co-host"**
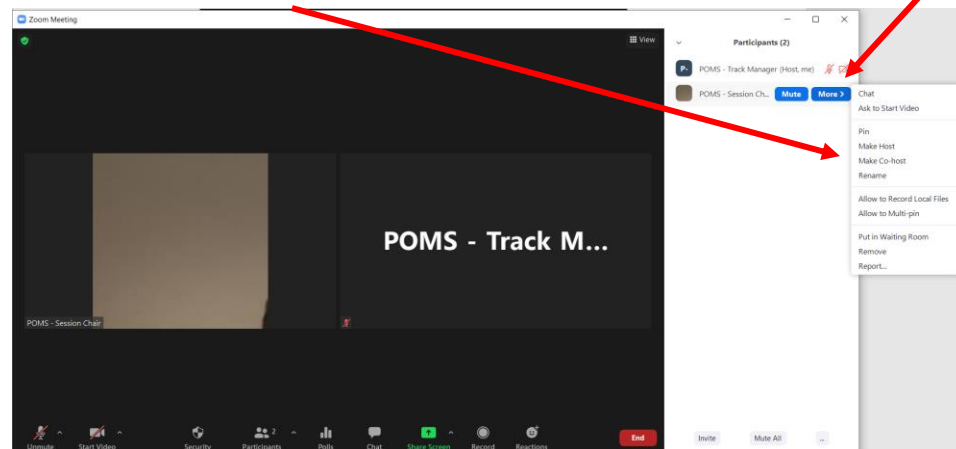
c. Follow the above steps to assign all the presenters in the session as co-host.

This will allow participants to share their screens and present.

5. If the presenter or the session chair is playing the video, make sure that they follow the steps below:

a. First step is to click on **share screen**. A pop-up window opens see below:
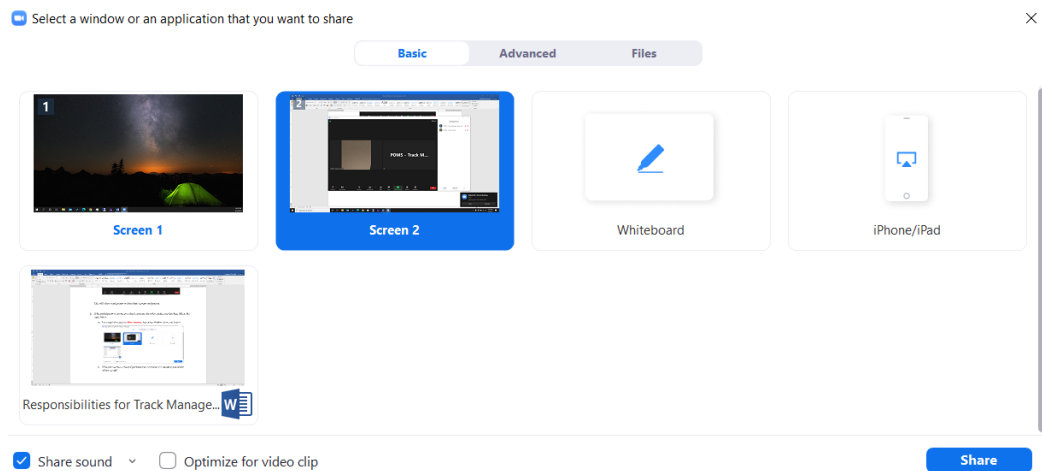
b. Select the correct screen (if presenter has more than one monitor) and enable "**Share sound**" If the person sharing their video does not click on share sound then the audience will not be able to listen to the sound on the video.

c. If the presenter ignores the above steps, then tell them to stop share and do the above steps.

FREQUENTLY ASKED QUESTIONS

Q. What to do if you accidentally logged out of the meeting.?

In case you logged out of the zoom meeting, one of the co-host will automatically become the host. You will need to go back to that zoom meeting and ask the host to make you the host for the meeting.

Q. How to become a host when you are logging into the evening sessions?

If there is a tech manager from the pervious session, ask him/her to make you the host. If you do not find any host for this meeting, you can claim host using the host key.

Q. What to do in case a participant is causing trouble.

"In case of any "zoom-bombing" incidents, please talk to the session chair and do the following to stop screen sharing.

- Click on Security and then select "Suspend Participant Activities"
- Click on Security and then select remove participant and select that participant.

Welcome Message from the POMS President

Dear POMS members:

It is my honor and privilege to serve as the President of the Production and Operations Management Society (POMS) for the year 2020 and 2021. I have been actively involved in serving POMS in various capacities since 1998. This has enriched my professional life immensely; and has given me an opportunity to build a worldwide network. I took over the Society's reins from Dr. Nada Sanders. Dr. Sanders and the preceding POMS presidents have set high bars for POMS' performance. My endeavor will be to advance what POMS has already achieved.

POMS, a distinguished professional society, has an impressive 30 plus years of history. The strategic initiatives undertaken, over the years, by our founder Dr. Kalyan Singhal, our leaders Dr. Sushil Gupta and Dr. Martin Starr and many past presidents have made POMS the *society of choice* for POM professionals.

Production and Operations Management, our flagship journal, has established itself as the premier source for disseminating production and operation management research to academic researchers, educators, practitioners, doctoral students, public and private corporations, national and local governments, and the general public. I provide the following testaments that attest to the reputation of POM Journal: POM is the only operations management journal on the *Business-Week* list of 20 journals. POM is also included in the *Financial-Times* list of 50 journals and the University of Texas list of 24 journals. POM ranks at the highest level in the Australian ABDC list. POM is the only operations management journal to have all these four honors. In a recent survey, we asked our POMS members the following question: "Which operations management journals count for the purpose of faculty recruitment, tenure and promotion at your school/department/university?" Eight five percent of the respondents ranked POM "A" or better which is higher than the scores received by any other operations management journal.

As we have been preparing for POMS 31st Annual online conference 2021, my message is about highlighting the importance of the conference. I would like to point out that our annual conferences are a major attraction to POMS' members where they present their research work, and exchange research ideas with a large group of POM professionals. Unfortunately, we had to cancel the Annual conference 2020, Minneapolis due to Covid-19 pandemic. However, we have managed to provide several POMS awards for year 2020. The winners were honored and acknowledged by the POMS by sending the winners the certificates of the awards. I would like to express my sincere thanks to various POMS award committee chairs for 2020, Charles Corbett, Milind Dawande, Subodha Kumar, Manoj Malhotra, Nagesh Murthy, Rogelio Oliva, Sridhar Seshadri, Martin K Starr, and their committee members for hard work and dedication.

The organizing committee members for 2020 have agreed to serve for POMS 31st Annual online conference 2021. On behalf of POMS, I would like to express my deepest gratitude and thank the organizing committee members for 2021, Scott Webster (General Chair), Burak Kazaz,

Hongmin Li, and Rachna Shah (Program Co-Chairs), Ken Klassen (Scheduling Chair), Subodha Kumar (Virtual Meeting Expert), Tej Dhakar (Proceedings Editor), Burcu Keskin and Gil Souza (Emerging Scholars Co-Chairs), Karen Donohue and Susan Goldstein (Doctoral Consortium Program Co-Chairs), Seema Singhania (Program Coordinator), Gerald Burke (Vice President – Meetings), Bala Shetty (Associate Vice President for Sponsorship), Rakesh Mallipeddi (Co-Associate Vice President for Sponsorship), Nagesh Murthy (Associate Executive Director – Global Initiatives), Xiuli He (VP of Colleges), Bharat Kaku (VP of Finance), and Ram Tiwari (Coordinator Conference Activities).

The quality of POMS' conferences have increased under the continuous leadership of POMS' current and past Vice Presidents of meetings, Dr. Gerard (Jerry) Burke, Dr. Bharat Kaku and Dr. Nagesh Murthy. POMS' colleges, with a dedicated team composed of VP Colleges, Xuili He, and the eight POMS' college presidents, have contributed to the prestige of POMS' conferences by organizing mini-conferences. The 2021 meeting is no exception. With the cutting edge theme of *POM in Building a sustainable, responsible, and resilient global future,* we believe the 2021 conference would attract a large number of abstract submissions from all over the world. I particularly would like to express my heartfelt gratitude and thanks to Sushil Gupta (Executive Director) for his dedicated leadership, wisdom and skillful planning and execution of annual conferences over the years. I also thank the staff of the Executive Office, Susmita Sarawagi, Seema Singhania, and Ram Tewari, for their help and support. In addition to these individuals, I would also like to thank all the track chairs and session organizers, who are organizing invited and submitted papers to create an outstanding program for the annual meeting 2021.

The Program Committee is doing an outstanding job in organizing the online conference with excellent keynote speakers and mini-conferences. In the new online format, I am sure you will find the conference, sessions, and presentations with numerous learning opportunities, insightful, engaging, and thought-provoking. I look forward to welcoming you to POMS 31st Annual online conference 2021, April 30-May 5.

Chelliah Sriskandarajah
Hugh Roy Cullen Chair
Department of Information & Operations Management
Mays Business School
Texas A&M University
College Station, TX, USA

MAKING STRIDES IN OPERATIONS & SUPPLY CHAIN MANAGEMENT

The Operations & Supply Chain Management group at the Fox School of Business at Temple University is housed in the department of Marketing and Supply Chain Management and as such, the faculty capitalize on a unique synergy with the Marketing group, as well as with Information Systems and Data Science researchers at Fox. Our Operations & Supply Chain group has recently seen tremendous growth in research-active faculty, with a strong presence in mathematical modeling.

FACULTY MEMBERS INCLUDE:

Xue Bai, Ph.D., Carnegie-Mellon. Business Analytics, data mining, mathematical modeling, optimization.

Misty Blessley, Ph.D., Temple. Behavioral operations, supply chain relationships, and humanitarian logistics.

Yiwei Chen, Ph.D., MIT. Dynamic pricing, revenue management, supply chain contracts, resource allocation.

Mark Gershon, Ph.D., Arizona. Quality management, project management.

Guangwen Kong, Ph.D., USC. Sharing economy, supply chain collaboration and contract design, service platforms.

Subodha Kumar, Ph.D., UT-Dallas. On-demand economy, online reviews, omnichannel retailing, social media, healthcare, blockchain, fintech, artificial intelligence, machine learning, game theory, econometric modeling.

Neha Mittal, Ph.D., Rutgers. Urban transport, logistics, location analysis.

Edward Rosenthal, Ph.D., Northwestern. Game theory, mechanism design, logistics, behavioral decision theory.

Abhishek Roy, Ph.D., UT-Austin. Strategic inventory, contracts and incentives in supply chains, multi-sided markets and platforms.
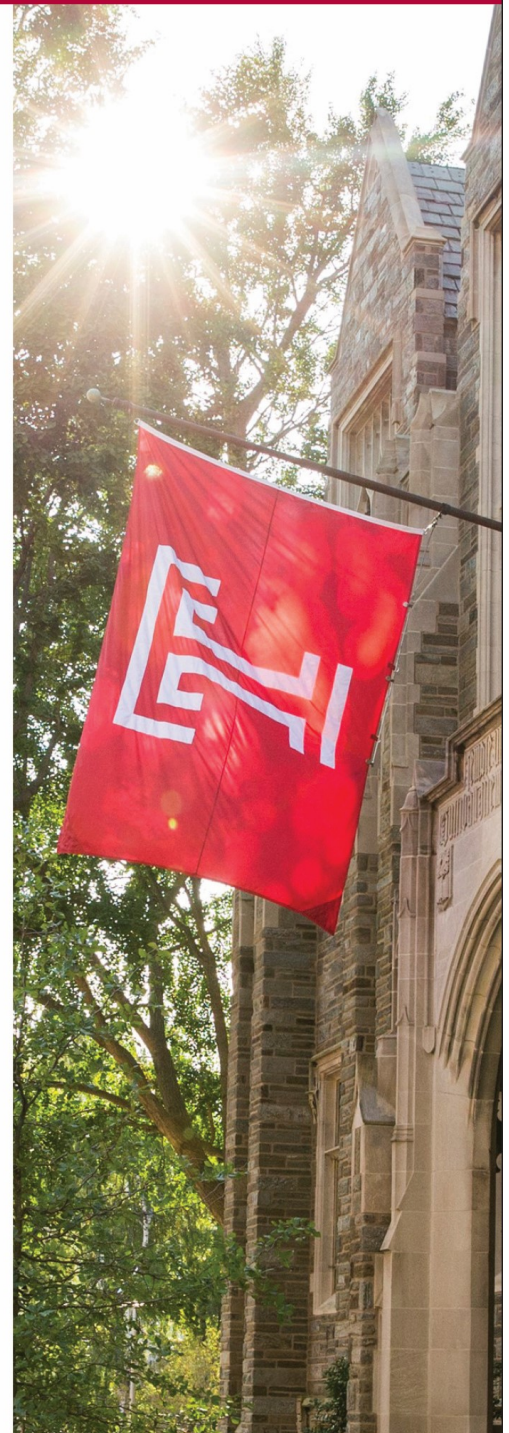
For more information about the MSCM department, visit: *fox.temple.edu/mscm*.

T Temple University
Fox School of Business

Welcome Message from the Conference Chair

Welcome to the 31st Annual POMS Conference, hosted virtually.

Our theme this year is *Building a Sustainable, Responsible, and Resilient Global Future*. We have an exciting line-up, a small sample of which includes

- 2 impressive plenaries
  - Pinar Keskinocak, *Infectious Disease Modeling & Informing Decisions*
  - Chris Tang, *Innovative Technology and Operations for Alleviating Poverty through Women's Economic Empowerment*

- 33 tracks spanning a wide range of areas, including topical themes, *Covid-19 and Other Pandemics* and *Elections Management*

- biennial Applied Research Challenge presentations (organized by Felipe Caro and Chris Tang)

- and a first this year, *POMS Tutorials* (organized by George Shanthikumar)

This conference is only possible with much hard work, largely from volunteers. There are many – organizers of tracks, special sessions, and invited sessions – but here I only name a few. Program Chairs and friends Burak Kazaz, Hongmin Li, and Rachna Shah who handled much of the organization and planning. Scheduling Chair Ken Klassen who contributed many hours on both planning and execution. POMS Executive Director Sushil Gupta who oversaw most of the operational details. We all benefit from his steady hand, experience, and advice.

The past 16 months have been challenging. I give you my warmest wishes during this brief opportunity to gather together, if only virtually. A time to share, to learn, to re-connect with our colleagues and friends, and to be inspired by the ongoing great work within our profession.

Scott Webster
Professor and Bob Herberger Arizona Heritage Chair
W. P. Carey School of Business
Arizona State University

The Naveen Jindal School of Management is a proud sponsor of the

POMS 31st Annual Conference

Operations Management Faculty:

Alain Bensoussan
Lars Magnus Ericsson Chair

Metin Cakanyildirim
Professor

Milind Dawande
Mike Redeker Distinguished Professor

Soraya Fatehi
Assistant Professor

Andrew Frazelle
Assistant Professor

Dorothee Honhon
Associate Professor

Bin Hu
Associate Professor

Ganesh Janakiraman
Ashbel Smith Professor

Elena Katok
Ashok and Monica Mago Professor

Ozalp Ozer
George and Fonsa Brody Professor

Anyan Qi
Sydney Smith Hicks Faculty Fellow

Ignacio Rios Uribe
Assistant Professor

Suresh Sethi
Eugene McDermott Chair

A. Serdar Simsek
Assistant Professor

Kathryn Stecke
Naveen Jindal School Advisory
Council Chair

Ashwin Venkataraman
Assistant Professor

Guihua Wang
Assistant Professor

Shouqiang Wang
Assistant Professor

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om.utdallas.edu

Welcome Message from Vice President for Meetings

Our 31st Annual Conference of the Production and Operations Management Society (POMS) is one like no other. A great deal has transpired since we last gathered in Washington, D.C. during spring of 2019. Over the past year or so we have witnessed principles of operations and supply chain management in practice to provide comfort and strength to people around the globe. The world's people have faced disconcerting uncertainties and sharp realizations of our reliance on one another for so much of the richness in our lives. It will be great for us all to join together again for the POMS 2021 Annual Conference-Online.

The online format we meet in this year is an opportunity for us to interact and reconnect as a group. Our 2020 gathering in Minneapolis, MN has been graciously rescheduled to physically occur in 2023, but a lot of the efforts to organize POMS 2020 will bear fruit in this 2021 online conference. This event's happening is due to the efforts of a lot of people, and I'd like to mention a few key people.

Scott Webster (general chair), Burak Kazaz, Hongmin Li and Rachna Shah (program co-chairs) worked with many track chairs to populate this year's tracks. Burcu Keskin and Gil Souza serve as co-chairs for the Emerging Scholars program. Karen Donohue and Susan Goldstein co-chair the Doctoral Consortium program. Subodha Kumar and Rakesh Mallipeddi provided expertise with technological requirements for hosting virtual sessions which comprise this year's conference. Ken Klassen's hard-work and attention to detail as scheduling chair helped provide order to the conference. Tej Dhakar humbly serves as editor of the proceedings. Bala Shetty and Rakesh Mallipeddi helped direct sponsorship and programming focused on education. Bharat Kaku, as V.P. of Finance, keeps our financial books in order. V.P. of Colleges, Xiuli He, coordinated the many and varied efforts of POMS Colleges to emphasize interest groups of our society. Nagesh Murthy continues to represent POMS in leading our global initiatives. Of course, this event like so many other POMS activities, depends on executive leadership from Sushil Gupta, and coordination expertise from Seema Singhania and Ram Tewari.

The year 2020 demonstrated aspects of life that many of us take for granted. For example, it showed the simple synergy of the words "tissue" and "paper". It reinforced that our combined efforts are: 1) very important; and 2) greater than the sum of our individual efforts. It separated us from many of our friends and family and highlighted our need to be a part of something greater.

In spring of 2022, for the POMS 32nd Annual Conference, we hope to be able to meet again physically in Orlando, FL. This year, with the disconnectedness of 2020 near to us, but in our rear-view, let us enjoy our membership in POMS, and lift our spirits via the POMS 31st Annual Conference-Online.

With gratitude,

Jerry Burke
Georgia Southern University

Tianjin University

Tianjin University CoME

POMS

Basic Information

Position:
- Outstanding Young Professor
- Outstanding Young Associate Professor
- Young Associate Professor
- Postdoctoral Fellow

Organization Name:
College of Management and Economics (CoME),
Tianjin University

Position Type: Full Time

Location(s): Tianjin, China

Brief Introduction

Tianjin University is the oldest institution of higher education in the modern history of China. It was included in the list of "Double First-Class" university project.

College of Management and Economics (CoME) is a leading school of management and economics in China and all of its MBA,MPA and EMBA programs are the first batch in China. CoME has over 30 international partner schools, including Purdue University, University of Waterloo, and University of California, Davis.

Qualifications & Work Support

We invites applications for full-time faculty positions with interests in operations management, logistics and supply chain management etc.

Applicants are supposed to have a doctorate degree in relevant fields by August 2021.

Applicants for Young Associate Professor, Postdoctoral Fellow should have the research capability of publishing in top-tier journals, while applicants for higher academic positions should have a well-qualified record of research and teaching effectiveness.

The compensation package (including salary, relocation fund, and fringe benefits) will match with qualifications. In addition, CoME will provide additional internal funding for high-quality research.

Application Instructions

1. The cover letter
2. The CV
3. Representative research papers
4. 3 letters of reference with contact information
5. Evidence of teaching performance (if available)

You may kindly collate the total materials listed above into a single PDF document with the file name being **"Name + School / College + Position+POMS"**, and send it to Miss. Gan Yaoqiong, H.R. Office, at hr14@tju.edu.cn before April 25.

(+86) 022-27401433

Building25A, NO.92 WeijinRoad, NankaiDistrict, Tianjin, 300072, CHINA

Welcome Message from the VPs of Sponsorship

We are gratified that the academic and business communities continue to believe in the mission of POMS and provide steadfast support to the society and the conference. Continuing in their tradition of significant annual support, *Indian School of Business* (ISB), *Temple University*, and *Texas A&M University* are once again, Silver sponsors this year. We are delighted to welcome *University of Florida* and *VinUniversity* as new Silver sponsors. *Purdue University*, *University of South Carolina*, *University of Texas at Dallas, and Tianjin University* have been dedicated partners of POMS, and we appreciate their support again this year as Bronze sponsors. Joining them as new Bronze sponsors this year are *Arizona State University*, *Georgetown University, Michigan State University*, and *University of Minnesota*. We are grateful to our industry partner, *Elsevier*, for their support as Bronze sponsors this year. Finally, we would like to acknowledge *Journal of Supply Chain Management* as sponsor for the Supply Chain Management track.

Special thanks also go out to all our exhibitors, advertisers, and sponsors of tracks, and other virtual events. A number of POMS board members stepped up to persuade their department heads and deans to support the conference as sponsors. Our deepest gratitude for their leadership and efforts.

We would be remiss not to recognize the efforts of the entire conference team that worked extremely hard to make POMS 2021 a rewarding experience for all attendees, albeit virtually!

Bala Shetty

V.P. of Education and Associate V.P. for Sponsorships
Mays Business School, Texas A&M University
College Station, TX 77843, USA

Rakesh Mallipeddi
Co-Associate V.P. for Sponsorships
Freeman School of Business, Tulane University
Tulane University, New Orleans, LA 70118, USA

UofSC — Darla Moore School of Business

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The OSC program entails courses in operations, sourcing, supply chain modeling, planning and control, logistics, innovation and design. We implement a matrix approach to operations research, statistical analytics and the process perspective into teaching design and improvement of internal operations and inter-organizational supply chains.

The BA concentration was primarily designed to further strengthen our OSC graduates' analytics skills but is a college-wide initiative upgrading analytics competencies of all business graduates. It includes cutting-edge courses in data analytics, modeling and data-mining.

PRACTICAL INDUSTRY INTERFACES

UofSC-OSC Center: The OSC Center has executed more than 260 Capstone consulting projects involving operations, supply chain, strategy and business process improvement analytics in more than 35 partner firms, resulting in savings approaching $260 million.

Sonoco-UofSC Lean Six-Sigma Green Belt (LSS GB): We are the only university program in the world to graduate more than 1,200 students with such an industry-validated certification requiring substantive Capstone project experience.

Center for Applied Business Analytics (CABA): CABA coordinates the technology and industry interfaces of the business analytics initiative, including a fully functional Data Lab, industry-sponsored competitions and select industry projects.
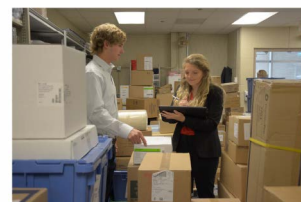
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Welcome Message from Associate Executive Director, Global Initiatives & Outreach

It is my distinct pleasure to welcome you all to the POMS 31st Annual Conference. Like you all, I too have been waiting for this conference to connect and engage with our friends and peers in the global POM community.

Our planning team has done a phenomenal job under the direction of our President, Chelliah Sriskandarajah and our Executive Director, Sushil Gupta. Our General Chair, Scott Webster and Program Co-Chairs, Burak Kazaz, Hongmin Li, and Rachna Shah, along with track-chairs have worked with tremendous energy and enthusiasm to ensure a great conference experience.

Special thanks to the members in the POMS global community who have helped us host POMS International Meetings. Thanks to the incredible enthusiasm of our members, as we get past the pandemic, opportunities for organizing POMS international conferences, workshops, or practice leaders forum are currently being explored with schools in Europe, Asia, Latin America, and Africa. This year we are recognizing the efforts of conference chairs and steering committee members associated with planning of POMS 2019 International Conference, Tianjin, China; POMS 2019 International Conference, Brighton, UK; POMS 2019 International Conference, Mumbai, India; and 11th POMS Hong Kong Chapter International Conference. We sure will miss the opportunity to meet them in person and recognize and celebrate their success at our traditional "International Meetings Organizers Reception". Nevertheless, we will do so this year via an online event.

POMS 31st Annual Conference would not be possible without the intensive efforts of the program committee, along with the track chairs and various college committees who have worked tirelessly to support all facets of this meeting. My sincere thanks to Jerry Burke for shouldering responsibility as VP Meetings, Bala Shetty & Rakesh Mallipeddi for sponsorships, Ken Klassen for his longstanding pivotal role as Scheduling Chair, and Tej Dhakar for being the meticulous Proceedings Editor. As always, a special hearty welcome to all the doctoral students who will join us from all across the world.

Have a great conference and enjoy the POMS experience!
You all stay safe and well.

Nagesh N. Murthy
Associate Executive Director POMS, Global Initiatives and Outreach
Roger Engemann Professor of Operations Management
Lundquist College of Business, University of Oregon

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Supply Chain & Operations Management

Suresh Chand	Amy David
Gökçe Esenduran	Qi Annabelle Feng
William Haskell	Ananth Iyer
Mengshi Lu	Susan Feng Lu
Zhan Pang	Olga Senicheva
J. George Shanthikumar	Pengyi Shi

Krannert's strength in operations & supply chain is underscored by our faculty expertise in optimization and stochastic modeling, empirical analysis, and data-integrated operational decision making, covering a wide range of operational areas in e-commerce, healthcare operations, inventory management, not-for-profit operations, supply network design, and sustainable and socially responsible supply chains. Our faculty actively involves in Production and Operations Management Society in various capacities and has been recognized by many awards from the Society.

Our faculty are also dedicated to the success of our students in both knowledge building and career development. Our Production and Operations Management undergraduate program is ranked # 4 by U.S. News and our Production and Operations Management master program is ranked # 7 by U.S. News. Moreover, Krannert School is proud that our student population is one of the most globally diverse of any U.S. management school.

PROGRAM COMMITTEE POMS 2021

Scott Webster
General Chair
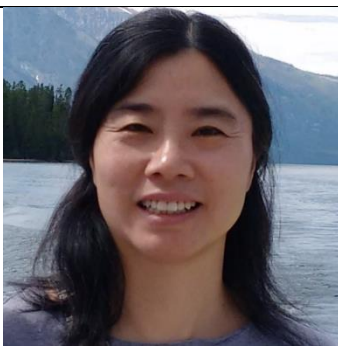
Hongmin Li
Program Co-Chair

Rachna Shah
Program Co-Chair

Burak Kazaz
Program Co-chair

Ken Klassen
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Hossein Rikhtehgar Berenji
Scheduling Co-chair

Gerard Burke
VP of Meetings

Xiuli He
VP of Colleges

Bala Shetty
Associate VP for Sponsorship & Education

Rakesh Mallipeddi
Co-AVP for Sponsorship & Education

Tej Dhakar
Proceedings Editor

Susan Goldstein
Doctoral Consortium Program Co-Chair

PROGRAM COMMITTEE POMS 2021

Karen Donohue **Doctoral Consortium Program Co-Chair**	**Nagesh Murthy** **Associate Executive Director - Global Initiatives**	**Gil Souza** **Emerging Scholars Co-Chair**
Burcu Keskin **Emerging Scholars Co-Chair**	**Subodha Kumar** **Virtual Meetings Expert**	**Bharat Kaku** **VP of Finance**
Seema Singhania **Program Coordinator**	**Ram Tewari** **Coordinator Conference Activities**	**Sushil Gupta** **Executive Director**
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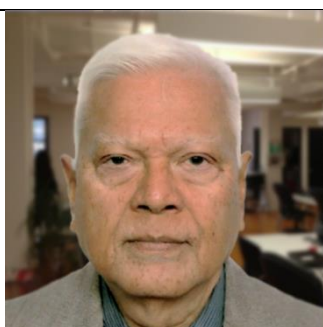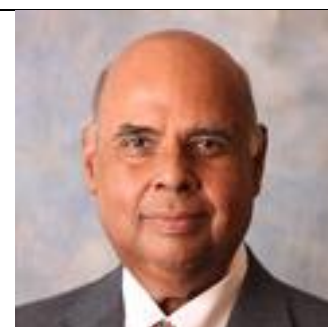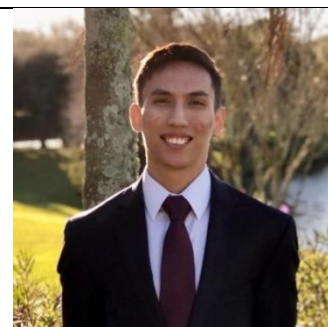
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POMS Doctoral Consortium 2021
(Participation is by application/invitation only)
Friday, April 30th – 9:00 AM to 1:00 PM EST

The goal of the POMS Doctoral Consortium is to provide a unique opportunity for current PhD students to learn about the academic job market process and what life is like as a faculty member from an esteemed group of junior and senior scholars. The consortium also provides an opportunity to network with fellow PhD students who share similar interests.

Time	Topic	Speakers/Panelists
8:45 – 9:00 AM	Pre-Consortium Networking (optional)	Feel free to sign in early to interact with fellow attendees
9:00 – 9:10 AM	Welcome and Overview	• Susan Goldstein, Consortium Co-Chair, University of Minnesota • Chelliah Sriskandarajah, POMS President, Texas A&M University
9:10 – 9:45 AM	The Job Market Experience – the "hired" perspective	• Samantha Keppler, University of Michigan • Necati Ertekin, University of Minnesota
9:45 – 10:20 AM	The Job Market Experience – the "hiring" perspective	• Kamalini Ramdas, London Business School • James Hill, Ohio State
10:20 – 10:35 AM	**Break and Networking**	
10:35 – 11:10 AM	Launching your Career: Research	• Felipe Caro, University of California-Los Angeles • Anita Tucker, Boston University
11:10 – 11:45 AM	Launching your Career: Teaching & Service	• Kaitlin Wowak, Notre Dame • Jordan Tong, University of Wisconsin
11:45 AM – 12:00 PM	**Break and Networking**	
12:00 – 12:45 PM	Lessons from Skinner Early Career Award Winners	• Maxime Cohen, McGill University • Santiago Gallino, University of Pennsylvania
12:45 – 1:00 PM	Wrap up and Reflections	• Karen Donohue, Consortium Co-Chair, University of Minnesota

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POMS 2021 CONFERENCE

Department of Supply Chain Management tenured and tenure track faculty:

Yemisi Bolumole	Anand Nair	Sri Talluri
Adrian Choo	Sriram Narayanan	Vedat Verter
Stanley Griffis	Simone Peinkofer	Shawnee Vickery
Beste Kucukyazici	Claudia Rosales	Judith Whipple
Steven Melnyk	Tobias Schoenherr	Han Zhang
Jason Miller	Alex Scott	

pictured is The Edward J. Minskoff Pavilion, the newest addition to the Business College Complex.

Honoring Hau Lee : From Bullwhip Effect to Triple-A Supply Chains
Saturday May 1 - 10:15 AM to 12:30 PM

Speakers: Morris Cohen, Marshall Fisher, Jan Fransoo, Eric Johnson, Panos Kouvelis, Chung-Yee Lee, David Simchi-Levi, Kamran Moinzadeh, Aleda Roth, Kalyan Singhal, Seungjin Whang

Abstract: This session is intended to honor Professor Hau Lee – a world leading scholar in Operations Management. In this session, different speakers will discuss the impact of Hau Lee's work on Bullwhip Effect and Triple-A Supply Chains.

Here is Prof. Hau Lee's Bio from his web-page at Stanford University (Hau L. Lee | Stanford Graduate School of Business)

Hau L. Lee is the Thoma Professor of Operations, Information and Technology at the Stanford Graduate School of Business. His areas of specialization include global value chain innovations, supply chain management, global logistics, inventory modeling, and environmental and social responsibility. He is also the faculty advisor for the Stanford Institute for Innovations in Developing Economies and is a co-director of the Stanford Value Chain Innovation Initiative.

Professor Lee has published widely in journals such as Management Science, Operations Research, Harvard Business Review, Sloan Management Review, Supply Chain Management Review, IIE Transactions, and Interfaces, etc. He has served on the editorial boards of many international journals, such as Operations Research, Manufacturing and Service Operations Management, IIE Transactions, Supply Chain Management Review, Sloan Management Review, and the Journal of Production and Operations Management. From 1997-2003, he was the Editor-in-Chief of Management Science.

Professor Lee was elected to the National Academy of Engineering in 2010. He received the Harold Lardner Prize for International Distinction in Operations Research, Canadian Operations Research Society, 2003. He was elected a Fellow of Manufacturing and Service Operations Management, INFORMS, 2001; Production and Operations Management Society, 2005; and INFORMS, 2005. In 2006, he was President of the Production and Operations Management Society. His article, "The Triple-A Supply Chain," was the Second Place Winner of the McKinsey Award for the Best Paper in 2004 in the Harvard Business Review. In 2004, his co-authored paper in 1997, "Information Distortion in a Supply Chain: The Bullwhip Effect," was voted as one of the 10 most influential papers in the history of Management Science. In 2014, his co-authored paper in 2013, "The Impact of Logistics Performance on Trade," received the Wickham Skinner Best Paper Award from the Production and Operations Management Society.

Professor Lee has consulted extensively in the public and private sectors. He is a co-founder of DemandTec, which went public in 2007. He is on the board and advisory board of several logistics services and supply chain software companies. He has also given executive training workshops on supply chain management and global logistics in Asia, Europe, and America.

Professor Lee obtained his B.Soc.Sc. degree in Economics and Statistics from the University of Hong Kong in 1974, his M.Sc. degree in Operational Research from the London School of Economics in 1975, and his MS and PhD degrees in Operations Research from the Wharton School of the University of Pennsylvania in 1983.

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OF MANAGEMENT

UNIVERSITY OF MINNESOTA

31st Annual Conference of POMS, 2021
Plenary Session
Session Chair: Burak Kazaz
Sunday May 2, 10:15am

Plenary Speaker: Chris Tang

Title: Innovative Technology and Operations for Alleviating Poverty through Women's Economic Empowerment

Abstract: Can technology and operations enable the world to achieve various United Nation Sustainable Development Goals? I provide my own perspective on this question by focusing on the issue of gender equality through the lens of "women's economic empowerment" and share some ideas for Operations Management researchers to consider.

Christopher Tang is a Distinguished Professor and the holder of the Edward W. Carter Chair in Business Administration at the UCLA Anderson School of Management. He has published 6 books, 30 book chapters, over 100 online blogs, and over 160 research articles in various leading academic journals such as Production and Operations Management. Also, he has published 30 newspaper articles in Wall Street Journal, Financial Times (UK), Barron's, China Daily, Forbes, Fortune, San Francisco Chronicle, Business Times (Singapore), and The Guardian (UK).

Recognized as a well-rounded scholar in global supply chain management, Dr. Tang has received numerous awards for his research, teaching, and service. He was elected as President of Production and Operations Management Society (POMS), and as a lifetime fellow by: (1) the Institute of Operations and Management Sciences (INFORMS), (2) the Production and Operations Management Society (POMS), and (3) the Manufacturing and Service Operations Management Society (MSOM).

Plenary Speaker: Pinar Keskinocak

Title: Infectious Disease Modeling & Informing Decisions

Abstract: Despite significant progress in science and medicine contributing to understanding, prevention, and treatment of infectious diseases, they still pose a significant threat to our health and wellbeing. The decisions about how to allocate a limited set of resources across a variety of public health interventions, particularly to prevent or respond to outbreaks or epidemics, are complex, requiring the consideration of many factors such as geographic or demographic characteristics, infrastructure, population dynamics, compliance/adherence with recommendations, etc. In this presentation we will provide examples on how quantitative methods can be used in projecting the spread of infectious diseases and supporting decisions on public health interventions.

Pinar Keskinocak is the William W. George Chair and Professor in the H. Milton Stewart School of Industrial and Systems Engineering at Georgia Tech. She is also co-founder and director of the *Center for Health and Humanitarian Systems*. Previously, she served as the College of Engineering ADVANCE Professor and as interim associate dean for faculty development and scholarship. Prior to joining Georgia Tech, she worked at IBM T.J. Watson Research Center. She received her Ph.D. in Operations

Research from Carnegie Mellon University, and her M.S. and B.S. in Industrial Engineering from Bilkent University.

Dr. Keskinocak's research focuses on the applications of operations research and management science with societal impact, particularly health and humanitarian applications, supply chain management, and logistics/transportation. Her recent work has addressed infectious disease modeling (including Covid-19, malaria, Guinea worm, pandemic flu), evaluating intervention strategies, and resource allocation; catch-up scheduling for vaccinations; hospital operations management; disaster preparedness and response (e.g., prepositioning inventory); debris management; centralized and decentralized price and lead time decisions. She has worked on projects with companies, governmental and non-governmental organizations, and healthcare providers, including American Red Cross, CARE, Carter Center, CDC, Children's Healthcare of Atlanta, Emory University, and Intel Corporation.

She is an INFORMS Fellow and currently serves on the board as the past-president of INFORMS. Previously she served as the Secretary of INFORMS, a department editor for Operations Research (Policy Modeling and Public Sector area), associate editor for Manufacturing & Service Operations Management, and INFORMS Vice President of Membership and Professional Recognition. She is the co-founder and past-president of INFORMS Section on Public Programs, Service, and Needs, and the president of the INFORMS Health Applications Society. She has served on the editorial boards of several journals, including IIE Transactions, Manufacturing & Service Operations Management, Operations Research, Production and Operations Management, and Service Science.

POMS 2021: EMERGING SCHOLARS PROGRAM

(Participation in This Session is by Invitation / Application Only)

Monday, May 3, 2021, 9:00-11:15 am

The Program: Production and Operations Management Society is committed to supporting early-career scholars in Operations Management (OM), and has thus commissioned this special session of the conference. The program's goal is to create a platform for early-career OM scholars to meet senior OM scholars and seek career-building advice. The program consists of moderated discussions on academic career building in OM.

Facilitators:

- Burcu Keskin, Professor & Reese Phifer Fellow in Operations/Manufacturing, Culverhouse College of Business, The University of Alabama
- Gil Souza, Professor & Ming Mei Chair in Business, Kelley School of Business, Indiana University

Senior Scholars:

- Mihai Banciu, Associate Dean & Associate Professor, Freeman College of Management, Bucknell University

- Neil Geismar, Center for Executive Development Professor, Mays Business School, Texas A&M University

- Eda Kemahlioglu-Ziya, Associate Professor, Poole College of Management, N.C. State University

- Eve Rosenzweig, Goizueta Foundation Term Professor, Goizueta Business School, Emory University

Timetable:

9:00-9:40   Recorded perspectives from panel members on research

9:40-10:00   Live Q&A with panel members on research (via Zoom)

10:00-10:15   Break

10:15-10:55   Recorded perspectives from panel members on teaching

10:55-11:15   Live Q&A with panel members on teaching (via Zoom)

POMS 2021 CONFERENCE TRACKS

All Major Events (EVNT)

Chairs: Hossein Rikhtehgar Berenji

Plenary Sessions, Award Ceremonies, Banquets, Social Times

All Meetings & Programs A: Open to Everyone (MEET)

Chairs: Ken Klassen, Scott Webster

POMS Meetings & Events

All Meetings & Programs B: By Invitation (MT-INV)

Chairs: Ken Klassen

by invitation events

All POMS Invited Tutorials (PTUT)

Chairs: George Shanthikumar

Tutorials

Behavior in Operations Management (BOM)

Chairs: Jordan Tong, Xiaoyang Long

The focus of this track is the analysis of human behavior with relevance to operations management. Examples include behavioral drivers of operational performance, decision making, social preferences and team dynamics & collaboration. Research submitted to this track should have a clear operations context. All research methodologies are welcome.

Covid-19 and Other Pandemics (PAND)

Chairs: Sushil Gupta, Reza Zanjirani Farahani

We invite abstracts on Covid-19 and other past pandemics. The topics include but are not limited to warning signals, disease spread, capacity planning, resource management, vaccine development, supply chain issues, and public policy issues.

Economic Models in Operations Management (ECOM)

Chairs: Sammi Tang

We invite submissions that explore economic models in operations management. Submission topics include (but are not limited to) industrial organization theories investigating strategic interactions between firms and policy makers; game theory applications involving cooperative or non-cooperative behavior; contract design problems under asymmetric information; procurement auctions; pricing; and consumer behavior, etc.

Elections Management (EM)

Chairs: Subodha Kumar, Sushil Gupta, Rakesh Mallipeddi

We invite submissions that explore election management from POM perspective. Topics may include (but not limited to): voter fraud detection, OR and game theory models for political strategy, resource allocation and scheduling, wait time reduction, impact of social media on elections, social media strategy of politicians and political parties, and country or regional-themed research. We are open to modeling, simulation, empirical, analytical, conceptual papers, case studies, and panel discussions as well.

Emerging Topics in Operations Management (ETOM)

Chairs: Rui Yin, Yimin Wang

We invite submissions that apply operations management principles to emergent themes. The submissions should highlight how OM principles and techniques have enhanced practice in new areas and industries, e.g., sports, entertainment, robotics, transport services, sharing economy, new technology driven hospitality services, and family owned businesses. Topics that are of particular interest include sustainable innovation and responsible analytics as a force for good. We welcome papers based on all types of methodologies, including theoretical, empirical, and field-based research, as well as interdisciplinary and applied approaches.

Empirical Research in Operations Management (EROM)

Chairs: Muge Yayla-Kullu, Adrian Choo

Submissions in this track should focus on operations management research using empirical methodology. We welcome all submissions that are theory-building, theory-driven, and/or rigorous testing of data from various sources such as field experiments, case studies, controlled experiments, archival records, surveys and simulations. Any industry (e.g., manufacturing, automotive, retail, wholesale, financial, health care, hospitality, logistics, etc.) can be the focus of the research presented in this track. We invite presenters to include strategic insights that are helpful to make operational decisions.

Finance and Operations Management (FOM)

Chairs: Fehmi Tanrisever, Jing Wu

This track focuses on topics on the interface of operations and finance. These topics may include but are not limited to supply chain finance, trade credit, inventory finance, foreign exchange risk, supplier default management, commodity operations management, price risk, effect of operational performance

on financial performance, risk aversion, operational flexibility and operational hedging, financial hedging, asset-based financing, etc. We invite presentations of research papers and case studies, tutorials, as well as panel discussions.

Global Supply Chain Management (GSCM)

Chairs: Kathryn Stecke, Amit Eynan

In a world that is diverse in management practice, culture, communication, ethics, and beyond, global supply chains present practitioners and researches with new challenges as well as new opportunities. Effective management of global supply chains requires extensive knowledge and skillful collaboration. We invite papers that advance knowledge of managing supply chains focusing on issues that present themselves in global settings. We are open to a variety of research methodologies (such as analytical modeling, empirical analysis, and extensive field-base case studies) and a range of manufacturing and service industries.

Healthcare Analytics (HCA)

Chairs: Fernanda Bravo, Song-Hee Kim

We seek submissions that study healthcare problems motivated by data within various clinical and operations settings. This includes resource allocation, incentives and payment models, diagnosis, treatment optimization, outcome prediction, and population health. Data may include electronic health records, diagnostic tests, labs, imaging exams, treatments, outcomes, genomics and proteomics data, claims and financial records, clinical guidelines and best practices. Analytical advances and actual implementations are both welcome.

Healthcare Operations Management (HOM)

Healthcare Operations Management 2 (HOM2)

Chairs: Robert Batt, Urban Wemmerlöv

For the Healthcare Operations Management track, we seek submissions that contribute to the advancement of healthcare delivery system design, operation, and improvement with the purpose of enhancing clinical and patient-relevant outcomes, increase patient satisfaction, and lower cost.

Humanitarian Operations and Crisis Management (HOCM)

Humanitarian Operations and Crisis Management 2 (HOCM2)

Chairs: Christopher Zobel, Trilce Encarnacion

We invite quality submissions within the scope of humanitarian operations and crisis management. Topics may include (but NOT limited to): disaster management (preparedness, response, relief, recovery and mitigation); emergency and crisis management; vulnerability mapping; coordination and collaboration among humanitarian actors; information issues and challenges; sustainable humanitarian operations; partnerships in humanitarian and crisis management; operational issues; practice-academia relationship gaps in humanitarian logistics; procurement and pre-positioning; buyer-supplier

relationships; data sources in humanitarian and crisis management operations; rebuilding and restoration activities and impact on beneficiaries; current disaster management challenges; climate change issues; methodological challenges and tools; country or regional-themed research; as well as humanitarian and crisis management policy issues. We are open to analytical, simulation, empirical and qualitative research methods.

Information Systems and Operations Management (ISOM)

Information Systems and Operations Management 2 (ISOM2)

Chairs: Subodha Kumar, Samayita Guha, Shubham Gupta

Submissions to this track should focus on the various ways in which information flows impact operational functions in a firm or across firms. Information Systems can be used to coordinate activities within the firm as well as across firms in the supply chain. This track is appropriate for research at the intersection of Information Systems and Operations Management including a broader spectrum of topics.

Inventory Management (INVM)

Chairs: Woonghee Huh, Marco Bijvank

The Inventory Management Track invites submissions of research on inventory and capacity related topics in manufacturing, service, and retail operations. The topics may also include research at the interface of inventory and marketing, finance, and other disciplines. In addition to mathematical models and empirical studies, best practices and case studies are also welcome.

Manufacturing Operations (MANU)

Chairs: Qazi Kabir, Kevin Watson

Manufacturing Operations track deals with topics closely related to manufacturing. Such topics include capacity planning, scheduling, lean operations, manufacturing and operational flexibility, agile manufacturing, facility location and network design, facility layout, service-oriented manufacturing, automation in manufacturing systems, socially responsible and sustainable operations, quality management, and enterprise resource planning.

Marketing and Operations Management (MOM)

Chairs: Dennis Yu, Tony Haitao Cui

We invite submissions that investigate managerial issues at the interface of operations management and marketing. Whereas operations management typically deals with supplying goods and services efficiently, marketing mostly focus on how to generate and sustain demand for goods and services. Research at this interface should consider both the demand and supply sides by appropriately incorporating consumer preferences to demand models, which in turn, influence the operational decisions on the supply side. Consistent with the POM journal's mission, we welcome submissions that

utilize a variety of methodologies, including but not limited to a quantitative/qualitative modeling, empirical data analysis, and simulation.

Operational Excellence (OEX)

Chairs: Torbjørn Netland, Gopesh Anand, Aravind Chandrasekaran

Achieving and sustaining operational excellence continues to be a topic of great interest to practice and academia. Submissions under this track should report on research related to tactics and strategies for operational excellence – spanning from implementation of new technologies and new work processes for improving operations to cultivating learning organizations for sustaining improvement initiatives.

POM in Food and Agriculture (PFA)

Chairs: Saurabh Bansal, Shivam Gupta

This track features research on food and agriculture systems broadly defined. We seek presentations that use analytical and empirical methods to (i) provide a better understanding of the business environment and challenges in this domain, (ii) prescribe solutions to problems faced by industry, and (iii) project the environment and challenges of tomorrow.

POM in Practice (PPR)

Chairs: Joline Uichanco

This track organizes sessions that examine research problems arising from different types of operational issues in practice across a variety of industries.

Procurement and Supplier Management (PSM)

Chairs: Veronica Villena

Procurement and supply management is crucial for the effective and efficient operation of manufacturing and service firms. This track is designed to facilitate presentations that advance knowledge and theory of practices evolving in the field of procurement and supply management. Topics of interest in this track include, but are not limited to outsourcing, global sourcing, risk and disruption in the upstream supply chain, service procurement, buyer-supplier relationships, supplier innovation, supplier development, contracting, and technological advances for purchasing (e.g., blockchain and AI). Topics related to sustainable procurement, green supply management, impact sourcing, and sustainable supply chains are especially welcome. Please note that this track welcomes papers based on all types of methodologies.

Product Innovation and Technology Management (PITM)

Chairs: Svenja Sommer, Sezer Ulku

This track focuses on organizational value creation and value capture through new products or services, new business models, new processes, learning, and technological developments. We invite submissions

exploring these issues with all types of methodologies (i.e., analytical, empirical, experimental, simulation-based, etc.). Topics of interest include, but are not limited to, product development, innovation process, service design, learning curves, organizational learning, technology strategy, identification and commercialization of new technologies, and the management of the R&D process. While the track emphasizes innovation, learning, and technology management with an operations focus, given the multidisciplinary orientation of these domains, we also welcome submissions with close ties to other areas of management.

Public Sector Operations Management (PSOM)

Chairs: Anant Mishra, Karthik V. Natarajan

Public sector operations management track seeks submissions that focus on theoretical, empirical, and applied operations and supply chain research directed at solving problems related to public sector organizations, including those in collaboration with private and non-profit organizations. Examples include but are not limited to research on government operations, humanitarian logistics, transportation, health care, defense, academic institutions, criminal justice, and energy supply chains.

Retail Operations (RO)

Chairs: Dorothee Honhon, Olga Perdikaki

Papers presented in the retail operations track focus on research about the last stage of the supply chain, that is, between the retailer and the end consumer. Some of the topics discussed this year include omni-channel retailing, e-commerce, waste, product returns and assortment planning. Some of the methodologies used include analytical models, empirical analysis and behavioral research.

Revenue Management and Pricing (RMP)

Chairs: Sumit Kunnumkal, Guang Li, Chenxu Ke

Revenue Management and Pricing is broadly concerned with how to control price and availability to better match limited supply for a perishable product with its demand. We invite submissions that look at new applications of revenue management and pricing in traditional (airlines, hospitality etc.) as well as emerging domains (web advertising, sharing economy etc.). This could include, for example, behavioral aspects and social welfare implications of revenue management and pricing. We welcome all methodologies including analytical, empirical and experimental work.

Scheduling and Logistics (SCHL)

Chairs: Yunxia Zhu

Scheduling and logistics are important fields in operations management. This track is open to any topics related to scheduling and logistics. Major topics include, but are not limited to production scheduling, manpower scheduling, appointment scheduling, supply chain scheduling, distribution systems, warehousing, cargo handling, vehicle routing, and aviation, maritime, and railway operations.

Service Operations (SOP)

Chairs: Jie Zhang

We invite submissions from scholars and practitioners interested in all aspects of research, teaching, and practice in Service Operations Management. Subjects may include, but are not limited to: service strategy, service design and innovation, service supply networks, service technology, service quality, lean services, sustainable services, social impact services, product-service systems, service analytics, service measurement and performance, behavioral service operations, customer participation, sharing economy, global service operations, knowledge-based services, non-profit services operations, public services operations, interdisciplinary service studies, service practice, and teaching service operations. We welcome all research methodologies, presentations from practitioners, and papers on teaching service operations. Workshops, tutorials, and panel sessions are also encouraged.

Social Media and Internet of Things (SMA)

Chairs: Jason Chan, Vibhanshu abhishek

Social media and Internet of Things (IoT) are two major driving forces for the increasingly digitized business environment. Social media enables businesses to be more deeply connected with customers and allowing them to have greater access and involvement with the company's operations via online tracking and feedback. IoT digitizes the business processes by embedding internet-enabled sensors in various devices such as industrial machines, fitness trackers, household appliances, and transmitting these micro-level data to cloud services that are accessible by businesses in real time. Both social media and IoT generate vast volumes of digital data which can be used to enhance various aspects of business operations. The focus of this track is to solicit research on social media and IoT, which demonstrate how these can transform business through the use of micro-level data in streamlining business processes and shaping consumer behavior.

Socially Responsible Operations (SRO)

Chairs: Tim Kraft, Leon Valdes

The Socially Responsible Operations Track welcomes papers that address the social impacts of operations and supply chains, e.g., responsible sourcing, supply chain transparency, health and welfare impacts, the application of operations and supply chain management principles in developing economies, to name a few examples. Submissions that focus only on environmental impacts would be more suited for the Sustainable Operations track.

We welcome research based on a variety of methodologies such as mathematical models, lab or field experiments, empirical research based on primary or secondary data, and practice-focused research.

Sports Operations Management (SPM)

Chairs: Iain Reid, David Bamford

This track focuses on the topics of sports operations management. Examples include on-field performance, off-field performance, facility utilization, events management, player analytics, crowd science, fan experience, service quality, policy, sports betting, team dynamics & collaboration, e-sports,

and marketing/sponsorship. Research submitted to this track should have a clear sports operations context. We invite presentations of research papers and case studies, tutorials, as well as panel discussions.

Supply Chain Management (SCM)

Chairs: Xun Xu, Kaitlin Wowak

We invite submissions that examine various aspects of supply chain management, including, but not limited to managerial issues, sourcing strategies, manufacturing practices, information channels, financial exchanges, and intra- or inter-firm integration. We welcome all types of research including theoretical, analytical, empirical, behavioral experiments, and field-based as well as interdisciplinary approaches.

Supply Chain Risk Management (SCR)

Chairs: Florian Lucker, Oben Ceryan

We invite submissions on the general theme of risk management in supply chains, including, but not limited to, disruption, quality, reputation, and yield risks, and strategies/tactics to manage these risks. In particular, we encourage submissions with interdisciplinary content, for example finance and risk management interface in supply chains. We welcome research papers based on all types of methodologies, e.g., analytical, behavioral, empirical, and field-based, as well as interdisciplinary approaches

Supply Networks (SNX)

Chairs: Marcus Bellamy

Firms are increasingly relying on their supply network for succeeding in the marketplace. Today's supply networks are global and comprise a diverse set of vertical and horizontal interactions between suppliers, manufacturers, distributors, retailers, and customers, which have transformed the traditional linear supply chain into a complex network of interactions. The supply network lens extends the scope of inquiry by accounting for relationships among a firm's partners and its distant and indirect partners (i.e., partners of the direct partners and beyond). In a network, one considers not just how a node affects another node (e.g., in buyer-supplier relationships) but also how a node affects a link once removed (e.g., a supplier-supplier relationship from a buyer's perspective) and how a link affects another link (e.g., how a buyer-supplier relationship affects supplier-supplier relationships). Leverage in networks can arise based on a firm's structural position (e.g., firms occupying structural holes or connected to unique knowledge sources in a network). How a node is embedded in its extended ties (i.e., the health of other buying firms when selecting a supplier or characteristics of extended suppliers working for a supplier) is also important. This track will welcome any studies that consider supply chains as networks either empirically or conceptually.

Sustainable Operations (SOPS)

Chairs: Brian Jacobs

The Sustainable Operations track invites submissions focused on the interface between operations/supply chain decisions and the natural environment. The track also invites submissions that pertain to the triple bottom line (i.e., submissions that address economic, environmental, and societal impacts). Submissions that focus only on societal impacts would be more suited for the Socially Responsible Operations track.

Topical areas include but are not limited to environmental considerations in managing operations and supply chains; the circular economy (refurbishment, reuse, remanufacturing, recycling); closed loop supply chains; energy and water supply chains; climate change; life-cycle assessment and its implications for product, process, and supply chain design; environmental legislation; environmental justice; and, economic and market value of sustainable operations.

Teaching/Pedagogy in POM (TPOM)

Chairs: Matthew Drake

We invite submissions related to all facets of teaching Production & Operations Management (POM) topics to students at any level (undergraduate, graduate, and/or doctoral). Of particular interest are presentations that discuss methods and strategies for teaching online or in a flipped/hybrid classroom environment. Other possible topics include incorporating POM technology such as ERP systems or decision support systems into the classroom, experiential classroom activities to teach POM concepts, managing student projects with external clients, and strategies for teaching emerging topics such as blockchain or omni-channel retailing.

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Editorial

From the Editors: Introduction to Managing Supply Chains Beyond Covid-19 - Preparing for the Next Global Mega-Disruption

Barbara Flynn, David Cantor, Mark Pagell, Kevin J. Dooley, Arash Azadegan

Invited Essays

Supply Chain Management for Extreme Conditions: Research Opportunities

ManMohan S. Sodhi, Christopher S. Tang

A Typology of Supply Network Resilience Strategies: Complex Collaborations in a Complex World

Arash Azadegan, Kevin Dooley

Discontinuous Wefts: Weaving a More Interconnected Supply Chain Management Tapestry

Christine Harland

Lessons learned from humanitarian logistics to manage supply chain disruptions

Gyöngyi Kovács , Ioanna Falagara Sigala

Toward A Theory Of Supply Chain Entrepreneurial Embeddedness In Disrupted And Normal States

David J. Ketchen Jr, Christopher W. Craighead

Original Article

Dancing the Supply Chain: Toward Transformative Supply Chain Management

Andreas Wieland

YouTube Channel: Journal of Supply Chain Management - YouTube

INSTRUCTIONS

to find the DATE AND TIME

of the session you have a

PRESENTATION

or are the

SESSION CHAIR

1. Go to the Author Index and the Session Chair Index (please check both to ensure none are missed).

2. Find your name.

3. Number(s) in parentheses show the session number(s).

4. Sessions are listed in the Presentation Schedule in ascending order by the session numbers.

5. Presentation Schedule provides the day and time of presentation.

OR

Please click on the following link for online schedule:

Conference Schedule

Friday, 09:00 AM - 10:00 AM

4

Friday, 09:00 AM - 10:00 AM, 4- Meetings & Programs - By Invitation

Track: All Meetings & Programs B: By Invitation

Invited Session: Doctoral Consortium 1

Chair(s): Susan Goldstein   Karen Donohue

101-2918   Doctoral Consortium 1

Karen Donohue, Professor, University of Minnesota, United States

Susan Goldstein, Associate Professor, University of Minnesota, United States

This session is by invitation only, for those doctoral students who have been registered. The purpose of the POMS Doctoral Consortium is to help doctoral students maximize their chances of having a successful academic career in our globally competitive environment.

Friday, 10:15 AM - 11:15 AM

45

Friday, 10:15 AM - 11:15 AM, 4- Meetings & Programs - By Invitation

Track: All Meetings & Programs B: By Invitation

Invited Session: Doctoral Consortium 2

Chair(s): Susan Goldstein   Karen Donohue

101-2117   Doctoral Consortium 2

Karen Donohue, Professor, University of Minnesota, United States

Susan Goldstein, Associate Professor, University of Minnesota, United States

This session is by invitation only, for those doctoral students who have registered. The purpose of the POMS Doctoral Consortium is to help doctoral students maximize their chances of having a successful academic career in our globally competitive environment.

Friday, 11:30 AM - 12:30 PM

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Friday, 11:30 AM - 12:30 PM, 4- Meetings & Programs - By Invitation

Track: All Meetings & Programs B: By Invitation

Invited Session: Doctoral Consortium 3

Chair(s): Susan Goldstein   Karen Donohue

101-2118   Doctoral Consortium 3

Susan Goldstein, Associate Professor, University of Minnesota, United States

Karen Donohue, Professor, University of Minnesota, United States

By invitation only, for those doctoral students who have registered. The purpose of the POMS Doctoral Consortium is to help doctoral students maximize their chances of having a successful academic career in our globally competitive environment.

Friday, 12:45 PM - 01:45 PM

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Friday, 12:45 PM - 01:45 PM, 4- Meetings & Programs - By Invitation

Track: All Meetings & Programs B: By Invitation

Invited Session: Doctoral Consortium 4

Chair(s): Susan Goldstein   Karen Donohue

101-2850   Doctoral Consortium 4

Susan Goldstein, Associate Professor, University of Minnesota, United States

Karen Donohue, Professor, University of Minnesota, United States

This session is by invitation only for those doctoral students who have registered. The purpose of the POMS Doctoral Consortium is to help doctoral students maximize their chances of having a successful academic career in our globally competitive environment.

Saturday, 09:00 AM - 10:00 AM

191

Saturday, 09:00 AM - 10:00 AM, Product Innovation & Technology Mgmt

Track: Product Innovation and Technology Management

Invited Session: Panel: Frontiers of Technology Management, Innovation and Entrepreneurship

Chair(s): Sinan Erzurumlu

101-2085   Panel: Frontiers of Technology Management, Innovation and Entrepreneurship

Sinan Erzurumlu, Professor, Babson College, United States

Sebastian Fixson, Professor, Babson College, United States

Cheryl Gaimon, Professor, Georgia Institute of Technology, United States

Moren Levesque, Professor, York University, Canada

This panel aims to bring fresh perspectives and facilitate discussions on emerging topics in technology, operations, innovation management and entrepreneurship. The esteemed panelists explore the effect of bigdata/AI on entrepreneurship research, the multidisciplinary domain of knowledge outsourcing, challenges of business education, and the expansion of the domain of innovative operations.

196

Saturday, 09:00 AM - 10:00 AM, Service Operations   Track: Service Operations

Invited Session: Panel: Teaching Service Operations in a World of Service Mediocrity

Chair(s): Barry Cross

101-2058   Panel: Teaching Service Operations: Hunting for Meaning and Purpose in a World of Service Mediocrity

Barry Cross, Assistant Professor, Queens University, Canada

Susan Goldstein, Associate Professor, University of Minnesota, United States

Richard Metters, Professor, Texas A&M University College Station, United States

Enrico Secchi, Assistant Professor, University College Dublin, Ireland

This moderated panel will discuss the general decline of service performance and society's acceptance for mediocre service, and, what we as academics can do in the classroom that enables an expectation for better service among students while providing the tools and perspective to focus on greater value creation.

201

Saturday, 09:00 AM - 10:00 AM, Supply Chain Risk Management

Track: Supply Chain Risk Management

Invited Session: Tutorial in Supply Chain Risk Management

Chair(s): Florian Lucker   Oben Ceryan

101-2099   TUTORIAL in Supply chain risk management

Manmohan Sodhi, Professor, City University - London, United Kingdom

Supply chain risk management remains an area of great practical and research importance. This tutorial covers supply chain risk and its management in three parts: (1) understanding gaps in the literature, (2) applying different research methods, and (3) acknowledging emerging areas of risk such as climate change.

Saturday, 10:15 AM - 11:15 AM

206

Saturday, 10:15 AM - 11:15 AM, 1- Major Events   Track: All Major Events

Invited Session: Honoring Hau Lee Part 1

Chair(s): Christopher Tang

101-2875   Honoring Hau Lee Part 1

Christopher Tang, Professor, University of California Los Angeles, United States

This session will honor Professor Hau Lee - a world leading scholar in Operations Management. In this session, different speakers will discuss the impact of Hau Lee's work on Bullwhip Effect and Triple-A Supply Chains.Speakers: Kal Singhal, Marshall Fisher, Jin Whang, Kamran Moinzadeh, Panos Kouvelis, Chung-Yee Lee.

Saturday, 11:30 AM - 12:30 PM

247

Saturday, 11:30 AM - 12:30 PM, 1- Major Events	Track: All Major Events
Invited Session: Honoring Hau Lee Part 2	
Chair(s): Christopher Tang	

101-2876   Honoring Hau Lee Part 2

Christopher Tang, Professor, University of California Los Angeles, United States

This session will honor Professor Hau Lee - a world leading scholar in Operations Management. In this session, different speakers will discuss the impact of Hau Lee's work on Bullwhip Effect and Triple-A Supply Chains.Speakers: Chris Tang, Morris Cohen, David Simchi-Levi, Jan Fransoo, Aleda Roth, Eric Johnson.

Saturday, 02:00 PM - 03:00 PM

331

Saturday, 02:00 PM - 03:00 PM, 3- POMS Tutorials	Track: All POMS Invited Tutorials
Invited Session: From the Classics to New Tunes: A Neoclassical View on Sharing Economy and Innovative Marketplaces	
Chair(s): George Shanthikumar	

101-2112   From the Classics to New Tunes: A Neoclassical View on Sharing Economy and Innovative Marketplaces

Ming Hu, Professor, University of Toronto, Canada

We take a neoclassical perspective by drawing inspiration from the classic models in operations management and economics. We aim at building connections and identifying differences between those traditional models and the new applications in sharing economy and innovative marketplaces.

Saturday, 03:15 PM - 04:15 PM

371

Saturday, 03:15 PM - 04:15 PM, 2- Meetings & Programs - All are Welcome	Track: All Meetings & Programs A: Open to Everyone
Invited Session: Panel: Academic Leadership - Challenges and Opportunities	
Chair(s): Bala Shetty	

101-2849   Academic Leadership - Challenges and Opportunities

Eve Rosenzweig, Professor, Emory University, United States

Manoj Malhotra, Professor, Case Western Reserve University, United States

Richard Metters, Professor, Texas A&M University College Station, United States

Eric Johnson, , ,

POMS Academic Leadership Group (ALG) is pleased to announce a session on developing leadership skills and learning about leadership in academia. A panel of distinguished deans and department heads will share their journey that led to their current roles and also share some best practices for academic leadership.

Saturday, 05:45 PM - 06:45 PM

453

Saturday, 05:45 PM - 06:45 PM, 2- Meetings & Programs - All are Welcome	Track: All Meetings & Programs A: Open to Everyone
Contributed Session: Stress Management: Role of Physical and Mind Exercises	
Chair(s): Ram Tewari	

101-2920   Stress Management: Role of Physical and Mind Exercises - Speaker: Dr. Hall Murthy

Ram Tewari, Retired, University of Miami, United States

Stress Management: Role of Physical and Mind Exercises -- By Dr. Hall Murthy

Sunday, 09:00 AM - 10:00 AM

494

Sunday, 09:00 AM - 10:00 AM, 2- Meetings & Programs - All are Welcome

Track: All Meetings & Programs A: Open to Everyone

Contributed Session: Sponsored Session: Teaching your OM course using a mobile simulation game to boost student engagement.

Chair(s): Javier Chan

101-2919   Teaching your Operations Management course using a mobile simulation game to boost student engagement.

Javier Chan, CEO, Processim Labs, Switzerland

We'll do a deep dive into our mobile simulation, Medica Scientific, and how to incorporate it into your course. This advanced Operations Management simulation puts students in charge of a virtual company. Players will manage operational elements of the company including inventory control, labor management, capacity planning, budget strategy, and more.

533

Sunday, 09:00 AM - 10:00 AM, Teaching/Pedagogy in POM

Track: Teaching/Pedagogy in POM

Invited Session: Workshop: Using Deliberate Practice in Teaching Operations and Supply Chain Management

Chair(s): Francois Giraud-Carrier

101-2139   SPARRING: A Deliberate Practice Pedagogy for Business Education

Francois Giraud-Carrier, Assistant Professor, Weber State University, United States

Stanley Fawcett, Professor, Weber State University, United States

Amydee Fawcett, Associate Professor, Weber State University, United States

'Deliberate practice' is a proven training technique for developing high levels of expertise. In this paper, we present and discuss the SPARRING instructional design model, which applies deliberate practice principles to business education in order to build students' career-readiness skills.

Sunday, 10:15 AM - 11:15 AM

534

Sunday, 10:15 AM - 11:15 AM, 1- Major Events

Track: All Major Events

Invited Session: Plenary Session: Pinar Keskinocak & Chris Tang

Chair(s): Burak Kazaz

101-2877   Plenary Session: Pinar Keskinocak & Chris Tang

Christopher Tang, Professor, University of California Los Angeles, United States

Pinar Keskinocak, Professor, Georgia Institute of Technology, United States

Chris Tang is a Distinguished Professor and the Edward W. Carter Chair at UCLA Anderson School of Management. He will be speaking on Innovative Technology and Operations for Alleviating Poverty through Women's Economic Empowerment. Pinar Keskinocak is the William W. George Chair and Professor at Georgia Tech. She will be speaking on Infectious Disease Modeling & Informing Decisions.

Sunday, 11:30 AM - 12:30 PM

577

Sunday, 11:30 AM - 12:30 PM, 3- POMS Tutorials

Track: All POMS Invited Tutorials

Invited Session: Data-Driven Multi-Period Inventory Management

Chair(s): George Shanthikumar

101-2113   Data-Driven Multi-Period Inventory Management

Max Shen, Professor, University of California Berkeley, United States

We discuss data-driven multi-period inventory replenishment problems with uncertain demand and vendor lead time (VLT), where large quantities of historical data are available. Different from the traditional two-step predict-then-optimize (PTO) solution framework, we propose a one-step end-to-end (E2E) framework that uses deep-learning models to output order timing and order quantity decisions directly from input features without any intermediate steps.

595

Sunday, 11:30 AM - 12:30 PM, Manufacturing Operations   Track: Manufacturing Operations

Invited Session: Panel: Flow of Innovation in the Supply Chain

Chair(s): Hugo DeCampos

101-2092   Flow of Innovation in the Supply Chain

Hugo DeCampos, Assistant Professor, Wayne State University, United States

Tingting Yan, Associate Professor, Wayne State University, United States

Morgan Swink, Professor, Texas Christian University, United States

Ravi Srinivasan, Associate Professor, Loyola University Maryland, United States

Stephan Wagner, Professor, Swiss Federal Institute of Technology Zurich, Switzerland

This panel will discuss emerging trends and findings in managing the flow of innovation in the supply chain.

597

Sunday, 11:30 AM - 12:30 PM, Operational Excellence   Track: Operational Excellence

Invited Session: Panel: The expanding role of US faculty in global higher education

Chair(s): Rachna Shah

101-2089   The expanding role of US faculty in global higher education

Rachna Shah, Associate Professor, University of Minnesota, United States

Rohit Verma, Professor, VinUniversity, Vietnam

Saif Benjaafar, Professor, University of Minnesota, United States

Christopher Tang, Professor, University of California Los Angeles, United States

Sarang Deo, Associate Professor, Indian School of Business, India

Demand for US-trained faculty and administrators has grown significantly because of the popularity of US-style higher education models. Recently, several faculty have undertaken administrative roles to transform foreign academic institutions. The panelists will share their motivation, unique challenges, and best practices with others who are interested in pursuing this path.

613

Sunday, 11:30 AM - 12:30 PM, Sustainable Operations 1   Track: Sustainable Operations

Invited Session: Panel: Innovative Teaching in Sustainability

Chair(s): Robert Klassen

101-2069   Innovative Teaching in Sustainability: New Ideas to Engage Your Students

Robert Klassen, Professor, Ivey Business School, Western University, Canada

Vishal Agrawal, Associate Professor, Georgetown University, United States

Andre Calmon, Assistant Professor, Georgia Institute of Technology, United States

Charles Corbett, Professor, UCLA Anderson School of Management, United States

Madeleine Pullman, Professor, Portland State University, United States

Ravi Subramanian, Associate Professor, Georgia Tech, United States

Innovative teaching is needed to structure and communicate new ideas. A panel will be presenting a new case, class session, or simulation that they have found successful. The panel will also consider a broader set of challenges faced in teaching sustainable operations.

Sunday, 12:45 PM - 01:45 PM

619

Sunday, 12:45 PM - 01:45 PM, 4- Meetings & Programs - By Invitation   Track: All Meetings & Programs B: By Invitation

Invited Session: College Presidents' Meeting

Chair(s): Xiuli He

101-2888   College Presidents Meeting

Xiuli He, Associate Professor, University of North Carolina Charlotte, United States

This event is by invitation only. Those invited have received the link to this event in earlier correspondence.

Sunday, 02:00 PM - 03:00 PM

659

Sunday, 02:00 PM - 03:00 PM, 3- POMS Tutorials   Track: All POMS Invited Tutorials

Invited Session: Operational Data Analytics for Operations Management

Chair(s): George Shanthikumar

101-2111   Operational Data Analytics for Operations Management

Qi Feng, Professor, Purdue University, United States

We provide a framework for data integrated modeling for prescriptive operations Management. This is achieved through operational statistics which is built on the basis of (1) data integration and (2) cross validation. We will illustrate how regularization in sample average approximation and data driven robust optimization.

Sunday, 05:45 PM - 06:45 PM

781

Sunday, 05:45 PM - 06:45 PM, 2- Meetings & Programs - All are Welcome   Track: All Meetings & Programs A: Open to Everyone

Contributed Session: Social and Cultural Events

Chair(s): Seema Singhania

101-2921   Social and Cultural Events

Seema Singhania, Executive Director, Production And Operations Management Society, United States

Social and Cultural Events

Monday, 09:00 AM - 10:00 AM

824

Monday, 09:00 AM - 10:00 AM, 4- Meetings & Programs - By Invitation   Track: All Meetings & Programs B: By Invitation

Invited Session: Emerging Scholars Program 1

Chair(s): Gilvan Souza   Burcu Keskin

101-2119   Emerging Scholars 1

Burcu Keskin, Professor, University of Alabama Tuscaloosa, United States

Gilvan Souza, Professor, Indiana University Bloomington, United States

This event is by invitation only. Those invited have received the link to this event in earlier correspondence. This program provides new university professionals in OM with career-building advice in developing excellence in their personal programs of teaching, research, and service. The program is highly interactive and features internationally recognized senior OM scholars as discussion leaders.

861

Monday, 09:00 AM - 10:00 AM, Teaching/Pedagogy in POM   Track: Teaching/Pedagogy in POM

Invited Session: Workshop: Publishing in the Decision Sciences Journal of Innovative Education

Chair(s): Susan Palocsay

101-2447   Publishing OM Pedagogical Research in Decision Sciences Journal of Innovative Education

Susan Palocsay, Professor, James Madison University, United States

This presentation will provide an overview of the types of articles–conceptual, empirical, and teaching brief–published in DSJIE. Examples of articles on teaching and learning in OM will be used to illustrate content and structure. Guidelines for planning, conducting, and writing up pedagogical research will also be discussed.

Monday, 10:15 AM - 11:15 AM

865

Monday, 10:15 AM - 11:15 AM, 4- Meetings & Programs - By Invitation   Track: All Meetings & Programs B: By Invitation

Invited Session: Emerging Scholars Program 2

Chair(s): Burcu Keskin   Gilvan Souza

101-2120   Emerging Scholars 2

Gilvan Souza, Professor, Indiana University Bloomington, United States

Burcu Keskin, Professor, University of Alabama Tuscaloosa, United States

This event is by invitation only. Those invited have received the link to this event in earlier correspondence. The program provides new university professionals in OM with career-building advice in developing excellence in their personal programs of teaching, research, and service. The program is highly interactive and features internationally recognized senior OM scholars as discussion leaders.

Monday, 11:30 AM - 12:30 PM

905

Monday, 11:30 AM - 12:30 PM, 3- POMS Tutorials   Track: All POMS Invited Tutorials

Invited Session: Quantum and Quantum-Inspired Algorithms with Applications

Chair(s): George Shanthikumar

101-2114   Quantum and Quantum-Inspired Algorithms with Applications

Sridhar Tayur, Professor, Carnegie Mellon University, United States

An accessible introduction to quantum computing tailored for an OM audience, using non-linear integer optimization as the hook, I will cover (a) quantum annealing (b) D-Wave (c) Ising models (d) Graver Test-set for optimization (e) quantum-inspired (classical) algorithm for QAP, QSAP and (f) finance and cancer genomics applications.

911

Monday, 11:30 AM - 12:30 PM, Emerging Topics in OM   Track: Emerging Topics in Operations Management

Invited Session: Panel Debate - Platforms Commerce and Operations

Chair(s): Bart MacCarthy

101-2001   Panel Debate - Platforms Commerce and Operations

Bart MacCarthy, Professor, University of Nottingham, United Kingdom

Dmitry Ivanov, Professor, Berlin School of Economics and Law, Germany

Geoffrey Parker, Professor, Dartmouth College, United States

Sabine Baumann, Professor, Jade University, Germany

Platform commerce is fundamentally changing competition by lowering search costs, reducing intermediation and information asymmtery, and efficiently matching supply with demand. The impact on sectors such as transportation, hotels, and retail are well known. The impact for operations is less explored. The panel will present and debate the issues.

941

Monday, 11:30 AM - 12:30 PM, Sustainable Operations 1   Track: Sustainable Operations

Invited Session: Editors' Panel: Sustainable Operations

Chair(s): Brian Jacobs

101-2068   Editors' Panel on Sustainable Operations

Brian Jacobs, Associate Professor, Pepperdine University, United States

Charles Corbett, Professor, UCLA Anderson School of Management, United States

Mark Ferguson, Professor, University of South Carolina, United States

Gilvan Souza, Professor, Indiana University Bloomington, United States

Michael Galbreth, Professor, University of Tennessee Knoxville, United States

Robert Klassen, Professor, Ivey Business School, Western University, Canada

Beril Toktay, Professor, Georgia Institute of Technology, United States

In this panel session, editors from the leading OM journals will discuss research trends, opportunities, and challenges they see in the field of sustainable operations.

943

Monday, 11:30 AM - 12:30 PM, Teaching/Pedagogy in POM	Track: Teaching/Pedagogy in POM

Contributed Session: Workshop: Contemporary Pedagogy in Project and Supply Chain Management Courses: An Introduction to Learn-by-Doing Approaches and Outcomes

Chair(s): Seth Powless

101-2344   Learn-By-Doing Approaches in Project and Supply Chain Management Courses

Seth Powless, Lecturer, Penn State University Erie, United States

Sarah Sengupta, Assistant Professor, St.Cloud State University, United States

Learn-by-Doing (LBD) pedagogy appeals to today's business students because of its applicability to career pathways. LBD activities promote greater student learning assessment, retention, and satisfaction. This interactive workshop will discuss LBD research and practices including offering suggestions and approaches to implementing LBD curricula. Practical examples will be shared and disseminated.

Monday, 12:45 PM - 01:45 PM

945

Monday, 12:45 PM - 01:45 PM, 2- Meetings & Programs - All are Welcome	Track: All Meetings & Programs A: Open to Everyone

Invited Session: Meet the POM Journal Editors

Chair(s): Subodha Kumar

101-2121   Meet the POMS Journal Editors

Subodha Kumar, Professor, Temple University, United States

The Production and Operations Management Journal's departmental editors and the editor-in-chief will be here to meet conference participants in order to discuss any publication issues. All are welcome.

Monday, 02:00 PM - 03:00 PM

987

Monday, 02:00 PM - 03:00 PM, 3- POMS Tutorials	Track: All POMS Invited Tutorials

Invited Session: Discrete Convex Analysis and Its Applications in Operations

Chair(s): George Shanthikumar

101-2110   Discrete convex analysis and its applications in operations

Xin Chen, Professor, Industrial & Systems Engineering, United States

Discrete convex analysis provides a powerful framework to analyze and solve various operations models. In this tutorial, I will introduce several key discrete convexity concepts and their fundamental properties. I will then illustrate how they can be used on applications in inventory management and appointment scheduling to bike sharing.

Monday, 03:15 PM - 04:15 PM

1066

Monday, 03:15 PM - 04:15 PM, Teaching/Pedagogy in POM	Track: Teaching/Pedagogy in POM

Invited Session: Teaching Colloquium - Best Practices Discussion - Part I

Chair(s): Bala Shetty

101-2879   Teaching Colloquium - Best Practices Discussion - Part I: Principles of Case Teaching

Rogelio Oliva, Professor, Texas A&M University College Station, United States

Luis Lopez, Professor, INCAE, Costa Rica

The Teaching Colloquium is a chance for faculty to share their knowledge and experience about teaching. This year emphasis will be on teaching cases, and analytics. Several master teachers in these areas will present their best practices, followed by Q&A involving attendees and speakers.

Monday, 04:30 PM - 05:30 PM

1080

Monday, 04:30 PM - 05:30 PM, Healthcare OM 1   Track: Healthcare Operations Management

Contributed Session: Panel: University-Industry Partnership Supporting COVID-19 Response

Chair(s): Dan Bumblauskas

101-2387   Panel: University-Industry Partnership Supporting COVID-19 Response and Healthcare Supply Chains During Pandemics

Dan Bumblauskas, Associate Professor, University of Northern Iowa, United States

Nikhil Vyas, Associate Professor, University of Southern California, United States

Laird Burns, Associate Professor, University of Alabama Huntsville, United States

David Dobrzykowski, Associate Professor, University of Arkansas, United States

Jeff Shockley, Associate Professor, Virginia Commonwealth University, United States

Sue Sundar, , ,

This Consortium is comprised of supply chain leaders from academia and industry, who were invited by the University of Southern California to develop new demand and supply planning models. The work addresses medical supply chain challenges regarding COVID-19 forecasting, supply requirements, procurement, logistics and last mile delivery.

1107

Monday, 04:30 PM - 05:30 PM, Teaching/Pedagogy in POM   Track: Teaching/Pedagogy in POM

Invited Session: Teaching Colloquium - Best Practices Discussion - Part II

Chair(s): Bala Shetty

101-2138   Teaching Colloquium - Best Practices Discussion - Part II: Teaching Analytics

Subodha Kumar, Professor, Temple University, United States

Wayne Winston, , ,

The Teaching Colloquium is a chance for faculty to share their knowledge and experience about teaching. This year, emphasis will be on teaching cases and analytics. Several master teachers in these areas will present their best practices, followed by Q&A involving attendees and speakers.

Monday, 05:45 PM - 06:45 PM

1109

Monday, 05:45 PM - 06:45 PM, 2- Meetings & Programs - All are Welcome   Track: All Meetings & Programs A: Open to Everyone

Invited Session: POMS Business Meeting

Chair(s): Olga Perdikaki   Sushil Gupta

101-2880   POMS Business Meeting

Sushil Gupta, Professor, Florida International University, United States

Olga Perdikaki, Associate Professor, University of South Carolina, United States

POMS Business Meeting. POMS Board will meet the POMS members and present the state of the Society and answer any questions. All are welcome.

Tuesday, 09:00 AM - 10:00 AM

1171

Tuesday, 09:00 AM - 10:00 AM, Operational Excellence   Track: Operational Excellence

Invited Session: Tutorial: Teaching POM and Operational Excellence with Virtual Reality

Chair(s): Torbjørn Netland

101-2077   Teaching POM and Operational excellence with Virtual Reality

Torbjørn Netland, Assistant Professor, Eth Zurich, Switzerland

We explain and demonstrate how we use Virtual Reality (VR) to teach POM, operational excellence, and lean concepts at ETH Zurich. Session participants will be enabled to implement this cost-efficient and learning-effective teaching innovation in their own courses.

1184

Tuesday, 09:00 AM - 10:00 AM, Supply Chain Management   Track: Supply Chain Management

Invited Session: Panel: Holding the Door Open: A Networking Workshop for Women

Chair(s): Kaitlin Wowak

101-2891   Holding the Door Open: A Networking Workshop for Women

Cheryl Gaimon, Professor, Georgia Institute of Technology, United States

Aleda Roth, Professor, Clemson University, United States

Susan Helper, Professor, Case Western Reserve University, United States

Janice Carrillo, Professor, University of Florida, United States

Kaitlin Wowak, Assistant Professor, University of Notre Dame, United States

This session will feature current female editors at top OM journals. The session will begin with short presentations by our distinguished invited panel reflecting on their "path to power," as well as advice about high quality reviewing, obtaining editorial board memberships, and developing a good co-author network.

Tuesday, 10:15 AM - 11:15 AM

1207

Tuesday, 10:15 AM - 11:15 AM, Information Systems & OM 1   Track: Information Systems and Operations Management

Invited Session: Tutorial: Cryptocurrencies

Chair(s): Andrew Whinston

101-2107   Cryptocurrencies

Andrew Whinston, Professor, University of Texas at Austin, United States

This talk addresses how different cryptocurrencies are fundamentally different in the identity management of their ledger writers, consensus algorithms, and coin supply; how these factors determine performance, including security, privacy, and financial influence. It concludes with potential research topics around these cryptocurrencies that are still open, especially the privacy issue.

1225

Tuesday, 10:15 AM - 11:15 AM, Supply Chain Management   Track: Supply Chain Management

Invited Session: Panel: Reviewing and Obtaining Editorial Board Memberships

Chair(s): Kaitlin Wowak

101-2892   Reviewing and Obtaining Editorial Board Memberships

Manpreet Hora, Associate Professor, Georgia Institute of Technology, United States

Alan Mackelprang, Associate Professor, Georgia Southern University, United States

Rachna Shah, Associate Professor, University of Minnesota, United States

Xenophon Koufteros, Professor, Texas A&M University College Station, United States

Kaitlin Wowak, Assistant Professor, University of Notre Dame, United States

This session will feature Editors-in-Chiefs, Department Editors, and Senior Editors at leading OM journals who will offer insights about what they look for in reviews, how to avoid common reviewing mistakes, and how to obtain editorial board memberships.

Tuesday, 11:30 AM - 12:30 PM

1233

Tuesday, 11:30 AM - 12:30 PM, 3- POMS Tutorials   Track: All POMS Invited Tutorials

Invited Session: Discrete Choice Models and Their Applications in Assortment and Pricing Management

Chair(s): George Shanthikumar

101-2115   Discrete Choice Models and Their Applications in Assortment and Pricing Management

Ruxian Wang, Associate Professor, Johns Hopkins University, United States

In this tutorial, I will review recent development on discrete choice models, and their applications in assortment optimization and pricing management. Meanwhile, I will also share my views on the remaining challenges, future research directions and potential impact on real business.

Panels, Workshops, and Tutorials

1239

Tuesday, 11:30 AM - 12:30 PM, Emerging Topics in OM   Track: Emerging Topics in Operations Management

Invited Session: Panel: New Research Frontiers in Operations and Supply Chain Management

Chair(s): Adegoke Oke   Seongkyoon Jeong

101-2090   Frontiers of operations management - A Panel Discussion

Adegoke Oke, Associate Professor, Arizona State University Tempe, United States

Anand Nair, Professor, Michigan State University, United States

Thomas Choi, Professor, Arizona State University Tempe, United States

Morgan Swink, Professor, Texas Christian University, United States

Stephan Wagner, Professor, Swiss Federal Institute of Technology Zurich, Switzerland

Seongkyoon Jeong, Student, Arizona State University, United States

This interactive panel session brings together top scholars to discuss emerging topics in operations and supply chain management research. Several questions will be addressed in this session - What are the topical research issues in the field? How can academic research lead and inform practice? etc.

Tuesday, 12:45 PM - 01:45 PM

1275

Tuesday, 12:45 PM - 01:45 PM, 4- Meetings & Programs - By Invitation   Track: All Meetings & Programs B: By Invitation

Invited Session: Meeting of POM Senior & Department Editors

Chair(s): Subodha Kumar

101-2889   Meeting of POM Senior & Department Editors

Subodha Kumar, Professor, Temple University, United States

This event is by invitation only. Those invited have received the link to this event in earlier correspondence.

Tuesday, 02:00 PM - 03:00 PM

1324

Tuesday, 02:00 PM - 03:00 PM, Global Supply Chain Management   Track: Global Supply Chain Management

Contributed Session: Workshop: Using AI and Machine Learning to Predict Consumers' Behavior

Chair(s): Polly Mitchell-Guthrie

101-2898   All You Need Is Consistent Promotions

Kanchana Padmanabhan, Director, Data Science, kinaxis, Canada

Tianle Chen, , ,

In retail demand planning, promotion planning is the task of deciding what products to promote, when, and what promotion parameters (mechanic, discount, amount that the vendor/supplier will fund etc.) to apply. We will describe interesting challenges when building an AI model for this use and our solutions to overcome them.

101-2899   Machine Learning and Advanced Analytics to Forecast in a Volatile COVID Retail Market

Arash Habib, Director, Analytic Solutions, Kinaxis, Canada

Sharon Yang, , ,

Market disruptions such as a pandemic can lead to drastic changes in customer behavior, making it challenging to making predictions with confidence. In such market conditions, we demonstrate how advanced analytics can be leveraged to adjust and improve Machine Learning predictions, leading to better accuracy and confidence.

Tuesday, 04:30 PM - 05:30 PM

1426

Tuesday, 04:30 PM - 05:30 PM, Service Operations   Track: Service Operations

Invited Session: Workshop: POMS College of Service Operations Mentoring Session

Chair(s): Jie Zhang   Enrico Secchi

101-2059   Workshop: POMS College of Service Operations Mentoring Session

Jie Zhang, Associate Professor, University of Victoria, Canada

Enrico Secchi, Assistant Professor, University College Dublin, Ireland

During this constructive and intimate session, interested participants will have the opportunity to discuss all aspects of a career as a service operations scholar with an experienced mentor. This session is dedicated to developing the mentoring initiative in the College of Service Operations.

Tuesday, 05:45 PM - 06:45 PM

1440

Tuesday, 05:45 PM - 06:45 PM, Behavior in OM   Track: Behavior in Operations Management

Contributed Session: Business Meeting: College of Behavioral Operations Mgmt

Chair(s): Nikolay Osadchiy

101-2884   Business Meeting: College of Behavioral Operations Mgmt

Nikolay Osadchiy, Associate Professor, Emory University, United States

College of Behavioral Operations Mgmt Business Meeting

1449

Tuesday, 05:45 PM - 06:45 PM, Healthcare OM 1   Track: Healthcare Operations Management

Contributed Session: Business Meeting: College of Healthcare Operations Mgmt

Chair(s): David Dobrzykowski

101-2885   Business Meeting: College of Healthcare Operations Mgmt

David Dobrzykowski, Associate Professor, University of Arkansas, United States

College of Healthcare Operations Mgmt Business Meeting

1451

Tuesday, 05:45 PM - 06:45 PM, Humanitarian Ops & Crisis Mgmt 1   Track: Humanitarian Operations and Crisis Management

Contributed Session: Business Meeting: College of Humanitarian Operations and Crisis Mgmt

Chair(s): Nezih Altay

101-2886   Business Meeting: College of Humanitarian Operations and Crisis Mgmt

Nezih Altay, Professor, Depaul University, United States

Business Meeting: College of Humanitarian Operations and Crisis Mgmt

1458

Tuesday, 05:45 PM - 06:45 PM, Operational Excellence   Track: Operational Excellence

Contributed Session: Business Meeting: College of Operational Excellence

Chair(s): Morgan Swink

101-2887   Business Meeting: College of Operational Excellence

Morgan Swink, Professor, Texas Christian University, United States

Business Meeting: College of Operational Excellence

1462

Tuesday, 05:45 PM - 06:45 PM, Product Innovation & Technology Mgmt   Track: Product Innovation and Technology Management

Contributed Session: Business Meeting: College of Product Innovation and Tech Mgt

Chair(s): Karthik Ramachandran

101-2896   Business Meeting: College of Product Innovation and Technology Management

Karthik Ramachandran, Associate Professor, Georgia Institute of Technology, United States

Business Meeting: College of Product Innovation and Technology Management

1467 Tuesday, 05:45 PM - 06:45 PM, Service Operations   Track: Service Operations

Contributed Session: Business Meeting: College of Service Operations

Chair(s): Jie Zhang

101-2894   Business Meeting: College of Service Operations

Jie Zhang, Associate Professor, University of Victoria, Canada

Business Meeting: College of Service Operations

1471 Tuesday, 05:45 PM - 06:45 PM, Supply Chain Management   Track: Supply Chain Management

Contributed Session: Business Meeting: College of Supply Chain Management

Chair(s): Lauren Lu

101-2895   Business Meeting: College of Supply Chain Management

Dorothee Honhon, Associate Professor, University of Texas Dallas, United States

Business Meeting: College of Supply Chain Management

1474 Tuesday, 05:45 PM - 06:45 PM, Sustainable Operations 1   Track: Sustainable Operations

Contributed Session: Business Meeting: College of Sustainable Operations

Chair(s): Vishal Agrawal

101-2893   Business Meeting: College of Sustainable Operations

Vishal Agrawal, Associate Professor, Georgetown University, United States

Business Meeting: College of Sustainable Operations

Wednesday, 09:00 AM - 10:00 AM

1478 Wednesday, 09:00 AM - 10:00 AM, 2- Meetings & Programs - All are Welcome   Track: All Meetings & Programs A: Open to Everyone

Invited Session: International Conference Organizers' Recognition

Chair(s): Nagesh Murthy

101-2873   International Conference Organizers' Recognition

Nagesh Murthy, Professor, University of Oregon, United States

This event is by invitation only. Those invited have received the link to this event in earlier correspondence.

Wednesday, 10:15 AM - 11:15 AM

1519 Wednesday, 10:15 AM - 11:15 AM, 2- Meetings & Programs - All are Welcome   Track: All Meetings & Programs A: Open to Everyone

Contributed Session: Business Meeting of POMS India Chapter

Chair(s): Nagesh Murthy

101-2923   Business Meeting of POMS India Chapter

Nagesh Murthy, Professor, University of Oregon, United States

Business Meeting of POMS India Chapter

1527 Wednesday, 10:15 AM - 11:15 AM, Empirical Research in OM   Track: Empirical Research in Operations Management

Invited Session: Tutorial: Survey Research and Measurement

Chair(s): Aleda Roth

101-2087   Tutorial: Survey Research and Measurement

Aleda Roth, Professor, Clemson University, United States

In this tutorial, we will discuss survey research and design of reliable and valid measurement scales.

Wednesday, 11:30 AM - 12:30 PM

1583

Wednesday, 11:30 AM - 12:30 PM, POM in Practice   Track: POM in Practice

Invited Session: Panel: Evolving Digital Supply Networks - Beyond the SCOR model

Chair(s): Morgan Swink

101-2108   Panel: Evolving Digital Supply Networks - Beyond the SCOR model

Morgan Swink, Professor, Texas Christian University, United States

Chris Richard, Principal, Deloitte, United States

Mark Cotteleer, Research Director, Deloitte, United States

Thought leaders from practice and academia will discuss differences between traditional supply chains which operate in linear, sequential modes, and emerging dynamic, interconnected digital supply networks. We refer to these as "Digital Supply Networks (DSN)." Panelists bring both a theoretical lens and experience from multiple DSN implementations.

Wednesday, 05:45 PM - 06:45 PM

1766

Wednesday, 05:45 PM - 06:45 PM, 3- POMS Tutorials   Track: All POMS Invited Tutorials

Contributed Session: Business Meeting of POMS Latin America and Caribbean Chapter

Chair(s): Nagesh Murthy

101-2924   Business Meeting of POMS Latin America and Caribbean Chapter

Nagesh Murthy, Professor, University of Oregon, United States

Business Meeting of POMS Latin America and Caribbean Chapter

INSTRUCTIONS

to find the DATE AND TIME

of the session you have a

PRESENTATION

or are the

SESSION CHAIR

1. Go to the Author Index and the Session Chair Index (please check both to ensure none are missed).

2. Find your name.

3. Number(s) in parentheses show the session number(s).

4. Sessions are listed in the Presentation Schedule in ascending order by the session numbers.

5. Presentation Schedule provides the day and time of presentation.

OR

Please click on the following link for online schedule:

Conference Schedule

Friday, 09:00 AM - 10:00 AM

Invited Session

4	Friday, 09:00 AM - 10:00 AM, 4- Meetings & Programs - By Invitation Invited Session: Doctoral Consortium 1 Chair(s): Susan Goldstein Karen Donohue	Track: All Meetings & Programs B: By Invitation

101-2918   Doctoral Consortium 1

Karen Donohue, Professor, University of Minnesota, United States

Susan Goldstein, Associate Professor, University of Minnesota, United States

This session is by invitation only, for those doctoral students who have been registered. The purpose of the POMS Doctoral Consortium is to help doctoral students maximize their chances of having a successful academic career in our globally competitive environment.

- -

Friday, 10:15 AM - 11:15 AM

Invited Session

45	Friday, 10:15 AM - 11:15 AM, 4- Meetings & Programs - By Invitation Invited Session: Doctoral Consortium 2 Chair(s): Susan Goldstein Karen Donohue	Track: All Meetings & Programs B: By Invitation

101-2117   Doctoral Consortium 2

Karen Donohue, Professor, University of Minnesota, United States

Susan Goldstein, Associate Professor, University of Minnesota, United States

This session is by invitation only, for those doctoral students who have registered. The purpose of the POMS Doctoral Consortium is to help doctoral students maximize their chances of having a successful academic career in our globally competitive environment.

- -

Friday, 11:30 AM - 12:30 PM

Invited Session

86	Friday, 11:30 AM - 12:30 PM, 4- Meetings & Programs - By Invitation Invited Session: Doctoral Consortium 3 Chair(s): Susan Goldstein Karen Donohue	Track: All Meetings & Programs B: By Invitation

101-2118   Doctoral Consortium 3

Susan Goldstein, Associate Professor, University of Minnesota, United States

Karen Donohue, Professor, University of Minnesota, United States

By invitation only, for those doctoral students who have registered. The purpose of the POMS Doctoral Consortium is to help doctoral students maximize their chances of having a successful academic career in our globally competitive environment.

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Friday, 12:45 PM - 01:45 PM

Invited Session

127

Friday, 12:45 PM - 01:45 PM, 4- Meetings & Programs - By Invitation

Track: All Meetings & Programs B: By Invitation

Invited Session: Doctoral Consortium 4

Chair(s): Susan Goldstein   Karen Donohue

101-2850   Doctoral Consortium 4

Susan Goldstein, Associate Professor, University of Minnesota, United States

Karen Donohue, Professor, University of Minnesota, United States

This session is by invitation only for those doctoral students who have registered. The purpose of the POMS Doctoral Consortium is to help doctoral students maximize their chances of having a successful academic career in our globally competitive environment.

- -

Saturday, 09:00 AM - 10:00 AM

Invited Session

166

Saturday, 09:00 AM - 10:00 AM, 2- Meetings & Programs - All are Welcome

Track: All Meetings & Programs A: Open to Everyone

Invited Session: POMS Applied Research Challenge (ARC)

Chair(s): Felipe Caro   Christopher Tang

101-2132   Data-Driven Sports Ticket Pricing for Multiple Sales Channels with Heterogeneous Customers

Hayri Arslan, Assistant Professor, University of Texas at San Antonio , United States

Robert Easley, Professor, University of Notre Dame, United States

Ruxian Wang, Associate Professor, Johns Hopkins University, United States

Ovunc Yilmaz, Assistant Professor, University of Colorado Boulder, United States

We develop a pricing tool to study purchase behavior from distinct segments of customers, and to optimize prices in a sports ticket market with multiple sales channels. Under a partnership with a college football team, our analytical tool shows that optimized prices can bring up to 12.4% additional revenue.

- -

101-2134   Improving Farmers' Income on Online Agri-platforms: Design and Field Implementation of a Two-stage Auction

Retsef Levi, Professor, MIT, United States

Manoj Rajan, Managing Director, Rashtriya e Market Services Limited (ReMS), India

Somya Singhvi, Student, Massachusetts Institute of Technology, United States

Yanchong Zheng, Associate Professor, Massachusetts Institute of Technology, United States

Online agri-platforms that attempt to tackle inefficiencies in traditional agricultural markets, have been launched in many developing countries. In this work, we collaborate with one such government platform, UMP, to: (i) rigorously evaluate the empirical impact of UMP on farmers' income, and (ii) design and implement an updated auction design.

- -

101-2415   Off-Grid Lighting Business Models to Serve the Poor: Evidence from Rwanda

Bhavani Shanker Uppari, Assistant Professor, Singapore Management University, Singapore

Serguei Netessine, Professor, The Wharton School, United States

Ioana Popescu, Professor, INSEAD, Singapore

Rowan Clarke, Student, Harvard Business School, South Africa

A significant proportion of the world's poor do not have access to electricity. We investigate the viability of rechargeable light bulbs in collaboration with a firm in Rwanda. Using field experiments and a structural model, we evaluate the efficacy of theoretically-preferred changes to the existing business model.

- -

Invited Session

169

Saturday, 09:00 AM - 10:00 AM, Behavior in OM

Track: Behavior in Operations Management

Invited Session: Behavioral Issues in Matching Supply with Demand

Chair(s): Tony Haitao Cui

101-1836   Making the most of your regret: workers' relocation behavior in on-demand platforms

Zhong-Zhong Jiang, Professor, Northeastern University, China

Guangwen Kong, Assistant Professor, Temple University, United States

Yinghao Zhang, Assistant Professor, University of Cincinnati, United States

We investigate workers' relocation decisions and find that regret aversion plays an important role in workers' relocation decisions. Regret averse workers are more willing to relocate to the supply-shortage zone than rational workers. Policies without considering the behavioral aspect of workers' decision may lead to profit loss.

- -

101-1429   Cooperation in Queueing Systems

Yaroslav Rosokha, Assistant Professor, Purdue University, United States

Chen Wei, Student, Purdue University, United States

We theoretically and experimentally study a single-queue system in which servers have discretion over effort. We show that even when each server has individual incentives to free-ride (and provide low effort), high effort can be sustained in equilibrium if the interactions are repeated and servers are patient enough.

- -

101-1336   Information Seeking in Procurement Decision Making

Somaye Ramezanpour-Nargesi, Assistant Professor, Pacific Lutheran University, United States

Kay Yut Chen, Professor, University of Texas Arlington, United States

The investigation of systematic behavioral biases of human decision making is novel in the area of operations management. We used procurement decision making frame with contingent information structure in a laboratory setting and tried to study different biases pertaining to information seeking.

- -

Contributed Session

170	Saturday, 09:00 AM - 10:00 AM, Covid-19 & Other Pandemics	Track: Covid-19 and Other Pandemics
	Contributed Session: Behavioral aspects	
	Chair(s): Sushil Gupta	

101-2814   MENA culture and its impact on COVID-19

Wanchunzi Yu, Assistant Professor, Bridgewater State University, United States

Xiangrong Liu, Associate Professor, Bridgewater State University, United States

In this paper, we will investigate how the Covid-19 pandemic in MENA countries is affected by the cultural factors: power distance, individualism, masculinity, uncertainty avoidance, long time orientation, and indulgence, as well as other factors including GDP, life expectancy, human development index, etc

- -

101-2425   The impact of Covid-19 on Global Retail Grocery Logistics Consumer Behavior.

Seth Powless, Lecturer, Penn State University Erie, United States

COVID-19 has profoundly impacted consumer decision making. Retail and grocery decisions have dramatically evolved on a global level. This paper investigates the pandemic's influence on consumer's grocery purchasing behavior. A comparison of consumer choices and shopping logistics from pre-pandemic to now is explored with data across multiple countries.

- -

101-2701   Modelling the factors affecting mode choice decisions during Coronavirus outbreak

Vipulesh Shardeo, Student, Indian institute of Technology Delhi IIT, India

Anchal Patil, Student, Indian institute of Technology Delhi IIT, India

Jitender Madaan, Associate Professor, Indian institute of Technology Delhi IIT, India

Ashish Dwivedi, Assistant Professor, Jindal Global Business School, O P Jinda, India

Coronavirus has affected freight transportation functioning and generated several operationaland planning issues regarding the mode choice decision. The present study employs grey-DEMATEL methodology to weigh the influence of factors affecting mode choice decisionsduring disease outbreak. The study aims to assist the decision-makers in strategicformulation.

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Invited Session

171	Saturday, 09:00 AM - 10:00 AM, Economic Models in OM	Track: Economic Models in Operations Management
	Invited Session: Interface issues in Operations and Marketing -1	
	Chair(s): Shubhranshu Singh	

101-1995   Service Provision in Distribution Channels

Haresh Gurnani, Professor, Wake Forest University, United States

Shubhranshu Singh, Associate Professor, Johns Hopkins University, United States

Sammi Tang, Associate Professor, University of Miami, United States

Huaqing Wang, Assistant Professor, Missouri Southern State University, United States

This paper studies a manufacturer's and a retailer's incentives to invest in pre-sales service effort that reduces the consumers' likelihood of seeking after-sales support for an inherently complex information-intensive product. The paper also examines the possibility of collaboration in which the manufacturer shares the retailer's cost of providing pre-sales service.

- -

101-1746   Information Contest: Disclosing Own and Rival Information

Ganesh Iyer, Professor, University of California Berkeley, United States

Shubhranshu Singh, Associate Professor, Johns Hopkins University, United States

Firms may have private information about own and rival's products. We investigate competing firms' incentives to disclose information, which may be positive or negative. We show that a firm that is facing a non-strategic rival or that has a limited communication bandwidth is more likely to disclose information to consumers.

- -

Invited Session

173

Saturday, 09:00 AM - 10:00 AM, Emerging Topics in OM   Track: Emerging Topics in Operations Management

Invited Session: Technology-Enabled Innovation in Supply Chain Management

Chair(s): Harish Guda

101-1850   Go Wide or Go Deep? Assortment Strategy and Order Fulfillment in Online Retail

Sanjith Gopalakrishnan, Student, University of British Columbia, Canada
Moksh Matta, Student, University of British Columbia, Canada
Mona Imanpoor Yourdshahy, Student, Sauder School of Business, UBC, Canada

Operational management of assortment variety introductions is critical in an online retail context. We employ an extensive e-commerce dataset to identify the impacts of a retailer's assortment strategy, measured along the two dimensions of assortment width and depth, on its order fulfillment performance, and its subsequent impact on future sales.

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101-1855   Multi-product Dynamic Upgrades

Metin Cakanyildirim, Professor, University of Texas Dallas, United States
Justin Goodson, Associate Professor, Saint Louis University, United States
Ozalp Ozer, Professor, University of Texas Dallas, United States
Xiao Zhang, Assistant Professor, Saint Louis University, United States

Upgrades in travel industry are often static and offered either at the booking time or at the check-in time. In this paper, we study dynamically offered upgrades by a multi-product firm via notifications (e.g., emails) between the booking and the check-in times.

- -

101-1849   An Economic Analysis of Agricultural Support Prices in Developing Economies

Harish Guda, Assistant Professor, Arizona State University, United States
Tharanga Rajapakshe, Associate Professor, University of Florida, United States
Milind Dawande, Professor, University of Texas Dallas, United States
Ganesh Janakiraman, Professor, University of Texas Dallas, United States

A Guaranteed Support Price (GSP) for a crop is a guaranteed per-unit price, announced before the growing season, at which a governmental entity promises to procure the crop from farmers. We derive analytically-supported insights on the welfare implications of a GSP program and examine related questions.

- -

Invited Session

174

Saturday, 09:00 AM - 10:00 AM, Empirical Research in OM   Track: Empirical Research in Operations Management

Invited Session: Service Management

Chair(s): Stanley Lim

101-0032   How Does an Immediate Care Center Impact Emergency Department Arrivals?

Achal Bassamboo, Associate Professor, Northwestern University, United States
Martin Lariviere, Professor, Northwestern University, United States
Simin Li, Student, Northwestern University, United States

We study the effect of opening an immediate care center (ICC), across a hospital's emergency department (ED), on arrivals to ED. We investigate how capacity expansion but with limited capabilities (ICC) affect patients'/customers' choices. We find patients are sophisticated enough to self-select into the facility that's suitable for their conditions.

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101-1540   Critical success factors of office leasing market in Vietnam

Nghi Le, Sale executives, National Economics University, Japan
Thao Ngo, Associate Professor, National Economics University, Vietnam
Minh Nguyen, Post Doc/Researcher, Yokohama National University and University of Economics Ho Chi Minh City, Japan

This study aims to investigate critical success factors in office leasing market in Vietnam. The study found that office rental price, quality of construction, management unit, and regulation of the government are important factors that would be considered to forecast potential of the office leasing market in Vietnam.

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101-2528   The Queue Behind the Curtain: Information Disclosure in Omnichannel Services

Abhishek Ghosh, Student, Kellogg School of Management, United States
Achal Bassamboo, Associate Professor, Northwestern University, United States
Martin Lariviere, Professor, Northwestern University, United States

This paper addresses issues related to the design of omnichannel service system, especially focusing on congestion information disclosure and its impact on customer channel choice behavior. We benchmark the omnichannel model against a conventional single channel model, and compare these settings in terms of firm's throughput and average consumer surplus.

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Invited Session

175

Saturday, 09:00 AM - 10:00 AM, Finance & OM   Track: Finance and Operations Management

Invited Session: Empirical Operations-Finance

Chair(s): Jing Wu

101-2022   The Impact of Trade Credit Provision on Retail Inventory

Nitish Jain, Assistant Professor, London Business School, United Kingdom
S. Alex Yang, Associate Professor, London Business School, United Kingdom
Christopher Chen, Student, London Business School, United Kingdom

Over the last decade, trade credit has been subject to increasing government regulation in many countries. In this study, we empirically examine the potential negative implication of limiting trade credit on inventory decisions at the retailer level.

101-2567   The Impact of Shareholder Wealth on the Manufacturing Location Decision: Reshoring vs Foreign Direct Investment

Jason Woldt, Assistant Professor, University of Wisconsin Oshkosh, United States

Michael Godfrey, Professor, University of Wisconsin Oshkosh, United States

Given the positive relationship between US manufacturing reshoring announcements and shareholder wealth, there is an increasing need to understand how international investors respond to US Foreign Direct Investments (FDI) announcements. In this research, we use an event study methodology to compare the impact of reshoring announcements to FDI announcements.

101-0649   Corporate Social Responsibility in Supply Chain: Green or Greenwashing?

Jing Wu, Assistant Professor, The Chinese University of Hong Kong, Hong Kong
Yu Zhang, Assistant Professor, Peking University, China

Perception regarding a focal firm's CSR depends not only on itself but also on its known suppliers. This paper uncovers robust evidence that firms greenwash their CSR image via voluntarily disclosing environmentally responsible suppliers while concealing "bad" ones. Exogenous variations in abnormal temperatures support a causal interpretation of our finding.

Invited Session

177

Saturday, 09:00 AM - 10:00 AM, Healthcare Analytics   Track: Healthcare Analytics

Invited Session: Healthcare Operations and Analytics

Chair(s): Guihua Wang

101-0522   Do Social Media Trump Government Report Cards in Influencing Consumer Choice? Evidence from Nursing Homes

Yuanchen Li, Student, Purdue University, United States
Lauren Lu, Associate Professor, Dartmouth College, United States
Feng (Susan) Lu, Associate Professor, Purdue University, United States

We study the effect of social media on consumer choice of healthcare services in the presence of well-established government ratings in the US nursing home industry. We observe that high yelp ratings increase Medicare admission and weakly reduce Medicaid admission. Moreover, Yelp ratings have a stronger effect than government ratings.

101-2308   COVID-19: Health and Economic Impacts of Societal Intervention Policies in the U.S.

Alireza Boloori, Assistant Professor, Michigan State University, United States
Soroush Saghafian, Assistant Professor, Harvard University, United States

Intervention policies, like stay-at-home orders, are shown to be effective in controlling the spread of the COVID-19. However, concerns over economic burdens of these policies propelled U.S. states to move towards reopening. We study the health and economic impacts of various intervention policies across U.S.

101-0383   Analyses of COVID-19 Medication Sales during Pandemic

Minje Park, Student, Boston University, United States
Anita Tucker, Professor, Boston University, United States
Rena Conti, Professor, Boston University, United States
Erin Fox, PharmD, University of Utah Health, United States

In the early days of the COVID-19 pandemic, many US hospitals experienced shortages of essential drugs. We analyze the sales of drugs related to the treatment of COVID-19 and examine the purchase behavior of hospitals during the pandemic. We provide policy implications tailored to current US pharmaceutical supply chains.

Invited Session

178

Saturday, 09:00 AM - 10:00 AM, Healthcare OM 1   Track: Healthcare Operations Management

Invited Session: Data-driven decision-making in healthcare

Chair(s): Vishal Ahuja

101-2345   Multi-infection Testing Design via Multiplex Assays, with a Case Study of Respiratory Disease Testing

Manfei Xie, Student, University of Alabama, United States

Douglas Bish, Professor, University of Alabama, United States

Ebru Bish, Professor, University of Alabama, United States

Hussein El Hajj, Student, Virginia Tech, United States

We design optimal public health screening schemes for a set of infections, considering pooled testing and various cost functions, to minimize the testing cost. We establish important structural properties of optimal testing designs, provide an efficient design algorithm, and demonstrate our findings through a case study on respiratory diseases.

101-1608   Cost and Quality Performance of Accountable Care Organizations - An Empirical Examination

Mayukh Majumdar, Student, Texas A&M University College Station, United States

Anupam Agrawal, Associate Professor, Texas A&M University College Station, United States

Chelliah Sriskandarajah, Professor, Texas A&M University College Station, United States

Arun Sen, Professor, Texas A&M University College Station, United States

The delivery of cost-efficient and high-quality patient care remains a challenge for the U.S. healthcare sector. Accountable Care Organizations (ACO) are groups of healthcare providers, who provide high quality and coordinated care to their patients. We examine ACO cost and quality performance and offer valuable insights.

101-0009   Appointment Scheduling for Physician-Nurse Teams

Enayon Taiwo, Student, City University of Hong Kong, China

Frank Chen, Professor, City University of Hong Kong, Hong Kong

Kwai Sang Chin, Associate Professor, City University of Hong Kong, China

Sergei Savin, Professor, University of Pennsylvania, United States

This study proposes a novel model which accounts for decision-making by patients in a system with two provider types. We find the ratio of qualities of care delivered by nurse and physician affect the profitability of the medical practice, enabling the analysis of trade-offs involved in hiring a nurse practitioner.

Contributed Session

179

Saturday, 09:00 AM - 10:00 AM, Healthcare OM 2   Track: Healthcare Operations Management 2

Contributed Session: Issues in Global Healthcare

Chair(s): Amir Karimi

101-2300   Designing Public Health Supply Chains to Mitigate Stock-outs in Developing Countries

Amir Karimi, Assistant Professor, University of Texas at San Antonio, United States

Anant Mishra, Associate Professor, University of Minnesota, United States

Karthik V. Natarajan, Assistant Professor, University of Minnesota, United States

Kingshuk Sinha, Professor, University of Minnesota, United States

Using data collected from the field, we evaluate (i) the effect of a transition from a pull distribution model to a push distribution model on the availability of health commodities in the last-mile, and (ii) the circumstances under which the effect sizes are amplified or attenuated.

101-2559   Global Supply Chain Analysis of Medical Device Industry: 30 Year Longitudinal Study

Yong-Taek Min, Assistant Professor, Florida Gulf Coast University, United States

Sangdo Choi, Associate Professor, Bloomsburg University, United States

Jeong Hoon Choi, Associate Professor, University of Nebraska Kearney, United States

The shortage of essential medical supplies and devices such as personal protective equipment (PPE) and ventilators during the COVID-19 pandemic has drawn keen attention to global manufacturing and supply chains of the Medical Device Industry. This study examines the problems and suggests their solutions by analyzing 30-year longitudinal data.

101-2740   Surgical Care Delivery by Government and Private Hospitals in LMICs: The Enabling Role of NPOs

Dwaipayan Roy, Student, University of Minnesota, United States

Kingshuk Sinha, Professor, University of Minnesota, United States

Only 10% newborns in LMICs have access to lifesaving surgical care for congenital heart defects (CHD). International nonprofit organizations (NPOs) play a critical role in bridging this gap. We study how NPOs can better enable private and government hospitals in LMICs for the diagnosis and treatment of CHD.

Invited Session

180

Saturday, 09:00 AM - 10:00 AM, Humanitarian Ops & Crisis Mgmt 1   Track: Humanitarian Operations and Crisis Management

Invited Session: Empirical research in humanitarian operations

Chair(s): Maria Besiou   Laura Turrini

101-0940   Identifying barriers to agricultural finance in Uganda through system mapping and measuring

Finley Wetmore, Student, George Washington University, United States

Courtney Blair, Post Doc/Researcher, Massachusetts Institute of Technology, United States

Erica Gralla, Associate Professor, George Washington University, United States

Jarrod Goentzel, Senior Lecturer, Massachusetts Institute of Technology, United States

Megan Peters, Student, George Washington University, United States

In Uganda, agricultural finance could help farmers improve their livelihoods, yet few farmers acquire loans. To inform investments by USAID/Uganda, we develop a system map and layer existing data onto it, to identify key barriers to loan access. The case study demonstrates a system mapping approach for complex development systems.

101-2168　Humanitarian organizations in the public sphere: does funding predict the extent of inter-organizational cooperation?

Lea Rüsch, Student, Kuehne Logistics University, Germany

Maria Besiou, Professor, Kuehne Logistics University, Germany

Niels Van Quaquebeke, Professor, Kuehne Logistics University, Germany

Research found that privately funded humanitarian organizations (HOs) are less cooperative than publicly funded HOs. Our study empirically measures the interactions between 780 organizational dyads from 2018 to 2020 on Twitter. We find that even public HOs' cooperation is restricted, as they mainly support HOs from the same funding group.

101-2579　System dynamics modeling to support Red Cross (ICRC) humanitarian response decisions

Tristan Downing, Student, Massachusetts Institute of Technology, United States

Jarrod Goentzel, Lecturer, Massachusetts Institute of Technology, United States

Maria Besiou, Professor, Kuehne Logistics University, Germany

Understanding how markets support the livelihoods of a crisis-affected population is crucial for humanitarian response decisions. We develop a system dynamics model that extends ICRC market analysis methodology to include supply chain data and to directly assess the impact of in-kind aid, cash transfers, and other market-sensitive interventions.

Invited Session

182

Saturday, 09:00 AM - 10:00 AM, Information Systems & OM 1　　Track:　Information Systems and Operations Management

Invited Session: Interface between Operation Management and Information Systems

Chair(s): Yinliang Tan

101-0052　Content Proliferation and Narrowcasting in the Age of Streaming Media

Zhen Fang, Student, University of Washington, United States

Ming Fan, Professor, University of Washington, United States

Apurva Jain, Associate Professor, University of Washington, United States

Streaming media companies have changed how contents are produced, consumed, and delivered. This research develops a theoretical model on optimal content differentiation for digital media companies. Specifically, we study how companies can leverage the information on consumer distribution to optimize content offerings in order to maximize customer engagement.

101-0070　When to Open and How Much to Open?: The Effects of Open Innovation

Rakesh Mallipeddi, Assistant Professor, Tulane University, United States

Emre Demirezen, Assistant Professor, University of Florida, United States

Subodha Kumar, Professor, Temple University, United States

Ram Gopal, Professor, Indian Institute Of Management, Udaipur, United States

Firms have begun to embrace open innovation by opening up part of their software. We develop a data-driven model to analytically analyze firm's open innovation strategy and how that affects its maintenance and new product development strategies.

101-0014　When to Play Your Advertisement? Optimal Insertion Policy of Behavioral Advertisement

Subodha Kumar, Professor, Temple University, United States

Yinliang Tan, Assistant Professor, Tulane University, United States

Lai Wei, Assistant Professor, Shanghai Jiaotong Univerisity, China

We model the user's continuous engagement process through a Brownian motion. The proposed optimal policy regarding the timing of behavioral advertising is based on a threshold policy with a trigger threshold and target level.

Contributed Session

190

Saturday, 09:00 AM - 10:00 AM, Procurement & Supplier Management　　Track:　Procurement and Supplier Management

Contributed Session: Buyer-Supplier Relationships I

Chair(s): Li Cheng

101-0923　Suppliers Cutting Corners: Can Excessive Competition Compromise Quality?

Aadhaar Chaturvedi, Senior Lecturer, The University of Auckland, New Zealand

Supplier(s) cutting corners by downgrading product quality is an ever present problem for a buyer. Product testing and supplier screening are typically limited in detecting it and penalties are non-credible for small entrant suppliers. We investigate the impact that increasing competition would have on supplier(s) decision to cut corners.

101-0929　Connection between supplier satisfaction and special buyer treatment

Sigrid Weller, Student, TU Graz, BWL Institut, Austria

Volker Koch, Student, Graz University of Technology, Austria

Bernd Markus Zunk, Associate Professor, Graz University of Technology, Austria

Amila Omazic, Student, Graz University of Technology, Austria

Buyers who create a high level of satisfaction for their suppliers can await special treatment and advantages over other buyers who only satisfy the suppliers to a lesser extent. Therefore, this research examines the connections between supplier satisfaction and special supplier treatment.

101-0828   Leaving it on the table? An examination of unrealized power in multimarket buyer-supplier exchanges

Li Cheng, Assistant Professor, University of Dayton, United States

Christopher Craighead, Professor, University of Tennessee Knoxville, United States

Thomas Crook, Professor, University of Tennessee Knoxville, United States

Stephanie Eckerd, Assistant Professor, Indiana University Indianapolis, United States

Power has been a central topic in buyer-supplier exchanges. This study uses an economics-based, bargaining experiment and investigates, in the context of multimarket buyer-supplier exchanges (i.e. the focal firms have exchanges across multiple markets), how various factors jointly constrain powerful firms from leveraging their power advantages.

Invited Session

191

Saturday, 09:00 AM - 10:00 AM, Product Innovation & Technology Mgmt

Track: Product Innovation and Technology Management

Invited Session: Panel: Frontiers of Technology Management, Innovation and Entrepreneurship

Chair(s): Sinan Erzurumlu

101-2085   Panel: Frontiers of Technology Management, Innovation and Entrepreneurship

Sinan Erzurumlu, Professor, Babson College, United States

Sebastian Fixson, Professor, Babson College, United States

Cheryl Gaimon, Professor, Georgia Institute of Technology, United States

Moren Levesque, Professor, York University, Canada

This panel aims to bring fresh perspectives and facilitate discussions on emerging topics in technology, operations, innovation management and entrepreneurship. The esteemed panelists explore the effect of bigdata/AI on entrepreneurship research, the multidisciplinary domain of knowledge outsourcing, challenges of business education, and the expansion of the domain of innovative operations.

Invited Session

193

Saturday, 09:00 AM - 10:00 AM, Retail Operations

Track: Retail Operations

Invited Session: Variety and Assortments

Chair(s): A. Serdar Simsek

101-0067   Robust Learning of Customer Preferences from Dynamic Assortments

Yifan Feng, Student, University of Chicago, United States

Rene Caldentey, Professor, University of Chicago, United States

Christopher Ryan, Assistant Professor, University of British Columbia, Canada

A company wishes to identify the most popular version of a product from a menu of alternative options. We study how to dynamically individualize the set of versions shown to each customer, so that the company can identify the best version from customer choices at the fastest speed.

101-0039   Market Dominance or Product Cost Advantage: Retail Power Impacts on Assortment Decisions

Hedayat Alibeiki, Assistant Professor, California State University San Marcos, United States

Shanling Li, Professor, Mcgill University, Canada

In this study, we investigate assortment reduction phenomenon under two substantial forms of retail power: market dominance and product cost advantage, and two forms of competition: simultaneous-move and dominant-fringe models.

101-0160   Variety and Inventory Trade-off in Retailing: An Empirical Study

Gurhan Kok, Professor, Koc University, Turkey

A. Serdar Simsek, Assistant Professor, University of Texas Dallas, United States

We investigate the trade-off between variety and inventory in retailing using a proprietary data set from a bookstore chain. We find that variety increases sales of the total category. Variety also increases the sales of top selling products, a surprising positive effect of the long-tail products on the fast movers.

Invited Session

194

Saturday, 09:00 AM - 10:00 AM, Revenue Management & Pricing

Track: Revenue Management and Pricing

Invited Session: Advances on Revenue Management and Pricing: Modeling and Optimization I

Chair(s): Ruxian Wang   Chenxu Ke

101-0574   The Limits of Bundling: High Demand with Limited Inventory

Tarek Abdallah, Assistant Professor, Northwestern University Kellogg School o, United States

We study a dynamic bundle pricing problem when the rm is selling multiple items but with limited inventory. We propose a new scaling regime to study this problem, called high-demand regime, where we scale the arrival rate in order to capture markets where demand is high but inventory is limited.

101-0757   Diamonds in the Rough: Leveraging Click Data to Spotlight Underrated Products

Sajad Modaresi, Assistant Professor, University of North Carolina Chapel Hill, United States
Seyed Emadi, Assistant Professor, University of North Carolina Chapel Hill, United States
Vinayak Deshpande, Professor, University of North Carolina Chapel Hill, United States

Inspired by a dataset from JD.com, we study the click and purchase behavior of customers using a structural estimation approach. We show that the value of click for customers can be quite significant. Moreover, by disentangling the observed and unobserved parts of product utilities, we identify the underrated diamond-in-the-rough products.

101-0320   The Pricing and Design of Loot Boxes

Ningyuan Chen, Assistant Professor, University of Toronto, Canada
Adam Elmachtoub, Assistant Professor, Columbia University, United States
Michael Hamilton, Assistant Professor, Katz Graduate School of Business, United States
Xiao Lei, Student, Columbia University, United States

A loot box is a random bundle of virtual items whose contents are not revealed until after purchase. Loot boxes are a popular tool for conducting microtransactions in online games. In this work, we consider how to optimally price and design loot boxes from the perspective of a revenue-maximizing seller.

Invited Session

196	Saturday, 09:00 AM - 10:00 AM, Service Operations Track: Service Operations
	Invited Session: Panel: Teaching Service Operations in a World of Service Mediocrity
	Chair(s): Barry Cross

101-2058   Panel: Teaching Service Operations: Hunting for Meaning and Purpose in a World of Service Mediocrity

Barry Cross, Assistant Professor, Queens University, Canada
Susan Goldstein, Associate Professor, University of Minnesota, United States
Richard Metters, Professor, Texas A&M University College Station, United States
Enrico Secchi, Assistant Professor, University College Dublin, Ireland

This moderated panel will discuss the general decline of service performance and society's acceptance for mediocre service, and, what we as academics can do in the classroom that enables an expectation for better service among students while providing the tools and perspective to focus on greater value creation.

Invited Session

200	Saturday, 09:00 AM - 10:00 AM, Supply Chain Management Track: Supply Chain Management
	Invited Session: Buyer-supplier Relationships
	Chair(s): Wc Benton

101-0469   Exit Strategies in Buyer-Supplier Relationships- A dyadic perspective in East vs West context

Farooq Habib, Lecturer, Cranfield University, United Kingdom
Michael Bourlakis, Professor, Cranfield University, United Kingdom
Emel Aktas, Professor, Cranfield University, United Kingdom

Based on a sample of 400+ recently terminated business relationships, we investigate how a set of antecedents influence exit strategies of firms operating in USA and China. Adopting a dyadic perspective we provide specific guidelines regarding how firms can end relationships with their counterparts in East vs West context.

101-0856   Complexities of Buyer-Supplier Relationships in Digital Supply Chains: An Empirical Study

Maria Jesus Saenz, Post Doc/Researcher, MIT, United States
Ozden Tozanli, Post Doc/Researcher, MIT, United States
Jamica Brillante, Student, MIT, United States
Yoon Joo Lee, Student, MIT, United States

This research analyzes the complex and adaptive dynamics of buyer-supplier relationships towards customer-focused and data-driven ecosystems. Delineating indicators for SC complexity and relationships, we investigate SC performance in the computing industry. A three-year longitudinal analysis of scorecard data, combining econometric models and scenario analysis, serves as empirical validation.

Invited Session

201	Saturday, 09:00 AM - 10:00 AM, Supply Chain Risk Management Track: Supply Chain Risk Management
	Invited Session: Tutorial in Supply Chain Risk Management
	Chair(s): Florian Lucker Oben Ceryan

101-2099   TUTORIAL in Supply chain risk management

Manmohan Sodhi, Professor, City University - London, United Kingdom

Supply chain risk management remains an area of great practical and research importance. This tutorial covers supply chain risk and its management in three parts: (1) understanding gaps in the literature, (2) applying different research methods, and (3) acknowledging emerging areas of risk such as climate change.

Invited Session

202

Saturday, 09:00 AM - 10:00 AM, Supply Networks   Track: Supply Networks

Invited Session: System Dynamics Models of Supply Networks I

Chair(s): Edward Anderson   Burcu Tan Erciyes

101-0851   Taming the Bull: Mitigation of Inventory and Ordering Amplification in Multi-Echelon Supply Chains

James Paine, Student, Sloan School of Management, United States

The 'bullwhip effect' is a classic, yet persisting, problem with reverberating consequences in inventory management. Using simulation modeling, this work develops online algorithmic approaches to mitigating bullwhip, including cost minimization and deep neural network methods. These approaches are empirically compared in simulation exercises making inventory ordering decisions alongside human players.

101-2440   Paucity and Plenty: A Dynamic Choice Model of a Bifurcated Food Supply Chain during COVID-19

James Paine, Student, Sloan School of Management, United States

As the COVID-19 pandemic strained food supply chains around the world, surges occurred simultaneously in both hunger and food surplus. This work presents a dynamic model of a food supply chain from production through consumption. This seeming contradictory outcome is illustrated utilizing dynamic spot pricing and multinomial logistic choice modeling.

Invited Session

203

Saturday, 09:00 AM - 10:00 AM, Sustainable Operations 1   Track: Sustainable Operations

Invited Session: Innovative Business Models in the Sharing Economy

Chair(s): Natalie (Ximin) Huang   Ioannis Bellos

101-1752   Hiding In Plain Sight: Strategic Ridesharing Drivers, Surge Pricing, And Mitigation Strategies

Jiaru Bai, Assistant Professor, Wake Forest University, United States
H. Sebastian Heese, Professor, North Carolina State University, United States
Manish Tripathy, Student, North Carolina State University, United States

In the presence of surge pricing, drivers may collude by turning their apps off and create an artificial shortage in supply, thus triggering surge prices. Such behavior can be profitable for the drivers; however, its effect on the overall system (customers and the ridesharing company) is unclear.

101-1860   Timing matters: sourcing workers in on-demand platforms

Ziqi Dong, Student, Temple University, United States
Guangwen Kong, Assistant Professor, Temple University, United States
Qiuping Yu, Assistant Professor, Georgia Institute of Technology, United States

We find that both the expectation and variance of on-demand workers' wage are changing when approaching to the pick-up date. We examine the best time to source on-demand workers in a freight matching platform.

101-0488   Economic and Environmental Implications of Vehicle Age Limit Requirement in Ridesharing

Vishal Agrawal, Associate Professor, Georgetown University, United States
Ioannis Bellos, Associate Professor, George Mason University, United States
Natalie (Ximin) Huang, Assistant Professor, University of Minnesota, United States

We study an important decision for ridesharing platforms, namely, the vehicle age limit requirement. The limit influences not only the price and service quality of ridesharing, but also the market competition with the primary and secondary markets of cars. We explore both the economic and environmental implications of this decision.

Invited Session

206

Saturday, 10:15 AM - 11:15 AM, 1- Major Events   Track: All Major Events

Invited Session: Honoring Hau Lee Part 1

Chair(s): Christopher Tang

101-2875   Honoring Hau Lee Part 1

Christopher Tang, Professor, University of California Los Angeles, United States

This session will honor Professor Hau Lee - a world leading scholar in Operations Management. In this session, different speakers will discuss the impact of Hau Lee's work on Bullwhip Effect and Triple-A Supply Chains.Speakers: Kal Singhal, Marshall Fisher, Jin Whang, Kamran Moinzadeh, Panos Kouvelis, Chung-Yee Lee.

Saturday, 11:30 AM - 12:30 PM

Invited Session

247

Saturday, 11:30 AM - 12:30 PM, 1- Major Events   Track: All Major Events

Invited Session: Honoring Hau Lee Part 2

Chair(s): Christopher Tang

101-2876   Honoring Hau Lee Part 2

Christopher Tang, Professor, University of California Los Angeles, United States

This session will honor Professor Hau Lee - a world leading scholar in Operations Management. In this session, different speakers will discuss the impact of Hau Lee's work on Bullwhip Effect and Triple-A Supply Chains.Speakers: Chris Tang, Morris Cohen, David Simchi-Levi, Jan Fransoo, Aleda Roth, Eric Johnson.

Saturday, 12:45 PM - 01:45 PM

Invited Session

292

Saturday, 12:45 PM - 01:45 PM, Behavior in OM   Track: Behavior in Operations Management

Invited Session: Social Preferences and Organizational Behavior in BOM

Chair(s): Yaozhong Wu

101-0036   Too many meetings? Scheduling rules for team coordination

Charles Corbett, Professor, UCLA Anderson School of Management, United States

Guillaume Roels, Associate Professor, INSEAD, France

In many knowledge-intensive operations (e.g., coding), workers produce individually but may benefit from periodic coordination with the others. As they keep producing, they encounter issues, which negatively impact their individual productivity, but can be resolved through a collective meeting. With a game-theoretic model, we evaluate different meeting schedule business rules.

101-2839   Information Asymmetry And Fairness Concerns

Ummuhan Akbay, Assistant Professor, Isik University, Istanbul, Turkey

We focus on a simple supplier-retailer supply chain where each firm has their private costs and determines their share of the selling price. We compare pricing decisions of the firms under perfect information, one-sided and two-sided asymmetry on the private cost information.

101-1572   Fairness and competition in supply chains

Jin Qi, Assistant Professor, Hong Kong University of Science and Technology, China

Yaozhong Wu, Associate Professor, National University of Singapore, Singapore

Chi Xie, Student, Chinese University of Hong Kong, China

Supply chain members often care about profit distribution in addition to their individual profits. We model supply chain members' preference for fairness in different settings characterized by product differentiation and competition. We analyze how supply chain members' fairness concerns affect each other's performance.

Contributed Session

293

Saturday, 12:45 PM - 01:45 PM, Covid-19 & Other Pandemics

Track: Covid-19 and Other Pandemics

Contributed Session: Economic aspects

Chair(s): Cristiane Do Nascimento

101-2465   The Effect of COVID-19 Shocks on Gross Domestic Product Loss

Reza Gharoie Ahangar, Student, University of North Texas, United States

Myungsup Kim, Associate Professor, University of North Texas, United States

This study aims to investigate the effect of labor supply, equity risk, consumption demand, and government expenditure shocks on Gross Domestic Product (GDP) loss. Findings show that the magnitude of consumption demand shock is greater, and countries with largest automobile manufacturers, Japan, Germany, and the US, experienced biggest GDP loss.

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101-2665   Withstanding the economic recession: Optimizing corporate strategies during the Covid-19 pandemic

Xiaowen Huang, Student, Yanshan University, China

Haiju Hu, Associate Professor, Yanshan University, China

With reference to the predictive analysis model, we input that including the change of national macroeconomic data, the normal operation state of enterprises, and the expected earnings of enterprises in the moment of sudden crisis, and output the guiding strategic direction.

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101-2784   Aging of the Brazilian labor market, a Post-Covid-19 Pandemic perspective.

Cristiane Do Nascimento, Student, UNIRIO, Brazil

Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil

ANA DIAS, Student, CEFET, Brazil

Marlien Herselman, Professor, Council for Scientific and Industrial Research (CSIR) in Pretoria Gauteng, South Africa

Martina Rašticová, Post Doc/Researcher, Mendel University in Brno, Czech Republic

Brazil is an emerging country with many challenges and opportunities. In Brazil the birth rate has been decreasing, the aging index has grown, and many things have changed during the Covid-19 Pandemic. The present study aims to analyze the aging of the Brazilian Labor Market with a Post-Covid Pandemic perspective.

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Invited Session

294

Saturday, 12:45 PM - 01:45 PM, Economic Models in OM

Track: Economic Models in Operations Management

Invited Session: Information Sharing and Customer Engagement in Supply Chain Management

Chair(s): Jiaru Bai   Yiwei Wang

101-0335   Sharing Demand Forecast With Retailer Under Upstream Competition

Aditya Jain, Assistant Professor, Baruch College, United States

We analyze demand information sharing behavior of two competing manufacturers with a common retailer. We highlight the effect of information sharing on wholesale prices and expected profits, and show that competition between manufacturer hinders incentive to share information.

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101-1143   Does Customer Email Engagement Improve Profitability? Evidence from a Field Experiment of a Subscription-based Service

Yiwei Wang, Student, UC Irvine, United States

Lauren Lu, Associate Professor, Dartmouth College, United States

Pengcheng Shi, Partner, AI List, United States

This paper empirically investigates how customer email engagement affects the profitability of subscription-based service providers. We analyze the outcome of a field experiment conducted by a large U.S. car wash chain, which offers tiered subscription services to consumers and employs an RFID-based technology to track subscriber service events.

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Invited Session

296

Saturday, 12:45 PM - 01:45 PM, Emerging Topics in OM

Track: Emerging Topics in Operations Management

Invited Session: Empirical Analytics

Chair(s): Liu Ming

101-1257   Will Organizational Change Improve Healthcare Service Efficiency? A Natural Experiment Study Says Yes.

Ai Ren, Assistant Professor, SUNY New Paltz, United States

Liye Ma, Associate Professor, University of Maryland, United States

Guodong Gao, Associate Professor, University of Maryland, United States

Qi Li, Assistant Professor, Northern Kentucky University Highland Heights, United States

We firstly develop a theoretical model and discuss how physicians respond to competition under different levels of asymmetric information. We then study a natural experiment in a large hospital. After introducing a new group of physicians to the hospital, the existing physicians group changed their behavior and improved healthcare efficiency.

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101-1359   Estimating and Exploiting the Impact of Photo Layout: A Structural Approach

Hanwei Li, Student, Massachusetts Institute of Technology, United States

David Simchi-Levi, Professor, Massachusetts Institute of Technology, United States

Michelle Wu, Post Doc/Researcher, Massachusetts Institute of Technology, United States

Weiming Zhu, Assistant Professor, I E S E, Spain

In this paper, we define, estimate and optimize the impacts of Airbnb photos on customers' renting decisions. We propose a novel estimation approach, and show that rearranging the sequence of images to align with the optimal photo layouts leads to 11.2% more booking for Airbnb hosts.

101-1384   Experimental Investigation of Product Returns

Yue Cheng, Assistant Professor, Peking University, China

Daniel Guide, Professor, Penn State University University Park, United States

Brent Moritz, Associate Professor, Penn State University University Park, United States

To reduce false failure returns, prior research has proposed a target rebate contract to coordinate the closed-loop supply chain. We first modify the model considering decentralized situation. Then, we conduct experiments to detect manufacturer's mid-point bias effect during constructing contracts and identify inequality averse retailer's behavior towards proposed contracts.

Invited Session

297 Saturday, 12:45 PM - 01:45 PM, Empirical Research in OM   Track: Empirical Research in Operations Management

Invited Session: Empirical Studies in Operations and Logistics Management

Chair(s): Alex Scott

101-1055   Empirical Analysis of the Effects of Hurricanes on Truckload Transportation

Shraddha Rana, Student, Massachusetts Institute of Technology, United States

Chris Caplice, Professor, Massachusetts Institute of Technology, United States

We analyze truckload transportation data to measure how unplanned disruptions like hurricanes affect capacity, volume, and prices, both locally and nationally. Our aim is to provide insights to shippers, carriers, and brokers on the duration and severity of impact to inform their transportation decisions during times of disaster.

101-2787   Effect of customer lifetime on delivery speed in ecommerce business

Vadim Glinskiy, Student, Northwestern University Kellogg School o, United States

We provide empirical evidence using data from JD.com that customers who have been using an e-commerce platform for a longer amount of time get faster shipping. For example, customers who started using JD 4 years ago are about 4% more likely to get single-day shipping compared to the newest customers

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101-0489   Elephants or Goldfish?: An Empirical Analysis of Carrier Reciprocity in Dynamic Freight Markets

Angela Acocella, Student, Massachusetts Institute of Technology, United States

Chris Caplice, Professor, Massachusetts Institute of Technology, United States

Yossi Sheffi, Professor, Massachusetts Institute of Technology, United States

Dynamic macroeconomic conditions and non-binding truckload freight contracts enable shippers and carriers to behave opportunistically. We present an empirical analysis of carrier reciprocity to demonstrate whether consistent performance and fair pricing by shippers when markets are in their favor results in maintained, high primary carrier tender acceptance when markets turn.

Invited Session

298 Saturday, 12:45 PM - 01:45 PM, Finance & OM   Track: Finance and Operations Management

Invited Session: FinTech Innovations and Supply Chain Finance

Chair(s): Aaron (Yunzhe) Qiu   Panos Kouvelis

101-0950   An Alternating Direction Method of Multipliers and Regression Approach to Pathwise Optimization

Bo Yang, Student, Carnegie Mellon University, United States

Selva Nadarajah, Assistant Professor, University of Illinois at Chicago, United States

Nicola Secomandi, Professor, Carnegie Mellon University, United States

Pathwise optimization is an approximate dynamic programming approach for American option and merchant energy production Markov decision processes. The difficulty of solving its underlying linear program limits its applicability. We develop an alternating direction method of multipliers and regression approach with improved computational complexity compared to extant methods.

101-1092   A New Integrated Risk-Management Policy for the Newsvendor Position

Paolo Guiotto, Assistant Professor, Padova University, Italy

Andrea Roncoroni, Professor, Essec Business School, France

We show that by integrating optimal combined custom hedge with optimal procurement, a newsvendor may obtain a significant mean-variance enhancement and risk-return improvement over all existing integrated risk management alternatives. This gain may be traded off for an increased level of operational flexibility.

101-0705   The Tokenvendor Problem: Tokenizing Cargo Reservations under Overbooking and No-Shows

Jacob Feldman, Assistant Professor, Washington University St Louis, United States

Panos Kouvelis, Professor, Washington University in St. Louis, United States

Aaron (Yunzhe) Qiu, Student, Washington University St Louis, United States

The container shipping industry suffers from the chronic losses caused by mismatching between liners and shippers. We develop a model of blockchain-based cargo reservation system, where token is designed to be a booking deposit to compensate the contractual party if the other side fails to honor the booking.

Invited Session

300

Saturday, 12:45 PM - 01:45 PM, Healthcare Analytics Track: Healthcare Analytics

Invited Session: Informing Health Policy through Modeling 1

Chair(s): Sze-chuan Suen

101-0342 Identifying the optimal timing of liver transplantation for ACLF-3 patients

Suyanpeng Zhang, Student, University of Southern California, United States
Sze-chuan Suen, Assistant Professor, University of Southern California, United States

Patients with acute-on-chronic liver failure grade 3 (ACLF-3) may require urgent liver transplantation but may be offered suboptimal organs. Using a Markov decision process model, we identify the maximum amount of time that a patient should wait for an optimal liver before accepting a marginal liver.

101-2457 Regulations for Substitutable Medical Devices

Fan Zhou, Student, University of Michigan - Ann Arbor, United States
Shima Nassiri, Assistant Professor, University of Michigan - Ann Arbor, United States
Ravi Anupindi, Professor, University of Michigan Ann Arbor, United States

We consider two substitutable medical devices used in the percutaneous coronary interventions. Without regulations, the profit-maximizing providers can misuse these devices and limit patients' access to care by setting high prices. We are interested in regulation policies that help avoid such adverse effects.

101-2485 Optimal Chronic Kidney Disease Screening Among Diabetics: A POMDP Approach

Chou-Chun Wu, Student, University of Southern California, United States
Sze-chuan Suen, Assistant Professor, University of Southern California, United States

We use a modified POMDP framework to identify whether a patient should be screened at every three-month interval from ages 30-85. The optimal policy suggests more frequent screening in all race and gender groups compared with the status quo policy, and black individuals need more frequent screening at early ages.

Invited Session

301

Saturday, 12:45 PM - 01:45 PM, Healthcare OM 1 Track: Healthcare Operations Management

Invited Session: Healthcare Payment Models

Chair(s): Mazhar Arikan

101-0478 Outcome-Based Reimbursement: The Solution to High Drug Spending?

Liang Xu, Assistant Professor, University of Nebraska Lincoln, United States
Hongmin Li, Professor, Arizona State University Tempe, United States
Hui Zhao, Associate Professor, Penn State University University Park, United States

To induce coverage of their drugs, manufacturers propose an innovative outcome-based reimbursement (OBR) scheme, under which manufacturers will refund insurers (and possibly patients) if the drugs does not achieve treatment target. We investigate the optimal design of OBR and its impact on insurer spending, manufacturer profit and patient health benefit.

101-2265 Incentive Design for Participants Retention in Clinical Studies

Xueze Song, Student, University of Illinois at Urbana Champaign, United States
Mili Mehrotra, Associate Professor, University of Illinois, United States
Tharanga Rajapakshe, Associate Professor, University of Florida, United States

Patient retention is one of the critical issues that haunt clinical studies. This paper analyzes two interventions—incentive payment and effort— and identify their optimal combination for retaining desired number of participants. Also, we examine several commonly observed payment schemes in practice and compare their relative performances under different settings.

101-2391 Estimating County Level COVID-19 Exponential Growth Rates Using Generalized Random Forests

Zhaowei She, Student, Georgia Tech, United States
Turgay Ayer, Associate Professor, Georgia Tech, United States
Jagpreet Chhatwal, Assistant Professor, Harvard University, United States
Zilong Wang, Student, Georgia Institute of Technology, United States

Rapid and accurate detection of community outbreaks is critical to address the threat of resurgent waves of COVID-19. However, it is challenging to balance the speed and accuracy of outbreak detection This paper presents a novel machine learning framework to balance this tradeoff using generalized random forests.

Invited Session

303

Saturday, 12:45 PM - 01:45 PM, Humanitarian Ops & Crisis Mgmt 1 — Track: Humanitarian Operations and Crisis Management

Invited Session: Modeling Approaches for Disrupting Human Trafficking

Chair(s): Shawn Bhimani   Kayse Maass

101-2582   The Visualization of Labor Trafficking Within Supply Chains

Emma Toole, Student, Northeastern University, United States

Shawn Bhimani, Assistant Professor, Northeastern University, United States

Arzeoo Jafari, Student, Northeastern University, United States

Amy Farrell, Associate Professor, Northeastern University, United States

Kayse Maass, Assistant Professor, Northeastern University, United States

Using 12 federally prosecuted human trafficking cases in the United States, we identify the actual and potential mechanisms that could have disrupted labor trafficking in the U.S. agricultural secor. By analyzing labor trafficking processes and creating network diagrams, we offer visual insights and recommendations to more effectively enact disruptions.

101-0848   Cracking Human Trafficking: Data Analysis, Pattern Recognition, and Path Prediction

Burcu Keskin, Professor, University of Alabama Tuscaloosa, United States

Nickolas Freeman, Assistant Professor, University of Alabama Tuscaloosa, United States

Gregory Bott, Assistant Professor, University of Alabama Tuscaloosa, United States

Human traffickers have been using mobile technologies, online classified advertisement sites, and social media but the volume and frequency of ads and the obfuscation tactics complicate the investigation. Our approach combines statistics with OR to identify patterns, distinguish post types, and predict the movement of the sex trafficking organizations.

101-1755   How Supply Chains Break

Shawn Bhimani, Assistant Professor, Northeastern University, United States

We present an econometric analysis of the types and causes of supply chain failure, including a framework to better predict, prevent and understand catastrophic supply chain disruptions. This is critical for continuity of operations in corporate, military, and humanitarian supply chains, as well as for breaking illegal supply chains.

Invited Session

305

Saturday, 12:45 PM - 01:45 PM, Information Systems & OM 1 — Track: Information Systems and Operations Management

Invited Session: IS and Operations Interface

Chair(s): Zhen Sun

101-0366   Physician Payments Sunshine Act: The Impact of Information Disclosure Policy

Zhen Sun, Assistant Professor, The George Washington University, United States

Wenjing Duan, Associate Professor, George Washington University, United States

Sherri Cheng, Associate Professor, SAINT LOUIS UNIVERSITY, United States

Starting in 2013, federal Physician Payments Sunshine Act (PPSA) required unified country-wide reporting and disclosure of the physician-pharmaceutical industry interaction. In this paper, we use the pre-PPSA and after-PPSA pharmaceutical companies' physician payment data, together with Medicare Part D's physician prescription data to explore the efficacy of the policies.

101-0420   Mining Relevant Opinions on Large-scale Social Network: An Embedding Model based Approach

Zhe Shan, Assistant Professor, Miami University, United States

It is challenging to retrieve accurate sentiment on specific focuses from large-scale online social network. We investigate users' social behavior by analyzing their tweets and network structure based on the embedding model. Our finding will help to efficiently identify targeted groups with different focuses and capture relevant opinions.

101-1095   On-Demand Healthcare Platforms: Impact of Subsidized Q&A Service on Demand for Online and Offline Consultation

Yixuan Liu, Student, University of Texas Austin, United States

Ashish Agarwal, Associate Professor, The University of Texas at Austin, United States

Guoming Lai, Associate Professor, University of Texas Austin, United States

Weihua Zhou, Professor, Zhejiang University, China

Many emerging on-demand healthcare platforms oﬀer patient subsidy in the form of a short-duration Q&A service at a meager price to induce user adoptions. Using a rich panel data from a platform in China, we find such a service increases demand for both online consultations and offline appointments.

Invited Session

313

Saturday, 12:45 PM - 01:45 PM, Procurement & Supplier Management

Track: Procurement and Supplier Management

Invited Session: Sustainability in Procurement and Supply Management

Chair(s): Dustin Cole

101-0027   Generating social impact through supply chain management: A typology of social value creation strategies

Kelsey Taylor, Lecturer, University of Manitoba, Canada

Social enterprises continue to demonstrate their potential to address the world's toughest social issues, yet little is known about how their supply chains contribute to the creation of social value. This paper presents a typology of social impact supply chains based on different social value creation strategies.

101-0990   More sustainable supply chains: Is the journey more important than the destination?

Robert Klassen, Professor, Ivey Business School, Western University, Canada

Jury Gualandris, Assistant Professor, Ivey Business School, Western University, Canada

William Diebel, Student, Ivey Business School, Western University, Canada

We examine and illustrate how more sustainable supply chains develop over a journey that engages multiple stakeholders beyond supply chain partners. This journey-based perspective provides a framework for structuring engagement, encouraging openness and assessing the journey as it occurs.

101-1040   Impact of Water Stress on Organizational Performance

Dustin Cole, Student, Michigan State University, United States

Sriram Narayanan, Professor, Michigan State University, United States

Elizabeth Connors, Assistant Professor, Michigan State University, United States

We explore the impact of facility level water stress on parent organization performance with a focus on financial and sustainability performance, specifically examining the impact of water stress on firm costs, overall water usage and carbon emissions.

Invited Session

314

Saturday, 12:45 PM - 01:45 PM, Product Innovation & Technology Mgmt

Track: Product Innovation and Technology Management

Invited Session: People, process, and R&D performance

Chair(s): Tian Chan

101-2246   Factors Impact R&D Firm's Responsiveness to New Market Opportunity Under Time Pressure

Qiong Chen, Assistant Professor, Southwestern University of Finance and Economics, China

Mengyang Pan, Associate Professor, Southwestern University of Finance and Economics, China

Wenli Xiao, Assistant Professor, University of San Diego, United States

We draw on alliance network theory to examine how structural holes, network centrality, and types of collaborator impact R&D firms' responsiveness to new market opportunity. Using survival analysis, we find that degrees of familiarity with the partner, partner type, and structural holes together exert significant impacts.

101-2392   Technological experience and process innovation in pharmaceutical industry.

Ivan Lugovoi, Student, Hec Paris, France

Dimitrios Andritsos, Assistant Professor, Hec Paris, France

Claire Senot, Associate Professor, Tulane University, United States

Utilizing a unique dataset of the process-patent expert evaluations of 50 generic pharmaceutical products over a 10-year period and controlling for the degree of vertical integration across firms, we explore in depth the link between focal, related and unrelated technological experience and process innovation.

101-0715   Understanding User Hacks: Search Paths, Modularity and Design Triggers in IKEA hacks

Tian Chan, Assistant Professor, Emory University, United States

Shi Ying Lim, Professor, National University of Singapore, Singapore

Users, when facing products that don't fit their needs, may "hack" or transform the product to something else. How should we think about hacks? What product features enables hacks to happen? Using IKEAHackers as a context, we theorize the effect of product modularity on different sorts of hacks.

Invited Session

316

Saturday, 12:45 PM - 01:45 PM, Retail Operations

Track: Retail Operations

Invited Session: Omnichannel and E-commerce Retail Operations

Chair(s): M. Serkan Akturk

101-0095   Assessing the Value of Launching Omni-channel Retailing Services

Yao Chen, Student, Clemson University, United States

M. Serkan Akturk, Assistant Professor, Clemson University, United States

Using analytical models, we investigate the value of launching buy-online ship-to-store (STS) service under omni-channel. In doing so, we create two separate models for the STS service depending on the delivery method: Contracting with a third-party courier or using the firm's own vehicles. Our results provide important managerial insights.

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101-0888   Store Assortment and Store Return Decisions of an Omnichannel Retailer

Punya Chatterjee, Student, Penn State University State College, United States

Aydin Alptekinoglu, Associate Professor, Penn State University University Park, United States

Nicholas Petruzzi, Professor, Penn State University State College, United States

We study an omnichannel retailer's optimal store assortment and return policy to determine (1) which m of n substitutable products should be carried in the store and (2) whether or not store returns of online purchases should be allowed, given that consumers are uncertain of their product valuations before inspection.

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101-0186   Exploring the Impact of Launching Omnichannel Service Offerings

M. Serkan Akturk, Assistant Professor, Clemson University, United States

Michael Ketzenberg, Associate Professor, Texas A&M University College Station, United States

Using a proprietary transaction level dataset from a U.S. based retailer, we explore the impact of launching omnichannel service offering across both online and offline channels. Our findings are extensive and provide managerial insights in the omnichannel retail operations domain.

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Invited Session

317	Saturday, 12:45 PM - 01:45 PM, Revenue Management & Pricing Track: Revenue Management and Pricing

Invited Session: Advances on Revenue Management and Pricing: Modeling and Optimization II

Chair(s): Ruxian Wang   Chenxu Ke

101-1556   Dynamic Pricing under a Static Calendar

Will Ma, Assistant Professor, Columbia University, United States

David Simchi-Levi, Professor, Massachusetts Institute of Technology, United States

Jinglong Zhao, Student, Massachusetts Institute of Technology, United States

Through our collaboration with a large Consumer Packaged Goods company, we find while they appreciate the advantages of dynamic pricing, they deem it operationally much easier to plan out a static price (and assortment) calendar in advance. We investigate the efficacy of static control policies for dynamic revenue management problems.

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101-0605   Dynamic type matching

Ming Hu, Professor, University of Toronto, Canada

Yun Zhou, Assistant Professor, Mcmaster University, Canada

We study a centralized dynamic matching model where a firm matches various types of demand and supply over a number of time periods. We characterize the optimal policy and develop heuristic methods for efficient computation.

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101-0754   Revenue Management under Consumer Choice Models with Consideration Set

Ruxian Wang, Associate Professor, Johns Hopkins University, United States

In this paper, we study the role of consideration set in consumer choice behavior, and its impact on firms' decision on assortment and price optimization. An empirical study demonstrates the importance of consideration set in decision-making.

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Invited Session

319	Saturday, 12:45 PM - 01:45 PM, Service Operations Track: Service Operations

Invited Session: Psychological Effects in Services

Chair(s): Kejia Hu

101-0254   The Impact of Waiting Location on Customer Satisfaction: An Empirical Analysis of Preoperative Patient Flow

Dawson Kaaua Kaaua, Assistant Professor, Georgetown University, United States

Christian Terwiesch, Professor, The Wharton School, United States

Santiago Gallino, Assistant Professor, The Wharton School, United States

Shivan Mehta, Assistant Professor, University of Pennsylvania, United States

Using observational and experimental data, we find evidence that: (i) customers are less satisfied waiting in certain buffer locations of a tandem queue; (ii) customers use inaccurate heuristics to track first-in-first-out queue discipline in transparent areas of the queue; and (iii) customers may monitor their scheduled appointment time.

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101-0416   Examining the Impact of Virtual Queue on Consumers' Perception

Kejia Hu, Assistant Professor, Vanderbilt University, United States

Xun Xu, Associate Professor, California State University Stanislaus, United States

Ao Qu, Student, Vanderbilt University, United States

Via online consumer reviews of restaurants, we examine consumers' perception toward the services before and after the launch of a virtual queue app. We found the virtual queue affects consumers' perceived quality of restaurant services. The impact is influenced by the perceived value and the substitutability of the services.

101-2252 The Impact of Predicted Quality and Associated Costs on Service Quality Assurance Behavior

Woohyun Cho, Associate Professor, University of New Orleans, United States
Dong-Jun Min, Assistant Professor, University of New Orleans, United States

We conceptualize and empirically examine the link between the level of quality assurance behavior (QAB) and potential QAB drivers. We find that customers increase costly QAB with a greater probability of service failure in the airline industry, suggesting the interplay between customers and service providers.

Invited Session

323 Saturday, 12:45 PM - 01:45 PM, Supply Chain Management   Track: Supply Chain Management

Invited Session: Behavioral Issues in Supply Management

Chair(s): Li Cheng

101-0525 Reverse auction in an innovation outsourcing triad

Hubert Pun, Associate Professor, University of Western Ontario, Canada
Tingting Yan, Associate Professor, Wayne State University, United States
Dina Ribbink, Assistant Professor, Oregon State University, United States

This study use a math model combined with a lab experiment to examine supplier competitive bidding in an innovation outsourcing triad. Our findings break new ground in the dyadic behavioral buyer-supplier NPD literature by unraveling interesting bidding dynamics in the presence of supplier-supplier competition.

101-1969 The interplay of organizational goal construal and psychological distance on supplier sustainability decisions.

Saif Mir, Assistant Professor, Lehigh University, United States
Stephanie Eckerd, Assistant Professor, Indiana University Indianapolis, United States
John Aloysius, Professor, University of Arkansas, United States

The research examines how the psychological distance of supplier-induced events and abstractness of organizational goals influence managerial intentions to invest with the supplier. The results from a vignette based study suggest that the construal alignment of the organizational goals and the supplier-induced events increases the investment likelihood.

101-0830 A cross-cultural investigation of supplier-induced disruptions and resolutions: Revisiting the interaction effects of fairness

Qiong Wang, Associate Professor, University of Oklahoma, United States
Li Cheng, Assistant Professor, University of Dayton, United States
Christopher Craighead, Professor, University of Tennessee Knoxville, United States
Juan (Julie) Li, Professor, City University of Hong Kong, Hong Kong
Matthew Jensen, Professor, University of Oklahoma, United States

Following supplier-induced disruptions, the focal suppliers often engage in various justice approaches to repair the damaged buyer-supplier relationships. This experimental study examines the cross-cultural differences in the interplay between justice approaches and the disruption type on recouping the damaged trust in the relationship.

Invited Session

324 Saturday, 12:45 PM - 01:45 PM, Supply Chain Risk Management   Track: Supply Chain Risk Management

Invited Session: Global Risk Analtyics

Chair(s): Ahmet Colak

101-0381 The Role of Supply Chain in Retailer Take-Back: An Empirical Study

Yuqi Peng, Student, University of South Carolina, United States
Yan Dong, Associate Professor, University of South Carolina, United States
Sriram Venkataraman, Associate Professor, University of South Carolina, United States

Nowadays, many states have regulated manufacturers to take back their end-of-life products. In contrast, retailers are not regulated. While take-back services are costly, some retailers still offer voluntary take-back programs to customers. From a supply chain perspective, we empirically investigate why retailers have the incentive to offer take-back services.

101-2311 Effective management of COVID-19 disruptions: the critical role of logistics service providers

Nils-Ole Hohenstein, Professor, Cooperative State University Mannheim, Germany

COVID-19 supply chain disruptions have led to strong deterioration in firms' operational and financial performance. This paper provides a rigorous multiple case study on the disruption response strategies among ten logistics service providers. The research investigates outbreak-related 'ripple-effects', proactive and reactive disruption management practices, key success factors and lessons learned.

101-2868 Impact of abnormalities faced by Tier-1 suppliers and risk analysis within the Apparel industry.

Shradha Kapoor, Student, Duke University Durham, United Kingdom
manish shukla, Assistant Professor, Duke University Durham, United Kingdom

Examining the risks faced by the Tier-1 suppliers of an apparel and clothing supply chain industry by revising the literature from the perspective of a supplier and to focus on the atypical factors, like stock wastage, traumatic financial loss and excessive coercion from other tiers and buyers.

Invited Session

325

Saturday, 12:45 PM - 01:45 PM, Supply Networks   Track: Supply Networks

Invited Session: Exploring Partnerships Within Supply Networks

Chair(s): Sangho Chae

101-0245   Seeing Through: Awareness Cues to Predict Tie Formation in Buyer-Supplier Networks

Marat Davletshin, Student, University of Arkansas, United States
Gideon Markman, , ,

TWe offer several network-level cues to help firms spot and vet potential partners. Studying thousands of buyer-supplier ties formed over 13 years, we show that network coalescence, contraction, and membership in a value network predict reliable partnerships. Firms separated by four or more degrees, however, are unlikely to become partners

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101-0729   Beyond Network Synergy: Short- and Long-term Effects of MA Events on Supply Networks

Yang Yang, Assistant Professor, University of Texas at El Paso, United States
Sangho Chae, Assistant Professor, Tilburg University, Netherlands
Tingting Yan, Associate Professor, Wayne State University, United States

Firms increasingly engage in mergers and acquisitions (M&As) in recent years. While M&A events are expected to cause major structural changes to supply networks, no empirical study has examined these changes. This research uses secondary data to test the effects of M&As events on the acquiring firms' supply networks.

101-2075   Insights from 3.5 years of the logistics managers index

Zac Rogers, Assistant Professor, Colorado State University Fort Collins, United States
Dale Rogers, Professor, Arizona State University Tempe, United States
Steven Carnovale, Assistant Professor, Rochester Institute of Technology, United States
Sengun Yeniyurt, Associate Professor, Rutgers University, United States
Ron Lembke, Professor, University of Nevada Reno, United States

The Logistics Manager's Index (LMI) surverys managers to gain insights into the logistics industry. Preliminary results suggest LMI metrics act as leading indicators for both the manufacturing and the overall economy. We present results and insights from the first 3.5 years of the LMI and offer predictions going forward.

Invited Session

326

Saturday, 12:45 PM - 01:45 PM, Sustainable Operations 1   Track: Sustainable Operations

Invited Session: Sharing Economy

Chair(s): Natalie (Ximin) Huang   Wayne Fu

101-1431   Manufacturer's Voluntary Environmental Efforts Under Product Ban

Wenli Xiao, Assistant Professor, University of San Diego, United States
Natalie (Ximin) Huang, Assistant Professor, University of Minnesota, United States
Aditya Vedantam, Assistant Professor, University of Buffalo, United States

We study a manufacturer's voluntary environmental efforts as a preemptive strategy against potential regulatory action to ban future sales of its products. We show how a potential future product ban impacts the manufacturer's recycling rate decision on an existing product and its effort to develop a greener substitute product.

101-0220   Is Sharing Economy Green?

Esther Gal-Or, Professor, University of Pittsburgh, United States
Paolo Letizia, Assistant Professor, University of Tennessee Knoxville, United States
Fahimeh Rahmanniyay, Student, University of Tennessee Knoxville, United States
Paolo Roma, Assistant Professor, Universita Degli Studi Di Palermo, Italy

We study the profitability and environmental impact of sharing economy, considering the different incentives of the manufacturer, sharing platform, and consumers. The environmental impact is characterized by the trade-off between the number of products sold and the usage of each product.

101-1934   The Sharing Economy on Product Efficiency

Wayne Fu, Assistant Professor, University of Michigan Dearborn, United States
Natalie (Ximin) Huang, Assistant Professor, University of Minnesota, United States

We examine the impact of sharing economy on product efficiency (e.g., mileage-per-gallon of vehicles) in product design. While we observe that peer-to-peer sharing improves product utilization and motivates producers to enhance product efficiency, the decision becomes less straightforward for durable goods because of the existence of secondary markets

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Invited Session

331

Saturday, 02:00 PM - 03:00 PM, 3- POMS Tutorials   Track: All POMS Invited Tutorials

Invited Session: From the Classics to New Tunes: A Neoclassical View on Sharing Economy and Innovative Marketp

Chair(s): George Shanthikumar

101-2112   From the Classics to New Tunes: A Neoclassical View on Sharing Economy and Innovative Marketplaces

Ming Hu, Professor, University of Toronto, Canada

We take a neoclassical perspective by drawing inspiration from the classic models in operations management and economics. We aim at building connections and identifying differences between those traditional models and the new applications in sharing economy and innovative marketplaces.

Contributed Session

334

Saturday, 02:00 PM - 03:00 PM, Covid-19 & Other Pandemics   Track: Covid-19 and Other Pandemics

Contributed Session: Collaboration against pandemics

Chair(s): Fernando Ferreira

101-2199   Firm Responses to the COVID-19 Pandemic: Implications for Shareholder Value

Maximilian Klöckner, Student, ETH Zurich, Switzerland
Peter Resch, Student, Swiss Federal Institute of Technology Zurich, Switzerland
Christoph Schmidt, Post Doc/Researcher, Eth Zurich, Switzerland
Stephan Wagner, Professor, Swiss Federal Institute of Technology Zurich, Switzerland

In this study, we use the event study methodology to assess the strategic countermeasures that firms take to mitigate the negative financial consequences of the COVID-19 pandemic. Based on a sample of 440 countermeasure announcements, preliminary results suggest a positive stock market reaction to announcements of flexible operational adjustments.

101-2217   Humanitarian Supply Amid the COVID-19 Outbreak

Meng Li, Assistant Professor, Rutgers University, United States
Shichen Zhang, Student, Tianjin University, China

In this research, we study how suppliers distribute products to business buyers facing a severe shortage amid the COVID-19 outbreak. Our experiment reveals that suppliers deliver the emergency products faster with a cheaper wholesale price, when the company purchases products for donation or highlights the crisis information.

101-2276   Mobilizing a Task Force to Save Lives: Creating an Collaboration Network to Repair Ventilators

Fernando Ferreira, Professor, Fundacao Getulio Vargas, Brazil
Leticia Menegon, Professor, Fundacao Getulio Vargas, Brazil
Luis Vasconcellos, Professor, Fundacao Getulio Vargas, Brazil
Carlos Sakuramoto, Director of Innovation, General Motors, Brazil

The paper investigates the creation of an interorganizational collaboration network to repair almost 1,700 mechanical ventilators in Brazil during the COVID-19 pandemic. The collaboration network, made up of more than 130 companies and institutions, was a successful measure in preserving lives by replacing equipment in the Brazilian health system.

Invited Session

335

Saturday, 02:00 PM - 03:00 PM, Economic Models in OM   Track: Economic Models in Operations Management

Invited Session: Data Envelopment Analysis: Theories and Applications I

Chair(s): Dariush Khezrimotlagh

101-1229   Cooperation among homogeneous parallel decision making units with coalition structures

Junhua Hu, Professor, School of business, Central South University, China
Yao Wen, Student, Central South University, China
Qingxian An, Professor, School of business, Central South University, China
Sheng Ang, Assistant Professor, School of Management, University of Science and Technology of China, China

Both external cooperation between decision making units (DMUs) and internal cooperation between sub-units in the same DMU are helpful for DMU's performance improvement. This study constructs a cooperative game with coalition structures, called the data envelopment analysis (DEA) game with coalition structures, to describe the cooperation among homogeneous parallel DMUs.

101-0731   Large Scale Data Including Multiple Inputs and Multiple Outputs in Data Enabled Analytics

Dariush Khezrimotlagh, Assistant Professor, Pennsylvania State University Harrisburg, United States

Data envelopment analysis is a tool to find best-practice units, find reference units, find optimal inputs and output to achieve efficiency, and rank units. The elapsed times to solve DEA models are very large. Algorithms are described in this study with their pros and cons to decrease the elapsed times.

Contributed Session

337

Saturday, 02:00 PM - 03:00 PM, Emerging Topics in OM   Track: Emerging Topics in Operations Management

Contributed Session: Cross-cutting Studies in OM

Chair(s): Xinyu Kang   Di Li

101-2322   Legislative Action Driven Interorganizational Spillovers of Tacit Knowledge

Mengyang Pan, Associate Professor, Southwestern University of Finance and Economics, China
Luv Sharma, Assistant Professor, University of South Carolina, United States
Yingchao Lan, Assistant Professor, University of Nebraska Lincoln, United States

This study looks at the efficacy of legislative actions in driving a broader change in the target sector through interorganizational spillovers of compliance related tacit knowledge by shared resources. We also investigate the existence of anticipatory spillover effects as well as heterogeneity in such spillovers.

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101-2473   A Planner-Trader Decomposition For Multi-Market Hydro Scheduling

 Kilian Schindler, Post Doc/Researcher, EPFL, Switzerland
Napat Rujeerapaiboon, Assistant Professor, National University of Singapore, Singapore
Daniel Kuhn, Professor, EPFL, Switzerland
Wolfram Wiesemann, Professor, Imperial College London, United Kingdom

Peak/off-peak spreads on electricity spot markets are eroding, and the reduced profitability of peak/off-peak arbitrage forces hydropower producers to participate in the reserve markets. We propose a two-layer stochastic programming framework for the optimal operation of a hydropower plant, which sells energy on both the spot and the reserve markets.

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101-1565   Can 3D printing technology implementation improve environmental, business and operational performance? An empirical study.

Di Li, Senior Lecturer, University of Warwick, United Kingdom
John Bancroft, Senior Lecturer, Oxford Brooks University, United Kingdom
Hongyang Zeng, Student, University of Warwick, United Kingdom
Yizhen Zhang, Student, University of Warwick, United Kingdom
Xinyu Kang, Student, Birmingham City University, United Kingdom

3D Printing has been widely implemented in manufacturing industries. However, existed research lacks quantitative empirical investigation of impacts of this implementation. This paper aims to explore how 3D printing implementation affects environmental, business and operational performance, and how these impacts are moderated by product complexity, knowledge management capabilities, etc.

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Invited Session

338

Saturday, 02:00 PM - 03:00 PM, Empirical Research in OM   Track: Empirical Research in Operations Management

Invited Session: Leveraging Technology for Innovative Operations

Chair(s): Nagarajan Sethuraman

101-2655   Impact of Industry 4.0 Technologies in logistics industry: An Empirical Investigation

Venkataiah Chittipaka, Professor, GITAM University, India

COVID-19 is a wakeup call to the logistics industry to adopt industry 4.0 technologies into their business processes. This study examines the impact of implementation of industry 4.0 technologies in Indian logistics industry and contribute to the logistics industry in understanding the impact of industry 4.0 technologies.

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101-0608   Incentivizing Farmer Adoption of Agri-Technology Products

Duo Shi, Assistant Professor, The Chinese Univ of Hong Kong, Shenzhen, China
Xiao Tan, Student, Washington University in St. Louis, United States
Fuqiang Zhang, Professor, Washington University St Louis, United States

New agri-technology products like unmanned aerial vehicles help farmers with observing, seeding and fertilizing. Therefore, farmers' grain output can rise. However, the cost of buying a UAV is high. It is also of high risk and uncertainty to use these products. We characterize farmers'decisions in equilibrium.

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101-1276   Personal Fabrication as an Operational Strategy: Value of Delegating Production to Customer

Nagarajan Sethuraman, Assistant Professor, University of Kansas, United States
Ali Parlakturk, Associate Professor, Kenan-Flagler Business School, United States
Jayashankar Swaminathan, Professor, Kenan-Flagler Business School, United States

In this paper, we study an operational strategy enabled by 3D printing--- Personal Fabrication (PF) ---in which a firm focuses on product's design and delegates its production to customers. Using a 2-dimensional personalization model, we characterize the conditions under which, such a strategy benefits the firm.

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Invited Session

339	Saturday, 02:00 PM - 03:00 PM, Finance & OM	Track: Finance and Operations Management

Invited Session: Information-Driven Operations and Risk Management 1

Chair(s): Phil (Puping) Jiang   Panos Kouvelis

101-0703   Blockchain-Enabled Deep-Tier Supply Chain Finance

Lingxiu Dong, Professor, Olin Business School, Washington Univers, United States
Aaron (Yunzhe) Qiu, Student, Washington University St Louis, United States
Fasheng Xu, Assistant Professor, Syracuse University, United States

We study the use of advance payment (AP) as a financing instrument in a multitier supply chain to mitigate the supply disruption risk compare the traditional system (deep-tier financing with limited visibility) and the blockchain-enabled system (financing with perfect visibility).

101-0680   Managing Supplier Responsibility Risk in Multi-tier Supply Chains

Sammi Tang, Associate Professor, University of Miami, United States
Jeannette Song, Professor, Duke University Durham, United States

We consider a three-tier supply chain where risk stems from unauthorized tier-2 suppliers. The firm may choose either a delegation or control approach to manage the suppliers. We study the impact of the sourcing structure on firm's profit and risk under information proximity.

101-1195   IoT Data Ownership and After-sales Service Supply Chain Management

Cuihong Li, Associate Professor, University of Connecticut, United States
Brian Tomlin, Professor, Dartmouth College, United States

For uptime-critical assets, the Internet of Things (IoT) enables condition-based maintenance (CBM) through sensor-generated data combined with advanced analytics. In this research, we examine the implications of IoT data ownership (i.e., whether data owned by OEM or user) on the provision and adoption of CBM.

Invited Session

341	Saturday, 02:00 PM - 03:00 PM, Healthcare Analytics	Track: Healthcare Analytics

Invited Session: Informing Health Policy through Modeling 2

Chair(s): Sze-chuan Suen

101-0367   Surprising Effects of Disease Control in the Presence of Population Dynamics

Peng Dai, Student, University of Southern California, United States
Sze-chuan Suen, Assistant Professor, University of Southern California, United States

While increasing clearance rates of infectious disease may be an intuitive disease control measure, we find that doing so under certain population dynamics may result in counter-intuitive disease prevalence outcomes. We identify properties of a classic compartmental model (the susceptible-infected-susceptible, or SIS) model where this occurs.

101-2163   Split Liver Transplantation: A Decision Support Model

Yanhan Tang Tang, Student, Carnegie Mellon University, United States
Alan Scheller-Wolf, Professor, Carnegie Mellon University, United States
Sridhar Tayur, Professor, Carnegie Mellon University, United States
Emily Perito, Associate Professor, University of California, San Francisco, United States
John Roberts, Professor, University of California, San Francisco, United States

Split liver transplantation (SLT) is a procedure that saves two lives using one liver. To facilitate increased SLT usage, we formulate a multi-queue fluid system, incorporating size matching specifics, dynamic health conditions, operation type, and fairness. We find the optimal patient-liver/organ matching and evaluate the performance of allocation policies.

101-0565   Off-service Placement in Inpatient Ward Network: Machine Learning and Stochastic Models

Pengyi Shi, Assistant Professor, Purdue University, United States
Jing Dong, Assistant Professor, Columbia University, United States
Fanyin Zheng, Assistant Professor, Columbia University, United States

When waiting time is excessively long before a bed in the primary ward becomes available, a patient may be assigned to a bed in a non-primary ward. In this paper, we combine econometric and machine learning tools with stochastic models to study off-service placement.

Invited Session

342	Saturday, 02:00 PM - 03:00 PM, Healthcare OM 1	Track: Healthcare Operations Management

Invited Session: Improving Healthcare Through Capacity Management, Care Coordination, and Lean

Chair(s): Benjamin Grant

101-0662   Improving Mri Hospital Waiting Times Using Geographical Partial Pooling: an Empirical Analysis of 72

Yangzi Jiang, Student, Northwestern University Kellogg School o, United States

Jan Van Mieghem, Professor, Northwestern University, United States

Hossein Abouee Mehrizi, Assistant Professor, University of Waterloo, Canada

Significant mismatches between demand and capacity in MRI hospitals leads to prolonged waiting time which inspired our research of when and to what extend to implement pooling. Using patient-level data gathered from 72 MRI hospitals, we conducted an empirical analysis using regional pooling to achieve over 20% overflow reduction.

101-1797   Impact of Focus on Hospital Efficiency and Financial Performance: Moderating Effect of HIT

Sriram Venkataraman, Associate Professor, University of South Carolina, United States

Rajendra Singh, Associate Professor, University of Oklahoma, United States

Scott Turner, Associate Professor, University of South Carolina, United States

In this study, we examine the effect of focus on the efficiency as well as financial performance of hospitals. Further, we also examine the moderating effect of HIT bundles on the relationships of focus with efficiency and financial performance.

101-1938   Identifying Mechanisms Activated by the Use of Lean Operations in Healthcare Improvement Efforts.

Lawrence Fredendall, Professor, Clemson University, United States

Jaeyoung Kim, Student, Clemson University, United States

Gregory Hair, Director of Nursing, Department of Emergency medicine, PrismaHealth, United States

Marlon Oglesby, Director of Lean Improvement, PrismaHealth, United States

Cassie Mueller, Nurse Manager, PrismaHealth, United States

Healthcare managers are increasingly interested in applying lean operations techniques to improve their processes. Understanding how these tools affect employee behaviors as well as the physical work flows will assist managers in improving the work designs in their departments, reducing workarounds and improving patient safety.

Contributed Session

343	Saturday, 02:00 PM - 03:00 PM, Healthcare OM 2	Track: Healthcare Operations Management 2
	Contributed Session: Patient Scheduling	
	Chair(s): Yue Hu	

101-0561   Optimal Scheduling of Proactive Care with Patient Deterioration

Yue Hu, Student, Columbia University, United States

Carri Chan, Associate Professor, Columbia University, United States

Jing Dong, Assistant Professor, Columbia University, United States

Early treatment of less severe patients may reduce the need for more expensive resources later, but could also reduce available resources for more critical patients. We propose a two-class multi-server queueing model to understand how patients should be prioritized when proactive care can be used in a resource-limited healthcare setting.

101-1417   Partially-partitioned Templating Strategies for Outpatient Specialty Practices

Miao Bai, Assistant Professor, University of Connecticut, United States

Bjorn Berg, Assistant Professor, University of Minnesota, United States

Esra Sisikoglu Sir, Senior Scientist, Amazon.com, United States

Mustafa Sir, Senior Scientist, Amazon.com, United States

We present a stochastic optimization approach to design optimal patient prioritization schemes which maintain a desired patient mix and service level while simultaneously minimizing system inefficiencies (i.e., unfilled slots and overbooked appointments). Optimal capacity allocation prioritization policies are presented based on patient demand data from a large academic medical center.

101-2390   Coordinating Referral and Scheduling Policies in a Centralized Intake System for Specialized Healthcare Services

Amin Mahmoudian Dehkordi, Student, Wilfrid Laurier University, Canada

Michael Pavlin, Assistant Professor, Wilfrid Laurier University, Canada

We study patient access to specialized services under centralized and decentralized referral schemes. In this project, we define a bilevel optimization problem to determine optimal policies for players in a centralized system. Results include characterizing optimal centralized referral decisions and contrasting outcomes with those expected from a decentralized system.

Invited Session

344	Saturday, 02:00 PM - 03:00 PM, Humanitarian Ops & Crisis Mgmt 1	Track: Humanitarian Operations and Crisis Management
	Invited Session: From Donations to Logistics in Humanitarian Operations I	
	Chair(s): Sebastian Villa Gloria Urrea	

101-0239   Fleet sizing across different humanitarian organizations

Laura Turrini, Assistant Professor, European Business School, Germany

Nathan Kunz, Assistant Professor, University of North Florida, United States

Maria Besiou, Professor, Kuehne Logistics University, Germany

Luk Van Wassenhove, Professor, INSEAD, France

We focus on fleet management and empirically estimate what drives the fleet size of multiple humanitarian organizations in different countries. The analyzed elements include organization size, number of target beneficiaries and country vulnerability. We derive additional insights by comparing our results across the case organizations.

101-0248   A Discrete-Continuous Model for Optimal Facility Location in Disaster Response Logistics

Diana Ramirez-Rios, Student, Rensselaer Polytechnic Institute, United States

Jose Holguin-Veras, Professor, Rensselaer Polytechnic Institute, United States

This research proposes a facility location model that considers demand continuously distributed in a compact and convex region. It aims at the optimal location of facilities prior to the disaster, as well as the zone partitioning for the planning of points of distribution, by minimizing total social costs.

101-0315   The Effect of the Disaster Context on Humanitarian Logistics: An Empirical Investigation

Caspar Höyng, Student, Kuehne Logistics University, Germany

Maria Besiou, Professor, Kuehne Logistics University, Germany

Walid Klibi, Associate Professor, Kedge Business School, France

Dominik Papies, Professor, University of Tuebingen, Germany

Does disaster context matter? This paper studies the effect of disaster context, e.g. the disaster type (natural disasters, armed conflicts, and epidemics) on humanitarian operations. We perform a large-scale empirical study in which we analyze 7800 international shipments of a leading humanitarian organization to 30+ recipient countries.

Invited Session

346	Saturday, 02:00 PM - 03:00 PM, Information Systems & OM 1 Track: Information Systems and Operations Management
	Invited Session: Digital Platforms and Applications
	Chair(s): Lin Hao

101-1183   The Operational and Marketplace Perspectives for Mobile Apps: The Case of Free and Paid Games

Fujie Jin, Assistant Professor, Indiana University Bloomington, United States

Vijay Khatri, Professor, Indiana University Bloomington, United States

Jingjing Zhang, Assistant Professor, Indiana University Bloomington, United States

This paper seeks to contrast the additive value of iterative software release management for free and paid mobile applications. We empirically investigate how the frequency of functional and non-functional version releases contributes to mobile apps' longevity and ranking position in the popularity charts, contrasting between free and paid apps

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101-1727   Seeding vs. Time-Limited Freemium as Catalysts for the Adoption of Software

Hao Hu, Student, Georgia Institute of Technology, United States

Marius Niculescu, Associate Professor, Georgia Institute of Technology, United States

D.J. Wu, Professor, Georgia Institute of Technology, United States

In the software industry, developers can catalyze adoption by employing two very popular strategies: seeding and time-limited freemium. We aim to provide managerial recommendations on when each of these strategies is optimal, based on social learning and self-learning dynamics, pre-adoption consumer valuation perceptions, and individual product value depreciation.

101-1826   Coopetition in Ride Sharing Economy

Chenglong Zhang, Student, University of Texas at Dallas, United States

Jianqing Chen, Associate Professor, University of Texas at Dallas, United States

Srinivasan Raghunathan, Professor, UT Dallas, United States

Ride sharing platforms start cooperating with rental firms by allowing their drivers to use rental vehicles. Albeit the cooperation, the platforms and rental firms still compete for riders on demand side. Therefore, we investigate how their incentives to cooperate on supply side are affected by the competition on demand side.

Invited Session

354	Saturday, 02:00 PM - 03:00 PM, Procurement & Supplier Management Track: Procurement and Supplier Management
	Invited Session: Written and unwritten codes in supplier management
	Chair(s): Sangho Chae

101-0682   Shareholder value effects of ethical sourcing: Comparing reactive and proactive initiatives

Seongtae Kim, Assistant Professor, Aalto University, Finland

Sangho Chae, Assistant Professor, Tilburg University, Netherlands

In this study, we aim to estimate how ethical sourcing initiatives (ESIs) by firms create market value. ESIs are often established as a solution to managing suppliers' ethical misconduct. Using the event study methodology, we reveal whether and how the stock market responds to proactive versus reactive ESIs.

101-0702   Psychological contracts in buyer-supplier NPD projects

Chunping Deng, Associate Professor, Beijing Technology And Business University, China

Tingting Yan, Associate Professor, Wayne State University, United States

Jiye Miao, Professor, Renmin University, China

In a buyer-supplier NPD project, whether project members from the two firms think alike could affect member engagement and ultimately project performance. After analyzing a dyadic, matched project-level data set, this study shows the importance of understanding buyer-supplier congruence in psychological contracts for predicting project performance.

101-1710   Cyber Disruptions in the Supply Chain: An Event Study

Zac Rogers, Assistant Professor, Colorado State University Fort Collins, United States

Seongkyoon jeong, Student, Arizona State University Tempe, United States

Thomas Choi, Professor, Arizona State University Tempe, United States

John Macdonald, Assistant Professor, Colorado State University Fort Collins, United States

Nearly two thirds of cyber attacks are being launched through the supply chain. Our event study, covering a period from 2010-2017 explores these cyber incursions, their propensity to disrupt operations, and their financial impact. We examine attack patterns, and recommend strategies supply managers might employ to mitigate this growing threat.

Invited Session

355	Saturday, 02:00 PM - 03:00 PM, Product Innovation & Technology Mgmt	Track: Product Innovation and Technology Management
	Invited Session: The Expanding World of Innovation Contests	
	Chair(s): Joel Wooten	

101-0025   Sourcing Innovation: When Is Owning a Supplier Good for Innovation?

Zhi Chen, Assistant Professor, National University of Singapore, Singapore

Jurgen Mihm, Professor, INSEAD, France

Jochen Schlapp, Associate Professor, Frankfurt School of Finance & Management, Germany

One of the central questions in the strategic procurement of innovative goods is whether a buyer should own a stake in a critical supplier or not. In this study, we analyze when a buyer should source from independent suppliers exclusively and when it should (partially) own one of the suppliers.

101-1550   Is Experimentation Invariant to Group Size? A Laboratory Analysis of Innovation Contests

Stanton Hudja, Student, Purdue University, United States

This paper uses a laboratory experiment to investigate the role of group size in an innovation contest. Subjects compete in a discrete time innovation contest, based on Halac, Kartik, and Liu (2017), where subjects, at the start of each period, are informed of the aggregate number of innovation attempts.

101-1731   The Effects of Prize Structures on Innovative Performance

Elizabeth Lyons, Assistant Professor, UC San Diego, United States

Josh Graff Zivin, Professor, UC San Diego, United States

Successful innovation is essential for the survival and growth of organizations but how best to incentivize innovation is poorly understood. We study the effects of two common incentive schemes on innovative performance in a field experiment run in partnership with a large life sciences company.

Invited Session

357	Saturday, 02:00 PM - 03:00 PM, Retail Operations	Track: Retail Operations
	Invited Session: Digital Retail	
	Chair(s): Xinyu Shirley Liang	

101-0419   Marketplace Expansion 'At All Cost' :If You Lie With Dogs, Do You Rise With Fleas?

Wenchang Zhang, Assistant Professor, Kelley School of Business, United States

Wedad Elmaghraby, Professor, University of Maryland, United States

Ashish Kabra, Assistant Professor, Robert H. Smith School of Business, United States

Using data from an online auctions marketplace, we explore how platform growth is affected by the quality of sellers brought in exogenously. We find that adding low quality sellers may slow down the growth, as buyers who join are more quality in-sensitive leading existing sellers to negatively adjust their supply

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101-2456   Fit-disclosing Technology, Website Quality and Online-Search-Attribute Importance: Impact on Multichannel Retailer's Product Placement and Pricing

Raunak Joshi, Student, Indian Institute of Management Calcutta, India

Sumanta Basu, Associate Professor, Indian Institute of Management Calcutta, India

Balram Avittathur, Professor, Indian Institute of Management Calcutta, India

Sreelata Jonnalagedda, Associate Professor, Indian Institute of Management Bangalore, India

Providing accurate product fit-information is a challenge for any retailer selling product through online channel. We formulate analytical framework to characterize the combined effect of fit-disclosing technology, website quality and product's online-search-attribute importance on the pricing and placement strategies of a multichannel retailer competing with a pure online player.

101-0166   Pricing Over-The-Counter Drugs: Evidence from Field Experiments

Xinyu Shirley Liang, Student, University of Michigan Ann Arbor, United States

Yixin Iris Wang, Assistant Professor, University of Illinois Urbana-Champaign, United States

Jun Li, Associate Professor, University of Michigan - Ann Arbor, United States

The OTC drug retail pharmacy industry is subject to high competition and low margin. Faced with localized demand, how to integrate local information into pricing is a key challenge in a competitive environment. We investigate the role of behavior and information in discretionary pricing using a field experiment.

Invited Session

358

Saturday, 02:00 PM - 03:00 PM, Revenue Management & Pricing   Track: Revenue Management and Pricing

Invited Session: Revenue Management: Advertising Applications and Computational Methods

Chair(s): John Turner   Rui Zhang

101-2037   An Approximation Algorithm for Network Revenue Management with Reusable Resources

Chung-seung Lee, Assistant Professor, SUNY Korea, South Korea

Metin Cakanyildirim, Professor, University of Texas Dallas, United States

We provide an approximation algorithm for network revenue management problems with reusable resources. Our approximation algorithm extends the algorithm of Ma et al. 2020 to incorporate reusable resources with random usage durations. We establish a stronger performance guarantee result.

101-0867   Revenue Management with Endogenous Buy-up

Mihai Banciu, Associate Professor, Freeman College of Management, United States

Fredrik Odegaard, Associate Professor, Ivey Business School, Western University, Canada

Alia Stanciu, Assistant Professor, Bucknell University, United States

We consider a single-resource that is sold via multiple fare classes with uncertain but statistically dependent demand. Customers may upgrade their class in an endogenous fashion, given their fare valuations. We determine the seller's optimal allocation capacity policy and investigate the behavior of the corresponding revenue function.

101-1416   Product-based Approximate Linear Programs for Network Revenue Management

Saied Samiedaluie, Assistant Professor, University of Alberta, Canada

Dan Zhang, Professor, University of Colorado Boulder, United States

Rui Zhang, Assistant Professor, University of Colorado Boulder, United States

We propose a novel functional approximation for the network revenue management problem. We show that the resulting ALP admits compact reformulations. Furthermore, we derive a set of valid inequalities. We show that the new approximation has advantage computationally and leads to bid-price policies generating higher expected revenues.

Invited Session

360

Saturday, 02:00 PM - 03:00 PM, Service Operations   Track: Service Operations

Invited Session: Data Driven Research in Service Operations

Chair(s): Ovunc Yilmaz

101-0916   Effects on unstable schedule on workers' performance under zero-hours contracts

Antoaneta Momcheva, Student, IE BUSINESS SCHOOL, Spain

Fabrizio Salvador, Professor, IE University, , Spain

Rocio Bonet, Associate Professor, IE BUSINESS SCHOOL, Spain

Facing irregular demand patterns, many service firms contract workers for specific hours where they are needed to meet demand. We conceptualize different metrics for schedule instability and investigate their impact on workers' performance using a proprietary dataset of 1.3 million home visits performed by caregivers over a 5-year period.

101-2468   Improved Group Decisions in Service Industries using Topic Modelling and Analytic Hierarchy Process

Jin Fang, Student, Drexel University, United States

Fariborz Partovi, Professor, Drexel University, United States

We used topic modeling to discover critical criteria and their corresponding weights in the Analytic Hierarchy Process (AHP). Approximately 200,000 reviews were scraped from TripAdvisor.com for criteria determination. Next, an AHP model with criteria and hotels/restaurants as alternatives were ranked. The results compared favorably with reviews in TripAdvisor.com.

101-1133   Data-Driven Sports Ticket Pricing for Multiple Sales Channels with Heterogeneous Customers

Ovunc Yilmaz, Assistant Professor, University of Colorado Boulder, United States

Hayri Arslan, Assistant Professor, University of Texas at San Antonio , United States

Robert Easley, Professor, University of Notre Dame, United States

Ruxian Wang, Associate Professor, Johns Hopkins University, United States

We partner with a college football team and develop a pricing tool to study purchase behavior from distinct segments of customers, and to optimize prices in a sports ticket market with multiple sales channels. Analyzing different policies, we show that optimized prices bring up to 12.4% additional revenue.

Invited Session

364

Saturday, 02:00 PM - 03:00 PM, Supply Chain Management   Track: Supply Chain Management

Invited Session: Supply Chain Innovations in China

Chair(s): Xiande Zhao

101-0058   Competitive and Collaborative Take-Back Schemes on Waste Electrical and Electronic Equipment Remanufacturing

yang ming, Student, Beijing University of Chemical Technology, China
Xiang Li, Professor, Beijing University of Chemical Technology, China
Xiande Zhao, Professor, China Europe International Business School, China
Liang Wang, Post Doc/Researcher, China Europe International Business School, China

This paper studies a Stackelberg model to provide original equipment manufacturer (OEM) remanufacturing strategies in the face of an independent remanufacturer (IR). We analyze the OEM's and the IR's Stackelberg equilibrium conditions under competitive and collaborative take-back schemes. Finally, we discuss conditions under which each take-back scheme is beneficial.

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101-0060   Collaborative Innovation in a Supply Chain

Wenqing Zhang, Associate Professor, University of Minnesota Duluth, United States
Xiande Zhao, Professor, China Europe International Business School, China

Innovation plays an important role in pursuing an organization's long term economic, environmental and social goals. In this study we intend to investigate the best feasible mechanism of collaborative innovation and how social factors such as trust and altruism impact the collaborative innovation decisions using a game theoretic setting.

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Invited Session

365

Saturday, 02:00 PM - 03:00 PM, Supply Chain Risk Management   Track: Supply Chain Risk Management

Invited Session: Supply Chain Disruption Risk Management

Chair(s): Florian Lucker   Vadim Glinskiy

101-2520   Swift Knowledge Transfer for Supplier Development

Rebecca Clemons, Assistant Professor, Indiana University, United States

Supply disruption is costly and when management must develop a new source of supply, this must happen quickly. One aspect of new supplier development is sharing knowledge. How does the pressure of time impact knowledge transfer? Time pressure is defined as not having enough time to follow standard procedures.

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101-1455   The role of cognitive capital in supply chain resilience: a case study of COVID-19

Anis Daghar, Student, Cranfield School of Management, United Kingdom
Leila Alinaghian, Senior Lecturer, Cranfield School of Management, United Kingdom
Neil Turner, Reader, Cranfield School of Management, United Kingdom

The role of social capital is central in supply chain resilience (SCRES). Despite cognitive capital's importance, its role and conceptualization in supplier-buyer relationships remain underinvestigated. This case study explores cognitive capital enablers, and their connections with SCRES' temporal and underexamined capabilities to prepare, respond, recover, and learn.

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101-0344   Managing Disruption Risk Over The Product Life Cycle

Vadim Glinskiy, Student, Northwestern University Kellogg School o, United States
Sunil Chopra, Professor, Kellogg School of Management, United States
Florian Lucker, Assistant Professor, Cass Business School, United Kingdom

We study supply chain risk mitigation strategies over the product life cycle where demand depends on previous sales. This results in behavior that is counter to the literature where demand is often independent of sales. For example, orders from an unreliable supplier may increase in the probability of disruption.

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Invited Session

366

Saturday, 02:00 PM - 03:00 PM, Supply Networks   Track: Supply Networks

Invited Session: Supply Network and Network Analytics

Chair(s): Yi-Su Chen

101-0198   Best of Frenemies: Analyzing interdependencies in the supply networks of competing firms

James Minas, Assistant Professor, Ithaca College, United States
Natalie Simpson, Associate Professor, Suny At Buffalo, United States

The increasingly level of interconnectedness in modern supply chains has in some quarters raised concerns about potential loss of supply chain resilience. We analyze authentic supply networks of leading companies from various industries and compare both their relative levels of interdependency and resulting potential for propagation of defects or disruptions.

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101-1462   Predicting Stock Price Movements with Dynamic Graph Neural Networks

John Rios, Student, University of Iowa, United States

Kang Zhao, Associate Professor, University of Iowa, United States

William Nick Street, Professor, University of Iowa, United States

Using real-world inter-firm networks among 2,700 public companies, this research predicts a firm's stock movements by leveraging neighboring firms' performance. We propose a novel Dynamic Graph Neural Network model that learns time-dependent node embeddings and provides node classifications over time. Our model can provide higher predictive performance and better interpretability.

101-1471   Avoiding garbage in garbage out by understanding the information supply network

William Sawaya, Associate Professor, Bowling Green State University, United States

Trent Buskirk, Professor, Bowling Green State University, United States

Analytics, statistics, IOT, RPA, and big data are all the rage as organizations seek to leverage computational power and data availability for decision making. But no matter how sophisticated the analysis, the decisions are likely no better than the input data. This research conceptualizes error in the information supply network.

Invited Session

367	Saturday, 02:00 PM - 03:00 PM, Sustainable Operations 1 Track: Sustainable Operations
	Invited Session: Empirical and behavioral topics in sustainable operations
	Chair(s): Anna Saez De Tejada Cuenca

101-2824   An environmental impact analysis of the energy consumption of the organizational behavior

WALLICE SOUZA, Student, Centro Federal De Educacao Technologica - Cefet, Brazil

Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil

Augusto Reis, Professor, Centro Federal De Educacao Technologica - Cefet, Brazil

Abhishek Behl, Post Doc/Researcher, Indian Institute of Technology Bombay, India

Bruno Zavrsnik, Professor, University of Maribor, Faculty of Economics and Business, Slovenia

The concept of energy consumption efficiency is characterized by using fewer resources. Due to the great concern about the scarcity of natural resources, this article aims to develop a literature review about managing energy consumption of the organizational behavior in order to reduce costs and environmental impacts on the Planet.

101-0675   The impacts of government intervention on environmental protection decisions of polluting enterprises

Haifeng Zhao, Professor, Tongji University, China

JIEQIONG MA, Student, Tongji University, China

The environmental protection inspection is one of the tools commonly used by the government. With government intervention, enterprises' environmental decisions have become more complicated. We use empirical methods to explore the impacts of government intervention on environmental protection decision-making of polluting enterprises. Our findings provide management insights for environmental problems.

101-0281   Spillovers Between Sustainable and Conventional Products

Vishal Agrawal, Associate Professor, McDonough School of Business, United States

Neeru Paharia, Associate Professor, McDonough School of Business, United States

Anna Saez De Tejada Cuenca, Assistant Professor, IESE Business School, Spain

Using behavioral experiments, we investigate how the presence of sustainable products influences the perceived value of conventional products, and vice versa. We also analyze whether the effect of a sustainable product offered under the same brand as the conventional one is different than when offered under a different brand.

Saturday, 03:15 PM - 04:15 PM

Invited Session

371	Saturday, 03:15 PM - 04:15 PM, 2- Meetings & Programs - All are Welcome Track: All Meetings & Programs A: Open to Everyone
	Invited Session: Panel: Academic Leadership - Challenges and Opportunities
	Chair(s): Bala Shetty

101-2849   Academic Leadership - Challenges and Opportunities

Eve Rosenzweig, Professor, Emory University, United States

Manoj Malhotra, Professor, Case Western Reserve University, United States

Richard Metters, Professor, Texas A&M University College Station, United States

Eric Johnson, , ,

POMS Academic Leadership Group (ALG) is pleased to announce a session on developing leadership skills and learning about leadership in academia. A panel of distinguished deans and department heads will share their journey that led to their current roles and also share some best practices for academic leadership.

Contributed Session

374

Saturday, 03:15 PM - 04:15 PM, Behavior in OM

Track: Behavior in Operations Management

Contributed Session: Field and case studies in organizations

Chair(s): Thoa Pham

101-1174 INTEGRATING SPIRITUALITY AND ORGANIZATIONAL LEADERSHIP IN SUPPLY CHAIN MANAGEMENT: A CASE STUDY OF AURA

SUNITA SENGUPTA, Professor, University of Delhi, India

The purpose of the present paper is to explore the ethical and spiritual consciousness in leadership styles for sustainable innovation through value based supply chain management . The paper will be based on the case study of AURA – the outlet created by Sri Aurobindo Society, Auroville and SriAurobindo Ashram.

101-2437 The roles of boundary spanning capability, integrity, alternative supplier and long-term orientation on mitigating opportunism

Thoa Pham, Student, Yokohama National University, Japan

Kodo Yokozawa, Associate Professor, Yokohama National University, Japan

This study investigates inter-firm opportunism under individual level. We examine the impacts of boundary spanning capability and integrity on opportunism, and the moderating roles of alternative supplier and long-term orientation.

Contributed Session

375

Saturday, 03:15 PM - 04:15 PM, Covid-19 & Other Pandemics

Track: Covid-19 and Other Pandemics

Contributed Session: Firm/ Supply chain resilience

Chair(s): Weihan Jia

101-2546 Synchronized versus Unsynchronized Reopening of Facilities in a Global Supply Chain Affected by a Pandemic

Harshit Jha, Student, Indian Institute of Technology Madras, India

Usha Mohan, Associate Professor, Indian Institute of Technology Madras, India

We present a multi-period simulation model to examine the impact of delay duration in reopening of facilities at different echelons in a global supply chain affected by a pandemic. Using different demand scenarios, we analyze the difference in SC performance in case of synchronized and unsynchronized reopening of facilities.

101-2570 Optimal Inventory Policies in Disrupted Supply Chains During Pandemics: An Application to Diagnostic Test Kits

Mohammad Arbabian, Assistant Professor, University of Portland, United States

Hossein Rikhtehgar Berenji, Assistant Professor, Pacific University , United States

Not long after starting large-scale COVID-19 testing, countries faced a shortage of swabs used in the testing kits. We develop analytical models to derive optimal policies and provide managerial insights on how countries should optimally react to changes in the supply and demand of swabs.`

101-2378 The Responsiveness and Restoration of Logistic Services during COVID-19: Evidence from China

Weihan Jia, Student, Trinity College Dublin, Ireland

Yufei Huang, Associate Professor, Trinity College Dublin, Ireland

Jinpeng Xu, Associate Professor, Xidian university, China

Gengzhong Feng, Professor, Xi'an Jiaotong University, China

This paper uses a dataset from an online freight platform in China to quantify the impact of COVID-19 pandemic on logistic services and evaluate the effect of free highway policy on the restoration of logistic services. We will present empirical results with both difference-in-differences approach and panel methods.

Contributed Session

376

Saturday, 03:15 PM - 04:15 PM, Economic Models in OM

Track: Economic Models in Operations Management

Contributed Session: Emerging Topics on Electric Vehicle Market and Environment Investment

Chair(s): Jing Shao

101-1360 Do environmental investments pay off in manufacturing? A study in Vietnam's SMEs

Tung Nguyen, Student, Vietnam National University HCMC, Vietnam

An analysis of over 2,000 valid responses by business owners or managers in Vietnam's manufacturing SMEs shows that environmental investment costs are positively associated with labor productivity. The results also confirmed that labor productivity is affected by capital-to-labor, workers' wages, firm size and innovation decision.

101-1424 Impact of Government Subsidy Schemes on EV Market Expansion and Competition

Eunsol Yoo, Student, Korea University, South Korea

Kihoon Kim, Professor, Korea University, South Korea

We develop a stylized game-theoretic model of the competition between two electric vehicle (EV) manufacturers with heterogeneous consumers on EV performance. We investigate the impact of the fixed subsidy and price-discount schemes on the EV market size and the competition between the two EV manufacturers.

101-2500   The Credit Policy for Electric Vehicles

Jing Shao, Professor, University of International Business And Economics, China

Hangjun Yang, Professor, University of International Business And Economics, China

Several states/provinces in US and Canada, China, and South Korea have adopted credit policies to promote electric vehicle (EV) sales. How does an EV credit policy influence auto manufacturers' incentives? We develop a game theoretic model to study its mechanism and compare it with subsidy policies in social welfare maximization.

Contributed Session

379	Saturday, 03:15 PM - 04:15 PM, Empirical Research in OM Track: Empirical Research in Operations Management
	Contributed Session: Social Issues in Empirical OM Research
	Chair(s): Kedi WANG

101-1107   The impact of coercive pressure and ethical responsibility on green management and performance

Xiaochen Yue, Student, Zhejiang University, China

Yuxiao Ye, Student, Zhejiang University, China

This study distinguishes two corporate green initiatives (green strategic alignment and green process coordination) into symbolic management and practical actions. We examine the antecedents and the results for these two initiatives and compares how external pressure and intrinsic ethical responsibility influence a firm's choice, to be symbolic or substantial.

101-2274   Understanding the Effects of Pre-Conflict Self-Relevant and Self-Neutral Relationships on Socio-Emotional Reconciliation in Infrastructure Operatione

Conghan Wang, Student, Tianjin University, China

Shuibo Zhang, Professor, Tianjin University, China

Ying Gao, Lecturer, Tianjin University, China

The removal of conflict-related emotional barriers (i.e., socio-emotional reconciliation, SER) approaches relational resilience between infrastructure operation companies and suppliers after conflicts occur. This study investigates whether pre-conflict self-relevant and self-neutral relationship, respectively, affect SER via the defensive strategy (i.e., competitive victimhood) and accommodative strategies (i.e., acceptance and empowerment).

101-2395   Rethinking the interplay of trust and contract: The roles of supply uncertainty and dependence asymmetry

Kedi WANG, Student, Zhejiang University, China

Baofeng Huo, Professor, Tianjin Uinversity, China

Min Tian, Student, Zhejiang University, China

This study empirically explores the interplay of different dimensions of trust (i.e., ability trust and goodwill trust) and contracts (i.e., control contract and coordination contract) on curbing supplier opportunism based on information processing theory.

Contributed Session

380	Saturday, 03:15 PM - 04:15 PM, Finance & OM Track: Finance and Operations Management
	Contributed Session: Supply Chain Finance
	Chair(s): ISILAY TALAY

101-0969   What Role Do TechFin Companies Play in Supply Chain Finance? A Signaling Intermediary Perspective

Hua Song, Professor, Renmin University of China, China

Siqi HAN, Student, Renmin University of China, China

Using social network analysis, this study explores how TechFin companies influence supply chain finance networks. We find that TechFin companies play a crucial role of signaling intermediary in different supply chain finance scenarios. Our findings enrich the literature on signaling theory and have practical implications for improving the working capital.

101-1636   Effect of overconfidence on the financing and ordering strategies in a capital-constrained supply chain

Jie Liu, Associate Professor, University of Science and Technology of China, China

yang yang, Student, University of Science and Technology of China, China

Yugang Yu, Professor, University of Science and Technology of China, China

We investigate the effect of overconfidence to the capital-constrained supply chain under two financial strategies: Platform financing and supplier financing. We find the retailer's order quantity declines first and then performs a pull-to-center effect. We ascertain the value of behavioral information by comparing profits under information symmetric and asymmetric.

101-2717   Interplay of Production Input Procurement and Supply Chain Finance Decisions Under Yield and Leadtime Uncertainty

ISILAY TALAY, Assistant Professor, Trinity College Dublin, Ireland

Orkun Bayram, Associate Professor, Antalya Bilim University, Turkey

Production input procurement problem for a capital-constrained, make-to-order manufacturer subject to yield and leadtime uncertainty is solved via convex and Difference of Convex Functions programming for different supply chain finance methods employed to provide working capital. Effect of yield rates, leadtime fluctuations, interest rates, and payment terms are analyzed.

Contributed Session

382 Saturday, 03:15 PM - 04:15 PM, Healthcare Analytics   Track: Healthcare Analytics

Contributed Session: Improving Disease Treatment Strategies

Chair(s): Zhijin Zhou

101-0563   Balanced Opioid Prescribing via a Clinical Tradeoff: Pain Relief vs Opioid Adverse Effects

Abdullah Gokcinar, Student, University of Texas Dallas, United States

Metin Cakanyildirim, Professor, University of Texas Dallas, United States

Theodore Price, Associate Professor, University of Texas at Dallas, United States

Meredith Claire Adams, Associate Professor, Wake Forest School of Medicine, United States

Use of opioids in pain management constitutes a significant challenge in healthcare. Underprescribing opioids yields inadequate pain-relief, while overprescribing leads to ongoing opioid epidemic. Both are burdensome for the society. We study the optimum opioid-use decisions in an analytical (probabilistic) model under various prescription/treatment policies for chronic and acute pains.

101-2169   Personalized Treatment Planning for Breast Cancer

Wei Chen, Assistant Professor, George Washington University, United States

Yixin Lu, Assistant Professor, George Washington University, United States

Liangfei Qiu, Associate Professor, University of Florida, United States

Subodha Kumar, Professor, Temple University, United States

We propose a novel framework that facilitates radiotherapy planning for early-stage breast cancer. Using a series of simulation experiments, we demonstrate that the treatment plans generated from our proposed framework consistently outperform those from existing practices and alternative methods in balancing the risk of tumor recurrence and radiation-induced adverse effects.

101-2287   How Do Tumor Cytogenetics Inform Cancer Treatments? Precision Medicine Using Multi-armed Bandits

Zhijin Zhou, Student, University of Washington, United States

Yingfei Wang, Assistant Professor, University of Washington, United States

Hamed Mamani, Associate Professor, University of Washington, United States

David Coffey, Physician , Fred Hutchinson Cancer Research Center, United States

This work studies personalized treatment strategies for multiple myeloma patients. We formulate the problem as a Bayesian contextual bandit, considering patient disease dynamics and cytogenetic variants. Using our proposed causal offline evaluation approach, we empirically show our model outperforms other benchmark strategies, especially for patients with more disease complications.

Contributed Session

383 Saturday, 03:15 PM - 04:15 PM, Healthcare OM 1   Track: Healthcare Operations Management

Contributed Session: Organ Donations

Chair(s): Sridhar Tayur

101-2226   An Optimization Framework for Analyzing Dual-donor Organ Exchange

Tuan Le, Student, Texas A&M University College Station, United States

Jon Stauffer, Assistant Professor, Mays Business School, Texas A&M University, United States

Bala Shetty, Professor, Mays Business School, United States

Chelliah Sriskandarajah, Professor, Texas A&M University College Station, United States

We study an optimal matching problem to increase dual-donor organ transplants considering several medical compatibility criteria. We propose a simple chain dual-organ exchange mechanism and its corresponding optimization model, which substantially increases the number of patients matched with dual donors for transplants, as compared to two well-established matching mechanisms.

101-2284   Does Broader Sharing Improve Patient Outcomes? Analysis of Share 35 Liver Allocation Policy

Shubham Akshat, Student, Robert H. Smith School of Business, United States

Liye Ma, Associate Professor, University of Maryland, United States

S. Raghavan, Professor, University of Maryland, United States

We build a structural model to study the impact of the Share 35 liver allocation policy, a variant of broader sharing introduced in 2013, on behavior change of transplant centers and patients' welfare impact. Sicker patients became selective and benefited while the impact on lesser sick varied across geographies.

101-2275   Impact of Video-based Interventions on Willingness to Donate Decedent Tissue

Jonathan Kush, Assistant Professor, Univ of Massachusetts, United States

Sridhar Tayur, Professor, Carnegie Mellon University, United States

Over 60% of decedents in the US have not given first-person consent, thus, receiving consent from Next-of-Kin is important. We delivered an animated, video in partnership with the Nevada Donor Network, in a field experiment. We found that White next-of-kin were more likely to consent when they watched the video.

Contributed Session

384

Saturday, 03:15 PM - 04:15 PM, Healthcare OM 2   Track: Healthcare Operations Management 2

Contributed Session: Supply Chains & Internet of Things

Chair(s): Evans Amoah

101-2722   A Big Data Approach to Blood Bank Inventory and Supply Chain Management

John Marfo, Lecturer, Kwame Nkrumah University of Science and Technology, Ghana
Francis Andoh-Baidoo, Associate Professor, University of Texas Rio Grande Valley, United States
Evans Amoah, Student, Kwame Nkrumah University of Science and Technology, Ghana
Mawuli Amedofu, Student, Kwame Nkrumah University of Science and Technology, Ghana
Peter Darko, Student, Kwame Nkrumah University of Science and Technology, Ghana

Blood banks struggle to meet demand at hospitals due to their inability to forecast and properly manage inventory. Using CIMO logic, we examine and produce a Realtime Big Data Blood Bank Management System architecture to analyze and forecast blood needs and prevent blood waste.

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101-2725   Digitally transforming the hospital pharmaceutical supply chain to mitigate drug shortage: A design science approach.

David Asamoah, Associate Professor, Kwame Nkrumah University of Science and Technology, Ghana
John Marfo, Lecturer, Kwame Nkrumah University of Science and Technology, Ghana
Francis Andoh-Baidoo, Associate Professor, University of Texas Rio Grande Valley, United States
Enoch Bulley, Student, Kwame Nkrumah University of Science and Technology, Ghana
Caleb Kumi, Student, Kwame Nkrumah University of Science and Technology, Ghana

Drug shortage and its ripple effects remain a key challenge of hospital operations and healthcare delivery. Despite considerable academic discourse on the subject, studies offering solutions to mitigate this issue remains nascent. We follow the design science research approach to design a digital solution to address this challenge.

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101-2818   An analysis of the impacts of internet of things in healthcare operations management

Camila Ganeff Moraes, Student, CEFET-RJ, Brazil
Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil
Igor dos Santos, Professor, CEFET-RJ, Brazil
Marlien Herselman, Professor, Council for Scientific and Industrial Research (CSIR) in Pretoria, South Africa
Pedro Reyes, Associate Professor, Baylor University, United States

Internet of things is one of the industry 4.0 enabling technologies. When this technology is applied in healthcare, it is possible to observe important changes in the daily life of this sector. This work aims to investigate through systematic analysis the impacts of this technology over the healthcare operations management.

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Invited Session

387

Saturday, 03:15 PM - 04:15 PM, Information Systems & OM 1   Track: Information Systems and Operations Management

Invited Session: Managing uncertainty in business models

Chair(s): Sumanta Singha

101-2845   Institutional pressures and supply chain digital embeddedness: improving supply chain competences

Beatriz López-Morales, Student, Universidad de Granada, Spain
Leopoldo Gutierrez, Associate Professor, University of Granada, Spain
Francisco Javier Llorens-Montes, Professor, University of Granada, Spain
Araceli Rojo Gallego-Burín, Assistant Professor, University of Granada, Spain

We draw on institutional theory to determine the reasons that lead SCs to embed digitally and digitalization is assessed through supply chain digital embeddedness (SCDE), which consists of three dimensions: technology, infrastructure, and culture. Additionally, we analyse the relationship between SCDE and supply chain competences.

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101-2339   Operationalizing Transport Infrastructure Integration (TII) for Accident Abatement in Emerging Economies

Sandeep Srivathsan, Assistant Professor, Great Lakes Institute of Management, India
Sriram Rajagopalan, Assistant Professor, Great Lakes Institute of Management, India

TII involves an operational model to develop IT structures and policies for generating and sharing real-time data among the vehicles and neighboring infrastructures on highways. We propose to identify common operational standards to integrate the participating entities (industry, transportation authorities, end users) and enable real-time data-driven decisions to abate accidents.

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101-2323   Comparison of industry and literature on expectations required for Scrum Masters, Release Train Engineers

Shakeel Muhammad, Student, UNT, United States
Charles Maddox, Student, University of North Texas, United States
Victor Prybutok, Professor, University of North Texas, United States

This study uses text mining to examine job postings for Scrum Masters (SM), Release Train Engineers (RTE), and Solution Train Engineers (STE). The intent is to identify the skills needed for those professionals to deliver software solutions in state-of-the-art technical environments. We compare text findings with the existing literature.

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Invited Session

395

Saturday, 03:15 PM - 04:15 PM, Procurement & Supplier Management

Track: Procurement and Supplier Management

Invited Session: Sustainable Supplier Management

Chair(s): Duan Yanji

101-1950   The role of asset specificity and environmental uncertainty in outsourcing environmental collaborations

Nisha Kulangara, Post Doc/Researcher, York University, Canada

Markus Biehl, Professor, York University, Canada

Despite substantial research on the role of environmental collaborations in buyer-supplier relationships, the crucial intermediary roles of capabilities and transactional risks are scant. This paper examines environmental collaborations in outsourcing relationships and its impact on two key performance outcomes: environmental performance and expectation of continuity.

101-1204   The Impact of Regulatory Pressure on a Firm's Adoption of Environmental Practices

Yiming Zhuang, Assistant Professor, Frostburg State University, United States

Frank Montabon, Professor, Iowa State University, United States

This study explores how regulatory pressure drives a firm's adoption of environmental practices. We argue a firm's adoption of environmental practices has been influenced by regulatory pressure themselves and regulatory pressure its upstream suppliers have faced. Preliminary results from a regression analysis of US manufacturing firms will be presented.

101-1283   Upstream Transparency in the Supply Chain: Consumer Reactions to Firms' Supplier Monitoring Activities Disclosures

Yanji Duan, Assistant Professor, University of North Florida, United States

Christian Hofer, Associate Professor, University of Arkansas, United States

John Aloysius, Professor, University of Arkansas, United States

Firms pressured to increase supply chain transparency often disclose information about their supplier monitoring activities (SMA), including both first-tier and lower-tier suppliers. We examine the effect of a firms' SMA disclosures on consumer evaluations and firm value through behavioral experiments and archival studies.

Contributed Session

396

Saturday, 03:15 PM - 04:15 PM, Product Innovation & Technology Mgmt

Track: Product Innovation and Technology Management

Contributed Session: Teams in New Product Development

Chair(s): Jennifer Bailey

101-1784   Toward Issue Closure in Open Source Software Project

Sukrit Pal, Student, Michigan State University, United States

Anand Nair, Professor, Michigan State University, United States

With the open source software development practice gaining prominence, it is increasingly difficult to manage a project due to unbounded nature of the team. This research studies how project management team can manage information flow within the team to improve team's issue resolution rate.

101-2571   A Field Experiment on Diversity and Collaboration in Multi-Disciplinary Technological Innovation

Nilam Kaushik, Assistant Professor, IIM Bangalore, India

We report on a field experiment in which 860 university-educated individuals were randomly assigned into teams to participate in ideating and innovating Internet-of-Things applications. We study how surface level team diversity and knowledge diversity affect team performance.

101-1812   Investigating the Impact of Uncertainty, Project Design and Team Design on Project Performance

Jennifer Bailey, Assistant Professor, Babson College, United States

Gina O'Connor, Professor, Babson College, United States

John Cocco, Innovation, Henkel, United States

In this study we investigate the impact of uncertainty, project characteristics and team characteristics on project performance outcomes. The research involved conducting a series of on-line surveys aimed at innovation workers (project team leaders and key technical team members) at an industrial, international division of a large firm.

Contributed Session

398

Saturday, 03:15 PM - 04:15 PM, Retail Operations

Track: Retail Operations

Contributed Session: Routing and Issuing Policies

Chair(s): Nayeon Kim

101-2765   Incorporating compatibility constraints in the vehicle routing problem for urban freight operations

Christopher Mejia-Argueta, Assistant Professor, MIT Food and Retail Operations Lab, United States

Claudio Cunha, Professor, Universidade de São Paulo, Brazil

Harol Gamez, Student, University of Antwerp, Belgium

Cassiano Isler, Post Doc/Researcher, Universidade de São Paulo, Brazil

The variety of products being delivered to small retailers and end consumers is increasing. In this paper, we formulate a MILP model that introduces the VRP with compatibility constraints. We propose an exact method and an ALNS heuristic. Our results got interesting cost savings in numerical and real instances

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101-2510   Issuing Policies for Perishable Products when Demand Depends on Age

Achal Goyal, Student, Indian Institute of Management, Bangalor, India

We study the issuing sequence for a perishable product available in two categories, old and new, where not everyone is willing to purchase the old product . We focus on two particular issuing policies: Proportional Mix (PM) issuance and Old-Fresh-Old (OFO) issuance.

101-1846   Optimizing Daily Availability Promising Contract in E-commerce Dropship Supply Chain

Nayeon Kim, Student, Georgia Institute of Technology, United States

Benoit Montreuil, Professor, Georgia Institute of Technology, United States

Walid Klibi, Associate Professor, Kedge Business School, France

E-retailers often require an availability promising contract to dropship suppliers to compensate for information asymmetry. Some disable offering a product on their site once remaining allocation falls below an undisclosed threshold. We tackle the supplier's daily inventory allocation problem under the unknown cutoff threshold with 2-stage stochastic optimization.

Invited Session

399	Saturday, 03:15 PM - 04:15 PM, Revenue Management & Pricing	Track: Revenue Management and Pricing
	Invited Session: Innovative Applications in Revenue Management	
	Chair(s): Pelin Pekgun Ovunc Yilmaz	

101-0333   Estimating Customer Regret under Markdown Pricing and Implications to Retailing

Ozalp Ozer, Professor, University of Texas Dallas, United States

Inki Sul, Student, The University of Texas at Dallas, United States

A. Serdar Simsek, Assistant Professor, University of Texas Dallas, United States

We study the effect of anticipated regret on purchasing decisions of customers facing a markdown pricing structure. We structurally estimate product-level parameters of regret with data obtained from a luxury retailer. Counterfactual analyses show that retailers can increase revenue up to 2.2% if they consider customer regret in pricing optimization.

101-2427   Omnichannel Assortment Optimization with Two-Stage Decisions

Venus Lo, Assistant Professor, City University of Hong Kong, Hong Kong

A retailer sells in-store and online. A customer visits the store to purchase her favourite product. If unavailable, she examines the in-store assortment before purchasing online according to MNL. Her preferences for online products depend on their similarities with in-store products. Assortment optimization is NP-hard, and I present a FPTAS.

101-1852   Win the Buy Box: Product Characteristics and Direct Sales Choice

Hao Su, Student, University of Maryland, United States

Martin Dresner, Professor, University of Maryland, United States

The study examines the factors that predict the marketplace operator's decision to directly sell a product. We further investigate under which scenarios the marketplace operator wins the competition against third-party sellers. Our findings provide practical implications for third-party sellers and important antitrust considerations.

Invited Session

401	Saturday, 03:15 PM - 04:15 PM, Service Operations	Track: Service Operations
	Invited Session: Analytics in Service Operations	
	Chair(s): Lennart Baardman	

101-0217   The Structural Behavioral Model of Gig Economy Workers

Park Sinchaisri, Student, The Wharton School, United States

Gad Allon, Professor, The Wharton School, United States

Maxime Cohen, Associate Professor, McGill University, Canada

Ken Moon, Assistant Professor, The Wharton School, United States

An increase in the number of work options has resulted in increased competition among gig platforms to attract a mutual pool of workers. We leverage data from a ride-hailing industry and public trip records to develop/estimate a structural model of workers' dynamic decisions in the presence of alternative work opportunities.

101-0387   The Value of Consumer Flexibility in Scheduled Service Systems

Adam Elmachtoub, Assistant Professor, Columbia University, United States

Yeqing Zhou, Student, Columbia University, United States

In scheduled service systems, consumers select a time window to receive service and some consumers are flexible enough to select a large time window. We study the value of this consumer flexibility and show it is significant even with a simple time window design and few customers being flexible.

101-2343   Waiting-time prediction with invisible customers

Yoav Kerner, Assistant Professor, Ben-Gurion University of the Negev, Israel

Ricky Roet-Green, Assistant Professor, Simon Business School, United States

Arik Senderovich, Post Doc/Researcher, University of Toronto, Canada

Yaron Shaposhnik, Assistant Professor, Simon Business School, United States

Yuting Yuan, Student, Simon Business School, United States

We study the problem of predicting customers' waiting time in queues when some customers are invisible. We derive closed-form expressions for this problem in a partially visible M/M/1 queue. Based on insights of this simple case, we design relevant features and demonstrate their effectiveness for prediction in more general queues.

Contributed Session

405	Saturday, 03:15 PM - 04:15 PM, Supply Chain Management Track: Supply Chain Management
	Contributed Session: Supply Chain Involvement and Configuation
	Chair(s): Manisha Bhardwaj

101-2562   Supply chain involvement in the selection and acquisition of e-books for Brazilian libraries

Annibal Scavarda, Associate Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil

Robson Martins, Student, Instituto Nacional de Câncer José Alencar Gomes da Silva, Brazil

This work introduces the supply chain as an incremental innovation in the process of formation and development of collections, based on the new technologies available on the market. Defining the key members of the supply chain involved in the selection and acquisition of e-books for Brazilian libraries.

101-2678   Plant-based Protein Supply Network Configuration: Combining Nutritional and Environmental Targets

Naoum Tsolakis, Post Doc/Researcher, University of Cambridge, United Kingdom

Ettore Settanni, Post Doc/Researcher, University of Cambridge, United Kingdom

Jagjit Singh Srai, Reader, University of Cambridge, United Kingdom

Effectively configured plant-based protein supply networks contribute to healthier food production while addressing pressing environmental concerns. We investigate the potential benefits of promoting agrifood supply systems centred on protein extraction from legumes in countries like India, with regard to contributions towards nutritional needs, food security, and stressed water resources.

101-1909   Fault Tree Analysis of Inventory System in Perishable Product Supply Chain

Manisha Bhardwaj, Student, Indian Institute of Technology Roorkee, India

Rajat Agrawal, Associate Professor, Indian Institute of Technology Roorkee, India

This paper explores the uncertainties occurrence during inventory system in erishable product supply chain. These uncertainties are analyzed using fault tree logic diagram. Further qualitative analysis is performed, identifying minimum cut sets and path sets with addition to structural importance coefficient. This analysis identifies most critical path.

Contributed Session

406	Saturday, 03:15 PM - 04:15 PM, Supply Chain Risk Management Track: Supply Chain Risk Management
	Contributed Session: Supply Chain Disruptions and Sustainability
	Chair(s): Shivam Gupta

101-2312   The origin, supply chain, and deforestation risk of Brazil's beef exports

Erasmus zu Ermgassen, Post Doc/Researcher, UCLouvain, Belgium

Brazilian beef, a major driver of deforestation, is exported across the world. We combined publicly-available data on trade, agriculture, and logistics to trace cattle from 2,800 municipalities through to 152 importing countries, via thousands of companies handling their export and import. We then quantify the "deforestation risk" of each actor.

101-0585   Agile Contracting: Managing Incentives Under Uncertain Needs

Shivam Gupta, Assistant Professor, University of Nebraska Lincoln, United States

Anupam Agrawal, Associate Professor, Texas A&M University College Station, United States

Jennifer Ryan, Professor, University of Nebraska Lincoln, United States

In this paper, we find an optimal contract for outsourcing stories in agile software development project, and use it to assess the performance of time-and-material contract that is commonly used for such projects. We generate insights on how the developer's incentive to work changes depending on the agile environment.

101-2566   The Role of Real-Time Event Monitoring in Dynamic Response to Disruptions

Shailesh Divey, Student, Rensselaer Polytechnic Institute, United States

Mert Hakan Hekimoglu, Assistant Professor, Rensselaer Polytechnic Institute, United States

T. Ravichandran, Professor, Rensselaer Polytechnic Institute, United States

Saturday, 03:15 PM - 04:15 PM

This study examines the benefits of AI- and cloud-based platforms that enable real-time monitoring of events like supply chain disruptions, and how such monitoring capabilities afford firms flexibility to revise their optimal response strategies in order to resolve the uncertainty associated with the length of these disruptions.

Invited Session

407 | Saturday, 03:15 PM - 04:15 PM, Supply Networks | Track: Supply Networks

Invited Session: Towards (more) Circular Supply Networks

Chair(s): Jury Gualandris

101-1545 Secondary Markets and Circular Supply Networks

Zac Rogers, Assistant Professor, Colorado State University Fort Collins, United States

Dale Rogers, Professor, Arizona State University Tempe, United States

Increasing customer service expectations combined with e-commerce growth have flooded firms with unsold inventory. Over $618 billion of unsold inventory was moved through secondary markets in 2018 - greater than the value of U.S. e-commerce. We explore how firms utilize secondary markets to profitably manage excess inventory and product lifecycle.

101-1523 Towards the Circular Economy: How Firms "Connect the Dots" to Source and Use Waste.

Jury Gualandris, Assistant Professor, Ivey Business School, Western University, Canada

Deishin Lee, Associate Professor, Ivey Business School, Western University, Canada

Based on multiple case studies, we determine how operational agility - i.e., the ability to excel simultaneously on operations capabilities of quality, delivery, flexibility, and cost in a coordinated fashion - manifests in firms that can productively source and use other firms' waste streams to create economic and environmental value.

Invited Session

408 | Saturday, 03:15 PM - 04:15 PM, Sustainable Operations 1 | Track: Sustainable Operations

Invited Session: Sustainable Supply Chain Strategies

Chair(s): Monire Jalili

101-0726 Servicizing and Remanufacturing as a New Green Strategy

Xichen Sun, Student, Texas A&M University College Station, United States

Tharanga Rajapakshe, Associate Professor, University of Florida, United States

Rogelio Oliva, Professor, Texas A&M University College Station, United States

The servicizing business model offers firms a better chance to capture the residual value of used products. In this study we investigate the effect of servicizing and remanufacturing business models on a firm's profit and environmental impact, as opposed to the conventional product selling and remanufacturing business model.

101-1378 Judicious Audits for Managing Social and Environmental Compliance in the Supplier Base

Meysam Rabiee, Student, University of Oregon, United States

Nagesh Murthy, Professor, University of Oregon, United States

Hossein Rikhtehgar Berenji, Assistant Professor, Pacific University , United States

It is costly in some supply chains for a buyer to audit all selected suppliers to ensure compliance to the buyer's code of conduct for social and environmental responsibility. We offer insights for such a buyer to benefit from judicious auditing, despite the risk to revenue due to any non-compliance.

Saturday, 04:30 PM - 05:30 PM

Contributed Session

415 | Saturday, 04:30 PM - 05:30 PM, Behavior in OM | Track: Behavior in Operations Management

Contributed Session: Inventory Ordering Behavior

Chair(s): Neslihan Ozlu

101-1205 Asymmetric Order Response in a Newsvendor Experiment

Mustafa Canbolat, Associate Professor, Suny Brockport, United States

Michael von Massow, Associate Professor, University of Guelph, Canada

We present the results of three newsvendor experiments. We find that the subjects respond more to over-ordering than to under-ordering which we suggest is consistent with Prospect Theory. The asymmetry decreases as critical ratio increases. Demand chasing disappears if demand is masked when it is higher than order quantity.

101-1200 Performance Incentives and Ordering in a Newsvendor Model

Michael von Massow, Associate Professor, University of Guelph, Canada

Mustafa Canbolat, Associate Professor, Suny Brockport, United States

We will present preliminary results on the role of performance incentives in order quantities in a newsvendor model. Participants in an experiment are paid a bonus if they meet profit targets over specific intervals. We expect more aggressive orders if behind budget and more conservative if ahead.

101-1292   Empirical Study on Ordering Behavior under Variable Lead Times: The Effect of Learning and Experience

Neslihan Ozlu, Student, Stockholm Business School, Sweden

Guven Demirel, Lecturer, Queen Mary London, United Kingdom

This study draws on purchasing data from a large European manufacturer. As purchasers gain more experience on the ordering task they learn by experience and from other colleagues to add safety time. They rely on the most recent interaction and rare events with suppliers. This behaviour leads to excess inventories.

Contributed Session

417	Saturday, 04:30 PM - 05:30 PM, Economic Models in OM Track: Economic Models in Operations Management
	Contributed Session: Pricing and Contracting Strategies in Supply Chain Management
	Chair(s): Zhiying Zhao

101-2754   Channel Structure and Pricing under Showrooming

Yuyun Zhong, Assistant Professor, James Madison University, United States

Wenjing Shen, Associate Professor, Drexel University, United States

Oben Ceryan, Senior Lecturer, Cass Business School, United Kingdom

We model a manufacturer selling a product on both offline and online channels, and both integrated and decentralized supply chain settings are considered. We study how manufacturer's pricing strategy affects the profitability of each supply chain member in the presence of showrooming.

101-1018   Contracting Strategies for Price Competing Firms under Uncertainty

You Wu, Student, University of Luxembourg, Luxembourg

Anne Lange, Associate Professor, Luxembourg Centre for Logistics & Supply Chain Management, Luxembourg

Benny Mantin, Professor, University of Luxembourg, Luxembourg

We consider two price-competing asset providers who trade with two logistics service providers either in the spot market or through a contract when facing demand uncertainty. We model the contract negotiation as a Nash bargaining process, study the optimal contracting terms and characterize the spot market equilibrium.

101-1534   Dynamic Pricing for Two-dimensional Heterogeneities Consumers: Support vs. Nonsupport Advancing Consumption

Huibin Du, Professor, Tianjin Uinversity, China

Zhiying Zhao, Student, Tianjin University, China

We study dynamic pricing problem considering customers are two-dimensional heterogeneous in preferences and initial endowments, and discuss the impact of advancing consumption on the seller's dynamic pricing decisions.

Contributed Session

420	Saturday, 04:30 PM - 05:30 PM, Empirical Research in OM Track: Empirical Research in Operations Management
	Contributed Session: Learning and Innovation
	Chair(s): In Joon Noh

101-1834   An Empirical Study of the Impact of Innovation on Manufacturing Costs

Anand Kandaswamy, Economist, NIST, United States

Using lagged patents and R&D variables, the author takes an empirical look at the impact of innovation on five distinct manufacturing cost categories from 1987 to 2012.

101-2576   Supply chain innovation and stock market response: Evidence from the Chinese market

chaolun yuan, Student, Tianjin University, China

This article takes the supply chain innovation announcements issued by listed companies in China as a research sample, and empirically studies the stock market's response to supply chain innovation announcements from five aspects of supply chain innovation types, levels, costs, forms and company types.

101-2412   Learning from the failures of others: Evidence from the pharmaceutical industry

In Joon Noh, Assistant Professor, Penn State University University Park, United States

John Gray, Professor, Ohio State University, United States

Aravind Chandrasekaran, Associate Professor, Ohio State University, United States

In this research, we investigate whether facility inspection-related warning letters, issued publicly by the Food and Drug Administration (FDA), affect the compliance performance of facilities that did not receive the warning letters but had the opportunity to examine them. We also investigate factors that might affect this relationship.

Contributed Session

421

Saturday, 04:30 PM - 05:30 PM, Finance & OM   Track: Finance and Operations Management

Contributed Session: Technology and Supply Chain Finance

Chair(s): Florian Lucker

101-1119   Financing Strategies of a marketplace platform in presence of supply side risk.

Sambit Rath, Student, Indian Institute of Management Calcutta, India
Preetam Basu, Assistant Professor, Indian Institute of Management Calcutta, India
Prasenjit Mandal, Assistant Professor, Indian Institute of Management Calcutta, India
Samit Paul, Assistant Professor, Indian Institute of Management Calcutta, India

Platform credit financing (PCF) has gained much attention in the recent past. We model optimal PCF strategies of a platform provider, such as Amazon, in presence of supply-side risk of a seller and compare it with traditional financing models.We propose a menu of contracts to achieve supply-chain financing coordination.

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101-2281   Supply Chain Finance Risk Management: Information Processing Based on Digital Platforms and Financial Technology

Siqi HAN, Student, Renmin University of China, China
Hua Song, Professor, Renmin University of China, China

From the perspective of information processing theory, this paper analyzes the technical architecture, organizational network structure, and risk control mechanisms of fintech platforms. This study expounds the fiting problem between the information processing requirements of financial institutions and the information processing abilities of fintech platforms in supply chain finance approaches.

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101-2748   The Economic Rationale for Technology in SupplyChain Finance

Florian Lucker, Assistant Professor, Cass Business School, United Kingdom
Manmohan Sodhi, Professor, City University - London, United Kingdom
Benoit Chevalier Roignant, Associate Professor, EM-Lyon, France

We study the supply chain finance solutions reverse factoring and dynamic discounting. We find that reverse factoring and dynamic discounting are equivalent as regards creating supply chain surplus. Given information friction, the buyer may be worse-off under reverse factoring, and the supplier may benefit even in a monopsony.

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Contributed Session

425

Saturday, 04:30 PM - 05:30 PM, Healthcare OM 2   Track: Healthcare Operations Management 2

Contributed Session: Healthcare Information Technology

Chair(s): Kraig Delana

101-2223   The Value of Health IT Interoperability: Evidence from Interhospital Transfer of Heart Attack Patients

Yao Li, Student, Tsinghua University, China
Lauren Lu, Associate Professor, Dartmouth College, United States
Feng (Susan) Lu, Associate Professor, Purdue University, United States
Jian Chen, Professor, Tsinghua University, China

Using transfer records of heart attack patients and HIT interoperability adoption records of hospitals in the New York State between 2013 to 2015, we estimate the effect of HIT interoperability on care delivery process measures and patient outcome measures.

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101-2248   Multichannel Delivery in Healthcare: The Impact of Telemedicine in Southern India

Kraig Delana, Assistant Professor, University of Oregon, United States
Sarang Deo, Associate Professor, Indian School of Business, India
Kamalini Ramdas, Professor, London Business School, United Kingdom
Ganesh Babu, Manager, Aravind Eye Care System, India
Thulasiraj Ravilla, Director, Aravind Eye Care System, India

We empirically study the impact of telemedicine centers on patients' access, outcomes, and costs at the Aravind Eye Care System in Southern India. We find that telemedicine centers increase visit rates, particularly for new patients, as well as glasses prescription rates while decreasing indirect costs of travel for patients.

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101-2541   Impact of contextual variables on the relationship between data breaches and hospital performance

Kyung Seon Ahn, Student, Rensselaer Polytechnic Institute, United States
Christopher McDermott, Professor, Rensselaer Polytechnic Institute, United States
Luv Sharma, Assistant Professor, University of South Carolina, United States

This study explores how the characteristics of each hospital affect the relationship between data breaches and hospital performance. Analyzing the panel HHS and PRC data, we find that breaches relationship to future operating expenses varies based on several contextual variables.

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Contributed Session

426

Saturday, 04:30 PM - 05:30 PM, Humanitarian Ops & Crisis Mgmt 1 — Track: Humanitarian Operations and Crisis Management

Contributed Session: Equity in Humanitarian Operations

Chair(s): Maximilian Löffel

101-0540   Inequity Aversion of Relief Beneficiaries in Humanitarian Logistics

Xihui Wang, Associate Professor, University of Science and Technology of China, China

Luk Van Wassenhove, Professor, INSEAD, France

Equity hasn't been fully revealed in HL. This paper proposes graded pairs comparison to collect preference data on inequity aversion from individuals with and without disaster experience. It studies equity from the perspectives of inequity degree,inequity direction and supply degree and demonstrates that general inequity aversions can be derived.

101-2368   Robust optimization for disaster preparedness: inequity mitigation in humanitarian supply chains

Hongming Li, Student, Tianjin University, China

Ning Zhu, Associate Professor, Tianjin University, China

Shoufeng Ma, Professor, Tianjin University, China

We consider a Pre-disaster Relief Network Design Problem with uncertain demands. Due to uncertain demands, disaster-stricken areas often face shortages of emergency supplies, which raise concerns about equity. To address this concern, we propose a measure and deploy robust optimization framework to mitigate inequity in humanitarian operations.

101-2375   Implications of Beneficiary Group Prioritization and Implied Order Behavior for Humanitarian Organizations

Maximilian Löffel, Student, Swiss Federal Institute of Technology Zurich, Switzerland

Vera Tilson, Associate Professor, University of Rochester, United States

Stephan Wagner, Professor, Swiss Federal Institute of Technology Zurich, Switzerland

Humanitarian Organizations (HO) often serve different beneficiary groups, besides individuals e.g. local organizations or facilities. HO mission can imply different prioritization of various beneficiary groups. We investigate how this prioritization and resulting order behavior of beneficiary groups influences timely (OTIF) delivery of needed supplies.

Invited Session

428

Saturday, 04:30 PM - 05:30 PM, Information Systems & OM 1 — Track: Information Systems and Operations Management

Invited Session: Studies of Online interaction and business models

Chair(s): Yonghua Ji

101-0059   The Impact of Offline Prosocial Behavior on Online Activity

Xue Tan, Assistant Professor, Kelley School of Business, United States

The convenience of technology has replaced many old-fashioned ways of human interaction. People can "wave" to others on social media and provide mental support by writing a comment on other's post. However, traditional interpersonal interaction may still have its charm. In this paper, we exam this problem.

101-0402   A Boon or a Bane? Examining social communication in social trading

Jiaying Deng, Student, University of Washington, United States

Mingwen Yang, Assistant Professor, University of Washington, United States

Matthias Pelster, Professor, Paderborn University, Germany

Yong Tan, Professor, University of Washington, United States

In this study, we analyze the dynamic formation and dissolution process between copiers and leaders on a large social trading platform. We investigate how the financial performance, social communication, and demographic homophily affect copiers' decisions whom to follow and unfollow.

101-2664   Assessing the Cyber-risk in Integrated Traffic Management Systems (ITMS) in smart cities

Kalpit Sharma, Student, Indian Institute of Management Lucknow, India

Arunabha Mukhopadhyay, Professor, Indian Institute of Management - Lucknow, India

This study analyzes ITMS and cyberattacks data. We try to estimate the probability of such cyberattacks, their impact on productivity, and ways to mitigate them. We use SARIMA model to detect anomalies and match them with cyberattacks in temporal proximity. Thus, CTOs can reduce, accept, or pass cyber-risk to mitigate.

Invited Session

436

Saturday, 04:30 PM - 05:30 PM, Procurement & Supplier Management — Track: Procurement and Supplier Management

Invited Session: Understanding and mitigating the fault lines in supplier management

Chair(s): Canan Kocabasoglu Hillmer

101-0942   The dark and bright sides of complexity: A dual perspective on supply network resilience

Robert Wiedmer, Assistant Professor, Arizona State University Tempe, United States

Zac Rogers, Assistant Professor, Colorado State University Fort Collins, United States

Mikaella Polyviou, Assistant Professor, Arizona State University, United States

Carlos Mena, Professor, Portland State University, United States

Sangho Chae, Assistant Professor, Tilburg University, Netherlands

This paper investigates the role that supply network complexity plays during a supply chain disruption and the recovery from it. Based on the results from the difference-in-difference-in-differences analysis of the 2011 Japanese earthquake and tsunami, we find that supply network complexity plays dual roles in disruption and recovery stages.

101-2531   Learning from Digital Confidentiality Breaches: Is it Myopic?

Devashish Thakar, Student, University of South Carolina, United States

Sean Handley, Associate Professor, University of South Carolina, United States

Keith Skowronski, Assistant Professor, University of South Carolina, United States

Brett Massimino, Assistant Professor, Virginia Commonwealth University, United States

Digital breaches are a source of exploitative learning, forcing firms to find technological and procedural weaknesses. On the other hand, breaches at leading firms are a source of exploratory learning through improved technologies and regulatory interventions. We examine these learning mechanisms and how supply base complexity affects them.

101-1220   Investigating the effectiveness of contractual and relational governance for a buyer-supplier relationship under distress

Chang-hun Lee, Lecturer, Essex Business School, United Kingdom

Byung-Gak Son, Senior Lecturer, Cass Business School, United Kingdom

Sinéad Roden, Associate Professor, Trinity College Business School, Ireland

Effective supply chain disruption response/recovery requires a close collaboration between a buyer and its suppliers. This paper investigates if existing governance mechanisms (contract and relational) are still effective for regulating buyer-supplier relationships under such distress. Moreover, the interactions between different governance mechanisms and another influential mechanism, power, are investigated.

Contributed Session

437

Saturday, 04:30 PM - 05:30 PM, Product Innovation & Technology Mgmt

Track: Product Innovation and Technology Management

Contributed Session: Current Issues in Innovation

Chair(s): Sayan Chowdhury

101-2660   Pathways to Eco-Innovation: Do Learning from Non-Traditional Stakeholders and Knowledge Combination from Traditional Stakeholders Matter?

Yaw Agyabeng-Mensah , Student, Dalian Maritime University, China

Liang Tang, Professor, Dalian Maritime University, China

Charles Baah, Student, Dalian Maritime University, China

Ebenezer Afum, Student, Dalian Maritime University, China

Ongoing debates suggest that SMEs can achieve eco-innovation, however less is known about from whom and how this process occurs. In this study, we explore whether learning from non-traditional stakeholders and knowledge combinations from different domains add any new knowledge necessary to achieve or drive active involvement in eco-innovation.

101-2506   Artificial intelligence and product innovation

Jasna Prester, Professor, University of Zagreb, Croatia

Iztok Palčič, Professor, University of Maribor, Slovenia

This paper presents the diffusion of artificial intelligence in manufacturing companies in three European countries: Croatia, Slovenia and Austria. We also examine the impact of AI on innovation in terms of ability to develop new products. The data is based on European Manufacturing Survey.

101-2361   The Impact of Software Development & Support Strategies in Consumer Electronics : A Firm's Perspective

Sayan Chowdhury, Student, Indian Institute of Management, Bangalor, India

While developing a new product, an electronics firm needs to decide the type of software development strategy as well as the length of the software support period for the product. In this study, we seek to understand the trade-offs involved in these decisions and the optimal strategies for the firm.

Contributed Session

439

Saturday, 04:30 PM - 05:30 PM, Retail Operations

Track: Retail Operations

Contributed Session: Return Strategies & Social Media

Chair(s): Nandan Kumar Singh

101-0944   Retail Social Media Usage and Ramification to Business Performance: A Comparative Analytical Study

Olumide Adebayo, Student, University of Bridgeport, United States

Elif Kongar, Professor, University of Bridgeport, United States

Gazi Duman, Professor, University of Bridgeport, United States

Ozden Tozanli, Student, University of Bridgeport, United States

Joseph Sarkis, Professor, Worcester Polytechnic Institute, United States

The aggressive nature of Social Media marketing puts medium-sized firms at a great disadvantage. This study explores social media usage of medium-sized furniture retail companies relative to best-in-business organizations and utilizes a combination of machine learning and Data Envelopment Analysis approaches.

101-2335 Investigation of the Impact of Loss Aversion on the Optimal Return Strategies

Ali Shirzadeh Chaleshtari, Post Doc/Researcher, University of Massachusetts Boston, United States

Ehsan Elahi, Associate Professor, University of Massachusetts Boston, United States

We develop an analytical framework to capture the impact of major factors affecting the profit maximizing pricing and return strategies of a monopolist retailer, and via numerical experiments, investigate the impact of loss aversion on the optimal decisions and assess the benefit of entering this factor in the decision making.

101-2195 False Returns, Retailer effort and acquisition of a Third Party Re-manufacturer in Closed-loop Supply Chain

Nandan Kumar Singh, Student, IIM Visakhapatnam, India

Vinay Ramani, Associate Professor, Indian Institute of Management Visakhapatnam, India

Why do some retailers acquire third party agencies to identify false-failure-returns while others do not? Considering the example of the e-retailer Flipkart, we present a game-theoretic model of this setting, derive equilibrium strategies and show that retailer effort in the reverse channel creates a win-win situation for all the players

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Invited Session

440

Saturday, 04:30 PM - 05:30 PM, Revenue Management & Pricing

Track: Revenue Management and Pricing

Invited Session: Recent Advances in Revenue Management

Chair(s): Murray Lei   Ying Cao

101-0737 Outsourcing strategy for an original equipment manufacturer and a contract manufacturer in a competitive market

Yuwen Chen, Associate Professor, University of Rhode Island, United States

Gulver Karamemis, Assistant Professor, Georgia Southern University, United States

Jiayuan Zhang, Student, University of Rhode Island, United States

The paper investigates the outsourcing relationship between an original equipment manufacturer (OEM) and a contract manufacturer (CM) when both compete in the same product market. We identify optimal solutions and favorable conditions that all the players may benefit from outsourcing when either the OEM or CM is the dominant player.

101-2499 Managing Change Fees with Uncertain Customers

Fredrik Odegaard, Associate Professor, Ivey Business School, Western University, Canada

Fouad Mirzaei, Assistant Professor, University of North Texas, United States

Xinghao Yan, Assistant Professor, University of Toledo, United States

We consider a risk-neutral profit maximizing firm selling sequential services. Customers are uncertain about their service preference but may change their service choice by paying a change fee. Derive the characteristics of the firm/customer interaction equilibrium, we show that customer uncertainty level plays an important role in designing the fee.

101-0710 Dynamic Workforce Acquisition for Crowdsourced Last-Mile Delivery Platforms

Murray Lei, Assistant Professor, Queen's University, Canada

Stefanus Jasin, Associate Professor, University of Michigan, United States

Jingyi Wang, Student, DUKE UNIV, United States

Houtao Deng, Data Scientist, Instacart, United States

Jagannath Putrevu, Data Scientist, Instacart, United States

We consider a Dynamic Workforce Acquisition problem for crowdsourced last-mile delivery platforms that need to match supply with demand. We develop near-optimal algorithms for a general problem with uncertainties in both workers' responses and demand arrivals.

Contributed Session

442

Saturday, 04:30 PM - 05:30 PM, Service Operations

Track: Service Operations

Contributed Session: Telecom industry studies

Chair(s): Claudio Barral

101-0199 Losing the Signal - A Telecom Case Study

Barry Cross, Assistant Professor, Queens University, Canada

The telecom industry is recognized for its mediocrity and lack of differentiation among service providers. This session presents a case study enabling students to advise a telecom client on service strategy and service operations.

101-0704 Dynamic Spectrum Sharing for Wireless Internet

Demet Batur, Associate Professor, University of Nebraska-Lincoln, United States

Jennifer Ryan, Professor, University of Nebraska Lincoln, United States

Mehmet Vuran, Professor, University of Nebraska-Lincoln, United States

Fujuan Guo, Software application engineer, Qualcomm, United States

In emerging dynamic spectrum access solutions for wireless internet, a primary user can share its licensed spectrum with unlicensed users to achieve efficient use of the spectrum. We propose an MDP model to determine the optimal sharing policy of the primary user with unlicensed users based on customer demand load.

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101-2747   The employee turnover impact on the Brazilian call centers quality

Claudio Barral, Student, Federal Center for Technological Education Celso Suckow da Fonseca - CEFET/RJ, Brazil

Annibal Scavarda, Professor, Federal University of the State of Rio de Janeiro - UNIRIO - Brazil, Brazil

ANA DIAS, Student, CEFET, Brazil

Atef Harb, Professor, Notre Dame University (NDU), Lebanon

Abhishek Behl, Post Doc/Researcher, Indian Institute of Technology Bombay, India

This research aims to evaluate the employee turnover impact on the Brazilian Telecommunication call centers quality. The results showed that the satisfaction of the employees is motivated by salary and in the working hours flexibility. This research suggests motivational actions to reduce the employees' stress level

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Contributed Session

447

Saturday, 04:30 PM - 05:30 PM, Supply Chain Risk Management

Track: Supply Chain Risk Management

Contributed Session: Surveys and Data in Supply Chain Risk Management

Chair(s): Alfredo Roa-Henriquez

101-2469   Tracing the evolutionary paths of supplier sustainability risk: An analysis of literature

Toan Tran, Student, Aalto University, Finland

The purpose of this study is to present a rigorous literature review on how the field of Supply Chain Sustainability Risk has evolved over the decades. It aims to reveal the evolutionary path of the supplier sustainability risk concept and demonstrate the knowledge development of the field.

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101-2410   The emerging topics in supply chain networks under risks: A review and bibliometric analysis

Yinan Qi, Professor, University of International Business And Economics, China

Xin Li, Student, University of International Business And Economics, China

This paper provides a comprehensive review and visualization of the literature on supply chain networks (SCN) under risks based on over 800 publications. We generate insights on the current situation, trends, and gaps. The results show that more attention should be attached to the resilience and sustainability of SCN.

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101-2366   Characterizing Regional Disaster and Resilience in Terms of Supply Chain Effects and Input-Output Economic Data

Alfredo Roa-Henriquez, Postdoctoral Researcher, National Institute of Standards and Technology, United States

Jennifer Helgeson, Research Economist, National Institute of Standards and Technology, United States

Bilal Ayyub, Professor, University of Maryland, United States

Using IMPLAN data, this research presents an approach for identifying supply chain effects based on the idea that critical commodities guide a local procurement supply chain management strategy following a disruption. The research also seeks to determine cues that identify timing and size of post-disaster labor demand surge.

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Invited Session

448

Saturday, 04:30 PM - 05:30 PM, Supply Networks

Track: Supply Networks

Invited Session: Supplier Networks & Innovation

Chair(s): Tingting Yan

101-0033   Supply Base Innovativeness and Firm Greenhouse Gas (GHG) Emissions Performance

Sining Song, Assistant Professor, University of Tennessee Knoxville, United States

Tingting Yan, Associate Professor, Wayne State University, United States

Thomas Kull, Associate Professor, Arizona State University Tempe, United States

This study empirically examines the impact of supply base innovation on firm GHG emissions performance, and explores the contingent role of supply base structure, using secondary data and industry case insights.

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101-1612   Shared Technological Knowledge and Innovation in Buyer-Supplier Networks

Shubhobrata Palit, Student, Georgia Tech, United States

Manpreet Hora, Associate Professor, Georgia Institute of Technology, United States

Soumen Ghosh, Professor, Georgia Institute of Technology, United States

Supplier networks are an important source technological knowledge spillovers. We analyze the role of technological knowledge available from supplier networks on buyer firm innovation performance. We use data on buyer-supplier relationships, patenting activity of firms and accounting data to verify hypothesized relationships.

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Saturday, 04:30 PM - 05:30 PM

Invited Session

449 | Saturday, 04:30 PM - 05:30 PM, Sustainable Operations 1 — Track: Sustainable Operations
Invited Session: Sustainable Operations and Supply Chain
Chair(s): Jason Nguyen

101-0459   Impact of Consumer Heterogeneity on Residential Adoption of Voluntary TOU tariffs

Dong Gu Choi, Assistant Professor, Pohang University of Science and Technology, South Korea
Michael Lim, Associate Professor, Seoul National University, South Korea
Karthik Murali, Assistant Professor, Oregon State University, United States
Valerie Thomas, Professor, Georgia Institute of Technology, United States

Residential consumers exhibit heterogeneous electricity consumption preferences, and may also differ in their demand-shifting flexibility. Consequently, utilities struggle to deploy voluntary Time-of-use (TOU) tariffs and are unable to generate adequate demand response. We determine optimal TOU pricing, and calibrate our model to examine TOU adoption trends in the US market.

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101-0460   Optimal Investment in Combined Renewable Power Generation and Storage Systems

Na Rea Cho, Student, University of Alabama Tuscaloosa, United States
Youngsoo Kim, Assistant Professor, University of Alabama Tuscaloosa, United States
Karthik Murali, Assistant Professor, Oregon State University, United States
Mesut Yavuz, Associate Professor, University of Alabama Tuscaloosa, United States

We characterize the optimal battery operating policy for a residential community which has co-located renewable energy generation and storage, following which we determine the optimal capacity investment in those technologies. We examine the impacts of diverse factors on the decisions, and calibrate our model using data from two U.S. cities.

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101-0385   The Buyer Made Me Do It: Buyer Supply Chain Sustainability Programs and Supplier Financial Performance

Feng Cheng, Student, Arizona State University, United States
Sang-Pil Han, Associate Professor, Arizona State University, United States
Kevin Dooley, Professor, Arizona State University Tempe, United States

Buyer Supply Chain Sustainability Programs have been developed by buying companies to engage supplier for greater sustainability performance. However, such programs could result in supplier financial loss. This research studies such supplier financial loss and how the negative relation changes to supplier previous enviromental performance and operational slack.

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Saturday, 05:45 PM - 06:45 PM

Contributed Session

453 | Saturday, 05:45 PM - 06:45 PM, 2- Meetings & Programs - All are Welcome — Track: All Meetings & Programs A: Open to Everyone
Contributed Session: Managing Stress Role of Daily Lifestyle Activities
Chair(s): Ram Tewari

101-2920   Stress Management: Role of Physical and Mind Exercises - Speaker: Dr. Hall Murthy

Ram Tewari, Retired, University of Miami, United States

Stress Management: Role of Physical and Mind Exercises -- By Dr. Hall Murthy

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Sunday, 09:00 AM - 10:00 AM

Contributed Session

494 | Sunday, 09:00 AM - 10:00 AM, 2- Meetings & Programs - All are Welcome — Track: All Meetings & Programs A: Open to Everyone
Contributed Session: Sponsored Session: Teaching your OM course using a mobile simulation game to boost student
Chair(s): Javier Chan

101-2919   Teaching your Operations Management course using a mobile simulation game to boost student engagement.

Javier Chan, CEO, Processim Labs, Switzerland

We'll do a deep dive into our mobile simulation, Medica Scientific, and how to incorporate it into your course. This advanced Operations Management simulation puts students in charge of a virtual company. Players will manage operational elements of the company including inventory control, labor management, capacity planning, budget strategy, and more.

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Invited Session

497

Sunday, 09:00 AM - 10:00 AM, Behavior in OM   Track: Behavior in Operations Management

Invited Session: Empirical Research Using Behavioral Insights

Chair(s): Maria Ibanez

101-0216   The Impact of Behavioral and Economic Drivers on Gig Economy Workers

Gad Allon, Professor, The Wharton School, United States
Maxime Cohen, Associate Professor, McGill University, Canada
Park Sinchaisri, Student, The Wharton School, United States

Gig economy firms benefit from labor flexibility, but ensuring that their services appeal to providers poses challenges in planning the workforce. We study on-demand workers' labor decisions in a ride-hailing context. Econometric analysis of drivers' decisions and responses to incentives has revealed behavioral insights that can inform better incentive design.

101-0299   Do Management Standards Indicate Superior Performance? Evidence from the OHSAS 18001 Standard

Kala Viswanathan, Student, Harvard Business School, United States
Michael Toffel, Professor, Harvard University, United States

We examine the extent to which those certified to the world's leading occupational health and safety (OHS) management system standard actually exhibit superior OHS performance, through a selection effect and/or a treatment effect. We find that OHSAS 18001 adopters exhibit superior compliance and fewer injury and illness cases.

101-1982   The Impact of Remote Work on Service Quality: Insights from Quality Management Standards Inspections

Ashley Palmarozzo, Student, Harvard University, United States
Michael Toffel, Professor, Harvard University, United States

While prior literature highlights the potential productivity benefits of remote work, little is known about the product or service quality impacts of working remotely. We explore this question using proprietary data covering thousands of quality management standards inspections performed in-person or remotely.

Invited Session

501

Sunday, 09:00 AM - 10:00 AM, Emerging Topics in OM   Track: Emerging Topics in Operations Management

Invited Session: How 3D printing changes supply chains

Chair(s): Arunima Chhikara

101-0083   Digital spare parts by additive manufacturing - What is preventing the breakthrough?

Mika Salmi, Post Doc/Researcher, Aalto University, Finland
Sergei Chekurov, Post Doc/Researcher, Aalto University, Finland
Niklas Kretzschmar, Post Doc/Researcher, Aalto University, Finland
Siavash Khajavi, Post Doc/Researcher, Aalto University, Finland
Jan Holmström, Professor, Aalto University, Finland

Additive manufacturing has the potential to enable making spare parts on-demand close to the end-user and upgrading the service levels. However, there are obstacles that need to be resolved before this can be realized on a large scale. Findings from four years of research projects will be shown.

101-0465   Decentralized Customization With 3d Printing

Nagarajan Sethuraman, Assistant Professor, University of Kansas, United States
Ali Parlakturk, Associate Professor, Kenan-Flagler Business School, United States
Jayashankar Swaminathan, Professor, Kenan-Flagler Business School, United States

We study the trade-offs involved in decentralized customization enabled by 3D printing at retail stores. We develop an analytical model that considers in-store 3D printing as a component of the firm's broader product line strategy. Managerial insights from our model can guide the adoption of 3D printing at retail stores

101-1809   3-D Prosthetics: A Framework and Guidelines for Practice

Arunima Chhikara, Student, University of Florida, United States
Arda Yenipazarli, Associate Professor, Georgia Southern University, United States
Asoo Vakharia, Professor, University of Florida, United States

A prosthetic device improves a consumer's mobility to perform routine tasks. Given the long design cycle for prosthetics, 3-D printing technology has the potential to provide these devices at a faster pace. We explore the time/quality trade-off of using 3-D prosthetics from both a profit and social "good" perspective.

Invited Session

506

Sunday, 09:00 AM - 10:00 AM, Healthcare OM 1   Track: Healthcare Operations Management

Invited Session: Healthcare Operations

Chair(s): Hessam Bavafa

101-0171   Process innovation in pharmaceutical industry

Ivan Lugovoi, Student, Hec Paris, France

Dimitrios Andritsos, Assistant Professor, Hec Paris, France

Claire Senot, Associate Professor, Tulane University, United States

Through a collaboration with expert patent attorneys we construct a unique dataset that: i) evaluates process innovation through a detailed observation of pharmaceutical manufacturers' portfolios of process patents and ii) measures key qualitative dimensions of process innovation, such as novelty, scope of protection and locus of application.

101-0173   Optimal Dynamic Appointment Scheduling of Base and Surge Capacity: Early Follow-Up for Congestive Heart Failure

Benjamin Grant, Assistant Professor, Clemson University, United States

Itai Gurvich, Associate Professor, Cornell University, United States

R. Kannan Mutharasan, Assistant Professor, Northwestern University, United States

Jan Van Mieghem, Professor, Northwestern University, United States

We study dynamic stochastic appointment scheduling when delaying appointments increases the risk of incurring costly failures, such as readmissions in health care.

101-1244   Multi-channel chronic patient care in a performance-based reimbursement framework

Mete Ozbek, Student, Koc University, Turkey

Hessam Bavafa, Assistant Professor, University of Wisconsin-Madison, United States

Evrim Gunes, Associate Professor, Koc University, Turkey

Lerzan Ormeci, Professor, Koc University, Turkey

We analyze the Comprehensive Primary Care Plus reimbursement system that was recently introduced by the Centers for Medicare & Medicaid Services. Our model includes a primary care practice as a profit-oriented service provider with limited capacity that handles patient demand in multiple channels of care.

Contributed Session

507

Sunday, 09:00 AM - 10:00 AM, Healthcare OM 2   Track: Healthcare Operations Management 2

Contributed Session: Personalization of Healthcare

Chair(s): Ujjal Mukherjee

101-1736   Does Supply Chain Diversion Fuel the Opioid Epidemic? Evidence from a Quasi-Experiment

Jingwen Yang, Student, University of Minnesota, United States

The United States is in the midst of the opioid epidemic. Among all the factors that have been fueling the crisis, supply chain diversion of prescription opioids from legal distribution channels to illegal marketplaces has been rarely studied. Exploiting a quasi-experimental design, I empirically examine the impact of such diversion.

101-2574   An Empirical Evaluation of Sources of COVID-19 Mortality: The Moderating Role of Critical Care Capacity

Bhupinder Juneja, Student, University of Minnesota, United States

Ujjal Mukherjee, Assistant Professor, University of Illinois Urbana-Champaign, United States

Kingshuk Sinha, Professor, University of Minnesota, United States

COVID-19 mortality risk remains a major concern due to significant spatial variation associated with demographic, socio-economic and clinical factors. Critical care capacity is weakest link in COVID-19 care supply chain. Therefore, managing mortality requires an investigation into role of critical care capacity to moderate relationship between risk factors and mortality

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101-2585   Reopening of Educational Institutions During COVID-19

Ujjal Mukherjee, Assistant Professor, University of Illinois Urbana-Champaign, United States

In this paper, we evaluate strategies for reopening of educational institutions for in-person operations amid the COVID-19 pandemic. We use a mixed method strategy to evaluate several possible strategies and policy options. We also evaluate the effect of environmental infection load on reopening strategies.

Invited Session

508

Sunday, 09:00 AM - 10:00 AM, Humanitarian Ops & Crisis Mgmt 1   Track: Humanitarian Operations and Crisis Management

Invited Session: Humanitarian Operations in Latin America I

Chair(s): Adriana Leiras

101-1541   Internal resettlement of migrants and refugees: the Venezuelan migratory crisis in Brazil

Thomas Ribeiro, Student, University of Sao Paulo, Brazil

Camila Yale, Student, Universidade de São Paulo, Brazil

Irineu Brito Jr, Professor, Universidade Estadual Paulista Julio De Mesquita Filho - Unesp, Brazil

Hugo Yoshizaki, Retired, Universidade de São Paulo, Brazil

Although resettlement and relocation are alternatives for mitigating the effects of forced migration, internal resettlement has been an effective way to manage the Venezuelan migratory crisis in northern Brazil. This work proposes a research framework for evaluating the literature on the subject through eight qualitative and quantitative criteria.

101-2243 Spatial-Based DSS to allocate decentralized response facilities using public spaces during COVID-19 pandemic

Mario Chong, Professor, Universidad del Pacífico, Peru

Andres Bronfman, Professor, Universidad Andres Bello, Chile

Michelle Rodriguez, Professor, Universidad del Pacífico, Peru

Andres Regal , Student, Universidad del Pacífico, Peru

Claudio Ortega, Reader, Universidad del Pacífico, Peru

Within disaster management, public spaces become an important resource to handle the response phase. During the COVID-19 pandemic, lockdowns, curfews and other restrictions enhance the underlying accessibility issues in emerging markets. This paper proposes a SDSS that focuses on public space management to allocate basic products and services during lockdowns.

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101-2254 Spatial modelling to support humanitarian logistics

Irineu de brito, Professor, Universidad, Brazil

Ana Luna, Professor, Universidad del Pacífico, Peru

Rafael Renteria, Assistant Professor, Universidad Nacional De Colombia, Colombia

Mario Chong, Professor, Universidad del Pacífico, Peru

Renato Altamirano, Student, Universidad del Pacífico, Peru

This proposal presents the Pandemic Response and Recovery Supportive Goods and Services (PRRSGS) based on the equilibrium between supply & demand with spatial interaction to predicted mortality rates. The output categorizes demand according to quartiles and maps the categories in order to discuss a distribution strategy for PRRSGS

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Invited Session

510 Sunday, 09:00 AM - 10:00 AM, Information Systems & OM 1   Track: Information Systems and Operations Management

Invited Session: Information Systems and Operation Management Interface

Chair(s): Siddharth Bhattacharya

101-0363 Topical Content Marketing Practices on Social Media Platforms

Vamsi Kanuri, Assistant Professor, University of Notre Dame, United States

What do we already know about content marketing practices on social media? What are some open ended topical questions? In this presentation, the author will address these key questions and present his work on an underexplored social media phenomenon.

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101-0017 Quality Disclosure in the Presence of Online Reviews

He Huang, Professor, Chongqing University, China

Yufeng Yang, Student, Chongqing University, China

Hongyan Xu, Professor, Chongqing University, China

We set up a stylized model to examine the interplay between the firm's quality disclosure decision and the consumer's online review search behavior under two e-retailing schemes, wholesale scheme and platform scheme.

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101-1607 How to Advertise? Role of Congruence and Involvement on Multiscreen Consumption

Siddharth Bhattacharya, Student, Temple University, United States

Heather Kennedy, Student, Temple University, United States

Vinod Venkatraman, Associate Professor, Temple University, United States

Sunil Wattal, Associate Professor, Temple University, United States

Consumers are increasingly using additional devices while watching TV. This provides an additional advertising channel for marketers, specifically the second screen. Thus; marketers must optimally time advertisements on second screen conditional on primary screen activity. Using a behavioral experiment this study investigates this phenomenon. Theoretical contributions and implications are discussed.

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Invited Session

512 Sunday, 09:00 AM - 10:00 AM, Inventory Management   Track: Inventory Management

Invited Session: Inventory Management with Capacity Limitations

Chair(s): Saif Benjaafar   Rowan Wang

101-1624 Multi-product Inventory Management under Storage and Order Restrictions

Shrutivandana Sharma, Assistant Professor, Singapore University of Technology and Design, Singapore

Hossein Abouee-Mehrizi, Associate Professor, University of Waterloo, Canada

Giorgio Sartor, Researcher, Sintef Oslo, Norway

We investigate how product-specific order capacities and storage capacity shared by multiple products impact optimal replenishments under stochastic demands. We fully characterize the optimal policy for two-products, and derive a dynamic priority-based replenishment rule to compute optimal replenishment quantities. Based on this we develop a scalable heuristic for multi-product systems.

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101-2496 A Min-Max Policy for Multi-Item Joint Inventory Replenishment Problem: Application to Industrial Vending Machines

Yue Zhang, Associate Professor, University of Toledo, United States

Hao-Wei Chen, Assistant Professor, University of Toledo, United States

Motivated from a company operating industrial vending machines, this research considers a multi-item joint inventory replenishment problem with stochastic demand and a storage constraint. We propose a simulation-optimization methodology and a simple heuristic to determine the optimal min-max policy for each item so as to maximize the expected total profit.

101-1273   A Permutation-Dependent Separability Approach for Capacitated Two-Echelon Inventory Systems

Xiaobei Shen, Associate Professor, Univ Sci & Technol China, China

Yimin Yu, Associate Professor, City University of Hong Kong, Hong Kong

Woonghee Huh, Professor, Sauder School of Business, UBC, Canada

We consider optimal replenishment policies for capacitated 2-echelon serial systems, where the capacity of upstream echelon can be the bottleneck. We find that the value function for the capacitated 2-echelon system in each period is permutation-dependent separable, and that, for each echelon, a permutation-dependent echelon base stock policy is optimal.

Invited Session

513	Sunday, 09:00 AM - 10:00 AM, Manufacturing Operations Track: Manufacturing Operations
	Invited Session: Data Driven Manufacturing Operations
	Chair(s): Peng Li

101-1630   New Operational Availability Model to Evaluate Manufacturing Throughput

Joe Li, Manager, Toyota Motor Corporation, United States

The operational availability is key to an organization's ability to be successful while minimizing cost. This presentation will introduce a new operational availability mathematical model to identify the contribution of each factors of each step of lean manufacturing process to pinpoint the bottleneck of the throughput.

101-1172   An Alert-Assisted Inspection Policy for a Production System with Delayed Failure Symptoms

Alp Akcay, Assistant Professor, Eindhoven University of Technology, Netherlands

A production system with random failures is considered. Failure can be observed after some delay while production during this delay is costly. An inspection can detect the failure but it also incurs cost. In the presence of periodic failure alerts, an MDP model is built to optimize the inspection decisions.

101-2749   A Lagrangean Relaxation Algorithm with PSO for Capacitated Lot Sizing Problem under coproduction

Banu Kabakulak, Assistant Professor, İstanbul Bilgi University, Turkey

Semra Agrali, Professor, MEF University, Turkey

In co-production systems more than one product can be manufactured simultaneously in one production run. Based on a formulation for the capacitated lot-sizing problem under coproduction, we develop a particle swarm optimization (PSO) heuristic within our Lagrangean relaxation method. We test our method on a number of randomly generated instances.

Invited Session

514	Sunday, 09:00 AM - 10:00 AM, Marketing & OM Track: Marketing and Operations Management
	Invited Session: Competitive spillovers and strategic firm choices
	Chair(s): Paola Mallucci

101-0959   Exclusivity and Reselling

Yue Li, Student, University of Wisconsin Madison, United States

Sriniketh Vijayaraghavan, Student, University of Wisconsin-Madison, United States

Paola Mallucci, Assistant Professor, University of Wisconsin-Madison, United States

Paul Hoban, Assistant Professor, University of Wisconsin-Madison, United States

Unmet demand can make products so sought after that secondary markets emerge where goods are traded at prices significantly higher than the original retail price. Why do firm tolerate such markets? We show that, when consumers value exclusivity, firms need secondary markets to extract full value from consumers.

101-1628   Product Introduction, Competition and Interfirm-linkages

Axel Stock, Associate Professor, University of Central Florida, United States

Yu-Hung Chen, Assistant Professor, National Taiwan University, Taiwan, Republic of China

Mengyue Fan, Student, University of Nevada, Reno, United States

In today's marketplace some companies hold a significant share of a competitor's stock. We use a game-theoretic model to study the implications of a product introduction decision in this context. While introducing a product can hurt a competitor's profits, we identify conditions under which counterintuitively both companies benefit from it.

Invited Session

515	Sunday, 09:00 AM - 10:00 AM, Operational Excellence Track: Operational Excellence
	Invited Session: Lean and digital cross their paths: Implication for job organization
	Chair(s): Andrea Furlan

101-2220   Shared or Divergent Mental Models? The Role of Key Employees in Problem Solving

Michela Carraro, Student, University of Padova, Italy

Andrea Furlan, Professor, Padova University, Italy

While coordination may be facilitated by the similarity between team members' understandings of the system, finding highly effective responses to problems often demands individuals analyze the process through different perspectives. Our simulation demonstrates how the presence of a key employee supports action coordination despite individuals' divergences.

101-2557   Virtue of necessity once again?: How temporary work is pushing forward operational excellence

Lucas López-Manuel, Student, University of Vigo, Spain

Antonio Sartal, Post Doc/Researcher, University of Vigo, Spain

Xose H. Vázquez, Professor, University of Vigo, Spain

By using an Insider Econometric approach, we delved into the moderating effect of temporary labor on the association between two typical high-efficiency initiatives and labor productivity in the assembly lines of a multinational manufacturing firm. Our results suggest that temporary workers could increase labor productivity by more than 1.3%.

101-2558   Continuous improvement and temporary workers: a tale of survival and tribalism in the workplace

Lucas López-Manuel, Student, University of Vigo, Spain

Antonio Sartal, Post Doc/Researcher, University of Vigo, Spain

Xose H. Vázquez, Professor, University of Vigo, Spain

Temporary workers might contribute positively to continuous improvement initiatives, increasing the number of delivered suggestions by a 10%. However, this result seems to be shaped by underlying social relationships and group dynamics: their contribution to continuous improvement turns negative when their presence in the production line goes beyond a threshold.

Invited Session

517

Sunday, 09:00 AM - 10:00 AM, POM in Practice   Track: POM in Practice

Invited Session: Sustainable Operations in Emerging Economies

Chair(s): Can Zhang

101-1526   Economic and Environmental Implications of Biomass Commercialization in Agricultural Processing

BIN LI, Student, Singapore Management University, Singapore

BUKET AVCI, Assistant Professor, Singapore Management University, Singapore

Onur Boyabatli, Associate Professor, Singapore Management University, Singapore

This paper examines the economic and environmental implications of biomass commercialization, i.e., converting organic waste into a saleable product, from the perspective of an agri-processor that uses a commodity input to produce both a commodity output and biomass.

101-2705   Research on energy saving in the conveying system of coal mining

Yu Qian, Associate Professor, (CIF:ESG50985993), China

Hua Yuan, Professor, (CIF:ESG50985993), China

Zirao Li, Student, (CIF:ESG50985993), China

Based on the dual-belt transportation scenario in the coal mining, we propose a "monitoring-analysis-control" scheme based on the IOT to explore the random dynamic coordination relationship between the subsystems. By implementing multiple random experiments and analyzing massive data, a proposed energy-saving algorithm can effectively reduce the energy consumption.

101-1674   Improving Societal Outcomes of Sharing of Farm Equipment in Emerging Economies

Priyank Arora, Assistant Professor, University of Massachusetts Amherst, United States

Adebola Olufunke, Student, Georgia Institute of Technology, United States

Can Zhang, Assistant Professor, Duke University Durham, United States

Although farm equipment sharing is considered a useful approach for improving agricultural productivity in emerging economies, it has not been successful in practice. Motivated by our collaboration with a social enterprise, we develop a model to analyze effects of decisions of key players on their private payoffs and societal outcomes.

Invited Session

518

Sunday, 09:00 AM - 10:00 AM, Procurement & Supplier Management   Track: Procurement and Supplier Management

Invited Session: Understanding and mitigating the fault lines in supplier management (Part II)

Chair(s): Canan Kocabasoglu Hillmer

101-0681   Understanding customer networks and their impact on organizational performance: A Dual Embeddedness Perspective

Fabienne Chedid, Student, Cass Business School, United Kingdom

Canan Kocabasoglu Hillmer, Reader, Cass Business School, United Kingdom

Joerg Ries, Senior Lecturer, Cass Business School, United Kingdom

Work on supply networks is growing. Suppliers provide complementary knowledge in order to co-create the solutions required by customers thus learning from customers in business networks is still key to product development. Incorporating social network theory and dual embeddedness, we empirically study the performance effects of customers networks.

101-2545 Reducing forced labour in international supply chains

Evelyne Vanpoucke, Associate Professor, Université Libre de Bruxelles, Belgium

Louise Ceysens, Student, Université Libre de Bruxelles, Belgium

Forced labour is one of the most extreme exploitative practices that can be found in today's supply chains. Given the great number of victims and the severity of the consequences, we investigate how companies can remediate this issue and decrease the risks of forced labour in their supply chain.

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101-0928 Sustainable supply chain development: an educational view within the purchasing and supply management field

Volker Koch, Student, Graz University of Technology, Austria

Bernd Markus Zunk, Associate Professor, Graz University of Technology, Austria

Amila Omazic, Student, Graz University of Technology, Austria

Developing sustainable results in the supply chain design is now obligatory for businesses. In this fast-changing world context, purchasing and supply management professionals need to focus on sustainability. Therefore, this research examines how to prepare and educate purchasing professionals in particular to act sustainable.

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Invited Session

520

Sunday, 09:00 AM - 10:00 AM, Public Sector OM   Track: Public Sector Operations Management

Invited Session: Operational Efficiency and Public Services

Chair(s): Yixin Iris Wang

101-0606 Delays in Project Supply Chains: A Global Network Perspective

Vibhuti Dhingra, Student, University of British Columbia, Canada

Harish Krishnan, Professor, University of British Columbia, Canada

Juan Camilo Serpa, Associate Professor, Mcgill University, Canada

A project belongs to an interconnected network of clients, contractors, and subcontractors where firms manage multiple projects concurrently. Disruption in one project, then, causes externalities across the wider project network. We use data from tens of thousands of U.S. public projects to quantify the importance of these network externalities.

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101-1493 Bike-Sharing Systems: Economic and Environmental Impact of Operational Strategies

Sanjith Gopalakrishnan, Student, University of British Columbia, Canada

Daniel Granot, Professor, University of British Columbia, Canada

Frieda Granot, Professor, University of British Columbia, Canada

Bike-share systems in several cities run into financial difficulties due to low ridership and high operational costs. Further, their environmental benefits are ambiguous since a majority of users are substituting from public transport. We analyze key operational strategic levers available to city transportation planners and their financial and environmental implications.

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101-0495 Manufacturing and Regulatory Barriers to Generic Drug Competition

Yixin Iris Wang, Assistant Professor, University of Illinois Urbana-Champaign, United States

Jun Li, Associate Professor, University of Michigan - Ann Arbor, United States

Ravi Anupindi, Professor, University of Michigan Ann Arbor, United States

Understanding the drivers of market concentration in the generic pharmaceutical industry is essential to guaranteeing the availability of low-cost generics. In this paper, we develop a structural model to capture the multiple determinants governing manufacturers' entry decisions and conduct policy simulations to give insight into regulatory policies.

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Invited Session

521

Sunday, 09:00 AM - 10:00 AM, Retail Operations   Track: Retail Operations

Invited Session: Data Driven Research in Retail Operations

Chair(s): Nitish Jain

101-0456 Intertemporal Pricing in the Presence of Resellers of New Durable Goods

Dayton Steele, Student, University of North Carolina Chapel Hill, United States

Seyed Emadi, Assistant Professor, University of North Carolina Chapel Hill, United States

Saravanan Kesavan, Associate Professor, University of North Carolina Chapel Hill, United States

Limited release products may resell as new at higher prices once the firm stocks out. Using data at a fashion retailer of baby clothing, we develop and estimate a structural model for a firm facing speculators, i.e. customers that purchase only with intent to resell at profit.

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101-0470 Believing in Analytics: Managers' Adherence to Price Recommendations from a DSS

Felipe Caro, Professor, UCLA Anderson School of Management, United States

Anna Saez De Tejada Cuenca, Assistant Professor, IESE Business School, Spain

We analyze the drivers of adherence to a DSS's price recommendations using data from a fast fashion retailer. We study two interventions aimed to increase adherence, as well as the cognitive biases driving adherence. Our results provide insights on how to design better DSSs to entice practitioners to use them.

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101-2628 Impact of Price Markdown Framing on Product Returns

Sahar Hemmati, Student, Robert H. Smith School of Business, United States

Wedad Elmaghraby, Professor, Robert H. Smith School of Business, United States

Ozge Sahin, Associate Professor, Johns Hopkins University, United States

We empirically analyze how retailer's price markdown framing informs customers' product choice and return decision. We find that offering conditional markdowns, where eligibility for markdown is conditional on purchasing certain quantities of specific products, not only increases sales instances, but also leads to lower returns compared to unconditional markdown case.

Invited Session

525

Sunday, 09:00 AM - 10:00 AM, Social Media & Internet of Things

Track: Social Media and Internet of Things

Invited Session: Impact of Online Communities on Marketing and Healthcare

Chair(s): Mochen Yang

101-0544 Does Blatant Benevolence Increase Social Capital Online?

Jiayuan Zhang, Student, University of Rhode Island, United States

Koray Ozpolat, Associate Professor, University of Rhode Island, United States

Gulver Karamemis, Assistant Professor, Georgia Southern University, United States

Dara Schniederjans, Associate Professor, University of Rhode Island, United States

This multi-method study explores and empirically tests the relationship between posting the pro-social behavior and attainment of social capital on social media. By investigating the relationship, this study provides another way to increase social capital online. Social media companies and charity organizations can utilize the results to obtain members.

101-0548 Managing Multi-Rooming: Why Uniform Price Can Be Optimal for a Monopoly Retailer

Yue Dai, Professor, Fudan University, China

Yuxin Chen, Professor, New York University, China

The prevalence of social networks has made pricing decisions very important. The model takes into considerations of (1) consumers' uncertainty about product attributes that consist of both digital and nondigital ones with potential correlations among them, (2) consumers' costs of showrooming as well as webrooming,

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101-0550 Advancing Equity in the Mental Healthcare Supply Chain: Empirical Evaluation of a Mobile App

Yi Tang, Student, University of Minnesota, United States

Adam Moen, Founder and Principal, Real EmPowerment Solutions, United States

Kingshuk Sinha, Professor, University of Minnesota, United States

We empirically investigate user usage behavior of a mental health mobile app and its impact on users' self-reported mental wellbeing conditions. The results indicate that mobile apps can create capacity in a mental healthcare supply chain so as to reduce the disparities associated with gender, sexual orientation, and race-ethnicity.

Invited Session

526

Sunday, 09:00 AM - 10:00 AM, Socially Responsible Operations

Track: Socially Responsible Operations

Invited Session: Business Models with Social Responsibility

Chair(s): Wenbin Wang

101-0873 Ugly food: Drivers of Cosmetic Standards and Implications on Food Waste

Pascale Crama, Associate Professor, Singapore Management University, Singapore

Yangfang (Helen) Zhou, Assistant Professor, Singapore Management University, Singapore

Jiahui Xu, Student, Singapore Management University, Singapore

A significant amount of fresh produce is wasted in the upstream food supply chain due to cosmetic filtering, where produce below cosmetic standards (known as ugly food) are filtered out. We examine the economic incentives for retailers to adopt such high standards and their impact on food loss.

101-2611 Cost transparency in crowdfunding

Guangzhi Shang, Assistant Professor, Florida State University, United States

Wayne Fu, Assistant Professor, University of Michigan Dearborn, United States

Xun Bruce Tong, Assistant Professor, University of Groningen, Netherlands

There's an increasing trend for online retailers to make their cost structure more transparent for consumers (e.g., everlane.com). We study a crowdfunding platform that allows its campaign creators to disclose their cost structure to potential backers. Drivers of adoption and performance effects are explored.

101-2314 The Design of Green Reward Program

Wenbin Wang, Associate Professor, Shanghai Univ. of Finance and Economics, China

Jiayuan Han, Student, Shanghai Univ. of Finance and Economics, China

We study the design of green reward programs that aim at promoting green behaviors and achieving economic returns by acquiring new customers.

Invited Session

528

Sunday, 09:00 AM - 10:00 AM, Supply Chain Management   Track: Supply Chain Management

Invited Session: Topics in Supply Chain Risk and their Potential Solutions

Chair(s): Pettis Kent

101-0512   Sourcing under supply disruption and responsibility violation risks: A behavioral investigation

Vincent (Junhao) Yu, Student, University of Minnesota, United States
Karen Donohue, Professor, University of Minnesota, United States
Karthik V. Natarajan, Assistant Professor, University of Minnesota, United States

Various types of risks occur in supply chains. In this study, we consider reliability-related risks that disrupt product supply and responsibility-related risks that influence consumer demand. We combine modeling and experimental methods to investigate buyers' sourcing behavior when facing suppliers with different types and levels of risks.

101-1261   Managing Stock-outs through Healthcare Provider Training: An Empirical Analysis

Amir Karimi, Student, University of Minnesota, United States
Anant Mishra, Associate Professor, University of Minnesota, United States
Karthik V. Natarajan, Assistant Professor, University of Minnesota, United States
Kingshuk Sinha, Professor, University of Minnesota, United States

Applying difference-in-differences estimation on novel data from Indonesia, we find that the provision of initial and refresher trainings reduce the likelihood of stock-outs, although the benefits vary considerably across different conditions. Our results have actionable implications for stakeholders managing public health supply chains in developing countries.

101-1544   Production Process Moves: Cultural Diversity and the Moderating Effects of Collocation

Pettis Kent, Assistant Professor, Loyola University of Chicago, United States
Enno Siemsen, Professor, University of Wisconsin, United States

Firms often move their production processes within/between countries. A firm's goal is to minimize disruption by carefully managing knowledge associated with the process, which becomes more difficult during cross-cultural production moves. We discuss "Collocation" as a strategy to moderate the negative effects of national culture.

Invited Session

531

Sunday, 09:00 AM - 10:00 AM, Sustainable Operations 1   Track: Sustainable Operations

Invited Session: Sustainable Operations and Supply Chain Management

Chair(s): Yann Bouchery   Maximiliano Udenio

101-0127   Countering market failure by leveraging chain of custody for sustainable product

Rob Zuidwijk, Professor, Rotterdam School of Management, Netherlands
Charles Corbett, Professor, UCLA Anderson School of Management, United States

Producers progressively aim to comply with certification standards on responsible practices, and consumers are more receptive to such product, but supply chain structure hinders sustainable product to reach its customers. We present how supply chain structure and governance can be used to relieve such market failure.

101-0129   Remanufacturing of Multi-Component Systems with Product Substitution

Baolong Liu, Assistant Professor, ShanghaiTech University, China
Felix Papier, Professor, ESSEC Business School, France

We investigate the value of product and component substitution in remanufacturing systems. Using Markov Decision Processes, we seek optimizing the weighted sum of economic and environmental cost. Our results indicate that substitution appears to be a phenomenon in particular for profit-oriented firms; sustainability-oriented firms require less frequent substitution.

101-0537   Where to exert carbon emissions abatement efforts in a supply chain?

Astrid Koomen, Coordinator, ASML, Netherlands
Yann Bouchery, Associate Professor, Kedge Business School, France
Tarkan Tan, Associate Professor, Technische Universiteit Eindhoven, Netherlands

We consider how firms can apprehend the dynamics of supply chain interactions when they want to exert carbon abatement efforts. Our model helps identifying whether the most efficient abatement options lie inside or outside of the company's boundaries by considering their supply chain wide effects.

Invited Session

533

Sunday, 09:00 AM - 10:00 AM, Teaching/Pedagogy in POM   Track: Teaching/Pedagogy in POM

Invited Session: Workshop: Using Deliberate Practice in Teaching Operations and Supply Chain Management

Chair(s): Francois Giraud-Carrier

101-2139   SPARRING: A Deliberate Practice Pedagogy for Business Education

Sunday, 09:00 AM - 10:00 AM

Francois Giraud-Carrier, Assistant Professor, Weber State University, United States

Stanley Fawcett, Professor, Weber State University, United States

Amydee Fawcett, Associate Professor, Weber State University, United States

'Deliberate practice' is a proven training technique for developing high levels of expertise. In this paper, we present and discuss the SPARRING instructional design model, which applies deliberate practice principles to business education in order to build students' career-readiness skills.

Sunday, 10:15 AM - 11:15 AM

Invited Session

534

Sunday, 10:15 AM - 11:15 AM, 1- Major Events   Track: All Major Events

Invited Session: Plenary Session: Pinar Keskinocak & Chris Tang

Chair(s): Burak Kazaz

101-2877   Plenary Session: Pinar Keskinocak & Chris Tang

Christopher Tang, Professor, University of California Los Angeles, United States

Pinar Keskinocak, Professor, Georgia Institute of Technology, United States

Chris Tang is a Distinguished Professor and the Edward W. Carter Chair at UCLA Anderson School of Management. He will be speaking on Innovative Technology and Operations for Alleviating Poverty through Women's Economic Empowerment. Pinar Keskinocak is the William W. George Chair and Professor at Georgia Tech. She will be speaking on Infectious Disease Modeling & Informing Decisions.

Sunday, 11:30 AM - 12:30 PM

Invited Session

577

Sunday, 11:30 AM - 12:30 PM, 3- POMS Tutorials   Track: All POMS Invited Tutorials

Invited Session: Data-Driven Multi-Period Inventory Management

Chair(s): George Shanthikumar

101-2113   Data-Driven Multi-Period Inventory Management

Max Shen, Professor, University of California Berkeley, United States

We discuss data-driven multi-period inventory replenishment problems with uncertain demand and vendor lead time (VLT), where large quantities of historical data are available. Different from the traditional two-step predict-then-optimize (PTO) solution framework, we propose a one-step end-to-end (E2E) framework that uses deep-learning models to output order timing and order quantity decisions directly from input features without any intermediate steps.

Invited Session

579

Sunday, 11:30 AM - 12:30 PM, Behavior in OM   Track: Behavior in Operations Management

Invited Session: Forecasting and decision processes

Chair(s): John Aloysius

101-0718   Integrating Machine Learning and Human Judgment: A Study on Demand Planning in the Field

Rebekah Brau, Student, University of Arkansas, United States

John Aloysius, Professor, University of Arkansas, United States

Enno Siemsen, Professor, University of Wisconsin, United States

Despite technological advances, human judgment continues to feature in demand planning processes. We implement a field study at a multinational firm testing two methods of integrating machine learning and judgment. We find that these methods are more accurate than the current demand planning process used in the firm.

101-2699   Boosting the Wisdom of Crowds Within Isolated Judgment Problems: Weighted Averaging Based on Peer Predictions

Asa Palley, Assistant Professor, Indiana University, United States

Ville Satopaa, Assistant Professor, INSEAD, France

We propose a judgment aggregation method that uses "meta-predictions"–predictions of estimates given by others–to significantly improve estimation accuracy. We derive a closed-form expression that can harness these meta-predictions to calculate judgment weights for each individual estimate within a single judgment problem, without requiring any prior calibration data.

101-2098   A Behavioral Study of Product Introduction Decisions

Karthik Ramachandran, Associate Professor, Georgia Institute of Technology, United States

Sreekumar Bhaskaran, Associate Professor, Southern Methodist University, United States

Sinan Erzurumlu, Professor, Babson College, United States

Firms often face a choice between developing a risky, advanced, product and launching an on-hand product. Launching the on-hand product could affect the profitability of the advanced product. We present evidence from behavioral studies that study how product managers in established and startup firms make these decisions.

Invited Session

583

Sunday, 11:30 AM - 12:30 PM, Emerging Topics in OM   Track: Emerging Topics in Operations Management

Invited Session: Supply Chain Analytics: Research, Teaching and Applications

Chair(s): Brian Han

101-0935   Pandemic influenza: just-in-time vs just-in-case strategies

Yao Zhao, Professor, Rutgers University, United States

We introduce a teaching tool for supply chain intelligence by region, industry and company for market, supply chain and competitive analytics. It integrates data, modeling and powerful visualization tools, and is quick to learn, easy to operate, and free to share

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101-2769   Realistic simulation and educational supply chain: a conceptual framework under the theoretical and practical aspects

Ana Chavão Brito Lombardi de Souza, Student, Federal University of the State of Rio de Janeiro, Brazil
Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil
Gláucya Daú, Student, Universidade Federal do Estado do Rio de Janeiro, Brazil
Norita Ahmad Ahmad, Professor, American University of Sharjah, United Arab Emirates
Patrícia Martins Fagundes Cabral, Professor, Unisinos - Universidade do Vale do Rio dos Sinos, Brazil

The realistic simulation practices were idealized as educational resources for teaching and learning for the supply chain professionals training. This research study has developed a literature review, involving the realistic simulation and the educational supply chain. The study proposes a conceptual framework under the theoretical and practical aspects.

101-1101   Connecting Customers and Merchants Offline: Experimental Evidence From the Commercialization of Last-Mile Stations at Alibaba

Brian Han, Assistant Professor, University of Illinois at Urbana Champaign, United States
Tianshu Sun, Assistant Professor, University of Southern California, United States
Leon Chu, Associate Professor, University of Southern California, United States
Lixia Wu, Data Scientist, Alibaba Group, China

We investigate how an e-commerce platform can leverage its last-mile stations for commercial activities. In collaboration with Alibaba and using free sample distribution as an example, we provide the first empirical examination on the business potential of last-mile stations in driving customers' subsequent online purchases.

Contributed Session

588

Sunday, 11:30 AM - 12:30 PM, Healthcare OM 1   Track: Healthcare Operations Management

Contributed Session: Allocation Policies and Organ Transplants

Chair(s): Cem Randa

101-2285   Optimal Medical Supplies Allocation during Epidemic Outbreaks

yuqing pan, Student, Hong Kong Polytechnic Univ, China
T.C.E. Cheng, Professor, The Hong Kong Polytechnic University, China
Chi-To Ng, Professor, The Hong Kong Polytechnic University, Hong Kong
Suresh Sethi, Professor, University of Texas Dallas, United States

Epidemic outbreaks, e.g., COVID-19, could lead to critical shortages of medical resources. In this paper, we develop top-down and bottom-up medical supply allocation models for central and local governments, with capacity constraints and self-interest behaviors. The models are analyzed to obtain the optimal allocation policy. (It is submitted to POM.)

101-2399   Sustainable and low-cost 3D printed Medical Models

Virendra Kumar Verma, Post Doc/Researcher, National Institute of Industrial Engineering (NITIE), Mumbai, India, India
Sachin Kamble, Professor, Operations and SCM, EDHEC Business School, Roubaix, France, France
L. Ganapathy, Professor, National Institute of Industrial Engineering (NITIE), Mumbai, India, India

3D printing is a growing technology for medical implantation, including the replacements for human organs. Examples include cranioplasty of damaged skull parts. The purpose of this paper is to provide a sustainable and low-cost medical model in pre-operative surgery planning for doctors, which can save a doctor's time during surgery.

101-2293   Structural Estimation of Kidney Transplant Candidates' Quality of Life Scores: Improving National Kidney Allocation Policy

Baris Ata, Professor, University of Chicago, United States
John Friedewald, Associate Professor, Northwestern University, United States
Cem Randa, Post Doc/Researcher, University of California San Francisco, United States

This paper develops a data-driven framework for assessing the impact of changes to the kidney allocation policy taking into account the transplant candidates' (endogenous) organ acceptance behavior and sharing among different locations under UNOS' geographically tiered allocation structure. We develop a dynamic structural model of the transplant candidates' accept/reject decisions.

Contributed Session

589

Sunday, 11:30 AM - 12:30 PM, Healthcare OM 2   Track: Healthcare Operations Management 2

Contributed Session: Emergency Department Studies (1)

Chair(s): Seungyup Lee

101-2211   The Cost of Task Switching: Evidence from the Emergency Department

Yige Duan, Student, Vancouver School of Economics, UBC, Canada
Yiwen Jin, Student, Sauder School of Business, UBC, Canada
Yichuan Ding, Assistant Professor, Desautels Faculty of Management, McGill University, Canada
Mahesh Nagarajan, Professor, Sauder School of Business, UBC, Canada
Garth Hunte, Professor, Department of Emergency Medicine, UBC, Canada

We investigate the impact of task switching on the productivity of ED physicians. Using a comprehensive ED visit dataset and instrumental variable method, we find task switching negatively impacts physician productivity, but little effect on the quality of care. We also explore the mechanisms driving this phenomenon.

- -

101-2363   The Interactions of Crowding, Patient Severity, and Queue Rank at a Hospital Emergency Department

Lu Wang, Assistant Professor, Ball State University, United States
Mazhar Arikan, Associate Professor, University of Kansas, United States
Suman Mallik, Associate Professor, University of Kansas, United States

Utilizing the patient data from the ED of a large urban teaching hospital, we characterize the impacts of the change in patient queue rank on patient LOS. We study how arrivals of higher/lower severity patients influence patient LOS, and how changes in queue rank, severity, and crowding simultaneously affect LOS.

- -

101-2612   Factors Influencing Task Complexity in Emergency Department

Seungyup Lee, Post Doc/Researcher, Vanderbilt University, United States
Marco Bijvank, Assistant Professor, University of Calgary, Canada

While task complexity is known as a factor influencing operations and behaviors in ED care delivery, there is a lack of study on what factors influence the task complexity. We investigate both clinical and non-clinical (i.e., operational and behavioral) factors affecting the determination of care interventions in four EDs.

- -

Invited Session

590

Sunday, 11:30 AM - 12:30 PM, Humanitarian Ops & Crisis Mgmt 1   Track: Humanitarian Operations and Crisis Management

Invited Session: Humanitarian Operations in Latin America II

Chair(s): Adriana Leiras

101-2394   Development a social-cost based distribution network for humanitarian logistics in Callao, Peru

Diego Matuk, Student, Universidad del Pacifico, Peru
Alvaro Matzumura, Student, Universidad del Pacífico, Peru
Mario Chong, Professor, Universidad del Pacífico, Peru

A well prepared system is a key factor in a disaster response phase. The model considers a possible tsunami in Callao, based on the 1756 earthquake and tsunami, and present a humanitarian distribution system considering constraints of social-related cost, human suffering and deprivation costs.

- -

101-2283   Development an earthquake decision-making tool for the humanitarian logistics network applied in Popayán, Colombia.

Helmer Paz, Professor, Unicomfacauca - Corporación Universitaria Comfacauca, Colombia
Nelson Paz, Professor, Unicomfacauca - Corporación Universitaria Comfacauca, Colombia
Mario Chong, Professor, Universidad del Pacífico, Peru
Osman Melendez, Student, Unicomfacauca - Corporación Universitaria Comfacauca, Colombia
Jhon Segura, Student, Unicomfacauca - Corporación Universitaria Comfacauca, Colombia

Decision makers' preparation is a key factor in response phase. We modeled Popayan 1983 earthquake and simulate possible scenarios to locate distribution centers and points of distribution, considering three effects in communities: human suffer, material convergence and deprivation cost.

- -

101-2256   IMPACT OF DONATIONS TO THE BOTTOM OF THE PYRAMID (BoP) AMIDST COVID-19 PANDEMIC

Luiza Cunha, Student, Pontifícia Universidade Católica do Rio de Janeiro - PUC-Rio, Brazil
Bianca Antunes, Student, Pontifícia Universidade Católica do Rio de Janeiro - PUC-Rio, Brazil
Vinicius Picanço Rodrigues, Professor, Insper Institute for Education and Research, Brazil
Paula Ceryno, Post Doc/Researcher, Federal University of the State of Rio de Janeiro, Brazil
Adriana Leiras, Professor, Pontifícia Universidade Católica do Rio de Janeiro - PUC-Rio, Brazil

We model the impact of donations on mitigating the COVID-19 effects in vulnerable communities through a System Dynamics approach. Based on a survey with beneficiaries and local organizations in Brazilian favelas, the findings indicate that the effects on coronavirus transmission and population's affordability depend on donation types and delivery.

- -

Invited Session

592

Sunday, 11:30 AM - 12:30 PM, Information Systems & OM 1   Track: Information Systems and Operations Management

Invited Session: Fair Operations: Bias in Machine Learning Algorithms

Chair(s): Manmohan Aseri

101-0866   Fair Priority Queues

Justin Mulvany, Student, University of Southern California, United States

Ramandeep Randhawa, Associate Professor, University of Southern California, United States

Two populations comprising different proportions of fast and slow jobs arrive to a single server. Typical priority scheduling serves fast jobs before slow jobs, leading to longer wait times for the population with fewer fast jobs. We characterize an optimal fair priority policy that ensures each population receives equal waits.

- -

101-1246   Popularity Bias in Online Dating Platforms

Musa Eren Celdir, Student, Carnegie Mellon University, United States

Soo-Haeng Cho, Associate Professor, Carnegie Mellon University, United States

We study whether online dating platforms have an incentive to have biased recommendation algorithms against unpopular users and if so, how such bias affects users' matching probabilities. We model the problem as a three-stage matching game and validate our analytical results with data from a major online dating platform.

- -

101-0038   "Un"Fair Machine Learning Algorithms

Runshan Fu, Student, Carnegie Mellon University, United States

Manmohan Aseri, Assistant Professor, University of Pittsburg, United States

Param Singh, Professor, Carnegie Mellon University, United States

Kannan Srinivasan, Professor, Carnegie Mellon University, United States

This work highlights that a notion of algorithmic fairness designed to protect a group can make everybody worse-off, including the very group that the fairness-notion aims to protect. This happens when a fairness notion decreases incentives for an algorithm designer to invest enough in increasing the accuracy of the algorithm.

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Contributed Session

593

Sunday, 11:30 AM - 12:30 PM, Information Systems & OM 2   Track: Information Systems and Operations Mgmt 2

Contributed Session: Operations Management and Blockchain

Chair(s): Adityaraj Saroop Chand Raj

101-2431   Consequences of Forking in Blockchains: A Network-Based Approach

Jessica Halim, Student, Nanyang Technological University, Singapore

Mariana Giovanna Andrade Rojas, Assistant Professor, Nanyang Technological University, Singapore

Yujie Zheng, Student, Nanyang Technological University, Singapore

Wai Fong Boh, Professor, Nanyang Technological University, Singapore

Forks are vital for the sustenance of a cryptocurrency. This paper analyzes the impact of forking on a cryptocurrency's survival and development. We use artificial neural networks as our main method of analysis and control for the effects of total coin supply, number of exchanges listed, cryptocurrency price, and category.

- -

101-2429   Consequences of forking in Blockchain: A network-based approach

Adityaraj Saroop Chand Audeshwar Raj , Student, Nanyang Technological University, Singapore

Mariana Giovanna Andrade Rojas, Assistant Professor, Nanyang Technological University, Singapore

Yujie Zheng, Student, Nanyang Technological University, Singapore

Wai Fong Boh, Professor, Nanyang Technological University, Singapore

Forks are majorly caused due to disagreement or changes in the blockchain protocol. These forks have various consequences on the cryptocurrency including network security and cryptocurrency price volatility. The aim of the paper is to use a network-based approach to enhance our understanding on the consequences of forks.

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Invited Session

594

Sunday, 11:30 AM - 12:30 PM, Inventory Management   Track: Inventory Management

Invited Session: Inventory Models with Limited Information

Chair(s): Xin Chen

101-2508   Cost Misspecification in the Newsvendor Problem

Soham Ghosh, Student, Indian Institute of Technology Indore, India

Mamta Sahare, Student, Indian Institute of Management Indore, India

Sujay Mukhoti, Associate Professor, Indian Institute of Management Indore, India

This study proposes a novel approach of newsvendor problem in the context of critical goods with huge shortfall or surplus or non-linear cost function. We provide various estimators of optimal goods order quantity depend on different levels of sample data and disclose the accuracy and comparability test of the estimators.

101-2569   Average Optimality in Partially Observed Lost-Sales Inventory Systems

Xingyu Bai, Student, University of Illinois at Urbana-Champaign, United States
Xin Chen, Professor, Industrial & Systems Engineering, United States
Alexander Stolyar, Professor, University of Illinois Urbana-Champaign, United States

This paper considers a lost-sales inventory model in which the inventory level can only be observed when it reaches zero. We convert it to an equivalent completely observable Markov decision process and implement the vanishing discount factor approach to establish the existence of an average-cost optimal policy.

101-1566   Learning Newsvendor Problem under Inter-temporal Dependence and Inhomogeneity

Meng Qi, Student, University of California Berkeley, United States
Zuo-Jun Max Shen, Professor, University of California Berkeley, United States
Zeyu Zheng, Assistant Professor, University of California Berkeley, United States

Various machine learning tools are applied in inventory decisions with contextual information. However, most existing works assume the demand-feature sequence to be i.i.d., which is rarely satisfied in practice. Our work offers algorithms and performance guarantees while allowing inter-temporal dependence and inhomogeneity of the demand-feature sequence.

Invited Session

595

Sunday, 11:30 AM - 12:30 PM, Manufacturing Operations   Track: Manufacturing Operations

Invited Session: Panel: Flow of Innovation in the Supply Chain

Chair(s): Hugo DeCampos

101-2092   Flow of Innovation in the Supply Chain

Hugo DeCampos, Assistant Professor, Wayne State University, United States
Tingting Yan, Associate Professor, Wayne State University, United States
Morgan Swink, Professor, Texas Christian University, United States
Ravi Srinivasan, Associate Professor, Loyola University Maryland, United States
Stephan Wagner, Professor, Swiss Federal Institute of Technology Zurich, Switzerland

This panel will discuss emerging trends and findings in managing the flow of innovation in the supply chain.

Invited Session

596

Sunday, 11:30 AM - 12:30 PM, Marketing & OM   Track: Marketing and Operations Management

Invited Session: New marketing technologies and data privacy

Chair(s): Tianxin Zou

101-2672   Discuss the Impact of Different Service of TTP from the Online Trust Behaviour Perspective

Shanshan Huang, Student, Zhejiang University of Technology, China
Cong Cao, Associate Professor, Zhejiang University of Technology, China
Jun Yan, Associate Professor, University of Wollongong Australia, Australia
Mengxiang Li, Associate Professor, Hong Kong Baptist University, China

Through the analysis of Australia-China's B2C market, this study proposes a comprehensive trusted third parties (TTPs) framework by redefining the definitions and functions of TTP. This study not only confirms the significant influence of TTPs on consumers' behaviour, but further explains their trust transfer function in the online shopping environment.

101-2101   Leaps in Innovation

Joel Wooten, Assistant Professor, University of South Carolina, United States

Search over a landscape of possibilities is central to innovation contest solution generation. Using 25,898 distinct attempts at innovation for a set of Kaggle contests, we look at how agents respond to both incremental and discontinuous progress.

101-1889   Competing for Recommendations: The Strategic Impact of Personalized Product Recommendations in Online Marketplaces

Baojun Jiang, Associate Professor, Washington University St Louis, United States
Tianxin Zou, Assistant Professor, Warrington College of Business, United States

We study how a marketplace's recommendation system influences different market participants. As the marketplace knows its customers' preferences better, the equilibrium price first decreases then increases, and the marketplace's and the sellers' profits can decrease. Interestingly, a recommendation system that maximizes each recommendation's expected profit can reduce the marketplace's profit.

Invited Session

599

Sunday, 11:30 AM - 12:30 PM, POM in Practice

Track: POM in Practice

Invited Session: Empirical Research in Platform Operations

Chair(s): Yao Cui

101-0362 Countering Congestion in Online Marketplaces: Evidence from a Quasi-Experiment

Ashish Kabra, Assistant Professor, Robert H. Smith School of Business, United States
Jun Li, Associate Professor, University of Michigan - Ann Arbor, United States

We study the implications of adding friction between ability of one side of a two-sided marketplace to another using a quasi-experiment. We find significant reductions in congestion and increase in quality of match due to this change.

101-2497 Exploring the Disconnect between Customer Buying Behavior and Distribution for Adult Collectible Action Figures

Matthew Drake, Associate Professor, Duquesne University, United States
Scott Neitlich, Creative Director, Spector Creative, United States

The action figure market has become a billion-dollar industry since the 1980s. 80s children are now "adult collectors" whose preferences and unique buying habits differ from those of traditional toy consumers. We explore the increasing disconnect between these customers and current retail distribution policies, offering suggestions for addressing these issues.

101-2633 The educational process: Gaps and impacts for achieving the environmental education and the healthy workplaces

Claudia Figueiredo, Student, Augusto Motta University center, Brazil
Annibal Scavarda, Associate Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil
Gláucya Daú, Student, Universidade Federal do Estado do Rio de Janeiro, Brazil
Sonja Lebe, Professor, University of Maribor Slovenia, Slovenia
Marie -France Waxin, Professor, American University of Sharjah, United Arab Emirates

The sustainable practices can be inserted in the professional qualification. This research study has developed a literature review about the relationship among environment, healthcare educational process, and undergraduate nursing courses. The study has analyzed the gaps and the impacts for achieving the environmental education and the healthy workplaces.

Contributed Session

600

Sunday, 11:30 AM - 12:30 PM, Procurement & Supplier Management

Track: Procurement and Supplier Management

Contributed Session: Procurement and modeling research

Chair(s): Shivam Gupta

101-0139 Procurement with Cost and Non-Cost Attributes: Cost Sharing Mechanisms

Shivam Gupta, Assistant Professor, University of Nebraska Lincoln, United States
Shouqiang Wang, Assistant Professor, University of Texas Dallas, United States
Milind Dawande, Professor, University of Texas Dallas, United States
Ganesh Janakiraman, Professor, University of Texas Dallas, United States

We propose a cost-sharing mechanism for a buyer facing two-dimensional private information on cost and non-cost attributes. We show, both theoretically and numerically, that the best cost-sharing mechanism is near-optimal and is robust to the presence of costly, but unobservable efforts of the contractors.

101-2750 How Uncertainty Affects Procurement Decisions in B2B Markets

Ozden Cakici, Assistant Professor, American University, United States
Itir Karaesmen, Associate Professor, American University, United States

We study the procurement and shipping decisions of a broker who matches the suppliers with buyers. We develop an analytical model to optimize broker's bidding decisions. We study both deterministic and stochastic supply. We show when it is optimal for the broker to diversify or not.

101-1328 Enhancing the Competitiveness of Simultaneous Auctions for Heterogeneous Common-Valued Items with Costly Information Acquisition

Adithya Patil, Student, Indian School of Business, India
Milind Sohoni, Professor, Indian School of Business, India

Using simultaneous sealed-bid auctions for selling multiple common- valued items with costly information acquisition may result in lower competition-per-item (and expected revenue per-item-sold) because of costly information acquisition. We describe a practically implementable modification to the simultaneous sealed-bid auction mechanism that improves competition-per-item (and expected revenue per-item-sold).

Invited Session

602

Sunday, 11:30 AM - 12:30 PM, Public Sector OM

Track: Public Sector Operations Management

Invited Session: Different Contexts, Shared Insights: Studies in Healthcare, Sustainability, Government, and Educati

Chair(s): Samantha Keppler

101-0252   Polling Place Closures and their Estimated Impact on Wait Times in Georgia's 2016 Election

Gerard Cachon, Professor, The Wharton School, United States

Dawson Kaaua Kaaua, Assistant Professor, Georgetown University, United States

Between the 2012 and 2016 presidential elections, Georgia closed polling places. Based on wait times reported by voters, we perform a difference-in-differences analysis and find that Georgia's wait times increased as a result of polling place closures, which suggests the state may have not pooled capacity following the closures.

101-0941   Simulation models for resource and operational planning in cervical cancer screening: a pilot in Peru

Kai Friesecke, Student, George Washington University, United States

Erica Gralla, Associate Professor, George Washington University, United States

Nadia Lahrichi, Assistant Professor, Ecole Polytechnique, Canada

Patti Gravitt, Professor, University of Maryland, United States

Cervical cancer is preventable, yet many women in low- and middle-income countries die from it each year, because of limited resources for screening. We develop a discrete event simulation model for operational planning, to support a current roll-out of new screening technologies in the Amazon region of Peru.

101-1189   Crowdfunding the Front Lines: An Empirical Study of Teacher-Driven School Improvement

Samantha Keppler, Assistant Professor, University of Michigan Ann Arbor, United States

Jun Li, Associate Professor, University of Michigan - Ann Arbor, United States

Andrew Wu, Assistant Professor, University of Michigan - Ann Arbor, United States

This is an empirical study examining the effect of funding for teacher-led school improvement projects on student academic outcomes. Using data from the crowdfunding platform DonorsChoose, we identify a frontline worker effect, where small classroom changes made by teachers lead to school-level improvements in student learning.

Invited Session

603 Sunday, 11:30 AM - 12:30 PM, Retail Operations   Track: Retail Operations

Invited Session: Omni-Channel Marketing and Operations

Chair(s): Alexander Hübner   Jonas Hense

101-0346   A Two-step Demand Forecasting Method for Omnichannel Retailing

Haytham Omar, Student, University of Bordeaux, France

Walid Klibi, Associate Professor, Kedge Business School, France

Mohamed Babai, Professor, Kedge Business School, France

Yves Ducq, Professor, University of Bordeaux, France

We propose a two-step demand forecasting method that integrates the relationship between products using network analysis and market basket analysis in an omnichannel retailing context. The method identifies new attributes, which are then used as explanatory variables within an ARIMAX model. The performance is shown through an empirical investigation.

101-2000   Convergence in Omni-Channel Retailing

Lina Zhang, Lecturer, Nottingham University Business School Ch, China

Bart MacCarthy, Professor, University of Nottingham, United Kingdom

Luc Muyldermans, Associate Professor, University of Nottingham, United Kingdom

Contemporary retailers seek to offer multiple channels to satisfy heterogeneous customer demand, allow more flexibility in channel use, and deploy upstream operations flexibly for efficient fulfilment. We analyze omni-channel retail operations of leading UK retailers and show similarities in the solutions adopted. We discuss factors that may explain convergence.

101-2010   Should Omnichannel Grocers Offer Discounts to Next-Day or Two-Day Orders?

Chokdee Siawsolit, Post Doc/Researcher, Drucker School of Management, United States

Gary Gaukler, Associate Professor, Drucker School of Management, United States

We investigate scenarios where the grocer offers next-day and two-day fulfillment options. We show through a profit-maximizing inventory model that the economic benefits depend on the lead time duration and participation rate. With discount incentives, the break-even discount point is strongly influenced by the product's shelf life, among other parameters.

Invited Session

607 Sunday, 11:30 AM - 12:30 PM, Social Media & Internet of Things   Track: Social Media and Internet of Things

Invited Session: Consumer Search Behavior and Its Strategic Implications

Chair(s): Yi Zhu   SONG LIN

101-0781   Group Search Strategy

Xinyu Cao, Assistant Professor, New York University, United States

Yuting Zhu, Student, Massachusetts Institute of Technology, United States

Group search is prevalent in social settings. We model group search as a game among group members, and show that the fixed-sample strategy is preferable to the sequential strategy when the unit search cost (relative to the dispersion of the product value distribution) is very low or high enough.

101-1486   Search Prominence in a Distribution Channel

Mao Yuan, Student, Huazhong University of Science and Technology, China

Yi Zhu, Associate Professor, University of Minnesota, United States

Consumers increasingly start their online price search from a particular retailer when comparing prices for the same product. We build up a search model within a distribution channel to answer whether the rise of such a retailer, defined as a prominent retailer, hurts other channel members and consumers.

101-1305   Personalization Trap

Tony Ke, Assistant Professor, Massachusetts Institute of Technology, United States

SONG LIN, Assistant Professor, Hong Kong University of Science and Technology, Hong Kong

Michelle Lu, Assistant Professor, Mcgill University, Canada

The evolution of Internet and data technology has enabled retailers to personalize product recommendations, facilitating consumer search. Retailers can also forgo information from consumer data and sell prominent positions via sponsored-ad auctions. We present a unified model to compare platform profitability, consumer welfare, seller surplus under personalization and ad auctions.

Invited Session

608

Sunday, 11:30 AM - 12:30 PM, Socially Responsible Operations

Track: Socially Responsible Operations

Invited Session: Societal and Environmental Considerations in OM

Chair(s): Priyank Arora

101-0329   Is Adopting Mass Customization a Path to Environmentally Sustainable Fashion?

Adem Orsdemir, Assistant Professor, University of California Riverside, United States

Aydin Alptekinoglu, Associate Professor, Penn State University University Park, United States

In recent years fashion industry has been identified as one of the biggest polluters of the environment. We characterize the profitability and environmental impact of mass production and mass customization systems. These are two commonly employed production systems in fashion industry.

101-1773   Effect of Economic Downturn on Adoption of Environmental Initiatives

Rick Hardcopf, Assistant Professor, Utah State University, United States

Ujjal Mukherjee, Assistant Professor, University of Illinois Urbana-Champaign, United States

In this paper, we analyze the effect of economic downturn on firm behavior related to adoption of environmental initiatives. Using a large dataset, we show that firms exhibit different behavior in adoption of environmental initiatives. We find significant firm and sectorial variations in the firm behavior.

101-0090   Improving Outcomes in Child Care Subsidy Voucher Programs under Regional Asymmetries

Priyank Arora, Assistant Professor, University of Massachusetts Amherst, United States

Wei Wei, Student, University of Massachusetts Amherst, United States

Senay Solak, Associate Professor, University of Massachusetts Amherst, United States

In context of the child care subsidy programs, our study analyzes the strategic resource allocation decisions - investments toward provider services versus outreach activities - of child care resource and referral agencies with the goal of ensuring equity in access to affordable child care for low-income families across different regions.

Invited Session

610

Sunday, 11:30 AM - 12:30 PM, Supply Chain Management

Track: Supply Chain Management

Invited Session: Empirical Studies in Global Supply Chain Management

Chair(s): John-Patrick Paraskevas

101-2706   Inventory and Global Sourcing: The Moderating Role of a Supply Chain Officer on the TMT

Rohan D'Lima, Assistant Professor, Oregon State University, United States

John-Patrick Paraskevas, Assistant Professor, Miami University, United States

Adams Steven, Assistant Professor, University of Maryland, United States

Thomas Corsi, Professor, University of Maryland, United States

We investigate the relationship between global sourcing and inventory investment with a focus on the moderating impact of a chief supply chain officer (CSCO) on that relationship. Our hypotheses suggest that firms with a designated CSCO are able to reduce the complexities and uncertainties associated with global sourcing.

101-2838   Impact of supply chain risk on a plant's recovery time from a supply chain disruption

Laharish Guntuka, Student, University of Maryland - College Park, United States

Thomas Corsi, Professor, University of Maryland, United States

David Cantor, Professor, Iowa State University, United States

Amid supply chain disruptions emerging from events like COVID-19, many firms struggle to proactively manage the potential sources of supply chain risk. The purpose of this study is to examine how supply chain risk has an impact on a manufacturing plant's recovery time from a supply chain disruption.

Sunday, 11:30 AM - 12:30 PM

101-2718 Supply Chain and Operations Management Experience in the C-Suite: Risk and Resilience

John-Patrick Paraskevas, Assistant Professor, Miami University, United States
Camil Martinez, Professor, University of Los Andes, Colombia
Thomas Corsi, Professor, University of Maryland, United States

Our study is grounded in Upper Echelons Theory (UET) and proposes that manager's backgrounds influence their firm's supply chain risk management and supply chain resilience strategies. We use a unique archival database to explore the relationship between the TMT and supplier risk strategy.

Invited Session

613

Sunday, 11:30 AM - 12:30 PM, Sustainable Operations 1   Track: Sustainable Operations

Invited Session: Panel: Innovative Teaching in Sustainability

Chair(s): Robert Klassen

101-2069 Innovative Teaching in Sustainability: New Ideas to Engage Your Students

Robert Klassen, Professor, Ivey Business School, Western University, Canada
Vishal Agrawal, Associate Professor, Georgetown University, United States
Andre Calmon, Assistant Professor, Georgia Institute of Technology, United States
Charles Corbett, Professor, UCLA Anderson School of Management, United States
Madeleine Pullman, Professor, Portland State University, United States
Ravi Subramanian, Associate Professor, Georgia Tech, United States

Innovative teaching is needed to structure and communicate new ideas. A panel will be presenting a new case, class session, or simulation that they have found successful. The panel will also consider a broader set of challenges faced in teaching sustainable operations.

Sunday, 12:45 PM - 01:45 PM

Invited Session

619

Sunday, 12:45 PM - 01:45 PM, 4- Meetings & Programs - By Invitation   Track: All Meetings & Programs B: By Invitation

Invited Session: College Presidents' Meeting

Chair(s): Xiuli He

101-2888 College Presidents Meeting

Xiuli He, Associate Professor, University of North Carolina Charlotte, United States

This event is by invitation only. Those invited have received the link to this event in earlier correspondence.

Invited Session

620

Sunday, 12:45 PM - 01:45 PM, Behavior in OM   Track: Behavior in Operations Management

Invited Session: Coordination and Cooperation in Supply Chains

Chair(s): Kyle Hyndman

101-0853 The Role of Trust in Aligning Capacity Decisions in Supply Chains

Kyle Hyndman, Associate Professor, University of Texas Dallas, United States
Santiago Kraiselburd, Associate Professor, INCAE, Costa Rica
Florian Federspiel, Assistant Professor, INCAE, Costa Rica
Jose Lopez, Student, MIT Sloan School of Management, United States
Sara Benetti, Student, INCAE, Costa Rica

We explore the role of trust and trustworthiness in a dyadic supply chain via an experimental newsvendor-game. Parties receive divergent demand forecasts, and can truthfully share them or lie, before committing to capacity choices. We study how different a-priori trust and trustworthiness levels correlate with in-game behavior and explain performance.

101-1009 Desperateness in Contract Bargaining under Supply Chain Networks

Lei Hua, Student, University of Texas Arlington, United States
Alper Nakkas, Assistant Professor, University of Texas Arlington, United States
Kay Yut Chen, Professor, University of Texas Arlington, United States
Xianghua Wu, Student, University of Texas Arlington, United States

This paper theoretically and behaviorally studies contract bargaining in two-sided supply chain networks where retailers on the demand side purchase products from suppliers on the supply side. We reveal behavioral regularities on contracting behaviors and develop a behavioral theory, named desperateness theory, which explains and predicts the contract bargaining behaviors.

101-2376 Reduce Mismatch Cost or Increase Sales? A Behavioral Study of Retailer Effort under Coordinating Contracts

Jose Benedicto Duhaylongsod, Post Doc/Researcher, University of Cologne, Germany

Yingshuai Zhao, Assistant Professor, University of Cologne, Germany

Ulrich Thonemann, Professor, University of Cologne, Germany

We study a supply chain where a retailer can invest demand-shaping effort for reducing mismatch costs or increasing sales under coordinating contracts. We model the retailer's investments using a prospect theory-style framework and derive predictions. We conduct a laboratory experiment to test our proposed theory and predictions on effort preference.

Invited Session

624	Sunday, 12:45 PM - 01:45 PM, Emerging Topics in OM Track: Emerging Topics in Operations Management
	Invited Session: Behavioral Operations
	Chair(s): Jing Luo

101-2160   Enhancing Omnichannel Retailing with Online Influencers: Two Business Models

Baolong Liu, Assistant Professor, ShanghaiTech University, China

Weilong Wang, Student, Purdue University, United States

Selling during online influencers livestreaming has become prevalent in omnichannel retailing. We investigate two business models: the Flexible Supply Chain and the Influencer Marketing that operationally drive the business of live commerce. We analyze how firms should collaborate with influencers and the key success factors in the two models, respectively.

101-2122   Why Perfect Tests May Not be Worth Waiting For: Information as a Commodity

Kimon Drakopoulos, Assistant Professor, University of Southern California, United States

Ramandeep Randhawa, Associate Professor, University of Southern California, United States

In this paper we show that when test availability is low and the social planner is unable to allocate tests in a targeted manner to the agents, moderately good tests can outperform perfect tests in terms of social outcome even in the presence of more accurate tests.

101-0921   Should I Stay or Should I go? Behavioral Response to incentive to leave a queue

Jing Luo, Student, Katz Business School, United States

Leon Valdes, Assistant Professor, University of Pittsburgh, United States

Sera Linardi, Associate Professor, University of Pittsburgh, United States

In congested systems (e.g., public transit during rush hour), planners may offer incentives for customers to make use of the service at different times. In this study, we conduct a human-subject experiment to study how people respond to incentives to leave a queue or not join the queue.

Invited Session

629	Sunday, 12:45 PM - 01:45 PM, Healthcare OM 1 Track: Healthcare Operations Management
	Invited Session: Improving Patient Flow and Reducing Readmissions
	Chair(s): Anita Tucker

101-1627   Online Routing with Stochastic Anytime Constraints with Application to Inpatient Bed Assignment

Pengyi Shi, Assistant Professor, Purdue University, United States

Xin Liu, Post Doc/Researcher, University of Michigan, United States

Bin Li, Assistant Professor, University of Rhode Island, United States

Lei Ying, Professor, University of Michigan - Ann Arbor, United States

We develop a novel pessimistic-optimistic algorithm to solve online routing problems with anytime constraints. The algorithm is computationally efficient, and we prove it achieves zero constraint violation yet maintaining a sub-linear regret. We apply the algorithm to an online bed assignment problem with unknown delay and readmission cost.

101-2564   Impact of Dedicated Capacity on Overall Hospital Patient Flow

Temidayo Adepoju, Student, Questrom Business School, Boston Univers, United States

Justin Ren, Associate Professor, Questrom Business School, United States

Erol Pekoz, Professor, Questrom Business School, United States

We examine the potential benefit of a dedicated observation unit (DOU) in improving patient flow from the ED to the inpatient unit. The DOU has the potential of pulling short-stay patients from the inpatient unit thus freeing beds that can be used by high risk patients.

Contributed Session

630	Sunday, 12:45 PM - 01:45 PM, Healthcare OM 2 Track: Healthcare Operations Management 2
	Contributed Session: Emergency Department Studies (2)
	Chair(s): Eric Xu

101-1372   An Empirical Analysis of Physical Accessibility on Emergency Department Utilization

Eric Xu, Student, University of Minnesota, United States

Kevin Linderman, Professor, University of Minnesota, United States

The Patient Protection and Affordable Care Act was an attempt to provide widespread insurance coverage. While the law's Medicaid Expansion provided individuals with a financial means, we find that the impact of physical accessibility, e.g. spatiotemporal characteristics, has a greater impact on healthcare utilization.

101-1617   Non-urgent Visits and Emergency Department Congestion

Shrutivandana Sharma, Assistant Professor, Singapore University of Technology and Design, Singapore
Ying Xu, Assistant Professor, Singapore University of Technology and Design, Singapore
Manu Gupta, Researcher, TCS, India
Costas Courcoubetis, Professor, Singapore University of Technology and Design, Singapore

We present queueing games to investigate how patients' imperfect perception of their urgency influences their choice between expensive/congested emergency department and general practitioners. We find that improving patients' perceptions may increase non-urgent emergency department visits and social cost. We then discuss how to induce optimum flows at patients' choice equilibrium.

101-2794   Analysis of the decision-making optimization in the hospital emergency sector

Delana Oliveira, Student, Universidade Federal do Rio de Janeiro, Brazil
Isabela Franco, Student, Universidade Federal do Rio de Janeiro, Brazil
NIKIFOROS PHILYPPIS JUNIOR, Student, Escola de Guerra Naval, Brazil
Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil
Ayala Braga, Logistic, Federal University of Rio De Janeiro, Brazil

This research intends to analyze the capacity optimization scientific production applied in the hospital emergency sector for the managerial improvement in the overcrowding situations. The research showed the predominance of studies that investigate the human resource and material dimensioning and the waiting time attendance and the patient flow.

Invited Session

631	Sunday, 12:45 PM - 01:45 PM, Humanitarian Ops & Crisis Mgmt 1 Track: Humanitarian Operations and Crisis Management
	Invited Session: Analytical Models in Humanitarian Operations I
	Chair(s): Arian Aflaki

101-0208   Disaster Mitigation: Leveraging Community Involvement to Improve Water Access in sub-Saharan Africa

Chengcheng Zhai, Student, Kelley School of Business, United States
Kurt Bretthauer, Professor, Indiana University, United States
Jorge Mejia, Assistant Professor, Indiana University, United States
Alfonso Pedraza-Martinez, Associate Professor, Indiana University, United States

2.2 billions of people, particularly in rural areas, lack access to safe drinking water (WHO 2019). We investigate how can we involve the local communities to improve the drinking water accessibility and where should additional water projects be built to optimize water accessibility levels while maintaining costs.

101-0211   Coordination in humanitarian settings

Mahyar Eftekhar, Assistant Professor, Arizona State University Tempe, United States
Maria Besiou, Professor, Kuehne Logistics University, Germany
Minchul Sohn, Post Doc/Researcher, Kuehne Logistics University, Germany
Bruno Van de Meulebroecke, Deputy Global Logistics Cluster Coordinator, Logistics Cluster, Italy

We study the nature of relationships among parties involved in humanitarian operations. We take an exploratory approach, and use conceptual theories, data analysis and cases to support propositions. We use a unique data set of interactions among humanitarian organizations in 45 countries, during emergency relief operations, from 2006 to 2018.

101-1202   Coopetition in first response operations to global disasters: Case of UNHRD network

Hasti Rahemi, Student, University of Colorado Boulder, United States
David Drake, Assistant Professor, University of Colorado Boulder, United States

We discuss the problem of cooperation in humanitarian response in presence of competition between humanitarian organizations. By using United Nations Humanitarian Response Depot (UNHRD) as an example, we study how competition between humanitarian organizations in delivering aid affect their incentives to work together in preparing and responding to disasters.

Invited Session

633	Sunday, 12:45 PM - 01:45 PM, Information Systems & OM 1 Track: Information Systems and Operations Management
	Invited Session: Healthcare, IS, and OM Interface
	Chair(s): Emre Demirezen

101-0397   Workload, Predictive Accuracy, and the Value of Alert-enabled Process Innovation: the Case of Sepsis

Idris Adjerid, Assistant Professor, Virginia Polytechnic Institute And State University, United States
Mehmet Ayvaci, Assistant Professor, University of Texas Dallas, United States
Ozalp Ozer, Professor, University of Texas Dallas, United States

We study how and when alert-enabled process innovation (AEPI) creates value in the context of early identification and treatment of a deadly clinical condition known as sepsis. We find that changing workload and the behavioral responses to alert accuracy can impact AEPI's value.

101-2097   Viability of mHealth for chronic disease management under various payment systems

Saligrama Agnihothri, Professor, Binghamton University, United States

Balaraman Rajan, Associate Professor, California State University East Bay, United States

Arvind Sainathan, Assistant Professor, Nanyang Technological University, Singapore

Leon Cui, Assistant Professor, Binghamton University, United States

Mobile health (mHealth) technology can help provide efficient, effective, and patient centered healthcare to manage chronic conditions. Adopting mHealth in a clinical practice has significant impact on clinical operations. We investigate when is it economical to switch to an mHealth-based practice from a face-to-face, office visit-based clinical practice?

101-1940   Study of health outcomes in a technology enabled virtual setting.

Maxim Terekhov, Student, University of Florida, United States

Emre Demirezen, Assistant Professor, University of Florida, United States

Haldun Aytug, Professor, University of Florida, United States

We performed a retrospective matched case control study of health insurance claims data to explore telemedicine outcomes. The results demonstrate statistically significant changes in costs, utilization, and medication adherence of telehealth users. These findings provide insight on the value of telemedicine and have important implications for stakeholders in healthcare field.

Invited Session

634	Sunday, 12:45 PM - 01:45 PM, Information Systems & OM 2 Track: Information Systems and Operations Mgmt 2
	Invited Session: E-Commerce and Streaming Media
	Chair(s): Ming Fan

101-2266   Does Information Sharing Enforcement Come to Fruition to the Marketplace?

Yeongin Kim, Assistant Professor, Virginia Commonwealth University, United States

Seokjun Youn, Assistant Professor, University of Arizona, United States

Kyung Sung Jung, Lecturer, University of Florida, United States

Young Kwark, Assistant Professor, University of Florida, United States

Online retailers are aggressively expanding own-brand businesses, directly competing with sellers in their marketplaces. Regulators recently unveil plans to oblige the giant retailer to share data with the smaller rivals. We study whether/when the data-sharing enforcement is effective, to help small sellers and alleviate antitrust issues.

101-2268   Market Segmentation, Cannibalization, and Competing Retailers' Online and Physical Channel Choices

Ping Tang, Student, UT Dallas, United States

Jianqing Chen, Associate Professor, University of Texas at Dallas, United States

Srinivasan Raghunathan, Professor, UT Dallas, United States

This paper examines channel structures in a competitive market. We develop a game-theoretic model in which two retailers sell the same category of products and choose distribution channels. We demonstrate that the market expansion, consumer segmentation and cannibalization together shape the firms channel choice

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101-2728   Elementary Economics of Streaming Services

Maxwell Stinchcombe, Professor, University of Texas at Austin, United States

Andrew Whinston, Professor, University of Texas at Austin, United States

Zhaokun Xue, Student, University of Texas at Austin, United States

Bundling strategies have been seen tightly integrated with the rising of streaming services. Interpreting the recommendation algorithms as Bayesian signals, we derive how the introduction of informative signals can enhance the expected value of the bundle, and that nonlinear pricing is better if the recommendation algorithm is effective.

Invited Session

635	Sunday, 12:45 PM - 01:45 PM, Inventory Management Track: Inventory Management
	Invited Session: Advances in Stochastic Inventory Management
	Chair(s): Xiting Gong

101-0054   Service contracts for spare parts inventory: Usage-based vs. time-based contracts

Geert-Jan Van Houtum, Professor, Eindhoven University of Technology, Netherlands

Rob Basten, Associate Professor, Eindhoven University of Technology, Netherlands

Douniel Lamghari-Idrissi, Program Manager - Customer Support, Eindhoven University of Technology, Netherlands

We consider service contracts for spare parts. The number of unfilled demands (= long downs of machines) has to be kept below a given target during the finite contract period by the service provider. We compare fixed-time contracts to contracts that end after a given number of demands.

101-1064   Tailored Base-Surge Policies in Dual-Sourcing Inventory Systems with Demand Learning

Boxiao (Beryl) Chen, Assistant Professor, School of Business, United States

Cong Shi, Assistant Professor, Department of Industrial Enginnering, United States

We consider a periodic-review dual-sourcing inventory system, in which the expedited supplier is faster and more costly, while the regular supplier is slower and cheaper. With the benchmark chosen to be the (full-information) optimal Tailored Base-Surge policy, we develop the first nonparametric learning algorithm that admits a tight regret bound.

101-1264   A Bound on the Cost of a Simple Policy in a Dual Sourcing Inventory System

Sripad Devalkar, Assistant Professor, Indian School of Business, India

Ganesh Janakiraman, Professor, University of Texas Dallas, United States

Sridhar Seshadri, Professor, University of Illinois Urbana-Champaign, United States

We provide worst case bounds for the expected cost of a dual sourcing system with a Regular and an Emergency supplier. For a simple policy that combines the Tailored Base Surge Policy with Regular sourcing the bound is two for general distributions and $1 + 1/\sqrt{2}$ for the normal distribution.

Contributed Session

636	Sunday, 12:45 PM - 01:45 PM, Manufacturing Operations Track: Manufacturing Operations
	Contributed Session: Strategic Operations
	Chair(s): Karen Pentz

101-0745   "What The Hack" - 'Defect-free' Standard Operating Procedures and Robotic Process Automation

Ram Roy, Senior Lecturer, New Zealand, New Zealand

Alex Abraham, CEO, Lean Success Partners, Canada

The biggest leverage in controlling the cost of quality is in the planning phase. The scientific methods do not reach the workers as they are too difficult to learn. In this paper, the authors simplify the key principles with the help of easy examples so workers can use them.

101-2823   A sustainable application analysis of the additive manufacturing opportunities and the challenges in South America

WALLICE SOUZA, Student, Centro Federal De Educacao Technologica - Cefet, Brazil

Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil

Augusto Reis, Professor, Centro Federal De Educacao Technologica - Cefet, Brazil

Patrick Jaska, Professor, University of Mary Hardin-Baylor, United States

Atef Harb, Professor, Notre Dame University (NDU), Lebanon

One of the industry 4.0 pillars is the additive manufacturing. This technology has grown significantly in recent years. With revolutionary trends with less impact over the environment, society, and economy, this article aims to analyze the opportunities and the challenges of the sustainable application of this technology in South America.

101-1006   Shop Floor Control Practices in Job Shops/Batch Manufacturing: The State of the Art

Karen Pentz, Associate Professor, The University of North Carolina at Greensboro, United States

Vidyaranya Gargeya, Professor, The University Of North Carolina At Greensboro, United States

Over the last few decades, hundreds of books and articles have been written on shop floor control in job shop/batch manufacturing companies. There has been very little work reported on what specific shop floor practices are used in such facilities. This research, based on case studies, presents on those issues.

Invited Session

637	Sunday, 12:45 PM - 01:45 PM, Marketing & OM Track: Marketing and Operations Management
	Invited Session: Competition, information and new marketing practices
	Chair(s): Jian Chen

101-0668   Alliance Formation Among Competitors

Derui Wang, Student, Fudan University, China

Xiaole Wu, Professor, Fudan University, China

Yue Dai, Professor, Fudan University, China

Christopher Tang, Professor, University of California Los Angeles, United States

We study potential alliance formation among three competing firms with asymmetric capacity. By considering a standard equilibrium concept, we find that either no alliance will be formed or the big firm will form an alliance with a small firm.

101-1074   Indirect or Direct Selling? A Strategic Analysis of Platform Information Sharing

Xue Li, Assistant Professor, Beijing Foreign Studies University, China

Shilu Tong, Associate Professor, The Chinese Univ of Hong Kong, Shenzhen, China

Xiaoqiang Cai, Professor, Chinese Univ of Hong Kong, Hong Kong

Jian Chen, Professor, Tsinghua University, China

In recent years of E-commerce, online retail platforms have provided different selling formats with upstream manufacturers, We develop a stylized game-theoretic model to investigate the optimal selling format for the competing manufacturers considering the platform's private information and possible information sharing behavior.

101-1286   Optimal Crowdfunding Project Design Considering the Quality Disclosure Decisions

Qiudan Zhang, Student, Beijing Institute of Technology, China

Lei Guan, Assistant Professor, Beijing Institute of Technology, China

Jian-Cai Wang, Associate Professor, Beijing Institute of Technology, China

In the design of reward-based crowdfunding, project quality is an important issue for investors to consider whether to participate. In this research, we investigate the optimal invest price with the decision of quality disclosure of the project creator under different crowdfunding mechanisms, e.g., AON and KIA.

Contributed Session

638

Sunday, 12:45 PM - 01:45 PM, Operational Excellence   Track: Operational Excellence

Contributed Session: Operational Excellence in the era of Industry 4.0

Chair(s): Brad Meyer

101-1514   Process Improvement Practice: Maintenance or Innovation?

Brad Meyer, Associate Professor, Drake University, United States

Dan Bumblauskas, Associate Professor, University of Northern Iowa, United States

Richard Keegan, Lecturer, Trinity College Dublin, Ireland

Dali Zhang, Assistant Professor, Shanghai Jiao Tong University, China

Data was collected on process improvement projects from organizations in China, Ireland and Iowa, across various industries. Survey questions addressed changes made and novel process changes were more pronounced when projects were selected due to the existence of new process technology, brainstorming about competitiveness, and when deploying industrial engineering.

101-1729   Measuring manufacturing flexibility in a volatile and complex environment

Qazi Kabir, Assistant Professor, Rowan University, United States

This research would explore how manufacturing flexibility can be effectively measured in today's business environment, which is quite volatile and complex. The research investigates different factors affecting manufacturing flexibility and their inter-relationships. The research would also explore ways to improve manufacturing flexibility of a firm.

101-2096   Lean 4.0: Lean Production sheds a different light on Industry 4.0 investments

Fabiana Cifone, Student, Politecnico Di Milano, Italy

Federica Costa, Post Doc/Researcher, Politecnico Di Milano, Italy

Bassel Kassem, Student, Politecnico Di Milano, Italy

Alberto Staudacher, Professor, Politecnico Di Milano, Italy

Matteo Rossini, Post Doc/Researcher, Politecnico Di Milano, Italy

Industry 4.0 investments are increasing companies' performances, but not all companies invest in the same direction and with the same purpose. A multiple case study research on Italian companies show that Lean Production adopters approach in selecting Industry 4.0 is different in terms of goals and type of investments.

Invited Session

640

Sunday, 12:45 PM - 01:45 PM, POM in Practice   Track: POM in Practice

Invited Session: Innovative Business Practices in POM

Chair(s): Chloe Glaeser

101-0901   Profit or Growth? Dynamic Order Allocation in a Hybrid Workforce

Eryn Juan He, Student, National University of Singapore, Singapore

Joel Goh, Assistant Professor, NUS Business School, Singapore

Several firms have launched their own platforms to engage freelancers. To study how demand should be shared between the firm and its platform, we design an optimal order allocation mechanism to maximize both parties' long-run profit under a service-level constraint, stochastic network effects and a non-stationary growth.

101-1182   Impact of Free Shipping Threshold on PC and Mobile Channels: Evidence from an Online Retailer

Fujie Jin, Assistant Professor, Indiana University Bloomington, United States

Fei Gao, Assistant Professor, Indiana University Bloomington, United States

Jianbin Li , Professor, Huazhong University of Science & Technology, China

We use a unique transaction-level dataset from a large online retailer to study the impacts of free shipping threshold on consumer shopping behavior across two different online channels, mobile and PC channels, focusing on how customers strategically add items to a shopping cart to qualify for free shipping.

101-1421   Online Food Ordering Platforms: Commission Rates and Delivery Fees

Chloe Glaeser, Assistant Professor, Kenan-Flagler Business School, United States

Jaelynn Oh, Assistant Professor, University of Utah, United States

Xuanming Su, Professor, University of Pennsylvania, United States

We study the commission rates and delivery fees of online food ordering platforms. We document how much a platform can benefit from jointly determining commission rates and delivery fees

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Contributed Session

641

Sunday, 12:45 PM - 01:45 PM, Procurement & Supplier Management

Track: Procurement and Supplier Management

Contributed Session: Sustainability in Procurement and Supplier Management

Chair(s): Amrou Awaysheh

101-0041   A Theory of Local Food Market, Imperfect Produce and Food Waste

Bing Bai, Student, Washington University in St. Louis, United States

Lingxiu Dong, Professor, Olin Business School, Washington Univers, United States

Fasheng Xu, Assistant Professor, Syracuse University, United States

Each year twenty percent of vegetables and fruits grown in US goes to waste because of imperfect looking. Grocery stores usually have aesthetic standard to increase consumer's shopping valuation. We study the effect of consumer purchasing behavior on channel competition and characterize its influence on food waste.

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101-2450   Determining the Criteria Weights for Supplier Selection in Dining Sector

ZAFER YILMAZ, Assistant Professor, TED University, Turkey

We determine the criteria to select the suppliers for the restaurants referring to the literature and interviews with the restaurant owners located in Turkey. Next, the importance weights of the criteria are found using Analytical Hierarchy Process in which the criteria comparison data obtained from the restaurant owners are used.

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101-1984   Social Sustainability in a Supply Chain: Key Factors in Selection of a Non-Compliant Supplier

Guilherme Zamur, Student, Fundacao Getulio Vargas, Brazil

Barbara Flynn, Professor, Indiana University, United States

Ely Paiva, Professor, Fundacao Getulio Vargas, Brazil

Amrou Awaysheh, Assistant Professor, Indiana University, United States

Neo-institutional theory, agency theory and social-cognitive theory are used to develop hypotheses about selection of non-compliant suppliers. A discrete-choice scenario experiment with a mixed model manipulation design was used to examine the choice of social sustainability criteria by managers in the U.S., Brazil and India.

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Invited Session

643

Sunday, 12:45 PM - 01:45 PM, Public Sector OM

Track: Public Sector Operations Management

Invited Session: Public Sector Operations

Chair(s): Mili Mehrotra

101-2201   A supply chain and operations management perspective on higher education institutions: A research agenda

Gemma Berenguer, Assistant Professor, Universidad Carlos III de Madrid, Spain

Mohammad Moshtari, Assistant Professor, Tampere University, Finland

Higher education institutions (HEIs) face funding cuts, austerity measures, and the ongoing COVID-19 pandemic in both developed and developing countries. Moreover, HEIs are under stakeholder pressure to be more economically and socially accountable. This study discusses the peculiarities of the HE industry from a supply chain and operations management perspective.

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101-0086   Too Much Information: When Does Additional Testing Benefit Schools?

Vanitha Virudachalam, Assistant Professor, University of Illinois Urbana-Champaign, United States

Sergei Savin, Professor, University of Pennsylvania, United States

Matthew Steinberg, Associate Professor, George Mason University, United States

We examine the relationship between information on student performance and monetary incentives for teachers using a two-period principal-agent model. We establish that for low-performing schools, the return from merit-based incentives is always greater than that from information via interim assessments. For high-performing schools, we identify settings where information is demotivating.

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101-0262   Does Benefits-Value-Advisor (BVA) Program Add Value?

Jingyao Huang, Graduate Student, The University of Texas at Austin, United States

Diwakar Gupta, Professor, University of Texas Austin, United States

Benefits-Value-Advisor (BVA) program is implemented by health benefit coordinators on behalf of self insured employers in an attempt to lower cost and improve quality and access. We use a game-theoretic model to investigate the impact of BVA on providers' price and quality equilibrium, patient utility and insurer's cost.

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Invited Session

644

Sunday, 12:45 PM - 01:45 PM, Retail Operations

Track: Retail Operations

Invited Session: Product Variety and Consumer Choices I

Chair(s): Monire Jalili   Alireza Yazdani

101-1142   The Value of Curated Box - Evidence from a Field Experiment of a Fashion Retailer

Yiwei Wang, Student, UC Irvine, United States

Lauren Lu, Associate Professor, Dartmouth College, United States

Curated box is a popular trend which disrupts the retailing space. We conduct a field experiment to examine the value of curated box delivery on product sales and rentals in an online fashion retailing setting. We further explore the behavioral mechanisms which drive these results.

101-1451   Channel Operation Strategies under Price Harmonization

Avinash Geda, Assistant Professor, Cleveland State University, United States

Arunima Chhikara, Student, University of Florida, United States

Janice Carrillo, Associate Professor, University of Florida, United States

Nazli Turken, Assistant Professor, Johns Hopkins University, United States

Price harmonization across different channels is a widely practiced marketing strategy. Contrary to the intuition that dual-channel firms utilize both channels under channel-specific pricing strategy, we find conditions when a single (online/offline) channel dominates the dual-channel policy under the price harmonization strategy.

101-1166   Sample Boxes for Retail Products: Bundling Experience Goods to Leverage Consumer Uncertainty

Alireza Yazdani, Assistant Professor, California State Polytech University Pomona, United States

Eren Cil, Associate Professor, University of Oregon, United States

Michael Pangburn, Associate Professor, University of Oregon, United States

Consumers often try a few varieties of an experience product before they establish their shopping routine. Sample boxes create value through helping consumers resolve their valuation uncertainties of these varieties earlier and at a lower cost. We study how firms and consumers share this added value under different market scenarios.

Invited Session

648	Sunday, 12:45 PM - 01:45 PM, Social Media & Internet of Things Track: Social Media and Internet of Things
	Invited Session: Online Platforms and Design Evaluations
	Chair(s): Linli Xu

101-1705   Do Larger Audiences Generate Greater Revenues under Pay What You Want?

Shijie Lu, Assistant Professor, University of Houston, United States

Dai Yao, Assistant Professor, National University of Singapore, Singapore

Celine Chen, Associate Professor, Shenzhen University, China

Rajdeep Grewal, Professor, University of North Carolina, United States

We assess the viability and efficacy of PWYW by examining the relationship between popularity of a live streaming event and the revenue it generates under a PWYW scheme. Data from a field experiment reveal that revenues under PWYW do not scale linearly and support the relevance of social image concerns.

101-2057   Using IoT to understand user driving behavior and response to car automation

Cenying Yang, Student, The University of Texas at Austin, United States

Ashish Agarwal, Associate Professor, The University of Texas at Austin, United States

Prabhudev Konana, Professor, The University of Texas at Austin, United States

We use IoT based remote monitoring service of a large Automotive company to collect ADAS data while driving and the concurrent driver actions measured in terms of car performance. We develop an approach to determine the impact of automation features included in ADAS on the driver behavior.

101-1886   Strategic Opacity in Crowdsourced Quality Evaluation Policies

Linli Xu, Assistant Professor, University of Minnesota, United States

Gordon Burtch, Associate Professor, University of Minnesota, United States

Qi Xie, Student, University of Minnesota, United States

Li Wang, Associate Professor, Shandong University of Finance&Economics, China

We examine the role of strategic opacity, i.e., purposefully concealing the complete set of inputs used to determine performance evaluations, in mitigating manipulation, a notable issue in crowd evaluations. In the context of Threadless.com, we show that the opaque policy resulted in significant improvements of the average quality of submissions.

Invited Session

649	Sunday, 12:45 PM - 01:45 PM, Socially Responsible Operations Track: Socially Responsible Operations
	Invited Session: Socially Responsible and Innovative Operations in OM/SCM
	Chair(s): Xiaojin Liu

101-0119   The Impact of Animal Welfare Regulation on Firm's Product Offerings: Humane or Organic Product

Wenli Xiao, Assistant Professor, University of San Diego, United States

Yen-Ting Lin, Associate Professor, University of San Diego, United States

Yinping Mu, Professor, University of Electronic Science and Technology of China, China

Zhiping Lin, Post Doc/Researcher, Dongbei University of Finance and Economics, China

We consider two competing supply chains, each with a supplier and a retailer. We examine the retailers' choice between offering an organic product and a humane product, when an animal welfare regulation is introduced. We provide conditions under which the retailer would choose to offer the organic versus humane product.

101-0321   Trips for Tips? The Impact of Passenger Tips on Drivers' Location Decisions

Li Ding, Student, Scheller College of Business, United States

Basak Kalkanci, Assistant Professor, Georgia Institute of Technology, United States

Using a large-scale and granular taxi trip dataset, we analyze drivers' location decisions in response to changes in tip percentages across both temporal and spatial dimensions. The study emphasizes the importance of incorporating drivers' location preferences for higher tips into ride-dispatching systems, especially for platform companies.

101-0588   Workplace Environment Transparency, Employee Satisfaction, and Firm Innovation Performance

Hyunwoo Park, Assistant Professor, Ohio State University, United States

Morvarid Rahmani, Assistant Professor, Georgia Institute of Technology, United States

We study the relationship between employee satisfaction measured in multiple dimensions and firm innovation performance measured by patenting activities. Our preliminary analysis indicates that transparency and multi-faceted employee satisfaction have mixed and nuanced relationships with innovation performance.

Invited Session

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651 Sunday, 12:45 PM - 01:45 PM, Supply Chain Management   Track: Supply Chain Management

Invited Session: Emerging Research in Food Supply Chains

Chair(s): Tracy Johnson-Hall Johnson-Hall

101-2622   PROMOTING SUPPLY CHAIN INNOVATION: A CASE STUDY OF VIETNAMESE AGRICULTURAL SUPPLY CHAIN

Yen Phan, Student, University of Technology Sydney, Australia

Renu Agarwal, Associate Professor, University of Technology Sydney, Australia

Christopher Bajada, Associate Professor, University of Technology Sydney, Australia

Sanjoy Paul, Lecturer, University of Technology Sydney, Australia

Drawing on Transaction cost and Dynamic capability theory, this study investigates the impacts of Control mechanism, Supply chain collaboration and Supply chain learning on Supply chain innovation, which in turn promotes the supply chain performance. The study is based on a case study with evidence from Vietnamese agricultural supply chain.

101-0287   Stakeholder collaboration in broken supply chains: an intervention based approach to food recovery

John Lowrey, Student, Ohio State University, United States

Kenneth Boyer, Professor, Ohio State University, United States

We examine how stakeholders collaborate in cross-sector partnerships in the food recovery value chain. We generate solutions to common stakeholder collaboration challenges and implement a supply chain intervention in practice. Our intervention resulted in more food pounds recovered at two of the five retail stores.

101-2516   Short food supply chains and sustainability: more than geographical proximity

Veronica Leon Bravo, Assistant Professor, Politecnico Di Milano, Italy

Federica Ciccullo, Assistant Professor, Politecnico Di Milano, Italy

Federico Caniato, Professor, Politecnico Di Milano, Italy

Short food supply chains (SFSCs) are often associated to localness, although proximity is also defined by relational dynamics and information exchange along the chain. Through multiple cases in the Italian food industry, we aim at further conceptualize SFSCs beyond the geographical proximity along with their drivers, barriers and sustainability objectives.

Contributed Session

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656 Sunday, 12:45 PM - 01:45 PM, Teaching/Pedagogy in POM   Track: Teaching/Pedagogy in POM

Contributed Session: Strategies for Teaching Business Analytics

Chair(s): Kaushik Sengupta

101-2647   Teaching a Database Management Course: Using the Right Tools for Business Analytics

Ahmet Ozkul, Associate Professor, University of New Haven, United States

Armando Rodriguez, Professor, University of New Haven, United States

Business schools are increasingly offering undergrad and grad degree programs in Business Analytics, which requires information systems and operations faculty to modify their traditional courses. In this presentation, we show key challenges and solutions to designing and teaching a database management course in the context of business analytics.

101-1527   Teaching Analytics Like Analytics Is Done

William Swart, Professor, East Carolina University, United States

Kenneth MacLeod, Associate Professor, East Carolina University, United States

This presentation will address issues such as team formation, charter development, goal setting, and performance evaluation in a flipped learning environment within the analytics classroom.

101-1155   Design Thinking, Blockchain and Data Sciences Curriculum using a Technology Platform Partner

Kaushik Sengupta, Professor, Hofstra University, United States

We present a curriculum approach for teaching Blockchain, Data Sciences and Design Thinking using a technology platform partner. It is critical for students to gain knowledge of the practical use of the new technologies using industry solution platforms and apply the concepts to business cases across multiple majors.

Sunday, 02:00 PM - 03:00 PM

Invited Session

659

Sunday, 02:00 PM - 03:00 PM, 3- POMS Tutorials   Track: All POMS Invited Tutorials

Invited Session: Operational Data Analytics for Operations Management

Chair(s): George Shanthikumar

101-2111   Operational Data Analytics for Operations Management

Qi Feng, Professor, Purdue University, United States

We provide a framework for data integrated modeling for prescriptive operations Management. This is achieved through operational statistics which is built on the basis of (1) data integration and (2) cross validation. We will illustrate how regularization in sample average approximation and data driven robust optimization.

Contributed Session

661

Sunday, 02:00 PM - 03:00 PM, Behavior in OM   Track: Behavior in Operations Management

Contributed Session: Behavioral Issues in Job and Task Design

Chair(s): Kasuni Weerasinghe

101-2156   Automation, Job Design, and Productivity: Field Evidence

IPL Png, Professor, National University of Singapore, Singapore
Jie Gong, , ,

If worker effort exhibits increasing differences in two tasks, automation of one task would reduce the marginal cost of the remaining task. In a supermarket field experiment which automated the task of collecting payment, cashier productivity in the remaining scanning task increased by 10 percent.

101-2517   The role of a sense of urgency in employee collaborative behavior and job performance

Hao Nguyen, Student, Yokohama National University, Japan
Kodo Yokozawa, Associate Professor, Yokohama National University, Japan
Toru Takagi, CEO, IT Management Research Center, Japan
Tim Wolput, Consultant, Lean Consultancy Group, Japan

This paper contributes to behavioral operations management's research by discussing a mechanism that a sense of urgency would facilitate employees' collaborative behavior to improve job performance. Managers are implied to take interventions and providing supportive, cooperative culture to ensure the relationship between a sense of urgency and employee behavior.

101-2791   Blending Behavioral Factors and Task Sequencing for Efficient Warehouse Operations

Kasuni Weerasinghe, Student, Department of Transport & Logistics Management, University of Moratuwa, Sri Lanka
H. Niles Perera, Senior Lecturer, University of Moratuwa, Sri Lanka
Jason Hurley, Assistant Professor, Wilfrid Laurier University, Waterloo, Ontario, Canada, Canada

We investigate how the behavior of warehouse pickers vary based on their awareness of key performance indicators through a field experiment. Results show that clear awareness of the incentive calculation method increases picker performance. The findings also underscore the importance of providing proper instructions to achieve picking targets.

Invited Session

670

Sunday, 02:00 PM - 03:00 PM, Healthcare OM 1   Track: Healthcare Operations Management

Invited Session: Policy Impacts on Healthcare Operations

Chair(s): Jonathan Helm

101-0188   Healthcare Payment Model Impact on Hospital Readmissions

Jon Stauffer, Assistant Professor, Mays Business School, Texas A&M University, United States
Jonathan Helm, Associate Professor, Kelley School of Business, United States
Kurt Bretthauer, Professor, Indiana University, United States

We examine the transition from Fee-for-Service to quality-focused healthcare reimbursement plans, such as bundled payments and the Hospital Readmission Reduction Program. Results show that P4P plans do motivate extra readmission reduction effort, but that misalignments can occur between the provider's efforts and cost-effective effort levels.

101-0247   Treatment Planning of Victims with Heterogeneous Time-sensitivities in Mass Casualty Incidents

Yunting Shi, Student, Shanghai Jiao Tong University, China
Nan Liu, Associate Professor, Boston College, United States
Guohua Wan, Professor, Shanghai Jiao Tong University, China

Mass casualty incidents lead to a sudden jump in demand for care, making the rationing of medical resources inevitable. We study how to schedule patients with heterogeneous time-sensitivities in such a resource-scarce environment in order to do the greatest good to the greatest number of people.

101-0091   Impact of Hospital Readmission Reduction Program on Hospital Readmission and Mortality: An Economic Analysis

Subodha Kumar, Professor, Temple University, United States
Liangfei Qiu, Associate Professor, University of Florida, United States
Arun Sen, Professor, Texas A&M University College Station, United States
Atish Sinha, Professor, University of Wisconsin - Milwaukee, United States

In October 2012, the Affordable Care Act established the Hospital Readmissions Reduction Program (HRRP) that requires the CMS to institute a penalty that reduces payments to hospitals with excess readmissions. In this study, we empirically examine the effectiveness of the introduction of HRRP on hospital readmission and mortality rates.

Invited Session

672	Sunday, 02:00 PM - 03:00 PM, Humanitarian Ops & Crisis Mgmt 1	Track: Humanitarian Operations and Crisis Management

Invited Session: Analytical Models in Humanitarian Operations II

Chair(s): Arian Aflaki

101-1014   Value Function Approximation for Last-mile Distribution in Humanitarian Relief

Robert Cook, Assistant Professor, Northeastern Illinois Univ, United States
Emmett Lodree, Professor, University of Alabama Tuscaloosa, United States

This study describes a Value Function Approximation approach for solving a Markov Decision Problem in which we distribute stochastically-arriving donations to disaster survivors. Donations accumulate over time at collection sites and are periodically transported to a relief center where the donations are distributed to beneficiaries over a finite horizon.

101-1805   A PRIORITY RULES APPROACH FOR POST-DISASTER RELIEF DISTRIBUTION IN A MULTI-ACTOR ENVIRONMENT

Feizar Rueda-Velasco, Student, Universidad Nacional De Colombia, Colombia
Miguel Jaller, Assistant Professor, University of California Davis, United States
Wilson Adarme, Professor, Universidad Nacional De Colombia, Colombia

The research proposes a decentralized priority rules approach for relief distribution inspired in the common sense behavior of the actors in real disasters and is tested using Agent Based Simulation, the rule system shows high adaptability to the system reality, improvements in distribution efficacy and reduction in the redundant deliveries

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101-0949   Donations in Humanitarian Operations: Earmarking, Competition, and Joint Fundraising

Arian Aflaki, Assistant Professor, Joseph M. Katz Graduate School of Busine, United States
Alfonso Pedraza-Martinez, Associate Professor, Indiana University, United States

Humanitarian organizations (HOs) compete over donations. They spend on fundraising and offer donors control over the use of their donations (i.e., earmarking). However, giving up control can harm HO performance. We study how competition and joint fundraising affect HOs.

Invited Session

674	Sunday, 02:00 PM - 03:00 PM, Information Systems & OM 1	Track: Information Systems and Operations Management

Invited Session: Operations Management and Information Systems Interface

Chair(s): Changseung (Chang) Yoo

101-0242   Selling and Leasing for Digital Goods with Piracy in Supply Chains

Hongseok Jang, Student, University of Florida, United States
Janice Carrillo, Associate Professor, University of Florida, United States
Kyung Sung Jung, Lecturer, University of Florida, United States
Young Kwark, Assistant Professor, University of Florida, United States

We develop an analytic model where market players either lease or sell digital goods in a market with both pirated and legitimate copies available. We compare the profitability of these models and investigate how firms utilize pricing strategies to cope with piracy in a centralized or decentralized supply chain.

101-0337   Order Fulfillment Intervention in Online Retailing: How Platform Owner Delivers Differently from Individual Merchants?

Hyun Seok (Huck) Lee, Assistant Professor, Oregon State University, United States

Yusoon Kim, Associate Professor, Oregon State University, United States

Junbo Son, Assistant Professor, University of Delaware, United States

In online retailing, some large platform owners have set out to intervene in order fulfillment for various strategic reasons. This results in two internally competing fulfillment systems–traditional, fulfillment-by-individual merchant (FBM) and emergent, fulfillment-by-platform owner (FBP). This paper seeks to unravel the underlying intervention mechanisms and their performance implications.

101-1053 Designing Service Systems in the Age of Yelp: Incorporating Reviews in Queuing Decisions

Abhishek Roy, Assistant Professor, Temple University, United States

Debjit Roy, Professor, Indian Institute of Management Ahmedabad, India

Jan-Kees Van Ommeren , Assistant Professor, Twente University Hengelo, Netherlands

Online reviews have become an increasingly ubiquitous source of information about the quality of products and services. We first study how multi-dimensional feedback parameters affect customer reviews. Then, using a stylized queuing model of a restaurant, we analyze the long-term effect of restaurant reviews on customer arrivals and restaurant profits.

Invited Session

676 Sunday, 02:00 PM - 03:00 PM, Inventory Management Track: Inventory Management

Invited Session: Advances in Inventory Management

Chair(s): Ying Rong Sheng Liu

101-2492 Taming the Long Tail of Inventory: Gambler's Fallacy in Intermittent Demand Management

Sheng Bi, Student, National University of Singapore, Singapore

Long He, Assistant Professor, National University of Singapore, Singapore

Chung-Piaw Teo, Professor, National University of Singapore, Singapore

We analyze the average cost per unit of goods sold for inventory policies over a finite horizon with intermittent demand product. Our analysis is motivated by the recent surprising observation that the gambler's fallacy phenomenon holds actually in a random sequence of independent events, due to the finite horizon.

101-2578 On the Joint Inventory and Pricing Control for a One-Warehouse Multi-Store Problem with Lost Sales

Murray Lei, Assistant Professor, Queen's University, Canada

Sheng Liu, Assistant Professor, Rotman School of Management, Canada

Stefanus Jasin, Associate Professor, University of Michigan, United States

Andrew Vakhutinsky, Consulting Member of Technical Staff, Oracle, United States

We consider a joint inventory and pricing problem with one warehouse and multiple stores. The optimal control for this problem is unknown and numerically challenging to compute. To deal with this, we propose a heuristic control based on the optimal solution of a deterministic relaxation of the original stochastic problem.

101-2719 Data-driven Inventory and Pricing Management with Adversarial Models

Qi Feng, Professor, Purdue University, United States

Chengzhang Li, Assistant Professor, Shanghai Jiao Tong University, China

Mengshi Lu, Assistant Professor, Purdue University, United States

We study the problem of jointly optimizing the price and order quantity of a perishable product to minimize the worst-case regret under demand ambiguity. We characterize the optimal decisions and study the impact of inventory risk on the optimal price. We demonstrate the advantages of our approach over existing ones.

Contributed Session

677 Sunday, 02:00 PM - 03:00 PM, Manufacturing Operations Track: Manufacturing Operations

Contributed Session: Cost-efficient Manufacturing Operations

Chair(s): Daniel Pereira

101-2463 ISO 50001 implementation and cost management in manufacturing industries

GuanWen Cheng, Student, Macau University of Science and Technology, Macao

MingZe Xu, Student, The Hong Kong Polytechnic University, Hong Kong

YangYi Peng, Student, Macau University of Science and Technology, Macao

ChunSheng Li, Assistant Professor, Macau University of Science and Technology, Macao

This study explores cost changes of manufacturing firms prior to and after the ISO 50001 certification. Using a sample of 353 Chinese listed manufacturers from 2010 to 2020, we conduct event studies to explore the effects of ISO 50001 on the firms' performances by examining both certified and non-certified firms.

101-2305 Balance Cost and Service Impacts while defining Sales and Operations Tactics for Multi-Modal Order Fulfillment

Daniel Pereira, Student, Catholic University of Portugal, Portugal

José F. Oliveira, Associate Professor, INESC TEC and Faculty of Engineering, UP, Portugal

Maria Antónia Carravilla, Associate Professor, INESC TEC and Faculty of Engineering, UP, Portugal

With the advent of product proliferation, Sales and Operations Planning shall be adjusted to consider Make-to-Stock/Make-to-Order policies. Our framework combines a multi-objective optimization model leveraged by a business-oriented matrix containing different planning strategies balancing cost and service metrics. We propose a practical, supply chain-oriented, and mid-term perspective on the topic.

Invited Session

678

Sunday, 02:00 PM - 03:00 PM, Marketing & OM   Track: Marketing and Operations Management

Invited Session: Emerging Models in Operations Marketing Interface

Chair(s): Vahideh Abedi

101-0739   Pricing for Satisficing Customers under Stockouts

Varun Gupta, Assistant Professor, Penn State University Erie, United States
Metin Cakanyildirim, Professor, University of Texas Dallas, United States

Retail customers are generally satisfied with the purchase of a preferred and in-stock product priced below their willingness-to-pay. We develop a choice model for these behavior and use it for pricing applications under stockouts.

101-2689   An empirical survey on the acceptance of chat bots in Austria

Rudolf Grünbichler, Student, Graz University of Technology, Austria
Alen Rastoder, Student, Graz University of Technology, Austria
Sigrid Weller, Student, TU Graz, BWL Institut, Austria

Chatbots are finding their way into everyday business life and will speed up communication with customers. The question arises as to the social acceptance of human-machine communication. In an empirical survey, the acceptance in Austria is surveyed by means of a standardized online questionnaire.

101-2777   Exploring consumer purchase intention in cross-border e-commerce: Evidence from the 'one belt one road' countries

Jie JIAN, Professor, Chongqing University of Posts and Telecommunications, China
Ling LV, Student, Chongqing University of Posts and Telecommunications, China
Wendan LV, Student, Chongqing University of Posts and Telecommunications, China
Li WAN, Associate Professor, Chongqing University of Posts & Telecom*, China

Consumer purchase intention (CPI) has been a fundamental topic in e-business field for decades and it is directly related to the online operation effectiveness. The purpose of this study is to investigate which factors influence consumer purchase intention in cross-border e-commerce context?

Contributed Session

679

Sunday, 02:00 PM - 03:00 PM, Operational Excellence   Track: Operational Excellence

Contributed Session: Behavioral Aspects of Operational Excellence

Chair(s): Bassel Kassem

101-2627   Design science research framework for presenting and publishing process improvement projects

David Asamoah, Associate Professor, Kwame Nkrumah University of Science and Technology, Ghana
Francis Andoh-Baidoo, Associate Professor, University of Texas Rio Grande Valley, United States
John Marfo, Lecturer, Kwame Nkrumah University of Science and Technology, Ghana
Benjamin Agyei-Owusu, Student, Kwame Nkrumah University of Science and Technology, Ghana
Grace Annan, Student, Kwame Nkrumah University of Science and Technology, Ghana

Despite increasing reports of successful continuous process improvement projects in operations management, there is a lack of a framework to guide publication of continuous improvement studies. This study develops and demonstrates a design science research framework to guide researchers and practitioners in presenting and publishing continuous process improvement studies.

101-1971   "Organizational Design as an enabler of OPEX: A Practitioner case study" by Dr Dino Petrarolo

Dino Petrarolo, Senior Vice President, Competitive Capabilities Int, South Africa

Operational Excellence (OE) journeys are often constrained by legacy Organizational Designs or inability to adapt to new realities catalyzed by the journey. This case study will outline a manufacturing company's need and process to develop a future organizational framework and principles, to ensure alignment with operational excellence goals and enablers.

101-2083   The winning combination: leadership and a sound methodology sustain improvement projects and make employees happier

Alberto Staudacher, Professor, Politecnico Di Milano, Italy
Matteo Rossini, Post Doc/Researcher, Politecnico Di Milano, Italy
Federica Costa, Post Doc/Researcher, Politecnico Di Milano, Italy
Fabiana Cifone, Student, Politecnico Di Milano, Italy
Bassel Kassem, Student, Politecnico Di Milano, Italy

Our foremost concern is that organizations are misusing their human resources. Tested with over 100 improvement projects, this study suggests an innovative guide to Operational Excellence that achieves sustainable continuous improvement and better self realization of employees.

Sunday, 02:00 PM - 03:00 PM

Contributed Session

681

Sunday, 02:00 PM - 03:00 PM, POM in Practice   Track: POM in Practice

Contributed Session: Opportunities in emerging technologies

Chair(s): Ana Lombardi

101-2643   A conceptual managerial framework for the environmental knowledge and the healthcare waste: opportunities and challenges

Annibal Scavarda, Associate Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil
Claudia Figueiredo, Student, Augusto Motta University center, Brazil
Gláucya Daú, Student, Universidade Federal do Estado do Rio de Janeiro, Brazil
Fang Zhao, Professor, Edith Cowan University, Australia
Ricardo Alberto Florez, Professor, Universidad Icesi, Colombia

The digital technologies are tools proposed in the collaborating learning. This research study has developed a literature review about the technological innovations, knowledge, and environment. The study proposes a conceptual managerial framework, involving the opportunities and the challenges as a way of improving the environmental knowledge and the healthcare waste.

101-2767   The industry 4.0 technological aspects: Implications and contributions in the supply chain management

Ana Chavão Brito Lombardi de Souza, Student, Federal University of the State of Rio de Janeiro, Brazil
Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil
Gláucya Daú, Student, Universidade Federal do Estado do Rio de Janeiro, Brazil
Arnesh Telukdarie Telukdarie, Professor, University of Johannesburg, South Africa
Ricardo Cassel, Associate Professor, Univ Federal Do Rio Grande Do Su, Brazil

Industry 4.0 technologies provide information, integration, and connection in real time for the supply chain. This research has developed the industry 4.0 and supply chain management literature review. The objective is to identify and to analyze the industry 4.0 aspects and their implications and contributions in the supply chain management.

Invited Session

682

Sunday, 02:00 PM - 03:00 PM, Procurement & Supplier   Track: Procurement and Supplier Management
Management

Invited Session: Environmental Sustainability and Social Responsibility

Chair(s): Sanjith Gopalakrishnan

101-0277   Can Brands Claim Ignorance? Unauthorized Subcontracting in Apparel Supply Chains

Felipe Caro, Professor, UCLA Anderson School of Management, United States
Leonard Lane, Lecturer, Paul Merage School of Business, United States
Anna Saez De Tejada Cuenca, Assistant Professor, IESE Business School, Spain

Many violations of labor standards in the apparel industry occur after suppliers outsource their production without the retailers' knowledge. We analyze empirically what factors lead to unauthorized subcontracting. We provide managerial insights on which factory and order characteristics increase the probability of unauthorized subcontracting, and how it can be prevented.

101-0386   Putting Social Responsibility on the Menu: AI-Guided Tool Selection that Aligns Worker and Social Objectives

Parshan Pakiman, Student, University of Illinois at Chicago, United States
Selva Nadarajah, Assistant Professor, University of Illinois at Chicago, United States
Yun Fong Lim, Associate Professor, Singapore Management University, Singapore

Workers may choose tools to complete tasks that maximize internal reward structures at the cost of social goals. We propose an AI system to (i) learn the worker's preference for choosing tools and (ii) design menus to guide tool selection that aligns his/her reward maximization objective with social goals.

101-1830   Consistent Allocation of Emission Responsibility in Energy Supply Chains

Sanjith Gopalakrishnan, Student, University of British Columbia, Canada
Daniel Granot, Professor, University of British Columbia, Canada
Frieda Granot, Professor, University of British Columbia, Canada

Motivated by a recent Canadian regulation to factor in upstream emissions during environmental impact assessment of energy projects, we adopt a cooperative game model and derive the nucleolus as a consistent mechanism to apportion upstream emission responsibility in energy supply chains. We develop algorithmic results and provide an implementation framework.

Invited Session

684

Sunday, 02:00 PM - 03:00 PM, Public Sector OM   Track: Public Sector Operations Management

Invited Session: Analytics/Machine Learning Applications in Healthcare

Chair(s): Mehmet Ayvaci   Mehmet Eren Ahsen

101-1505   To Predict or Not to Predict: The Case of the Emergency Department

Sriram Somanchi, Assistant Professor, University of Notre Dame, United States

Idris Adjerid, Assistant Professor, Virginia Polytechnic Institute And State University, United States

We offer a novel machine learning method that helps reduce data cost while maintaining high predictive accuracy. In emergency department context, our method was able to maintain high prediction accuracy while reducing two thirds of average time to prediction. Our work has significant contributions to the growing stream healthcare analytics.

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101-1759   To Catch A Killer: A Data-Driven Personalized and Compliance-Aware Sepsis Alert System

Zahra Mobini , Student, The University of Texas at Dallas, United States

Mehmet Ayvaci, Assistant Professor, University of Texas Dallas, United States

Ozalp Ozer, Professor, University of Texas Dallas, United States

We develop an alert system for early detection of sepsis, accounting for individual patient's risk factors and caregiver's compliance behavior. We formulate the problem of determining when to alert sepsis as an MDP and characterize threshold policies. Using clinical data, we demonstrate how our alert system can improve sepsis-care quality.

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Invited Session

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685 Sunday, 02:00 PM - 03:00 PM, Retail Operations   Track: Retail Operations

Invited Session: Product Variety and Consumer Choices II

Chair(s): Monire Jalili   Alireza Yazdani

101-1044   Optimal Dynamic Allocation of Sales and Rental Inventory at a Retailer

Mehmet Altug, Associate Professor, George Mason University, United States

Oben Ceryan, Senior Lecturer, Cass Business School, United Kingdom

We consider a retailer that simultaneously sells and rents its product over a given horizon. In every period, the retailer faces uncertain demand that splits between renters and buyers based on their utility. We characterize the optimal dynamic rental allocation policy and study its properties for two settings.

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101-0260   Sustainability in the Fast Fashion Industry

Xiaoyang Long, Assistant Professor, University of Wisconsin Madison, United States

Javad Nasiry, Associate Professor, Mcgill University, Canada

A fast fashion system allows firms to react quickly to changing consumer demand by replenishing inventory (via quick response) and introducing more fashion styles. In this paper, we study the environmental impact of the fast fashion business model by analyzing its implications for product quality, variety, and inventory decisions.

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101-1236   Facilitating Used Goods Sales while Competing with a Third-Party Customer-to-Customer Platform

Ozgun Caliskan Demirag, Associate Professor, Penn State University Erie, United States

Yu Xue, Assistant Professor, Chinese Univ of Hong Kong, China

Frank Chen, Professor, City University of Hong Kong, Hong Kong

Yugang Yu, Professor, University of Science and Technology of China, China

We investigate the economic and environmental impact of a retailer's self-built customer-to-customer (C2C) platform to support reselling of secondhand goods in the presence of a third-party C2C platform. We identify market conditions under which the retailer benefits from the presence of the third-party platform and discuss the environmental effects.

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Contributed Session

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687 Sunday, 02:00 PM - 03:00 PM, Scheduling & Logistics   Track: Scheduling and Logistics

Contributed Session: Novel Problems in Logistics

Chair(s): XINTONG QIU

101-2652   Comparing traditional and new methods for estimating distances in logistics and transportation

Elias Kirche, Associate Professor, Florida Gulf Coast University, United States

Rajesh Srivastava, Professor, Florida Gulf Coast University, United States

Transportation and logistics frequently rely on published distances tables for rates and billing. We study the impact of using different methods for mileage estimates and their impact on several performance measures. Street-level technology offers several advantages for logistics management over traditional methods.

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101-2432   A variable neighborhood search for migratory beekeeping routing problem

Xintong Qiu, Student, Asper School of Business, Canada

Yuvraj Gajpal, Assistant Professor, Asper School of Business, Canada

Srimantoorao Appadoo, Associate Professor, University of Manitoba, Canada

A migratory beekeeping routing problem (MBRP) is studied to optimize total profit of beekeepers, comprehensively considering nectar allocation, flowering periods, nectar capacity and product price. A variable neighborhood search method (VNS) is proposed to solve it and computational instances is utilized to test the validity and feasibility of proposed method.

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Invited Session

690

Sunday, 02:00 PM - 03:00 PM, Socially Responsible Operations   Track: Socially Responsible Operations

Invited Session: Emerging Topics in Socially Responsible OM

Chair(s): Somya Singhvi

101-1008   Interest Subvention for Crop Loans in India: Win-Win or Win-Lose

Disha Bhanot, Assistant Professor, S P Jain Institute of Management and Research, India
Vivek Farias, Associate Professor, Massachusetts Institute of Technology, United States
Deeksha Sinha, Post Doc/Researcher, Massachusetts Institute of Technology, United States

In partnership with a large public sector bank in India, we study the impact of an interest subsidy on loan repayment and access to credit for small agricultural loans. Our counterintuitive findings shed light on the importance of various operational and behavioral aspects of the agricultural lending ecosystem.

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101-1452   Balancing Natural Capital And Farmer Welfare: Optimal Mechanisms And Operational Implications

Dan Iancu, Associate Professor, Stanford University, United States
Erica Plambeck, Professor, Stanford University, United States
Xavier Warnes, Student, Stanford University, United States

We analyze several interventions that balance the Natural Capital and farmers' welfare and compare them to the first best solutions where land-use decisions are taken by a centralized decision-maker.

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101-2458   Improving Cash Constrained Farmers' Welfare: The Role of Government Loan Policies

Kenneth Pay, Student, Massachusetts Institute of Technology, Singapore
Somya Singhvi, Student, Massachusetts Institute of Technology, United States
Yanchong Zheng, Associate Professor, Massachusetts Institute of Technology, United States

The need for immediate cash inhibits smallholder farmers from maximizing their revenue by forcing them to sell their produce at suboptimal times. This paper develops a model to examine how cash constraints influence farmers' sales decisions, as well as to analyze the efficacy of loan programs in improving revenue outcomes.

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Contributed Session

692

Sunday, 02:00 PM - 03:00 PM, Supply Chain Management   Track: Supply Chain Management

Contributed Session: Supply Chain Management and the COVID-19 Pandemic

Chair(s): Claudia Ravaglia

101-2679   Technology-enabled Business Transformation in an Age of Turbulence: Lessons Learned from COVID-19

maarten voorneveld, Student, Leiden University, Netherlands
Xishu Li, Assistant Professor, Leiden University, Netherlands

We investigate critical factors impacting the success of technology-enabled business-transformation, under drastic market-changes and time-pressure. The relation between organizational COVID-19-crisis response strategy, to business process adaptations, and success is undefined. Through case-studies and interviews, we investigated how decision-speed, decision-process, and transformation-scale are related to success of transformation, and financial outcomes.

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101-2709   The sustainability and the COVID-19 pandemic: the adoption of remote work

Claudia Ravaglia, Student, Centro Federal De Educacao Technologica - Cefet, Brazil
Annibal Scavarda, Associate Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil
ANA DIAS, Student, CEFET, Brazil
Joseph Shevel, Professor, Galilee Institute, Israel
Gerardo Heckmann, Professor, Universidad Nacional de Córdoba, Argentina

With the COVID-19 pandemic, companies start adopting the remote work to keep their operations. This article demonstrates the sustainability of this strategy through email questionnaires sent to the companies' managers and employees. The idea is to verify the impacts of this in the companies' production chain, social relations, and environment.

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Contributed Session

695

Sunday, 02:00 PM - 03:00 PM, Sustainable Operations 1   Track: Sustainable Operations

Contributed Session: Reducing Carbon in Transportation

Chair(s): Murillo Caldeira

101-1385   Incentive Programs towards Mass Adoption of Electric Vehicles: Purchase Subsidy vs. Charging Subsidy

Huibin Du, Professor, Tianjin Uinversity, China
Xinyu Jia, Student, College of Management and Economics, China
Ruiqing Zhao, Professor, Tianjin Uinversity, China

This paper studies an optimal subsidy allocation problem towards mass adoption of electric vehicles. We examine the performance of different subsidy schemes by a stackelberg game model. The results show that charging subsidies to operators are more effective than purchase subsidies to consumers when considering consumers' charging anxiety.

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101-0751   Duopoly Airline Network Design Decisions under Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)

Ankit Sharma, Assistant Professor, Indian Institute of Management Amritsar, India

Suresh Jakhar, Assistant Professor, Indian Institute of Management Lucknow, India

We develop a two-staged formulation for a duopoly coopetitive multi allocation hub location problem (DCMAHLP). The methodology adopted is solving a multi objective mixed integer capacitated hub location problem to derive the most cost-effective and least carbon-emitting links to connect the two intercontinental hub-level networks under the implementation of CORSIA.

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101-2490   Prospection of automated rail shunting operations for enhancing environmental indicators in the Port of Santos

Murillo Caldeira, Student, Universidade Nove De Julho, Brazil

Fellipe Ribeiro, Student, Universidade Nove de Julho, Brazil

Aparecido Coutinho, Professor, Universidade Nove de Julho, Brazil

Fabio Pereira, Professor, Universidade Nove De Julho, Brazil

Port access is one of the main concerns in modern port management. At global emerging hub ports, the modal balance interferes in the narrowness of the port-city relationship. This study prospects the utilization of robot-assisted shunting operation for automatize rail access in the Port of Santos and requires data collection.

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Contributed Session

697

Sunday, 02:00 PM - 03:00 PM, Teaching/Pedagogy in POM   Track: Teaching/Pedagogy in POM

Contributed Session: Strategies for Teaching Operations Research and Management Science

Chair(s): Matthew Drake

101-2766   PIT STOP: Pupil Interactive Training - STarting OPtimization

Valeriana Cunha, Associate Professor, Federal University of Uberlandia, Brazil

Jose Caixeta Filho, Professor, USP, Brazil

The objective of this paper is to present Pit Stop, a platform used to show the applicability of Operational Research, especially Optimization. We believe it could arouse the interest of undergraduate students who wish to gain knowledge in this field, either online or in a hybrid classroom environment

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101-2781   Two Hands-on Exercises for Synchronous online Classes

Brad Meyer, Associate Professor, Drake University, United States

The move to online classes has rendered many hands-on classroom exercises infeasible. This session will demo two hands-on exercises that have been ported to an online form. One is a simple "Lego" introduction to optimization and the other is a team activity used to introduce Scrum.

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101-1533   Strategies for Using Case Studies in the Operations Research / Management Science Classroom

Matthew Drake, Associate Professor, Duquesne University, United States

This presentation will discuss strategies and suggestions for using case studies in the OR/MS classroom. It will first review the published pedagogical literature related to teaching OR/MS-related material with case studies. Then the author will share personal experiences of using case studies effectively in practice.

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Sunday, 03:15 PM - 04:15 PM

Contributed Session

702

Sunday, 03:15 PM - 04:15 PM, Behavior in OM   Track: Behavior in Operations Management

Contributed Session: Trust and Fairness in Operations

Chair(s): Jose Lopez

101-2354   A Recipient-Centric Approach to Efficiency and Fairness

Yu Fan, Student, University of Science and Technology of China, China

thomas breugem, Post Doc/Researcher, INSEAD, Netherlands

Luk Van Wassenhove, Professor, INSEAD, France

In this paper, we aim to present a framework for recipient-centric resource allocation. We include each recipient's perception of allocation's imbalance into the efficiency metric. We show that an optimal allocation groups recipients based on their attitude towards imbalance and propose an adjusted efficiency-fairness trade-off that accounts for recipients' perception.

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101-2191   Research of Incentive Mechanism for TPL based on Fairness Preference in Inventory Financing

Lu Wang, Student, Peking University, China

Lihua Chen, Professor, Peking University, China

The principal-agent relationship between the bank and TPL in inventory financing is analyzed in the study. Based on the F-S preference model, the fairness preference and asymmetric ability information are considered as key factors in incentive mechanism design. The impact of banks' ignoring 3PL's fairness preference is also discussed.

101-2253   A Feedback Approach to Explicitly Modeling the Evolution of Trust in Supply Chains

James Paine, Student, Sloan School of Management, United States
Jose Lopez, Student, MIT Sloan School of Management, United States

Trust and trustworthiness in Supply Chains have typically been studied by inferring them from players' actions in experimental Forecast Sharing or Capacity Matching games. We build and calibrate a model of trust and trustworthiness to explicitly explore their evolution, and explain the observed heterogeneity in outcomes in the extant literature.

Contributed Session

	Sunday, 03:15 PM - 04:15 PM, Healthcare OM 1	Track: Healthcare Operations Management
711	Contributed Session: Accountable Care Organizations	
	Chair(s): Muktak Krishnachandra Tripathi	

101-1980   The allocation of funds in healthcare: investment decisions under access-quality trade-off

Lina Song, Assistant Professor, UCL School of Management, United Kingdom
Soroush Saghafian, Assistant Professor, Harvard University, United States

We examine the allocation of funds for U.S. hospitals under the access-quality trade-off. Using a choice model, we analytically derive the conditions for rural hospital bypassing behavior, provide heuristics for allocating funds between rural vs. urban and/or high vs. low-quality hospitals, and simulate payment policies calibrated from a national dataset.

101-2231   Why Do Hospitals Join ACO Networks? - An Exploratory Study of Network Entry Decisions

Zhenzhen Yan, Student, Michigan State University, United States
Mei Li, Associate Professor, University of Oklahoma, United States
John Ni, Assistant Professor, Miami University, United States

Accountable Care Organization (ACO) networks present an influential reform in the U.S. healthcare industry. However, hospitals must participate in order to derive the benefits of ACO. This study explores network factors and organizational slacks that prompt hospitals into joining an ACO, which sheds lights on antecedents of network entry decisions.

101-0557   Rich Getting Richer? Learning and Selection Effects on the Performance of Accountable Care Organizations

Indranil Bardhan, Professor, University of Texas Austin, United States
Sezgin Ayabakan, Assistant Professor, Temple University, United States
Rajiv Banker, Professor, Temple University, United States
Muktak Krishnachandra Tripathi, Student, Temple University, United States

We investigate the sustainability of Accountable Care Organizations and study their performance under the Medicare Shared Savings Program's incentives for population health management. Our results indicate the existence of selection effects and performance improvements over time, and imply that both effects explain dropout and switching behavior to high-risk models.

Contributed Session

	Sunday, 03:15 PM - 04:15 PM, Humanitarian Ops & Crisis Mgmt 1	Track: Humanitarian Operations and Crisis Management
713	Contributed Session: Humanitarian Food Assistance	
	Chair(s): Sofia Perez-Guzman	

101-0138   Analyzing Drivers Behind Food Waste in Food Banks

Fan Zou, Student, University of South Carolina, United States
Pelin Pekgun, Associate Professor, University of South Carolina, United States
Luv Sharma, Assistant Professor, University of South Carolina, United States
Sanjay Ahire, Professor, University of South Carolina, United States

This study identified factors contributing to food waste in food banks and operational decisions that can reduce waste.

101-2165   Enhancing Food Assistance Supply Chain Effectiveness for USAID Operations in Ethiopia

Keziban Tasci, Student, Northeastern University, United States
Weijia Jing, Student, Northeastern University, United States
Ozlem Ergun, Professor, Northeastern University, United States

USAID distributes millions of tons of food assistance each year globally. We develop a data-driven optimization model that captures USAID's supply chain framework's fundamental features to provide actionable recommendations to USAID to increase efficiency and effectiveness in their in-kind food assistance operations.

101-2313   Eliminating Food Under-served Areas: A Prize-collecting Travel Salesman Problem with Profits Approach

Sofia Perez-Guzman, Student, Rensselaer Polytechnic Institute, United States

Food under-served areas are associated with lack of grocery stores, low-income population, vehicle ownership, and lifestyles. A Prize-Collecting Travel Salesman Problem with profits is implemented to demonstrate that supply chain interactions determines the existence of food deserts. Through a study case, interventions are designed to achieve a sustained interaction

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Invited Session

715

Sunday, 03:15 PM - 04:15 PM, Information Systems & OM 1   Track: Information Systems and Operations Management

Invited Session: ISOM Interface - Managing and Using Data

Chair(s): Du Ni

101-2785   Time and the value of data

Ehsan Valavi, Student, Harvard Business School, United States
Joel Hestness, Rsearch Scientist, Ceresbras Systems, United States
Newsha Ardalani, Research Scientist, Facebook AI Research, United States
Marco Iansiti, Professor, Harvard Business School, United States

This research investigates the effectiveness of time-dependent data in improving the quality of AI-based products and services. We, theoretically, prove several counter-intuitive results. Having these results, we answer questions on how data volume creates a competitive advantage. We complement our theoretical results with an experiment.

101-2166   Examining the role of big data research in operations management: A state-of-the-art literature review

Bright Frimpong , Student, University of Texas Rio Grande Valley, United States
Rakesh Guduru, Student, University of Texas Rio Grande Valley, United States
Christian Bautista, Student, University of Texas Rio Grande Valley, United States

Big data research (BDR) has evolved as a research area in operations management (OM). Our literature review and analysis examine three OM journals to investigate the differences between BDR and non-BDR publications. Preliminary results reveal significant contrasts between BDR and non-BDR papers concerning theory development, hypothesis testing and research focus.

101-2380   Granularity Matters: The Operational Implications of Displayed Rating Scale

Kyungmin (Brad) Lee, Post Doc/Researcher, American University, United States
Nan Zhang, Professor, American University, United States
Heng Xu, Professor, American University, United States

A platform determines a scale cardinality (e.g., binary vs. five-star) in displaying user-ratings. In this study, we examine the impact of scale on social learning and seller's quality decision. We analyze a game-theoretic model and empirically evaluate our framework using Amazon data. Our findings provide insights on platform information design.

Invited Session

717

Sunday, 03:15 PM - 04:15 PM, Inventory Management   Track: Inventory Management

Invited Session: Inventory Management - Pricing and Inventory Decisions in Changing Environment

Chair(s): Shi Chen

101-1561   Design and Analysis of Switchback Experiments

Jinglong Zhao, Student, Massachusetts Institute of Technology, United States
Iavor Bojinov, , ,
David Simchi-Levi, Professor, Massachusetts Institute of Technology, United States

Switchback experiments refer to sequentially exposing a unit to random treatments over time. In this paper, we establish the first theoretical results in the optimal design of switchback experiments under assumptions on the lengths of carryover effects. We provide data-driven procedures to estimate carryover effects and conclude with practical suggestions.

101-1585   Data-driven Dynamic Pricing and Ordering with Perishable Inventory in a Changing Environment

N. Bora Keskin , Assistant Professor, Duke University Durham, United States
Yuexing Li, Student, Duke University Durham, United States
Jeannette Song, Professor, Duke University Durham, United States

We consider a retailer who knows neither inventory perishability rates, demand change points, nor demand-price relationship. We design two data-driven policies and establish their rate optimality. A case study based on a real-life supermarket dataset indicates that our policy significantly outperforms the supermarket policy.

101-1573   When to Lock the Price? The Optimal Procurement Policy under Input Price Volatility

Shi Chen, Assistant Professor, University of Washington, United States
Kamran Moinzadeh, Professor, University of Washington, United States
Junfei Lei, Student, University of Washington, United States

We consider a supply chain consisting of a supplier, who procures a key component, and a retailer, who sells to a market where demand is price sensitive. As the input price fluctuates, the retailer determines the optimal time and quantity to meet the forecasted demand.

Contributed Session

720

Sunday, 03:15 PM - 04:15 PM, Operational Excellence

Track: Operational Excellence

Contributed Session: Managing Performance

Chair(s): Ujjal Mukherjee

101-1930 Product Recalls and Firm Actions

Ujjal Mukherjee, Assistant Professor, University of Illinois Urbana-Champaign, United States

Gopesh Anand, Associate Professor, University of Illinois Urbana-Champaign, United States

We develop a classification for appropriate actions to correct for errors and study the impact of deviating from appropriate actions on future prevention of errors. We address this main question and study related factors in the context of product recalls. Our framework is tested using longitudinal data.

101-0653 Research on Path of High-Quality management for Chinese Manufacturing Enterprises

Jianhua Yang, Professor, University of Science and Technology Beijing, China

Yanyan Jia, Student, University of Science and Technology Beijing, China

Yuying Liu, Student, University of Science and Technology Beijing, China

Quality improvement actions that manufacturing enterprises have taken in the past years in china were surveyed. The path of high-quality development of supply chain enterprises are explored using the Structural Equation model. The relevance among quality practice actions and impact on supply chain performance is analyzed.

101-2442 Student Learning Outcomes in MBA Programs: Striving for Relevant Operational Excellence

Maria Di Benedetto, Professor, The University of North Carolina at Gree, United States

Vidyaranya Gargeya, Professor, The University Of North Carolina At Greensboro, United States

There has been substantial criticism leveled against MBA programs for lacking relevance to business and industry. The paper reports on the analysis of relevance of student learning outcomes of AACSB accredited schools in the U.S.

Contributed Session

723

Sunday, 03:15 PM - 04:15 PM, Procurement & Supplier Management

Track: Procurement and Supplier Management

Contributed Session: Procurement Professionals

Chair(s): James Hill

101-2713 Successful implementation of artificial intelligence in procurement

Zornitsa Zaharieva, Student, Graz University of Technology, Austria

Volker Koch, Student, Graz University of Technology, Austria

Amila Omazic, Student, Graz University of Technology, Austria

The implementation of artificial intelligence (AI) allows the achievement of a whole newlevel of management in the procurement sector and a high degree of integration between allbusiness systems. A programming assurance to avoid human errors in the industrial software canhave a significant impact on the PSM.

101-2734 Procurement's Professional Identity and its Impact on Decisions

Beverly Osborn, Student, Ohio State University, United States

James Hill, Associate Professor, Ohio State University, United States

We apply a social identity lens to the professional identity of procurement. We conduct semi-structured interviews and an experiment to observe how group identification, group status and group image affect cross-functional decision-making. We find evidence that strong identification with the procurement function can cause an increased emphasis on costs.

101-2208 A Qualitative Case Study in Procurement Innovation in Federal Acquisition Teams

Marc Hatton, Student, Arizona State University, United States

Thomas Kull, Associate Professor, Arizona State University Tempe, United States

Polly Hally, Director, Procurement Innovation Lab, Department of Homeland Security, United States

Trevor Wagner, Lead, Procurement Innovation Lab, Department of Homeland Security, United States

Previous studies in Operations and Supply Chain Management have researched process innovation adoption at the individual and organizational levels. We suggest that socio-technical system theory addresses a gap in additional inter-organizational initiatives such as process innovation adoption. Our analysis suggests five archetypes of process innovation adoption.

Invited Session

724

Sunday, 03:15 PM - 04:15 PM, Product Innovation & Technology Mgmt

Track: Product Innovation and Technology Management

Invited Session: New Insights and Design Ideas for Contests

Chair(s): Sina Moghadas Khorasani

101-2215 Team Collaboration in Innovation Contests

Sidika Candogan, Student, UCL School of Management, United Kingdom

C. Gizem Korpeoglu, Assistant Professor, University College London, United Kingdom

Christopher Tang, Professor, University of California Los Angeles, United States

In an innovation contest, an organizer elicits solutions to a problem from solvers who may develop individual solutions, or if the organizer encourages it, they may collaborate as teams. Motivated from different policies on crowdsourcing platforms, we identify conditions under which the organizer and solvers can benefit from team collaboration.

101-2619   Supplier Allocation in Collaborative Product Development with Internal Competition

Timofey Shalpegin, Lecturer, University of Auckland, New Zealand

Svenja Sommer, Associate Professor, Hec Paris, France

Christian Van Delft, Associate Professor, Hec Paris, France

Consider competing internal teams developing alternative designs for a single product. Each team collaborates with one of several suppliers for the development of a key component. We explore how the internal competition affects supplier efforts and firm profits, and how the firm should ultimately allocate internal teams to potential suppliers.

101-2544   Optimal Feedback in Contests

Sina Moghadas Khorasani, Student, University of California San Diego, United States

Jeffrey Ely, Professor, Northwestern University, United States

George Georgiadis, Associate Professor, Northwestern University Kellogg School o, United States

Luis Rayo, Professor, Northwestern University Kellogg School o, United States

We derive the optimal contest, inclusive of prize-allocation and termination rules as well as an information feedback policy, for environments where output takes the form of breakthroughs and the principal has an informational advantage over the contestants.

Contributed Session

726 Sunday, 03:15 PM - 04:15 PM, Retail Operations   Track: Retail Operations

Contributed Session: E-commerce

Chair(s): Luca Urciuoli

101-1042   Analysis of Operational Decisions in Online Retail under Word-of-Mouth

Bahar Cavdar, Assistant Professor, Texas A&M University, United States

Nesim Erkip, Professor, Bilkent University, Turkey

We consider an online shopping system with both premium and regular customers. Building on the behavioral and Operations Management literature, we model a utility-based customer demand as a function of perceived service quality indicated by Word-of-Mouth (WoM), and integrate this into the retailer's operational problem to determine a shipment policy.

101-2461   Driving Post-pandemic Retail Operations: The Effect of Live Streaming E-commerce

YangYi Peng, Student, Macau University of Science and Technology, Macao

MoHan Xu, Student, Macau University of Science and Technology, Macao

GuanWen Cheng, Student, Macau University of Science and Technology, Macao

ChunSheng Li, Assistant Professor, Macau University of Science and Technology, Macao

We randomly collected data from 1,575 fashion-related e-stores on Tmall.com before and after the 2020 Double Eleven and Double Twelve online shopping festivals in China. Employing a difference-in-differences (DID) approach, we investigated the effectiveness of live streaming e-commerce on retail business in the post-pandemic era.

101-2402   E-commerce competition issues for the retailing sector

Luca Urciuoli, Associate Professor, Royal Institute of Technology (Kth), Sweden

In this study we acknowledge the significant growth of e-commerce globally. Yet, a topic that is under-researched concerns the potential competition issues between traditional retailers and large e-commerce players. Hence, with the support of literature searches, this paper reviews and conceptualizes competition and challenges for retailers.

Invited Session

728 Sunday, 03:15 PM - 04:15 PM, Scheduling & Logistics   Track: Scheduling and Logistics

Invited Session: Sustainable Logistics & Scheduling

Chair(s): Arunima Chhikara

101-1154   Technology Utilization, Machine Autonomy and Autonomation in Warehouse Operations

Willard Price, Emeritus Professor, University of The Pacific, United States

Logistics is defined as both transport modes and terminal/warehouse operations. This study addresses technology application in warehousing via a Technology Utilization Index(TUI) and a responsibility distribution between machines and humans across an autonomy continuum. Observations are made at an Amazon Fulfillment Center and for technology development at Fetch Robotics.

101-2521   Cost-Minimizing Preventive Maintenance Scheduling Model for Related Operations Triggered by Time-Based Frequency

Maria Alejandra Cabarcas-Romero, Student, University of Puerto Rico, Puerto Rico

Betzabe Rodriguez, Professor, University of Puerto Rico, Puerto Rico

The scheduling of preventive maintenance (PM) requires a myriad of information and represents high operational costs, making it a challenge for manufacturing systems. This study considers a cost-minimizing PM-scheduling problem with capacity-resource constraints and time-based frequency. Additionally, it allows grouping related maintenances to save time and cost

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101-1711   Logistics Perspective of Inventory Performance: An Empirical Investigation

David Swanson, Associate Professor, Coggin College of Business, United States

Arunima Chhikara, Student, University of Florida, United States

Limited operational and accounting data on firm-level transportation cost has resulted in a lack of understanding regarding the relationship between transportation cost and the firm's operational performance. Through this empirical investigation we posit how transportation cost could be a great predictor for inventory performance

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Invited Session

731   Sunday, 03:15 PM - 04:15 PM, Socially Responsible Operations   Track: Socially Responsible Operations

Invited Session: Models and Experiments in Responsible and Sustainable Operations

Chair(s): Can Zhang

101-0065   The Impact of Behavioral Biases on Manufacturer's Energy Efficiency Investments

Behrooz Pourghannad , Student, University of Minnesota, United States

Jason Nguyen, Assistant Professor, VinUniversity, Vietnam

Karen Donohue, Professor, University of Minnesota, United States

Manufacturers' propensity to accept external assistance from 3rd party organizations or buyers and its effects on energy efficiency investments is still elusive. This paper experimentally investigates the effectiveness of external assistance programs in increasing the propensity of a Manufacturer to conduct an assessment as well as their effects on investments.

101-0197   Efforts to waste? Planet-profit trade-offs in supply chain collaborations

Michael Becker-Peth, Assistant Professor, Rotterdam School of Management, Netherlands

René De Koster, Professor, Erasmus University Rotterdam, Netherlands

Jelle De Vries, Assistant Professor, Rotterdam School of Management, Netherlands

XiaoLi Zhang, Student, Rotterdam School of Management, Netherlands

Rapid global economic development is heavily dependent on the over-consumption of natural resources, while the world generates a large amount of waste that can still be used as feedstock. In a lab experiment, we investigate how environmental externalities interact with economic objectives in influencing supply chain coordination outcomes.

101-1598   Improving Societal Outcomes of Farm Equipment Sharing in Emerging Economies

Priyank Arora, Assistant Professor, University of Massachusetts Amherst, United States

Adebola Olufunke, Student, Georgia Institute of Technology, United States

Can Zhang, Assistant Professor, Duke University Durham, United States

Motivated by our collaboration with a start-up firm that focuses on facilitating farm-equipment sharing in African countries, we develop an analytical model to interrelate operational decisions of key players (e.g., tractor owners and booking agents) for farm-equipment sharing in emerging economies and understand their effect on societal outcomes.

Contributed Session

733   Sunday, 03:15 PM - 04:15 PM, Supply Chain Management   Track: Supply Chain Management

Contributed Session: Supply Chain Management Contracts and Coordination

Chair(s): SHUAI ZHAO

101-2550   Contingent Renewal Contracts in High-tech Manufacturing with Small Supply Base

Mirjam Meijer, Student, Eindhoven University of Technology, Netherlands

Willem Van Jaarsveld, Assistant Professor, Eindhoven University of Technology, Netherlands

Ton De Kok, Professor, Eindhoven University of Technology, Netherlands

A high-tech manufacturer can source a required module at two possible single-sourced suppliers. For each generation of the product, the manufacturer can either stay with the incumbent supplier or switch. We show that the threat of switching contingent upon demand satisfaction creates incentive for the supplier to build more capacity.

101-1801   Supply Chain Contracting for Network Goods

Dawei Jian, Student, University of California Riverside, United States

How should manufacturers sell network goods through retail channels? We study this new channel contracting problems, where the retailer can privately observe and control the evolving market conditions. The optimal contract resembles the classic second-best in the short run, but converges to the dynamic first-best in the long run.

101-1708   Coordinating a two-stage dual-channel supply chain with preferences and price discount under two-part tariff contacts

SHUAI ZHAO, Student, Dalian University of Technology, China

Wenli Li, Professor, Dalian University of Technology, China

Xiaoning Cao, Student, Dalian University of Technology, China

Xiaobing Liu, Professor, Dalian University of Technology, China

Motivated by emerging industry practices, this presentation studies the effectiveness of improved two-part tariff contracts with a two-stage dual-channel supply chain consisting of advance selling and regular selling connected by price discount. Contracts can completely mitigate double marginalization if the profit winner provides the profit loser with a lump-sum fee.

Contributed Session

736

Sunday, 03:15 PM - 04:15 PM, Sustainable Operations 1   Track: Sustainable Operations

Contributed Session: Developments in Sustainability Concepts

Chair(s): Bob Marsh

101-2817   An analysis of sustainable tripod in the emerging countries

Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil

Eyko Rios, Student, Centro Federal De Educacao Technologica - Cefet, Brazil

Thierry Roques, Professor, Kedge Business School, France

Xu xiabo, Professor, Xi 'an jiaotong-liverpool university, China

Rachel Mendes, Professor, Centro Federal De Educacao Technologica - Cefet, Brazil

Sustainability officially appeared at Rio+10 Conference in 2002. It covers not only the economic issue, but also the environmental and social issues. It has become a trend of interest of many universities and companies. This article seeks to investigate this sustainable tripod through a literature review in the emerging.

101-2721   An analysis of the sustainable role of smart cities in a post-pandemic world.

André Fonseca, Student, CEFET-RJ, Brazil

Annibal Scavarda, Associate Professor, 458 Pasteur Ave. - Rio de Janeiro City - RJ - Brazil - Code 22290-240, Brazil

ANA DIAS, Student, CEFET, Brazil

Pedro Reyes, Associate Professor, Texas - USA, United States

Jagdish Pathak, Professor, Odette School of Business University of Windsor   Ontario - Canada, Canada

The development of society depends on a new perspective of interrelationship. The way each individual deal with other citizens changes the well-being of his community. The present study will analyze smart cities as boosters of an organizational form that will help in the restructuring of the post-COVID-19 world.

101-2222   Will Sustainability Suffer the Same Fate as Quality Management?

Robert Marsh, Associate Professor, Sacred Heart University, United States

Kanwalroop Dhanda, Professor, Sacred Heart University, United States

This research compares the cycle of quality as a strategic imperative to what has been going on with sustainability. Does sustainability show any aging as a differentiator and what would be the signs that it did? Data on publications, company statements, and investment are explored.

Contributed Session

738

Sunday, 03:15 PM - 04:15 PM, Teaching/Pedagogy in POM   Track: Teaching/Pedagogy in POM

Contributed Session: Digital Transformation and Online Education in Supply Chain Management

Chair(s): Rebecca Clemons

101-2204   Teaching about the "Digital" Supply Chain: The Digital Capabilities Model

Morgan Swink, Professor, Texas Christian University, United States

Chris Richard, Principal, Deloitte, United States

We will introduce the Digital Capabilities Model (DCM) developed jointly by Deloitte and ASCM, and then present an outline, materials, and recommendations for integrating technology and digital transformation concepts into supply chain management courses. We will conclude with lessons learned from teaching an initial course at TCU.

101-2864   Student perceptions of video conferencing technologies in Supply Chain and Ethics courses

Hulya Yazici, Professor, Florida Gulf Coast University, United States

Chrissann Ruehle, , ,

Piyush Shah, Student, Arizona State University, United States

Many higher education institutions have transitioned to utilizing video conferencing technologies during the pandemic. This research explores business students' perceptions of these technologies used in the teaching of supply chain management and ethical issues courses. The aid of various video conferencing technologies in shaping student learning experiences is discussed.

101-0118   Applying Lean Six Sigma to Increase the Value of Online Education

Rebecca Clemons, Assistant Professor, Indiana University, United States

Marsha Jance, Associate Professor, Indiana University, United States

Lean Six Sigma methodology is used to identify areas of improvement in the higher education processes. Student survey feedback data lead to Lean Six Sigma Black Belt project ideas. The presentation will cover how the DMAIC methodology (Define, Measure, Analyze, Improve, and Control) is applied.

Sunday, 04:30 PM - 05:30 PM

Contributed Session

752

Sunday, 04:30 PM - 05:30 PM, Healthcare OM 1   Track: Healthcare Operations Management

Contributed Session: Primary & Elder Care

Chair(s): Vincent Slaugh

101-2155   Coordinating Nursing Home Allocation with Home Care under Scarce Resources in Elderly Care

Xiaobei Shen, Associate Professor, Univ Sci & Technol China, China
xiong caiyuan, Student, University of Science and Technology of China, China
Yimin Yu, Associate Professor, City University of Hong Kong, Hong Kong
Yugang Yu, Professor, University of Science and Technology of China, China

We consider how to dynamically coordinate the capacity allocation of nursing homes and demand assignment to home care to improve social welfare. We propose a new two-tier rationing policy and reveal the great value of capacity rationing and demand assignment in elderly care.

101-2172   Explaining the Erosion of Relational Care Continuity: An Empirical Analysis of Primary Care in England

Harshita Kajaria-Montag, Student, University of Cambridge, United Kingdom
Michael Freeman, Assistant Professor, INSEAD, Singapore

Relational Continuity (RC) in primary care confers many reported benefits, yet it has been in sharp decline over the past decades. Using a panel ARDL approach on a large consultation-level dataset, we find that workload and workforce fragmentation can explain significant variation in RC both between practices and over time.

101-2290   Flexibility and Consistency in Long-Term Care Rostering

Vincent Slaugh, Assistant Professor, Cornell University, United States
Alan Scheller-Wolf, Professor, Carnegie Mellon University, United States

We study the problem of consistently assigning the same caregivers to nursing home residents. Using data from 15,000 shifts worked, we show that prioritizing the consistent assignment of part-time workers can improve consistency of care by 40%. An analytical model and trace-based simulation support this insight.

Contributed Session

754

Sunday, 04:30 PM - 05:30 PM, Humanitarian Ops & Crisis Mgmt 1   Track: Humanitarian Operations and Crisis Management

Contributed Session: Facility Location in Humanitarian Logistics

Chair(s): Kanglin Liu

101-1241   Facility Location and Relief Supply Pre-Positioning for Disaster Operations Management: Multisourcing Strategy with Expander Graph

Qing Na, Student, Southeast University, China
Jia Shu, Professor, Southeast University, China

This paper optimizes the facility location and relief supply pre-positioning for disaster operations management by using expander graph to either satisfy all the demand of the affected areas or guarantee that a certain proportion of the relief supply can be used. A case study of "2016 China floods" is presented.

101-1078   A facility location problem with network disruption and coverage constraints

Kanglin Liu, Assistant Professor, Beijing Jiaotong University, China
Zhi-Hai Zhang, Associate Professor, Tsinghua University, China

We consider a robust facility location problem with network disruption and coverage constraints in the preparedness phase of disasters. Nodes and edges in the network are vulnerable to partial or complete failure. We reformulate the problem as a SOCP and use outer approximation to solve the problem.

Invited Session

756

Sunday, 04:30 PM - 05:30 PM, Information Systems & OM 1   Track: Information Systems and Operations Management

Invited Session: Economics of Digital Goods and Services

Chair(s): Mingdi Xin

101-1284   Optimal Three-Part Tariff Pricing with Single-Crossing Property

Jianqing Wu, Assistant Professor, California State University Long Beach, United States
Banafsheh Behzad, Assistant Professor, California State University Long Beach, United States

We study the pricing of three-part tariffs (3PTs). We provide a solution approach to solve 3PT problem with discrete units and multiple discrete consumer types whose follow Spence-Mirrlees single-crossing property. We then extend our discrete solution to solve 3PT problems with continuous units and continuous consumer types.

101-0985   The Road of ERP Success: An Integrated Model

Kalinga Jagoda, Associate Professor, University of Guelph, Canada

Andrew Pham, Student, University of Guelph, Canada

The purpose of this paper is to propose an integrated model for effective planning and implementation of ERP projects. By using multiple case studies, it also outlines critical success factors and provide guidelines for ERP vendors, information systems management and operations managers to enhance their competitive advantage.

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101-2445   Optimal investment and bundling strategies for platforms with installed base

Chenwei Zhou, Student, University of Science and Technology of China, China

Jie Wu, Professor, School of Management, China

Xiang Ji, Post Doc/Researcher, School of Management, China

We consider pricing and bundling strategies in two-sided market with a platform and a content provider. The installed base plays a big role in affecting both the investment level and the pricing structure. We also show that under certain conditions, the pure bundling with exclusive strategy can benefit both sides.

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Contributed Session

758

Sunday, 04:30 PM - 05:30 PM, Inventory Management   Track: Inventory Management

Contributed Session: Joint Inventory and Pricing Problems

Chair(s): Emily Barbee

101-2484   Optimal Production Scheduling and Pricing for a Make-to-stock Production System With Two Products

Ruobing Li, Student, Tsinghua University, China

Li Xiao, Assistant Professor, Tsinghua University, China

Dacheng Yao, Associate Professor, Chinese Academy of Sciences, China

We consider a joint control of dynamic pricing and production scheduling in a make-to-stock production system with two products, each of which has two production sources, one shared flexible source and one dedicated source. We characterize the optimal producing and pricing policy and show that adding flexibility reduces the cost.

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101-0903   Joint Pricing and Inventory Control with Fixed and Convex/Concave Variable Production Costs

Peng Hu, Professor, Huazhong University of Science & Technology, China

Ye Lu, Professor, Univ of Science and Technology of China, China

Miao Song, Associate Professor, The Hong Kong Polytechnic University, Hong Kong

This study considers a joint pricing and inventory control problem where production incurs a fixed cost plus a convex/concave variable cost. We fully characterize the optimal policy for the single-period problem, partially characterize the optimal policy for the multi-period problem, and develop well-structured heuristic policies with worst-case performance bounds.

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101-0859   Joint Pricing and Inventory Management for Resale Firms

Emily Barbee, Student, University of Alabama Tuscaloosa, United States

Burcu Keskin, Professor, University of Alabama Tuscaloosa, United States

Recent growth in e-commerce and sustainability has fueled demand for resale. Resale firms source used goods from consumers online. Supply is uncertain and item quality varies. We model this unique context as a joint inventory and pricing problem. We investigate various policies' performance under price and quality dependent demand.

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Contributed Session

764

Sunday, 04:30 PM - 05:30 PM, Procurement & Supplier Management   Track: Procurement and Supplier Management

Contributed Session: Transportation

Chair(s): Chris Caplice

101-1491   Examining the Heterogeneous Impact of Ride-hailing Services on Public Transit Use

Yash Babar, Assistant Professor, University of Wisconsin-Madison, United States

Gordon Burtch, Assistant Professor, University of Minnesota, United States

We examine the impact that ride-hailing services have had on the demand for different modes of public transit in the United States, with a particular focus on understanding heterogeneity in the effects. We offer useful insights for policymakers, highlighting the nuanced implications of ride-hailing services for different contexts.

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101-1312   Dynamic capacity allocation to a new commercial vehicle manufacturer under service dependent demand

Govind Kumawat, Assistant Professor, Indian Institute Of Management, Udaipur, India

Debjit Roy, Professor, Indian Institute of Management Ahmedabad, India

Felix Papier, Professor, ESSEC Business School, France

A new truck manufacturer (entrant) typically faces severe capacity constraints at a shared component supplier. We study how the supplier should dynamically allocate the limited production capacity to the entrant and the existing truck manufacturers when their market demands depend upon the past capacity allocations by the supplier.

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101-0581   Disrupting the Dominant Design of Transportation Procurement

Chris Caplice, Professor, Massachusetts Institute of Technology, United States

For over 30 years, TL transportation procurement has followed the dominant design of an annual auction to collect fixed contract rates that are fed into static routing guides. Recent experience and analysis shows that this design commonly fails. This paper analyzes this failure and recommends potential solutions.

Invited Session

765

Sunday, 04:30 PM - 05:30 PM, Product Innovation & Technology Mgmt

Track: Product Innovation and Technology Management

Invited Session: Operating Entrepreneurially: Planning, Financing, Gambling and Discontinuing

Chair(s): Moren Levesque

101-0092   Women live everywhen else but the present: Gender differences in time perspective and microloan crowdfunding

Goran Calic, Assistant Professor, Mcmaster University, Canada

Moren Levesque, Professor, York University, Canada

Anton Shevchenko, Assistant Professor, Concordia University, Canada

Leveraging the literature on gender role congruity and risk preferences, we explore on 294,071 microloans funded on Kiva whether the timespan for women to reach their microloan funding goal differs from that of men, and how decisions regarding the size and repayment duration of these microloans influence this gender difference.

101-0332   Feelings Invoked by Investment Gambles

Jacqueline Csonka-Peeren, Student, University of Waterloo, Canada

We explore the relationship between investment gambles and feelings of fear, hope, optimism and pessimism. Prior research has suggested that these feelings are associated with a measure of cognitive bias, specifically ambiguity aversion. We discuss the implications of this research for entrepreneurs.

101-0214   Bridging the Industry 4.0 Scaling Chasm - Theory and Practice Implications

Nitin Joglekar, Associate Professor, Questrom School of Business, United States

Geoffrey Parker, Professor, Dartmouth College, United States

Jagjit Singh Srai, Reader, University of Cambridge, United Kingdom

Many firms aim to scale up the adoption of industry 4.0 technology layers and become de facto platforms. We compare scaling moves by recent startup firms against established firms. Our evidence raises questions, around layered development of platforms, and allied productivity and B2B adoption challenges, in the manufacturing sector.

Invited Session

767

Sunday, 04:30 PM - 05:30 PM, Retail Operations

Track: Retail Operations

Invited Session: Retail Strategy

Chair(s): Xiajun Pan   Hongseok Jang

101-1567   Estimating Demand Stickiness Due to Rational Inattention

Xirong Chen, Assistant Professor, University of International Business And Economics, China

Zheng Li, Assistant Professor, North Carolina State University, United States

Haoying Sun, Associate Professor, University of Kentucky, United States

Haipeng (Allan) Chen, Professor, University of Kentucky, United States

Recent economics literature suggested that consumers may be rationally inattentive and may not respond to small price changes. Using a large data set consisting of eight years of grocery retail data, we estimate the magnitude of consumer inattention and demonstrate how the estimates vary with consumer demographics and product characteristics.

101-1351   Optimal Return Shipping Insurance Policy with Consumers' Anticipated Regret

Yiming Li, Student, Xi'An Jiaotong University, China

Gang Li, Professor, Xi'An Jiaotong University, China

Xiajun Pan, Assistant Professor, University of Florida, United States

Return Shipping Insurance (RSI), provided by retailer or purchased by consumers (CRSI), reduces consumers' return shipping cost. We characterize the optimal RSI policy incorporating consumers' regret, providing a plausible explanation for prevalent RSI policies on major online platforms. Counterintuitively, CRSI may generate a "win-win-win" situation for retailer, insurer, and consumers.

101-1147   Store Brand Introduction and Multilateral Contracting

Quan Zheng, Associate Professor, University of Science and Technology of China, China

Hongseok Jang, Student, University of Florida, United States

Xiajun Pan, Assistant Professor, University of Florida, United States

We study whether a retailer should introduce a store brand and its impact on multilateral contracting with two national brand manufacturers. Although simultaneous contracting is better without store brands, their presence could lead to a co-opetition behavior between the national brands such that the retailer would prefer sequential contracting.

Contributed Session

772

Sunday, 04:30 PM - 05:30 PM, Socially Responsible Operations

Track: Socially Responsible Operations

Contributed Session: People-centric Sustainable Operations

Chair(s): NIKIFOROS PHILYPPIS JUNIOR

101-2262   Employee Wellbeing (EW) during TPM Practices: An Integrated Approach

Ashutosh Samadhiya, Student, Indian Institute of Technology, Rookree, India

Rajat Agrawal, Professor, Indian Institute of Technology Roorkee, India

This study has presented the systematic literature of TPM, which shows the lack of EW during the TPM implementation within the organization and proposed an integrated circular TPM framework to introduce an incipient TPM concept designated holistic TPM, which mainly fixates on employees.

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101-2792   Towards the green human resource management practices in the sustainable operations

Delana Oliveira, Student, Universidade Federal do Rio de Janeiro, Brazil

Isabela Franco, Student, Universidade Federal do Rio de Janeiro, Brazil

NIKIFOROS PHILYPPIS JUNIOR, Student, Escola de Guerra Naval, Brazil

Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil

Ayala Braga, Logistic, Federal University of Rio De Janeiro, Brazil

This research intends to investigate the green human resource management scientific production, in particular, to exhibit its implementation advantages and challenges to generate more the sustainable operations. The analyses pointed to an increasing interest in inserting the practices that optimize the operations, especially the actions that allow the business sustainability.

- -

Contributed Session

774

Sunday, 04:30 PM - 05:30 PM, Supply Chain Management

Track: Supply Chain Management

Contributed Session: Supply Chain Partners and Performance

Chair(s): Desy Farmaciawaty

101-0623   Impact of Supplier Output on Downstream Firms

Hooman Hidaji, Assistant Professor, University of Calgary, Canada

Lisa Yeo, Assistant Professor, University of California, Merced, United States

We study the impact of supplier output on firm performance using general economic modelling. Firm profit increases with supplier output only if profit margin is moderate; demand externalities may reduce firms' profits as provider output increases. These findings contradict common wisdom and prior literature, where higher output is often desired.

- -

101-1740   Evaluating the Digital Maturity of Supply Chain Partners

Wolfgang Kersten, Professor, Hamburg University of Technology, Germany

Felix Krol, Student, Hamburg University of Technology, Germany

Amad Saeed, Student, Hamburg University of Technology, Germany

Meike Schroeder, Lecturer, Hamburg University of Technology, Germany

Ayman Nagi, Student, Hamburg University of Technology, Germany

Successful digital transformation of a supply chain needs a harmonized level of digitalization across all partners. Based on the analysis of numerous maturity models and interviews in the aviation industry we have systematically derived a framework and KPIs for the evaluation of the digital maturity of supply chain partners.

- -

101-2610   A Contingency and Configuration Analysis of The Impact of Supply Chain Agility on Performance

Desy Farmaciawaty, Student, Suny At Buffalo, United States

Nallan Suresh, Professor, Suny At Buffalo, United States

Michael Braunscheidel, Assistant Professor, Suny At Buffalo, United States

This empirical study, based on data from 218 US manufacturing firms, investigates the impacts of supply chain agility (planning, sourcing, manufacturing, and delivery agilities) on supply chain performance and business performance. Contingency (hierarchical regression) and configuration (clustering) analyses are conducted to derive insights on specific relationships between agility and performance.

- -

Contributed Session

779

Sunday, 04:30 PM - 05:30 PM, Teaching/Pedagogy in POM

Track: Teaching/Pedagogy in POM

Contributed Session: Contemporary Issues in Production and Operations Management Education

Chair(s): Richard Metters

101-1275   Exploring the Value of Student Work in Co-Creation in Teaching and Learning

Sunah Cho, Lecturer, University of British Columbia, Canada

Tim Huh, Professor, Sauder School of Business, UBC, Canada

Greg Werker, Lecturer, University of British Columbia, Canada

Arkie Liu, Student, University of British Columbia, Canada

Sunday, 04:30 PM - 05:30 PM

Bruce Moghtader, Student, University of British Columbia, Canada

In the context of a large first-year quantitative decision-making course, we explore the value of student contributors, the former students from this course, working with faculty to improve the learning experience of the students who are enrolled in the course.

101-2758   Production and Operations Management: the industry 4.0 influences in the nursing teaching-learning process

Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil

Thaís Lauria, Student, Universidade Federal do Estado do Rio de Janeiro, Brazil

Gláucya Daú, Student, Universidade Federal do Estado do Rio de Janeiro, Brazil

Virginia Virginia Bodolica, Professor, American University of Sharjah, United Arab Emirates

Leandro Pinho, Professor, Universidade Federal Do Rio Grande Do Sul, Brazil

The digital transformation is accelerated in the World and it has impacted the professional dynamic and the decision making. This research study has developed a literature review, involving the industry 4.0 and the educational process. The study analyses bring the industry 4.0 influence as tools for the nursing teaching-learning process.

101-0664   Business School OM Departments Ranked by Publications in 5 Journals

Richard Metters, Professor, Texas A&M University College Station, United States

Our criterion of OM Department quality is the sum of all publications in five journals (JOM/POM/MSOM/MgtSci/OR) of the CURRENT faculty. Ranking by publications per capita and years of experience is also given. We also rank departments by their publishing the last 5, 10, and 15 years

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Sunday, 05:45 PM - 06:45 PM

Contributed Session

781	Sunday, 05:45 PM - 06:45 PM, 2- Meetings & Programs - All are Welcome	Track: All Meetings & Programs A: Open to Everyone
	Contributed Session: Social and Cultural Events	
	Chair(s): Seema Singhania	

101-2921   Social and Cultural Events

Seema Singhania, Executive Director, Production And Operations Management Society, United States

Social and Cultural Events

Monday, 09:00 AM - 10:00 AM

Invited Session

824	Monday, 09:00 AM - 10:00 AM, 4- Meetings & Programs - By Invitation	Track: All Meetings & Programs B: By Invitation
	Invited Session: Emerging Scholars Program 1	
	Chair(s): Gilvan Souza Burcu Keskin	

101-2119   Emerging Scholars 1

Burcu Keskin, Professor, University of Alabama Tuscaloosa, United States

Gilvan Souza, Professor, Indiana University Bloomington, United States

This event is by invitation only. Those invited have received the link to this event in earlier correspondence. This program provides new university professionals in OM with career-building advice in developing excellence in their personal programs of teaching, research, and service. The program is highly interactive and features internationally recognized senior OM scholars as discussion leaders.

Contributed Session

826	Monday, 09:00 AM - 10:00 AM, Covid-19 & Other Pandemics	Track: Covid-19 and Other Pandemics
	Contributed Session: Non-Pharmaceutical intervention	
	Chair(s): ANA DIAS	

101-2259   Homebound by COVID19: The Benefits and Consequences of Non-Pharmaceutical Intervention Strategies

Buse Eylul Oruc, Student, Georgia Institute of Technology, United States

Arden Baxter, Student, Georgia Institute of Technology, United States

Pinar Keskinocak, Professor, Georgia Institute of Technology, United States

John Asplund, Student, Metron Inc., United States

Nicoleta Serban, Associate Professor, Georgia Institute of Technology, United States

This study evaluates the tradeoffs between potential benefits (e.g., reduction in infection spread and deaths) of NPIs for COVID19 and being homebound (i.e., refraining from interactions outside of the household) by utilizing an agent-based simulation model assuming heterogeneous population mixing under combinations of shelter-in-place, voluntary quarantine, and school closure scenarios.

- -

101-2586   Designing Pandemic Response Policy Zones

Milad Baghersad, Assistant Professor, Florida Atlantic University, United States
Mohsen Emadikhiav, Assistant Professor, Florida Atlantic University, United States
C. Derrick Huang, Associate Professor, Florida Atlantic University, United States
Ravi Behara, Professor, Florida Atlantic University, United States

We develop optimization models and algorithms to identify coordination communities for applying pandemic related policies. Results of our case study show that the proposed models detect significantly better communities for coordinating pandemic-related policies than the existing geopolitical boundaries.

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101-2711   The elderly and the COVID-19 pandemic: the strategies to protect residents in long-term care institutions

Annibal Scavarda, Associate Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil
ANA DIAS, Student, CEFET, Brazil
Augusto Reis, Professor, Centro Federal De Educacao Technologica - Cefet, Brazil
Virginia Souza, Social Worker, Geriatric Sollar - Senior Citizens, Brazil
Patrick Jaska, Professor, University of Mary Hardin-Baylor, United States

This paper presents the strategies outlined by healthcare professionals during the COVID-19 pandemic to protect the elderlies' residents in long-term institutions in Brazil (Rio de Janeiro city). Through an email questionnaire, it will highlight the social network use, socializing activities, and the recycling practices before and during the COVID-19 pandemic.

- -

Invited Session

827 Monday, 09:00 AM - 10:00 AM, Economic Models in OM   Track: Economic Models in Operations Management

Invited Session: Emerging Topics on Sourcing and Sustainability

Chair(s): Xin Fang

101-0075   Sustainable Packaging and Customer Engagement

Yunlong Peng, Student, Tsinghua University, China
Fei Gao, Assistant Professor, Indiana University Bloomington, United States
Jian Chen, Professor, Tsinghua University, China

Many firms have started to offer customers the option to participate in environmental impact reduction program. We study product pricing, incentive for customers in a sustainable operation initiative with customer engagement and their implications on the firm and environmental impact.

- -

101-0094   Information liability: A capacitated supplier encroaches on a less informed buyer

Hubert Pun, Associate Professor, University of Western Ontario, Canada
Hamid Elahi, Student, University of Western Ontario, Canada
Salar Ghamat, Assistant Professor, Lazaridis School of Business & Economics, Canada

We use a game-theoretical model to study supplier encroachment risk in a channel-conflict environment where a supplier has private information about its capacity. We show analytically that (1) the supplier may prefer to sell to a better-informed buyer, but (2) the buyer may be reluctant to develop advanced informational capabilities.

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101-0713   Collaborating with the Enemy? Sourcing Decisions in the Presence of the Potential Entry of Counterfeiters

Liling Lu, Student, Singapore Management University, Singapore
Xin Fang, Assistant Professor, Singapore Management University, Singapore
Yini Gao, Assistant Professor, Singapore Management University, Singapore
Burak Kazaz, Professor, Whitman School of Management, United States

We investigate sourcing strategies of a brand-name firm facing two types of suppliers: a licit domestic supplier and an overseas supplier who may potentially become a counterfeiter. We find that the firm may adopt dual sourcing or single sourcing to combat counterfeiting, which can be more effective than law enforcement.

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Invited Session

828 Monday, 09:00 AM - 10:00 AM, Elections Management   Track: Elections Management

Invited Session: Election Operations During COVID-19 Pandemic

Chair(s): Muer Yang

101-2267   Designing resilient voting systems during a pandemic

Adam Schmidt, Student, University of Wisconsin-Madison, United States
Laura Albert, Professor, University of Wisconsin-Madison, United States

Using discrete event simulation, we study how to design in-person voting systems whose performance are robust to various election conditions. We consider several design choices for mitigating the risks of long wait times and health risks. We evaluate the simulation model using a case study from Milwaukee, Wisconsin.

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101-2334   Evaluating Mail-based Voting Security using Attack Trees

Natalie Scala, Associate Professor, Towson University, United States

Paul Goethals, Professor, United States Military Academy, United States

Josh Dehlinger, Professor, Towson University, United States

This research addresses mail-based voting and COVID-19 related impacts to elections security. We develop a methodology for assessing threats and calculate relative likelihood for threat scenarios. Our goal is to understand how expanding mail-based voting can impact threat so mitigations can be designed to secure the integrity of votes.

- -

101-2365   An Election Like No Other: Successes, Failures, and Lessons Learned from the 2020 Election

Duncan Buell, Emeritus Professor, University of South Carolina, United States

We will present lessons learned from the management of the 2020 election, including lessons about technology, planning in the Covid era, and the election process. We will draw on experiences nationally and from Richland County SC, which had a smooth General Election after a troubled June primary.

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Invited Session

829

Monday, 09:00 AM - 10:00 AM, Emerging Topics in OM   Track: Emerging Topics in Operations Management

Invited Session: On-demand Service and Sharing Economy

Chair(s): Shihong Xiao   Shining Wu

101-0376   Dynamic matching with patient supplier and impatient demand

Zhiyuan Chen, Lecturer, Wuhan University, China

Ming Hu, Professor, University of Toronto, Canada

Yun Zhou, Assistant Professor, Mcmaster University, Canada

We study a problem where two types of supply agents and two types of demand agents arrival dynamically and randomly to match with each other, where demand agents are lost if not matched instantly. We characterize the equilibrium under different matching mechanisms and compare their performances.

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101-2393   Partnerships in Urban Mobility: Incentive Mechanisms for Improving Public Transit Adoption

Jingwei Zhang, Student, University of California Los Angeles, United States

Auyon Siddiq, Assistant Professor, UCLA Anderson School of Management, United States

Christopher Tang, Professor, University of California Los Angeles, United States

Declines in public transit ridership have caused financial crises to the transit agencies. To improve transit adoption, we address the "last-mile" problem by affordable ride-hailing services between commuter's residence and transit stations. We propose two incentive mechanisms that improves transit adoption. Using game-theoretic model, we find cost-efficient and social-beneficial prescription.

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101-2453   Bonus Competition in the Gig Economy

Li Chen, Associate Professor, Cornell University, United States

Yao Cui, Assistant Professor, Cornell University, United States

Jingchen Liu, Assistant Professor, Nanjing University, China

Xiaoyan Liu, Student, Cornell University, United States

We study the impact of two types of bonus strategies on gig platforms and their welfare implications: 1) fixed bonus that is paid in addition to commissions as long as a service provider participates, and 2) contingent bonus that is paid only if a service provider participates consistently.

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Invited Session

830

Monday, 09:00 AM - 10:00 AM, Empirical Research in OM   Track: Empirical Research in Operations Management

Invited Session: Four Tenors

Chair(s): Tom Tan

101-2763   Operational Challenges In Dockless Bike-Shares: The Case Of Hyperlocal-Imbalance

Shivam Mishra, Student, University of Maryland - College Park, United States

Ashish Kabra, Assistant Professor, Robert H. Smith School of Business, United States

Dockless bike/scooter-shares (e.g. Lime) have grown in popularity worldwide in recent years. While convenient for users, this free-floating model introduces operational challenges. We introduce a phenomenon which we term "hyperlocal imbalance" that stems from user's behavior. In this talk we demonstrate the extent of this phenomenon and its drivers.

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101-1583   Book-Or-Buy: An Empirical Investigation of the Impact of Ride-Sharing Technologies on the Conventional Automobile Industry

Ayush Sengupta, Student, University of Connecticut, United States

This paper provides an empirical analysis of the impact of online platforms like Uber, on the conventional automobile industry, measured by car sales, within the scope of the United States. The main model of the paper uses the differences-in-differences econometric approach using the entry of Uber as a natural experiment.

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101-0771   Tax-Induced Inequalities in the Sharing Economy

Yao Cui, Assistant Professor, Cornell University, United States

Andrew Davis, Assistant Professor, Cornell University, United States

Motivated by the recent tax regulation on Airbnb, we empirically investigate the effects of the occupancy tax policy on Airbnb listings. Using a machine learning method (generalized causal forest) to estimate heterogeneous treatment effects, we find that the tax policy has led to unintended consequences for Airbnb participants.

Invited Session

831

Monday, 09:00 AM - 10:00 AM, Finance & OM   Track: Finance and Operations Management

Invited Session: Energy and Commodity Finance, Operations, and Risk Management

Chair(s): Andrea Roncoroni

101-1110   Futures Hedging in Electricity Retailing

Fehmi Tanrisever, Associate Professor, Faculty of Business Administration, Turkey

Mert Hakan Hekimoglu, Assistant Professor, Rensselaer Polytechnic Institute, United States

In this paper, we examine the effectiveness of the existing base- and peak-load futures contracts in electricity markets for managing the risk of electricity retailers. We analytically characterize the retailer's optimal hedging policy as a function of the serial correlation of the prices and the demand profiles of its customers.

101-1466   Risk neutral demand forecast and real options valuation

Gianluca Fusai, Reader, Cass Business School, United Kingdom

Annamaria Gambaro, Assistant Professor, Università del Piemonte Orientale, Italy

Ioannis Kyriakou, Senior Lecturer, Cass Business School, United Kingdom

In this work, we propose a structural multi-factor model for the commodity demand that is estimated using historical time series from demand as well as market prices of quoted financial derivatives and then is applied to assess the optimal operating capacity of a production plant

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101-2687   Dynamic Hedging for the Real Option Management of Hydropower Production with Exchange Rate Risks

Joakim Dimoski, Business Analyst, Norwegian University of Science And Technology, Norway

Stein-Erik Fleten, Professor, Norwegian University of Science And Technology, Norway

Nils Löhndorf, Associate Professor, University of Luxembourg, Luxembourg

Sveinung Nersten, Management consultant, Norwegian University of Science And Technology, Norway

We show how currency risk and currency derivatives can be included in real option models of hydropower generation. Second, we accurately encode the cash flow structure from a portfolio of electricity and currency hedge contracts; and third, we compare optimization under a risk measure with often-used simple hedging strategies.

Invited Session

833

Monday, 09:00 AM - 10:00 AM, Healthcare Analytics   Track: Healthcare Analytics

Invited Session: Emerging Topics in Healthcare Analytics

Chair(s): Maria Ibanez

101-2302   Social Determinants of Health and Stroke Prediction

Min Chen, Assistant Professor, Florida International University, United States

Xuan Tan, Lecturer, Santa Clara University, United States

Rema Padman, Professor, Carnegie Mellon University, United States

Our study demonstrates the data fusion challenge in the context of stroke prediction using claims data and integrating community-level factors collected using surveys on social determinants of health at asynchronous points in time.

101-2303   Managing crowding at essential gatherings during COVID19: Application to agricultural procurement in India

Sarang Deo, Associate Professor, Indian School of Business, India

Sripad Devalkar, Assistant Professor, Indian School of Business, India

Hemanshu Das, Student, Indian School of Business, India

Nimalan Arinaminpathy, Professor, Imperial College London, United Kingdom

Stringent restrictions on large gatherings were an essential part of the global COVID19 response. Certain gatherings such as agricultural procurement in developing countries however remain important and couldn't be avoided. We assess the effect of staggered crop procurement by the government on spread of COVID19 and cost of operations.

101-2779   Cardiovascular Diseases Predictions in a Multidisciplinary Healthcare System

Qi Li, Assistant Professor, SUNY New Paltz, United States

Alina Campan, Professor, Northern Kentucky University, United States

Ai Ren, Assistant Professor, SUNY New Paltz, United States

Wael Eid, MD, Professor, St. Elizabeth Physicians Regional Diabetes Center, United States

We applied machine learning method on a unique EMRs dataset of 54,850 living patients at a US metropolitan healthcare system. Our machine learning method incorporates longitudinal features derived from the labs and vital signs series significantly improves the CVD prediction compared to decisions based on the traditional ASCVD risk.

Invited Session

834

Monday, 09:00 AM - 10:00 AM, Healthcare OM 1

Track: Healthcare Operations Management

Invited Session: Analytics and Incentives for Behavioral Health

Chair(s): Jonas Jonasson

101-0231 Evaluating the Efficacy of Connected Healthcare

Tan Lekwijit, Student, The Wharton School, United States
Christian Terwiesch, Professor, The Wharton School, United States
David Asch, Professor, Perelman School of Medicine, United States
Kevin Volpp, Professor, Perelman School of Medicine, United States

Connected Health (CH) is a form of telehealth that connects patients and doctors through real-time information sharing. We study a CH setting where patients received electronic pill bottles and social support. Our work investigates the efficacy of feedback in promoting medication adherence and establishes the relationship between adherence and readmission.

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101-0232 Optimizing Incentives to Promote Treatment Adherence

Sze-chuan Suen, Assistant Professor, University of Southern California, United States
Diana Negoescu, Assistant Professor, University of Minnesota, United States
Joel Goh, Assistant Professor, NUS Business School, Singapore

We design a schedule of incentive payments to induce optimal treatment adherence levels with heterogeneous patient preferences, show why this problem is unique from classical contract design problems, and conduct a numerical study using representative data in the context of the tuberculosis epidemic in India.

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101-2745 Preventing Opioid Overdose: From Prediction to Operationalization

Jonas Jonasson, Assistant Professor, Massachusetts Institute of Technology, United States
Neal Kaw, Student, Massachusetts Institute of Technology, United States
Deeksha Sinha, Post Doc/Researcher, Massachusetts Institute of Technology, United States
Nikos Trichakis, Associate Professor, Massachusetts Institute of Technology, United States

We use machine learning to stratify patients by level of risk for an adverse opioid-related event, and to form a cohort for monitoring or intervention. Our test set ROC exceeds 0.8, and our models can identify a small cohort (1% of patients) which includes the majority (69%) of adverse events.

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Contributed Session

835

Monday, 09:00 AM - 10:00 AM, Healthcare OM 2

Track: Healthcare Operations Management 2

Contributed Session: Surgery Planning & Patient Pathway Execution

Chair(s): Nasrin Yousefi

101-2206 An Inverse Optimization Approach to Measuring Clinical Pathway Concordance

Nasrin Yousefi, Student, University of Toronto, Canada
Timothy Chan, Professor, University of Toronto, Canada
Yusuf Shalaby, Student, University of Toronto, Canada
Luciano Ieraci, Decision Scientist, Ontario Health (Cancer Care Ontario), Canada
Claire Holloway, Provincial Clinical Lead, Ontario Health (Cancer Care Ontario), Canada

Clinical pathways outline standardized processes for a specific cohort of patients. We quantify the concordance of patient-traversed pathways to the clinical pathways using a data-driven inverse optimization method. We apply our methodology to a real dataset of colon cancer patients and show that it has a significant association with survival.

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101-2324 Optimal and equitable staffing solutions for operating room scheduling

Kai Sun, Post Doc/Researcher, The University of Texas at San Antonio, United States
Arkajyoti Roy, Assistant Professor, University of Texas at San Antonio, United States
Deepak Agrawal, Sr. Operations Research Consultant , American Airlines, United States
Ronald Dravenstott, Director of Perioperative Informatics , The University of Texas Health Science Center at San Antonio, United States
Frank Rosinia, Professor, The University of Texas Health Science Center at San Antonio, United States

We present a mixed-integer program that optimizes physicians' schedules to meet the needs of a large network hospital. Most importantly, the optimization model considers a physician's workload over time and across physicians resulting in schedules that are more equitable. The model is applied to scheduling faculty from an anesthesiology department.

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101-2396 Variable Neighbourhood Search Algorithm for Multiple Objective Elective Surgery Planning Problem

Xiankai Yang, Student, University of Manitoba, Canada
Yuvraj Gajpal, Assistant Professor, Asper School of Business, Canada
Srimantoorao Appadoo, Associate Professor, University of Manitoba, Canada

Operating scheduling is a crucial part in hospitals. It is related to both patient satisfaction and hospital performance. This paper considers elective surgery scheduling problem on tactical level. We use variable neighborhood search algorithm to solve the problem. Numerical experiment is performed to evaluate effectiveness of the proposed algorithm.

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Invited Session

836

Monday, 09:00 AM - 10:00 AM, Humanitarian Ops & Crisis Mgmt 1   Track: Humanitarian Operations and Crisis Management

Invited Session: Coordination of Humanitarian Response

Chair(s): Andres Jola-Sanchez

101-0079   Building Trust and Enhancing Preparedness: An Analysis of Citizens Perceptions

Johanna Amaya Leal, Assistant Professor, Iowa State University, United States
Victor Cantillo, Professor, Universidad del Norte, Colombia
Julian Arellana, Assistant Professor, Universidad del Norte, Colombia

Preparedness plays a critical role to mitigate disasters' impacts. Literature does not show no clear idea of citizens' perceptions regarding trust in response agencies, and how these influence preparedness. Modeling results of data collected in Colombia suggest preparedness and response plans should be developed and disseminated differently throughout the community.

- -

101-0187   Responding to disasters: When and how to activate alternative capacity?

Chaolun Ma, Student, Texas A&M University College Station, United States
Andres Jola-Sanchez, Assistant Professor, Mays Business School, Texas A&M University, United States
Xiaofeng Nie, Associate Professor, Texas A&M University College Station, United States
Xiubin Wang, Associate Professor, Texas A&M University College Station, United States

During disasters, emergency coordinators determine how to assign casualties to both hospitals and alternative care facilities (ACFs). The decision also involves when to open or close ACFs. We build a stochastic dynamic programming model and propose threshold-based policies. Our results provide insights to first responders and healthcare coalitions.

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101-0302   Is authoritarian leadership an effective approach during humanitarian response operations?

Mojtaba Salem, Student, Kuehne Logistics University, Germany
Maria Besiou, Professor, Kuehne Logistics University, Germany
Niels Van Quaquebeke, Professor, Kuehne Logistics University, Germany

Many field office leaders contend that humanitarian operations call for authoritarian leadership in order for aid workers to more quickly adapt to the context and thus deliver better performance. Based on theorising on human motivation, we test this hypothesis with a sample of 320 humanitarian aid workers from the field.

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Invited Session

838

Monday, 09:00 AM - 10:00 AM, Information Systems & OM 1   Track: Information Systems and Operations Management

Invited Session: Economics of Digital Platforms

Chair(s): Rakesh Mallipeddi

101-0599   How Market Conditions Affect Firms' Participation in Cooperative Ventures

Abhishek Roy, Assistant Professor, Temple University, United States
Hao Jiang Jiang, Student, Temple University, United States
Joydeep Srivastava, Professor, Temple University, United States

We study how the participation of firms in cooperative ventures, such as industry alliances and generic advertising, is impacted by different market conditions. Specifically, we investigate the impact of boom and bust conditions, and provide insights on firms' behavior when they face the prospect of cooperating with competitors.

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101-1267   Dynamics of Entry into IoT Platform: Implications on Security and Quality

Anurag Garg, Student, UF, United States
Kutsal Dogan, Associate Professor, University of Florida, United States
Emre Demirezen, Assistant Professor, University of Florida, United States
Kenny Cheng, Professor, University of Florida, United States

There exists both privacy and security concerns in consumers' minds when it comes to the use of Internet of Things (IoT) products. We study the interaction between an IoT platform provider and application developers and their efforts for improving the quality of the application and protecting user data from hackers.

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101-1881   Competitive Spillover Effects of User Generated Content on Hotel Demand

Sanghoon Cho, Student, University of South Carolina, United States
Pelin Pekgun, Associate Professor, University of South Carolina, United States
Ramkumar Janakiraman, Professor, University of South Carolina, United States
Jian Wang, Vice President, The Rainmaker Group, United States

We investigate the impact of user-generated content on hotel performance as captured by actual hotel bookings. We propose and estimate a consumer learning model that focuses on the effect of review sentiment on hotel demand taking into account the effect of competition and hotel prices.

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Contributed Session

846 Monday, 09:00 AM - 10:00 AM, Procurement & Supplier Management

Track: Procurement and Supplier Management

Contributed Session: Supply chain risk and resilience

Chair(s): Thomas Goldsby

101-2040 Modeling the Structural and Cognitive Elements of Supply Chain Agility

Anne Dohman, Student, University of Tennessee Knoxville, United States
Jason Merrick, Professor, Virginia Commonwealth University, United States
Thomas Goldsby, Professor, University of Tennessee Knoxville, United States
Ted Stank, Professor, University of Tennessee Knoxville, United States
Lance Saunders, Assistant Professor, University of Tennessee Knoxville, United States

We identify and model agility in end-to-end supply chains by determining decision points associated with source/make/deliver operations. This illuminates how utilizing information with demand patterns and advanced technologies influences operational decisions. Working with companies allows for novel analysis, showing how information affects the supply chain and optimizes financial performance.

- -

101-1443   Not making the decision, making the move. Determinants of manufacturing reshoring

Jason Woldt, Assistant Professor, University of Wisconsin Oshkosh, United States
Anto Verghese, Assistant Professor, University of Wisconsin-Whitewater, United States
Sameer Prasad, Professor, University of Wisconsin-Whitewater, United States

Recent disruptions to supply chain operations have brought a renewed focus to reshoring manufacturing. Adopting an eclectic theory perspective, we examine a secondary database comprising of 467 reshoring decisions using a survival analysis technique to understand the role of resource, market, efficiency, and strategic seeking advantages in driving reshoring decisions.

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101-0906 Capacity Reservation for Multiple Sourcing Procurement with Considering Supply Chain Disruption Risk

Kotomichi MATSUNO, Assistant Professor, Waseda University, Japan
Jiahua WENG, Associate Professor, Kanagawa University, Japan
Xianghe SHAO, Student, Waseda University, Japan

Over the last decade, more than 50% of organizations in the world experienced a supply chain disruption such as geopolitical instability and transportation failure every year. Decision-making on number of suppliers as well as order allocation in multiple sourcing component procurement with capacity reservation is proposed for disruption risk hedging.

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Invited Session

847 Monday, 09:00 AM - 10:00 AM, Product Innovation & Technology Mgmt

Track: Product Innovation and Technology Management

Invited Session: Managing Crowdfunding Platforms

Chair(s): Morvarid Rahmani   Param Pal Singh Chhabra

101-0238 When the Crowd Grows Restless: Managing Interventions on Crowdfunding Platforms

Philipp Cornelius, Assistant Professor, Rotterdam School of Management, Netherlands
Bilal Gokpinar, Professor, University College London, United Kingdom
Sergei Savin, Professor, University of Pennsylvania, United States

Crowdfunding has become a cornerstone of entrepreneurial finance, but it also exposes companies to significant reputational risk from crowds that can quickly turn hostile. Companies have several options to intervene in such cases and we empirically study the efficacy of different intervention strategies.

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101-0201 Rethinking Crowdfunding Platform Design: Mechanisms to Deter Misconduct and Improve Efficiency

Elena Belavina, Assistant Professor, Cornell University, United States
Simone Marinesi, Assistant Professor, University of Pennsylvania, United States
Gerry Tsoukalas, Assistant Professor, University of Pennsylvania, United States

Lacking credible rule enforcement mechanisms to punish misconduct, existing reward-based crowdfunding platforms can leave backers exposed to two risks: entrepreneurs may run away with backers' money (funds misappropriation) and product specifications may be misrepresented (performance opacity). In this paper we propose new crowdfunding platform designs to deter misconduct.

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101-1895 Trash or treasure? A checklist to identify high-potential NPD projects from previously rejected projects

Jian Qin, Student, Nyenrode Business University, Netherlands
Bo Van Der Rhee, Professor, Nyenrode University, Netherlands

The Stage-Gate model has been criticized for gates that are too adept at killing projects. By employing multiple qualitative methodological techniques, this study developed a checklist that firms can use to identify potentially successful new products among the projects that were killed in the recent past.

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Invited Session

849

Monday, 09:00 AM - 10:00 AM, Retail Operations   Track: Retail Operations

Invited Session: Online Grocery Retailing Operations

Chair(s): Lina Wang

101-0074   Assessing the economic value of fulfillment fees in omnichannel retail

Elliot Rabinovich, Professor, Arizona State University Tempe, United States
Rui Sousa, Professor, Universidade Catolica Portuguesa, Portugal
Sungho Park, Associate Professor, Arizona State University Tempe, United States
Sina Golara, Student, Massachusetts Institute of Technology, United States

We draw from a quasi-natural experiment, conducted in partnership with an omnichannel grocery retailer, to examine how eliminating fulfillment fees for "Click & Collect" orders at retail stores, while maintaining fulfillment fees for home delivery is unchanged, affects consumers' shopping activity as well as the retailer's revenue and fulfillment costs.

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101-0085   Finding a Market for Ugly Produce: a Multiple Discrete-continuous Choice Analysis

Sanghak Lee, Assistant Professor, Arizona State University Tempe, United States
Stanley Lim, Assistant Professor, University of San Diego, United States
Sungho Park, Associate Professor, Arizona State University Tempe, United States
Elliot Rabinovich, Professor, Arizona State University Tempe, United States

We examine demand for imperfect produce sourced from growers and sold directly to consumers via the Internet. We model consumers' multiple discrete choice and continuous consumption decisions to uncover relationships among choice, satiation effects, and utility maximization for wide assortments. We then estimate the value of assortment to improve revenues.

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101-0029   Scalability in Local Grocery Food Platforms: An Examination of Indirect Network Economies

Lina Wang, Student, Arizona State University, United States
Elliot Rabinovich, Professor, Arizona State University Tempe, United States
Timothy J Richards Richards, Professor, Arizona State University, United States

Key to the success of two-sided online platforms is their ability to increase their economic surplus by scaling simultaneously participation on both of their sides. We study this phenomenon through a structural model of indirect network economies in an online grocery platform.

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Invited Session

850

Monday, 09:00 AM - 10:00 AM, Revenue Management & Pricing   Track: Revenue Management and Pricing

Invited Session: Consumer Choice Models, Assortment and Pricing, and Learning

Chair(s): Sajad Modaresi

101-0884   The Exponomial Choice Model: Algorithmic Frameworks for Assortment Optimization and Data-Driven Estimation Case Studies

Jacob Feldman, Assistant Professor, Washington University St Louis, United States
Danny Segev, Professor, University of Haifa, Israel
Ali Aouad, Assistant Professor, London Business School, Great Britain

In this paper, we consider the yet-uncharted assortment optimization problem under the Exponomial choice model, where the objective is to determine the revenue maximizing set of products that should be offered to customers. Our main algorithmic contribution comes in the form of a fully polynomial-time approximation scheme (FPTAS).

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101-1059   Dynamic Pricing For App-Enabled Freight Platforms

Yufeng Cao, Assistant Professor, Antai College of Economics & Management, China
Anton Kleywegt, Associate Professor, Georgia Institute of Technology, United States
He Wang, Assistant Professor, Georgia Institute of Technology, United States

We study a dynamic pricing problem on truckload shipping platforms where truck drivers shop through available loads. We formulate the problem as a Markov decision process (MDP) that captures randomness on both sides of the market and incorporates drivers' choice behavior. Approximation frameworks are proposed to solve the problem efficiently.

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101-0756   Dynamic Assortment Personalization under Linear Preferences

Sajad Modaresi, Assistant Professor, University of North Carolina Chapel Hill, United States
Denis Saure, Assistant Professor, Universidad De Chile, Chile
Fernando Bernstein, Professor, Duke University Durham, United States

We study efficient real-time data collection approaches for an online retailer that dynamically personalizes assortments based on customers' attributes. We propose policies that leverage transaction data of customers with similar attributes to expedite the learning process and maximize revenue. We test the performance using a dataset from a Chilean retailer.

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Contributed Session

852

Monday, 09:00 AM - 10:00 AM, Service Operations Track: Service Operations

Contributed Session: Current topics in sustainable development

Chair(s): Yiling Zhang

101-2756 Service operations: An educational conceptual framework for the electronic waste involving nurses and youth generation

Thaís Lauria, Student, Universidade Federal do Estado do Rio de Janeiro, Brazil
Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil
Gláucya Daú, Student, Universidade Federal do Estado do Rio de Janeiro, Brazil
Philani Zincume, Professor, Stellenbosch University, South Africa
Giancarlo Pereira, Professor, UNISINOS, Brazil

The electronic waste has improved and the sustainable practices can be stimulated. This research approaches a literature review based on the role of nurses in the sustainable promotion. The analysis has developed an educational conceptual framework among the nurse role, the sustainability, and the electronic waste for the youth generation.

101-2842 UNDERSTANDING THE DOWN SYNDROME IN THE LABOR MARKET

PRISCILA CEMBRANEL CEMBRANEL, Student, CEFET, Brazil
Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil
Thierry Roques, Professor, Kedge Business School, France
Fernando Torezani, Student, Universidade Sociedade Educacional de Santa Catarina, Brazil
Thais Janing, Student, Universidade Sociedade Educacional de Santa Catarina, Brazil

This case study took place in an inclusive coffe shop, where employees have down syndrome. The semi-structured interview revealed that in addition to the full capacity to exercise their functions, patients with the syndrome brought advantages to the organizational climate and the quality of life of co-workers.

101-1269 On the values of vehicle-to-grid selling in electric vehicle sharing

Yiling Zhang, Assistant Professor, University of Minnesota, United States
Mengshi Lu, Assistant Professor, Purdue University, United States
Siqian Shen, Assistant Professor, University of Michigan, United States

We study electric vehicle (EV) sharing systems with vehicle-to-grid (V2G) electricity selling integration. The problem involves complex planning and operational decisions with multiple uncertainties. The potential value of V2G integration has far-reaching impacts on EV sharing and sustainability via benefits of carshare service providers, users, socio-environmental, and electrical grid benefits.

Invited Session

856

Monday, 09:00 AM - 10:00 AM, Supply Chain Management Track: Supply Chain Management

Invited Session: Supply Chain Responsiveness, Resilience and Regeneration

Chair(s): Xiande Zhao

101-2240 An Examination of Two Hospitals and the Response to the First Wave of COVID 19

Kenneth Boyer, Professor, Ohio State University, United States
Aravind Chandrasekaran, Associate Professor, Ohio State University, United States
Soh Hyun Chu, Student, The Ohio State University, United States
Jane Iversen, Student, The Ohio State University, United States

As the Covid 19 pandemic unfolded throughout 2020, the world watched and worried wave after wave of disease flooded the world. One of the regions hit earliest and hardest was The New York City metropolitan region. We examine two NYC area hospitals and the response in March/April, 2020.

101-2244 Production Networks, Working from Home, and the Resilience of Firms to the COVID-19 Pandemic

Chunmian Ge, Professor, South China University of Technology, China
Chang Liu, Post Doc/Researcher, South China University of Technology, China
Zhiqiang Wang, Professor, South China University of Technology, China
Hanwei Huang, Assistant Professor, City University of Hong Kong, China
Junhui Jiang, Assistant Professor, South China University of Technology, China

This paper examines whether firms that were more exposed to the COVID-19 pandemic through the production network had worse performance. Using firms' job postings data from online platform, we also estimate whether firms with a higher share of jobs that could be done at home were more resilient.

101-2229 A study on supply chain 3R capabilities

Jie Chen, Professor, Leeds University Business School, United Kingdom
Xiande Zhao, Professor, China Europe International Business School, China
Barbara Flynn, Professor, Indiana University, United States

COVID19 has brought unprecedented challenges into supply chain management. This paper will identify the factors that affect the responsiveness, resilience and regeneration (3R) capabilities of through in-depth case studies and examine how these factors influence the three Rs. We will report our findings and offer theoretical insights and managerial implications.

Invited Session

857

Monday, 09:00 AM - 10:00 AM, Supply Chain Risk Management

Track: Supply Chain Risk Management

Invited Session: Inventory Management and Supply Chain Risk

Chair(s): Vishwakant Malladi

101-0592   The Impact of Reference Price Effects on Strategic Inventory in a Supply Chain

Abhishek Roy, Assistant Professor, Temple University, United States

Subrata Saha, Assistant Professor, Institute of Engineering & Management (IEM), India

It is now well established that a downstream retailer may hold inventory strategically to obtain better future prices from an upstream manufacturer. We study the impact of the consumer's reference price on the retailer, the manufacturer, and the channel, and provide insights on contract choices under reference price effects.

101-0603   Operational Risk Management: Optimal Inspection Policy

Youngsoo Kim, Assistant Professor, University of Alabama Tuscaloosa, United States

Yuqian Xu, Assistant Professor, University of Illinois Urbana-Champaign, United States

We study how a financial firm should design inspection policy to manage operational risk that can be caused by their employees. We find that, contrary to conventional wisdom, periodic policy can outperform random policy. We then propose a new policy, namely hybrid policy, that can dominate both policies.

101-1248   A New Perspective on Supplier Risk Mitigation Strategies

Vishwakant Malladi, Assistant Professor, Indian School of Business, India

Diwakar Gupta, Professor, University of Texas Austin, United States

Kumar Muthuraman, Associate Professor, University of Texas Austin, United States

Literature related to risk mitigation in supply chains largely considers risk as a monolith. However, supplier risk is a composite of the frequency of disruptions and the duration of disruptions. We study the impact of optimal inventory policy, and thereby the optimal risk mitigation strategies on both these dimensions.

Invited Session

859

Monday, 09:00 AM - 10:00 AM, Sustainable Operations 1

Track: Sustainable Operations

Invited Session: Topics in Smart City Operations

Chair(s): Yangfang (Helen) Zhou   Safak Yucel

101-2342   Wait Time Based Pricing For Queues With Customer-chosen Service Times

Chen-An Lin, Student, Duke University, United States

Kevin Shang, Professor, Duke University Durham, United States

Peng Sun, Professor, Duke University Durham, United States

This paper studies a pricing problem for a novel single-server queue system where the focal application is public fast-charging stations for electric vehicles (EVs). We characterize the optimal policy, compare it with benchmark policies, and reveal insights on managing the proposed service system.

101-1116   A Reduce-to-threshold Approach To Direct Load Control Contracts With Monthly Constraints

Ali Fattahi, Assistant Professor, Johns Hopkins University, United States

Foad Iravani, Assistant Professor, University of Washington, United States

Sriram Dasu, Associate Professor, University of Southern California, United States

Reza Ahmadi, Professor, University of California Los Angeles, United States

We formulate an optimization model for executing Direct Load Control Contracts, a class of incentive-based demand response programs that allow utilities to directly reduce consumers' energy consumption. We develop a hierarchical approximation scheme and use real data from the California system operator to show the effectiveness of our approach.

101-2514   Stall Economy: The Value Of Mobility And Precision Deployment Of Retail On Wheels

Junyu Cao, Assistant Professor, University of Texas Austin, United States

Xue Liu, Professor, McGill University, Canada

Chen Ma, Student, McGill University, Canada

Wei Qi, Assistant Professor, Mcgill University, Canada

Selling products in public spaces with wheeled stalls can potentially become ubiquitous in our future cities. Transition into such a "stall economy" paradigm is being spurred by the recent global pandemic. This paper provides models, algorithms, and managerial insights to understand how to deploy and operate wheeled stalls in cities.

Invited Session

861

Monday, 09:00 AM - 10:00 AM, Teaching/Pedagogy in POM

Track: Teaching/Pedagogy in POM

Invited Session: Workshop: Publishing in the Decision Sciences Journal of Innovative Education

Chair(s): Susan Palocsay

Monday, 09:00 AM - 10:00 AM

101-2447   Publishing OM Pedagogical Research in Decision Sciences Journal of Innovative Education

Susan Palocsay, Professor, James Madison University, United States

This presentation will provide an overview of the types of articles–conceptual, empirical, and teaching brief–published in DSJIE. Examples of articles on teaching and learning in OM will be used to illustrate content and structure. Guidelines for planning, conducting, and writing up pedagogical research will also be discussed.

Monday, 10:15 AM - 11:15 AM

Invited Session

865	Monday, 10:15 AM - 11:15 AM, 4- Meetings & Programs - By Invitation Track: All Meetings & Programs B: By Invitation
	Invited Session: Emerging Scholars Program 2
	Chair(s): Burcu Keskin Gilvan Souza

101-2120   Emerging Scholars 2

Gilvan Souza, Professor, Indiana University Bloomington, United States

Burcu Keskin, Professor, University of Alabama Tuscaloosa, United States

This event is by invitation only. Those invited have received the link to this event in earlier correspondence. The program provides new university professionals in OM with career-building advice in developing excellence in their personal programs of teaching, research, and service. The program is highly interactive and features internationally recognized senior OM scholars as discussion leaders.

Contributed Session

867	Monday, 10:15 AM - 11:15 AM, Covid-19 & Other Pandemics Track: Covid-19 and Other Pandemics
	Contributed Session: Delivery and distribution
	Chair(s): Vipulesh Shardeo

101-2472   Impact of the COVID-19 Pandemic on Public Distribution System

RAMESH KUMAR, Student, National Instituteof Industrial Engineering, Mumbai, India
L. Ganapathy, Professor, National Instituteof Industrial Engineering, Mumbai, India
Ravindra Gokhale, Assistant Professor, National Instituteof Industrial Engineering, Mumbai, India
Manoj Kumar Tiwari, Professor, National Instituteof Industrial Engineering, Mumbai, India

India has a Public Distribution System (PDS) to provide food grains and essential commodities at affordable price. We constructed a simulation model of the PDS network in Maharashtra which was stressed in the COVID-19 period. We present the impact of demand surge on food inventory at various locations.

101-2593   Delivering Sales: Pre-Pandemic and Pandemic Restaurant Performance

Kevin Park, Student, University of Maryland, United States
Xiaodan Pan, Assistant Professor, Concordia University, Canada
Martin Dresner, Professor, University of Maryland, United States

This paper uses a contingent practice-based theoretical lens to examine the effects of in-house delivery and delivery partnerships on restaurant direct-to-consumer sales performance. Moreover, we assess the moderating impact of social distancing on the relationships between in-house deliveries and restaurant performance and delivery partnerships and restaurant performance.

101-2671   Spatial agent-based modelling to access the disease infection risk in Food Supply Chain

anchal patil, Student, Indian institute of Technology Delhi IIT, India
Jitender Madaan, Associate Professor, Indian institute of Technology Delhi IIT, India
Vipulesh Shardeo, Student, Indian institute of Technology Delhi IIT, India
Ashish Dwivedi, Student, Indian institute of Technology Delhi IIT, India

Efficient and safe functioning of essential commodities supply chain during disease outbreak is necessary to minimize the disease hazard. This study estimates infection risk in the perishable food supply chain using agent-based modelling approach. Different configurations for the supply chain are evaluated to minimize the risk of infection spread.

Invited Session

868	Monday, 10:15 AM - 11:15 AM, Economic Models in OM Track: Economic Models in Operations Management
	Invited Session: Operations and Economics in Platforms and Sharing Economy-1
	Chair(s): Guangwen Kong

101-1825   Spatial or Temporal Pooling Solves the Wild Goose Chase

Ming Hu, Professor, University of Toronto, Canada

We identify when the so-called "wild goose chase" problem may arise in the sharing system of vehicles such as cars, bicycles, and scooters. We show how to solve this problem using operational tools such as spatial and temporal pooling.

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101-1369   Ride-hailing: Monopoly and Competition between two platforms

Saif Benjaafar, Professor, University of Minnesota, United States

Costas Courcoubetis, Professor, Singapore University of Technology and Design, Singapore

Michail Kanakakis, Post Doc/Researcher, Singapore University of Technology and Design, Singapore

Spyros Papafragkos, Post Doc/Researcher, Singapore University of Technology and Design, Singapore

We analyse in an anonymous game the competition between P2P ride-hailing platforms setting prices for transportation and individuals deciding to be part of the demand or the supply side or drive their own cars. We study the equilibrium prices, the levels of traffic and ownership, and compare to the monopoly.

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101-1862   Less is More? Operations and Incentives of an On-demand Medical Crowdsourcing Platform

Jingxuan Geng, Student, Temple University, United States

Guangwen Kong, Assistant Professor, Temple University Fox School of Business, United States

Marco Qin, Assistant Professor, Temple University, United States

Online medical crowdsourcing platforms enable patients to seek multiple opinions from doctors. We consider such a medical crowdsourcing platform that designs the optimal price and operational leverages such as a control limit on doctors' entry. We also collect data and empirically validate the results of the analytical model.

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Invited Session

869

Monday, 10:15 AM - 11:15 AM, Elections Management   Track: Elections Management

Invited Session: Media, Social Media, and Politics

Chair(s): Brent Kitchens

101-2418   Evolution of Political Slant & Echo Chambers

Jesse Shore, Assistant Professor, Boston University, United States

Abhishek Ray, Assistant Professor, George Mason University, United States

Brad Greenwood , Associate Professor, George Mason University, United States

We study a subset of subreddits for tracking how political slant evolves over time. In doing so, we aim to establish whether right or left leaning groups diverge or converge in slant over time and what does that imply for the evolution of echo chambers online.

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101-2430   No News is Bad News: Political Corruption, News Deserts, and the Decline of Media

Brad Greenwood, Associate Professor, George Mason, United States

The newspaper industry is perhaps the most notable casualty of the rise of the digital age. In this work, we examine how the decline of local reporting capacity influences local levels of political corruption.Results indicate a significant rise in federal corruption charges when major newspapers close in a federal district.

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101-2759   Diffusion and Circumvention of Propaganda in Social Media

Arash Barfar, Assistant Professor, University of Nevada, Reno, United States

Balaji Padmanabhan, Professor, University of South Florida, United States

Lina Bouayad, Associate Professor, Florida International University, United States

Online propaganda is a growing menace to domestic security, democratic institutions, and public health. The two most notable examples are political and anti-vaccination propaganda. While appreciating the inherent legal and political dilemmas, our analyses of real data shed light on the diffusion and circumvention of propaganda in social media.

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Invited Session

870

Monday, 10:15 AM - 11:15 AM, Emerging Topics in OM   Track: Emerging Topics in Operations Management

Invited Session: Blockchain, Financing, and Risks in Supply Chain Networks

Chair(s): Lucy Chen

101-0549   Blockchain Adoption for Traceability in Food Supply Chain Networks

Lingxiu Dong, Professor, Olin Business School, Washington Univers, United States

Phil (Puping) Jiang, Student, Washington University St Louis, United States

Fasheng Xu, Assistant Professor, Syracuse University, United States

We investigate the impact of blockchain adoption on the efficiency of a multi-tier supply chain. The paper serves as a cautionary tale which indicates that fulfilling the promise of blockchain needs better-designed participation mechanism.

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101-1034   Traceability Technology Adoption in Supply Chain Networks

Philippe Blaettchen, Student, INSEAD, France

Andre Calmon, Assistant Professor, Georgia Institute of Technology, United States

Georgina Hall, Assistant Professor, INSEAD, France

Modern traceability systems enable unprecedented levels of visibility into supply chains. It is unclear, however, under which conditions they are adopted. We develop a new technology diffusion model that captures the specificities of the supply chain context: a firm's benefits depend on adoption by other firms within its supply chains.

101-1115 Does blockchain facilitate responsible sourcing? An application to supply chain of diamonds.

Dmitrii Sumkin, Student, INSEAD, Singapore

Serguei Netessine, Professor, The Wharton School, United States

Sameer Hasija, Associate Professor, INSEAD, Singapore

Blockchain is already accepted to show the provenance of diamonds, but it is still an open question how it affects ethical sourcing in the supply chain. We show that blockchain may reduce incentives of customers to buy certified diamonds and increase retailer's incentives to deal with risky suppliers.

Invited Session

871

Monday, 10:15 AM - 11:15 AM, Empirical Research in OM   Track: Empirical Research in Operations Management

Invited Session: Experiments and Studies of Worker Productivity

Chair(s): Anita Tucker

101-0103 Variations in Relative Performance Feedback: The Impact on Worker Performance

Aykut Turkoglu, Student, Boston University, United States

This paper studies how different types of relative performance feedback (RPF) impacts worker output. We conduct a set of experiments to disentangle the effect of RPF on worker performance. Our research provides insights on the design of feedback to improve operational performance.

101-2657 Comparison of Visual and Mathematical Approaches for Capacity Planning: Evidence from Surveys

Danqi Lu, Student, Boston University, United States

Canan Gunes Corlu, Associate Professor, Boston University, United States

John Maleyeff, Associate Professor, Boston University, United States

Queueing models determine the "hockey stick" relationship between server utilization and waiting time. The "knee" of the hockey stick is important in capacity planning. Through an empirical study, we investigate humans' ability to identify the knee. We compare several analytical approaches to humans' choices for a range of queuing configurations.

101-0568 Nudging Patient Choice: Evidence From a Field Experiment

Jiayi Liu, Student, Emory University, United States

Diwas Kc, Associate Professor, Emory University, United States

To examine the drivers of patient no-shows at outpatient clinics, we conduct a series of field experiments where the messaging regarding their upcoming appointment is randomly assigned. We find that the type of messaging has a significant effect on the queuing behavior of individuals, most notably their no-show behavior.

Invited Session

872

Monday, 10:15 AM - 11:15 AM, Finance & OM   Track: Finance and Operations Management

Invited Session: Operations under Financial Considerations

Chair(s): Sridhar Seshadri

101-2462 Supply Chain Coordination in Human Capital Investment

Jing Wu, Assistant Professor, The Chinese University of Hong Kong, Hong Kong

Ling Cen, Associate Professor, The Chinese University of Hong Kong, Hong Kong

Zi'ang Wang, Student, The Chinese University of Hong Kong, Hong Kong

We document human capital coordination between supply chain partners, supporting the human capital as a relationship-specific investment in supply chains. We establish causality using the H1B lottery as exogenous shocks to firms' acquisition of human capital. Supply chain partners coordinate by hiring common positions and pursuing the division of labor.

101-2464 Effect of Bank Branching Deregulation on Supply Chain Financing Choices

Anqi Wu, Student, University of Illinois Urbana-Champaign, United States

Qi Wu, Assistant Professor, Case Western Reserve University, United States

Sridhar Seshadri, Professor, University of Illinois Urbana-Champaign, United States

How do changes in banking regulation affect supply chain financing choices? We utilize staggered state-wise implementations of interstate branching deregulation across US as quasi-experiments. We find the shift increases suppliers' inventory turnover. The increase effect is heterogenous across firms through their distinct financing choices for capital or fixed capacity investment.

101-1263 Optimal Processing and Trading in the Presence of Inventory Conversion Flexibility and Random Supply

Amar Sapra, Associate Professor, Indian Institute of Management, Bangalor, India

Sridhar Seshadri, Professor, University of Illinois Urbana-Champaign, United States

We develop a multi-period model for a cooperative that purchases a commodity, processes it and sells the output in the spot market. We determine the quantity of raw commodity to process and the quantity of processed commodity to upgrade and/or blend and subsequently, sell, in every period.

Invited Session

874

Monday, 10:15 AM - 11:15 AM, Healthcare Analytics   Track: Healthcare Analytics

Invited Session: Managing EDs

Chair(s): Pengyi Shi   Nan Liu

101-1988   Impact of Batching Admissions on Emergency Department (ED) Boarding Times

Arshya Feizi, Student, Boston University, United States

Anita Tucker, Professor, Boston University, United States

Jillian Berry Jaeker, Assistant Professor, Boston University, United States

William Baker, Associate Professor, Boston University, United States

Boarding is defined as the wait from when ED patients are admitted until they depart. Using hospital data we show that back-to-back admissions (batching) towards end of physician shifts increases boarding times. Batching admissions systematically increases the variance in ED arrivals when passing patients to the wards, causing longer waits.

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101-1331   Multi-Period Pattern-Based Home Health Care Planning and Scheduling

Bahman Naderi, Assistant Professor, University of Windsor, Canada

Mehmet Begen, Associate Professor, Ivey Business School, Western University, Canada

Gregory Zaric, Associate Professor, Ivey Business School, Western University, Canada

Vahid Roshanaei, Senior Lecturer, University of Toronto, Canada

We study a multi-period pattern-based home health care planning and scheduling problem in which the assignment, routing, and scheduling of caregivers are jointly optimized. We use mathematical programming, logic-based Benders decomposition (LBBD) and a novel LBBD-based branching-decomposition to solve realistic instances reasonably fast and with a low optimality gap.

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101-1658   Factors Affecting Non-urgent Patient Visits to Emergency Departments: A Discrete Choice Experiment

Yuliu Su, Student, Singapore University of Technology and Design, Singapore

Shrutivandana Sharma, Assistant Professor, Singapore University of Technology and Design, Singapore

Semra Ozdemir, Assistant Professor, Duke-NUS Medical School, Singapore, Singapore

Wai Leng CHOW, Director, Health Services Integration and Development Division, Ministry of Health, Singapore, Singapore

Hong Choon Oh , Director, Health Services Research Department, Changi General Hospital, Singapore, Changi General Hospital, Singapore, Singapore

We use discrete choice experiments to quantify how non-urgent patient choices between emergency department (ED) and general practitioner (GP) are influenced by ED/GP attributes, including a novel GP-referral discount scheme, and patients' demographics. Relative importance of factors quantified by the choice models suggest countermeasures to reduce non-urgent ED visits.

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Invited Session

875

Monday, 10:15 AM - 11:15 AM, Healthcare OM 1   Track: Healthcare Operations Management

Invited Session: Empirical Studies in Healthcare Operations

Chair(s): Maria Ibanez

101-0356   Sample Transport Optimization

Emma Gibson, Student, Operations Research Center, United States

Sarang Deo, Associate Professor, Indian School of Business, India

Jonas Jonasson, Assistant Professor, Massachusetts Institute of Technology, United States

Kara Palamountain, Associate Professor, Kellogg School of Management, United States

Mphatso Kachule, Country Director, Riders For Health Malawi, Malawi

Sample transportation (ST) systems move medical samples (e.g. blood, sputum) between health centers and laboratories in many developing countries. In partnership with Riders for Health Malawi, we have implemented an optimized ST algorithm to deploy motorcycle couriers on a daily basis and maximize the efficiency of the Malawian ST system.

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101-0021   Focusing Provider Attention: An Empirical Examination Of Incentives And Feedback In Flu Vaccinations

Robert Niewoehner, Student, UNC Kenan-Flagler Business School, United States

Bradley Staats, Professor, University of North Carolina Chapel Hill, United States

Influenza imposes heavy societal costs through healthcare expenditures, missed days of work, and numerous hospitalizations each year. We implement and study a randomized flu vaccine intervention among 145 clinics from 9 different states. We find clinics that received relative performance feedback outperformed all others, and we discuss the implications.

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101-1094   Feature-Based Design of Priority Queues

Simrita Singh, Student, Northwestern University, United States

Itai Gurvich, Associate Professor, Cornell University, United States

Jan Van Mieghem, Professor, Northwestern University, United States

The two building blocks of AI-assisted triage - the priority prediction algorithms, and the priority dependent workflows -are typically designed in silos, and can be system sub-optimal . We develop an integrated model of algorithm training, prediction, and workflow optimization and investigate key design questions like number of priority levels.

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Contributed Session

876

Monday, 10:15 AM - 11:15 AM, Healthcare OM 2   Track: Healthcare Operations Management 2

Contributed Session: Patient-centered Care (2)

Chair(s): Kellas Cameron

101-0240   Identify the critical factors affecting the sales of commercial insurance on long-term care

Rouwen Wang, Student, National Central University, Taiwan, Republic of China
Yue Wu, Student, National Central University, Taiwan, Republic of China
Dong-Shang Chang, Professor, National Central University, Taiwan, Republic of China
Che-Yu Kuo, Director, Shin Kong Life Insurance Co., Ltd., Taiwan, Republic of China

The study aims to investigate the key factors of operating extra commercial insurance on long-term care except National Health Insurance in Taiwan. The factors are evaluated by expertise using Decision Making Trial and Evaluation Laboratory (DEMATEL). We present the causal mapping among four critical factors.

101-1981   The Role of Quality Management Award in Achieving Patient Satisfaction in Healthcare Organizations

Heng (John) Xie, Assistant Professor, The University of Texas Permian Basin, United States
Xianghui (Richard) Peng, Assistant Professor, Penn State University Erie, United States
Victor Prybutok, Professor, University of North Texas, United States

This study examines the benefits associated with the quality management award in healthcare organizations. The study answers the research question about whether wining the quality management award will lead to improved hospital patient satisfaction. Event study is used to determine the effectiveness of quality management award in improving hospital performance.

101-2351   When to Account for the Patient? The Effect of the Clinical Treatment of SDOH

Kellas Cameron, Assistant Professor, University of South Florida, United States
Deepti Singh, Student, University of South Florida, United States

Physicians adjust their treatment decisions based upon socioeconomic factors. We demonstrate that these adjustments made during initial treatment phases don't directly affect long-term outcomes. Our model shows that though these treatment choices do not impact patient readmission, a patient's socioeconomic factors still do, indicating an indirect effect on patient engagement.

Invited Session

877

Monday, 10:15 AM - 11:15 AM, Humanitarian Ops & Crisis Mgmt 1   Track: Humanitarian Operations and Crisis Management

Invited Session: From Donations to Logistics in Humanitarian Operations II

Chair(s): Gloria Urrea

101-0275   Media Coverage of Disaster and its Implications for Materiel Convergence

Trilce Encarnacion, Assistant Professor, University of Missouri St Louis, United States
Jose Holguin-Veras, Professor, Rensselaer Polytechnic Institute, United States
Benjamin Horne, Student, Rensselaer Polytechnic Institute, United States

A measure of social affinity between populations is used to evaluate the determinants of media coverage of disasters. Characterizing both the impacted population and the news audience, social affinity is used to explain public attention to major disasters and the implications of media coverage on disaster donations.

101-0878   Trying and Failing: Biases in Donor Aversion to Rejection

Kaitlin Daniels, Assistant Professor, Washington University St Louis, United States
Leon Valdes, Assistant Professor, University of Pittsburgh, United States

We conduct a human-subject experiment to study the impact of a rejected donation (e.g., due to an outpour of support following a catastrophe) on future donations. We demonstrate the role played by a donor's estimated probability that a donation is accepted, and how this role is affected by self-serving biases.

101-1297   Linking Funding Strategies and Diversification: The Case of Humanitarian Organizations

Gloria Urrea, Assistant Professor, University of Colorado Boulder, United States
Sebastian Villa, Assistant Professor, Indiana University Bloomington, United States
Eric Quintane, Associate Professor, Universidad De Los Andes, Colombia

We study how the way in which organizations acquire their resources affects the efficiency of the resource acquisition process, which influences organizational diversification into new services and geographic regions. We demonstrate that relying on a large number of resource providers constraints diversification while long-term relationships are positively related to diversification.

Contributed Session

887

Monday, 10:15 AM - 11:15 AM, Procurement & Supplier Management

Track: Procurement and Supplier Management

Contributed Session: Supply Chain governance in the age of digital transformation

Chair(s): Hendrik Birkel

101-0817   Configurations of service supply chain networks for cocreation of digital product-service systems

Lucas Dalenogare, Student, Grenoble INP, France
Marie-Anne Le Dain, Professor, Grenoble INP, France
Alejandro Frank, Associate Professor, Universidade Federal Do Rio Grande Do Sul, Brazil

Digital product-service systems (DPSS) require, at least, four types of capabilities: product, service, software and hardware. The cocreation of DPSS should manage the integration of such capabilities from different suppliers. We define different supply chain arrangements to manage the integration of DPSS capabilities and analyze examples from the literature.

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101-0976   Industry 4.0 - Implications for Supply Chain Management and Buyer-Supplier Relationships

Julian Müller, Professor, Salzburg University of Applied Sciences, Austria
Johannes Veile, Student, Friedrich-Alexander Universitat Erlangen-Nurnberg, Germany
Marie-Christin Schmidt, Student, Friedrich-Alexander-University Erlangen-Nürnberg, Germany
Hendrik Birkel, Student, University Erlangen-Nuremberg, Germany
Kai-Ingo Voigt, Professor, Friedrich-Alexander-Universtiy Erlangen-Nürnberg, Germany

Industry 4.0, internationally also known as the Industrial Internet of Things, is based on the digitally-enabled +integration across entire supply chains. However, the concept is less understood from the perspective of SCM so far. This paper sheds light on implications that derive for SCM, especially buyer-supplier relationships.

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101-0583   Supply Chain Transparency: a facilitator of technology implementation

Jianliang Hao, Student, Auburn University, United States
Glenn Richey, Professor, Auburn University, United States
Tyler Morgan, Assistant Professor, Auburn University, United States

Supply chain transparency (SCT) has been developed as a supporting pillar of supply chain management. Drawing on a Resource-Based View, this research investigates how SCT uses information technology integration to leverage supply chain performance. Analyzing responses from 212 professionals, we find that SCT is essential to the formation of agility

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Invited Session

888

Monday, 10:15 AM - 11:15 AM, Product Innovation & Technology Mgmt

Track: Product Innovation and Technology Management

Invited Session: Innovation, Entrepreneurship and Crowdfunding

Chair(s): Morvarid Rahmani   Param Pal Singh Chhabra

101-0896   Revenue Management in Crowdfunding

Jiding Zhang, Student, The Wharton School, United States
Sergei Savin, Professor, University of Pennsylvania, United States
Senthil Veeraraghavan, Professor, University of Pennsylvania, United States

We study the optimal design of crowdfunding campaigns, and develop a model of crowdfunding dynamics that maximizes revenue for a given fundraising campaign by optimizing both the pledge level sought from donors or backers and the duration of the campaign.

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101-2439   Optimal Presentation of Alternatives

Zeya Wang, Student, Georgia Institute of Technology, United States
Morvarid Rahmani, Assistant Professor, Georgia Institute of Technology, United States
Karthik Ramachandran, Associate Professor, Georgia Institute of Technology, United States

A provider may have multiple alternatives that could potentially solve a client's problem. In this paper, we develop a game-theoretic model where the provider chooses which alternative to present and in what sequence, and the client chooses which alternative to implement.

- -

101-0269   Designing Reward Structure for Crowdfunding Campaigns

Param Pal Singh Chhabra, Student, Georgia Institute of Technology, United States
Manpreet Hora, Associate Professor, Georgia Institute of Technology, United States
Karthik Ramachandran, Associate Professor, Georgia Institute of Technology, United States

Rewards are crucial for the success of a campaign in reward-based crowdfunding, yet creators adopt hit and trial approach to design the reward structure. We empirically investigate the association between the design parameters of a reward structure and the performance of a campaign and make recommendations for creators.

- -

Invited Session

890

Monday, 10:15 AM - 11:15 AM, Retail Operations   Track: Retail Operations

Invited Session: Retail Policies and Consumer Behavior

Chair(s): Yulia Vorotyntseva

101-0288   Uncovering Hidden Costs of Dynamic Pricing Environments

Evgeny Kagan, Assistant Professor, Johns Hopkins University, United States

Michelle Shell, Assistant Professor, Boston University, United States

Yannis Stamatopoulos, Assistant Professor, The University of Texas at Austin, United States

Volatility in dynamic pricing environments may induce emotional responses that scholars have yet to consider, such as anxiety. Through a series of controlled lab experiments, this project aims to document and quantify such responses, and consider potential implications.

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101-0589   The Impact of Shipping and Return Policies on Omni-channel Retail Returns

Abhishek Roy, Assistant Professor, Temple University, United States

Zhuping Liu, Assistant Professor, Baruch College, United States

Subodha Kumar, Professor, Temple University, United States

We study the impact of an omni-channel retailer's shipping and return policies on the consumers' purchasing and returning decisions. Specifically, we analyze how the retailer's shipping fee thresholds and return policies incentivize the consumers to over-purchase and return, and provide insights for the retailer to set optimal policies.

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101-1914   Spillover Effect of Hosting "Bad" Online Reviews: An Empirical Investigation

Yulia Vorotyntseva, Assistant Professor, Saint Louis University, United States

Subodha Kumar, Professor, Temple University, United States

Paul Pavlou, Professor, Temple University, United States

Aleksi Aaltonen, Assistant Professor, Temple University, United States

Online reviews of products and services are prone to biases, yet according to previous research consumers tend to overestimate their validity. We address this issue further by investigating the role of known cognitive biases in consumers' interpretation of online reviews and subsequent decision making through a series of behavioral experiments.

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Invited Session

891

Monday, 10:15 AM - 11:15 AM, Revenue Management & Pricing   Track: Revenue Management and Pricing

Invited Session: Learning and Optimizing in Revenue Analytics

Chair(s): Ruihao Zhu   David Simchi-Levi

101-1955   Data-driven Inventory Management with Demand Shifts

N. Bora Keskin , Assistant Professor, Duke University Durham, United States

Xu Min, Student, Tsinghua University, China

Jeannette Song, Professor, Duke University Durham, United States

We consider a data-driven dynamic inventory management problem where the underlying demand environment can shift over time. We characterize the best achievable cost performance and design adaptive inventory ordering policies that exhibit near-optimal performance.

- -

101-2346   Learning Product Rankings Robust to Fake Clicks

Negin Golrezaei, Professor, MIT Sloan School of Management, United States

Vahideh Manshadi, Assistant Professor, Voucher #, United States

Jon Schneider, Research Scientist, Google, United States

Shreyas Sekar, Assistant Professor, Rotman School of Management, Canada

Motivated by the prevalence of fraudulent behavior on online retail platforms, we study the product ranking problem in the presence of fake clicks and corrupted data. We present new learning policies that allow platforms to identify the optimal product ranking even when the underlying data has been manipulated.

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101-2739   Online Stochastic Optimization with Wasserstein Based Nonstationarity

Jiashuo Jiang, Student, New York University, United States

Xiaocheng Li, Assistant Professor, Imperial College London, United Kingdom

Jiawei Zhang, Professor, New York University, United States

We consider a general data driven online stochastic optimization problem with wide applications in revenue management, where the arrival distributions need to be estimated from the data. We proposed a new measure of the estimate inaccuracy based on Wasserstein distance and derived an algorithm with optimal regret.

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Contributed Session

893

Monday, 10:15 AM - 11:15 AM, Service Operations   Track: Service Operations

Contributed Session: Servitization (servicizing)

Chair(s): Joshin John

101-0993   Digital Servitization and Transformation. Towards a Solution Framework Under Covid-19

Khuram Shahzad, Assistant Professor, University of Vaasa, Finland
Faisal Imran, Student, University of Vaasa, Finland

Covid-19 pandemic is inciting inter- and intra-organizational challenges requiring firms to adopt approaches that facilitate in managing business operations. Firms are struggling to even survive as their whole supply chain has erupted and lacking trust. In such circumstances, digital servitization and digital transformation can prepare organizations to bounce-back.

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101-1847   Upgradable-product design strategy: Selling or Servicizing?

Tina Arabian, Student, Wilfrid Laurier University, Canada
D. Marc Kilgour, Professor, Wilfrid Laurier University, Canada
Hamid Noori, Professor, Wilfrid Laurier University, Canada

Designing upgradable products might help a servicizing firm to decrease technological obsolescence risk. In this study, we investigate the economic and environmental implication of jointly adopting upgradable-product design strategy and servicizing. We also analyze the interaction of upgradable-product design strategy and a firm's business model choice between selling and servicizing.

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101-2684   Servitization in Startups

Joshin John, Assistant Professor, (CIF:ESG50985993), India
Neetha Eappen, Assistant Professor, RAJAGIRI BUSINESS SCHOOL, India

Start-ups differ from manufacturing firms in their organizational culture, resources and dynamic capabilities. Many startups are pivoting towards a servitization strategy and adopting a PSS playbook. In this paper, we investigate the drivers of servitization in start-ups incubated in technology parks and study the relationships among them.

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Invited Session

897

Monday, 10:15 AM - 11:15 AM, Supply Chain Management   Track: Supply Chain Management

Invited Session: Student Best Paper Competition of the College of Supply Chain Management Session I

Chair(s): Retsef Levi   Xiajun Pan

101-2905   Targeted Automation of Order Decisions Using Machine Learning

Christina Imdahl, Student, Kuehne Logistics University, Germany
Kai Hoberg, Professor, Kuehne Logistics University, Germany
William Schmidt, Assistant Professor, Cornell University, United States

In many practical settings, human decision makers can review the recommendations that a decision support model generates and either approve or override the recommendation. Using ML models, we identify a material portion of the order recommendations that can be automated with little, or even a positive, impact on performance.

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101-2906   Leveraging digital technology to improve monitoring and planning in public sector supply chains

Maya Ganesh, Student, Indian School of Business, India
Sarang Deo, Associate Professor, Indian School of Business, India
Sripad Devalkar, Associate Professor, Indian School of Business, India

Public sector supply chains routinely experience diversion of subsidized goods for private gain. We evaluate the impact of using 'Biometric Authentication' devices on reducing diversion, using a difference-in-differences approach. Further, we conduct a simulation analysis to estimate additional value from better planning by using timely information captured by these devices.

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101-2907   Reverse information sharing: Reducing cost and waste in supply chains with yield uncertainty

Elisabeth Paulson, Student, MIT, United States
Pavithra Harsha, Research Staff Member, IBM, United States
Retsef Levi, Professor, MIT, United States
Georgia Perakis, Professor, Massachusetts Institute of Technology, United States

Supply uncertainty presents major challenges to retailers. Although dual sourcing is a commonly employed mitigation strategy, the benefits of dual sourcing cannot be fully realized when a lack of transparency exists. We study how information sharing can enable better decision-making in these supply chains, leading to lower costs and waste.

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Invited Session

898

Monday, 10:15 AM - 11:15 AM, Supply Chain Risk Management   Track: Supply Chain Risk Management

Invited Session: Risk management in buyer-supplier settings

Chair(s): Mehdi H. Farahani

101-1453   Predicting Stock Price Movements in Supply Chain Networks: A Predictive Analytics Approach

John Rios, Student, University of Iowa, United States
Kang Zhao, Associate Professor, University of Iowa, United States
William Nick Street, Professor, University of Iowa, United States
Jennifer Blackhurst, Professor, University of Iowa, United States

Using a real-world supply network among almost 3000 firms and building out its competition network, this research predicts a firm's stock movements by leveraging its network neighbors' performance. Besides investment decisions, these predictions can also help to proactively manage risk events predicted from supply networks rather than reacting to them.

101-1904   When Should A Buyer Hit The Brakes For Supply Base Rationalization?

Wen Zhang, Assistant Professor, Baylor University, United States
Elena Katok, Professor, University of Texas Dallas, United States
George Chen, Assistant Professor, London Business School, United Kingdom

This paper considers a supplier base development setting in which a buyer attempts to establish the supplier base from not-yet-qualified suppliers(the entrants). We characterize the buyer's optimal qualification strategy as a multiple-state threshold-dependent optimal stopping policy. Experiments are designed to test our theoretical predictions in a controlled laboratory environment.

101-1903   Better to Bend than to Break: Sharing Supply Risk Using the Supply-Flexibility Contract

Mehdi H. Farahani, Student, The University of Texas at Dallas, United States
Milind Dawande, Professor, University of Texas Dallas, United States
Haresh Gurnani, Professor, Wake Forest University, United States
Ganesh Janakiraman, Professor, University of Texas Dallas, United States

We analyze a contract in which a supplier, who is exposed to disruption risk, offers a supply-flexibility contract comprising of a wholesale price and a "flexibility fraction" to a buyer facing random demand. We show that profits for both players increase by the introduction of flexibility into the contract.

Invited Session

900 Monday, 10:15 AM - 11:15 AM, Sustainable Operations 1   Track: Sustainable Operations
Invited Session: Life-Cycle Analysis
Chair(s): Hongyue Jin

101-2232   Sustainability Practices in the Fashion Industry: From Design to Disposal

Soumyadeep Kundu, Student, Indian Institute of Management Kozhikode, India
Rupesh Pati, Associate Professor, IIM kozhikode, India

Fashion houses are more sensitive to the public scrutiny and criticism to socio-environmental scandals in the industry. Using a Life Cycle Assessment from design through disposal and a semi-systematic review approach within the scope of operations management, we provide an overview of sustainability efforts and practices in the industry.

101-1771   AI-powered Repair and Maintenance Servicing of Medical Technologies

Praveen Gopalakrishnan, Student, University at Buffalo, United States
Willie Cade, Consultant, ICR Management, United States
Sara Behdad, Associate Professor, University of Florida, United States

Repair and maintenance are critical areas of product life cycle that can drive major cost savings for businesses. This study discusses massive datasets of repair and maintenance of medical devices and explores meaningful insights derived from AI data processing solutions to improve upon operational efficiency of medical technologies.

101-1604   Life Cycle Assessment of Value Recovery Pathways from Hard Disk Drives

Hongyue Jin, Assistant Professor, University of Arizona, United States
Kali Frost, Student, Purdue University, United States
Alex Bevan, Chief Production Engineer, Urban Mining Company, United States
Carol Handwerker, Professor, Purdue University, United States

The current business practices for used hard drives are limited to reuse or shredding, not optimal for environmental sustainability. Life cycle assessment was conducted to quantify and compare several recovery technologies and business models with primary data collected from industry. Optimizing the reverse logistics is a critical next step.

Monday, 11:30 AM - 12:30 PM

Invited Session

905 Monday, 11:30 AM - 12:30 PM, 3- POMS Tutorials   Track: All POMS Invited Tutorials
Invited Session: Quantum and Quantum-Inspired Algorithms with Applications
Chair(s): George Shanthikumar

101-2114   Quantum and Quantum-Inspired Algorithms with Applications

Sridhar Tayur, Professor, Carnegie Mellon University, United States

An accessible introduction to quantum computing tailored for an OM audience, using non-linear integer optimization as the hook, I will cover (a) quantum annealing (b) D-Wave (c) Ising models (d) Graver Test-set for optimization (e) quantum-inspired (classical) algorithm for QAP, QSAP and (f) finance and cancer genomics applications.

Contributed Session

908 Monday, 11:30 AM - 12:30 PM, Covid-19 & Other Pandemics   Track: Covid-19 and Other Pandemics

Contributed Session: Forecasting

Chair(s): Dian Huang

101-2371   A Framework for Applying Demand Forecasting Approaches Post COVID-19

Godwin T, Professor, IIM Tiruchirappalli, India

COVID-19, an unknown and unexpected causal factor became the causal factor for demand forecasting in the future. This study proposes a framework for staggered implementation of forecasting methods based on the time period that has elapsed post-COVID in a context where pre-COVID historical data may not be relevant immediately.

101-2466   Calibrating Sales Forecast in a Pandemic Using Online Non-Parametric Regression Model

David Simchi-Levi, Professor, Massachusetts Institute of Technology, United States
Rui Sun, Student, Massachusetts Institute of Technology, United States
Michelle Wu, Post Doc/Researcher, Massachusetts Institute of Technology, United States
Ruihao Zhu, Student, MIT, United States

Motivated by our collaboration with AB InBev, a consumer packaged goods company, we consider the problem of forecasting sales under the COVID-19 pandemic. Our approach combines online learning and pandemic modeling to develop a data-driven online non-parametric regression method.

101-2844   Forecasting Automobile Consumer Demand Post COVID-19

Zhaofang Mao, Professor, Tianjin University, China
Dian Huang, Student, Tianjin Uinversity, China
Kan Fang, Associate Professor, Tianjin Univercity, China
Subodha Kumar, Professor, Temple University, United States
Meishan Zhang, Associate Professor, Tianjin Univercity, China

Covid-19 has affected the automobile market severely and made traditional demand forecasting models invalid. To address this issue, we show that consumer behavior has changed significantly using data mining analysis, then propose a boosting method to accurately predict consumer demand with social-media information, and provide important implications for automobile manufacturers.

Invited Session

909 Monday, 11:30 AM - 12:30 PM, Economic Models in OM   Track: Economic Models in Operations Management

Invited Session: Strategic implications of firms' intra- and inter-channel relationship

Chair(s): Xin Geng   Xiaomeng Guo

101-2197   How to Improve Capacity Availability via Cooperation?

Felix Papier, Professor, ESSEC Business School, France
Vinay Ramani, Associate Professor, IIM Visakhapatnam, India

How can a capacity-constrained-firm tap into the unused capacity of its competitor to attract new customers? Considering the example of Indian Railways, we present a game-theoretic model of this setting, derive equilibrium strategies, and show that such a cooperation may lead to a win-win situation for all the players.

101-2486   Open Slots: An Economics Analysis of Sponsored Listings on E-tailing Platforms

Xiangjing Chen, Student, W.P. Carey School of Business, United States
Yimin Wang, Associate Professor, Arizona State University Tempe, United States
Scott Webster, Professor, Arizona State University Tempe, United States

We investigate the merits of alternative revenue models: ads only, commission only, and commission plus ads. Interestingly, the use of commission plus ads is not always the most profitable. We identify the characteristics of settings where each revenue model dominates.

101-0250   Do Customers and Workers Benefit from Competition among On-Demand Service Platforms?

Saif Benjaafar, Professor, University of Minnesota, United States
Shihong Xiao, Post Doc/Researcher, University of Minnesota, United States
Xiaotang Yang, Student, University of Minnesota, United States

We study the effect of competition among on demand service platforms. We compare equilibrium outcomes in the monopoly system, centralized system and duopoly system. We find that customers and drivers may not always benefit from competition. We provide intuitions and managerial implications.

Invited Session

911

Monday, 11:30 AM - 12:30 PM, Emerging Topics in OM   Track: Emerging Topics in Operations Management

Invited Session: Panel Debate - Platforms Commerce and Operations

Chair(s): Bart MacCarthy

101-2001   Panel Debate - Platforms Commerce and Operations

Bart MacCarthy, Professor, University of Nottingham, United Kingdom
Dmitry Ivanov, Professor, Berlin School of Economics and Law, Germany
Geoffrey Parker, Professor, Dartmouth College, United States
Sabine Baumann, Professor, Jade University, Germany

Platform commerce is fundamentally changing competition by lowering search costs, reducing intermediation and information asymmtery, and efficiently matching supply with demand. The impact on sectors such as transportation, hotels, and retail are well known. The impact for operations is less explored. The panel will present and debate the issues.

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Invited Session

912

Monday, 11:30 AM - 12:30 PM, Empirical Research in OM   Track: Empirical Research in Operations Management

Invited Session: Empirical Research in Retail Operations

Chair(s): Hyun Seok (Huck) Lee

101-0793   How Local Economic Factors Affect the Liquidation Value of Retail Inventory

Nathan Craig, Assistant Professor, Ohio State University, United States
Ananth Raman, Professor, Harvard University, United States

Liquidation value of inventory is a component of numerous theoretical models; nonetheless, few studies of liquidation outcomes exist. We test liquidation theory in the context of retailing. The data comprise the results of over 2,000 store liquidations. We find that liquidation values vary with local conditions, including sentiment and income.

- -

101-1423   The Effect of Offering Additional Fulfillment Options

Chloe Glaeser, Assistant Professor, Kenan-Flagler Business School, United States
Ken Moon, Assistant Professor, The Wharton School, United States
Xuanming Su, Professor, University of Pennsylvania, United States

We partner with an online grocery retailer to answer the practice-based question of the optimal mix of delivery zones and fulfillment options using data-driven analytics. We investigate how consumers respond to the locally tailored fulfillment options made available to them by the online grocer.

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101-0957   When Do Group Incentives for Retail Store Managers Work? Importance of Geographical Proximity

Hyun Seok (Huck) Lee, Assistant Professor, Oregon State University, United States
Saravanan Kesavan, Associate Professor, University of North Carolina Chapel Hill, United States
Camelia Kuhnen, Associate Professor, Kenan-Flagler Business School, United States

Using data from 75 stores of a retail chain that changed incentive for store managers, we examine the impact of group incentives for retail store managers on store performance and the moderating role of geographical proximity among stores.

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Invited Session

913

Monday, 11:30 AM - 12:30 PM, Finance & OM   Track: Finance and Operations Management

Invited Session: Applications of Supply Chain Finance

Chair(s): Qiaohai Hu   Qiaohai Hu

101-1012   The effects of supply chain financing on supplier payments

Yiyi Fan, Lecturer, Lancaster University, United Kingdom
Fang Li, Post Doc/Researcher, University of Oxford, United Kingdom
Mark Stevenson, Professor, Lancaster University, United Kingdom
Shantanu Banerjee, Professor, Lancaster University, United Kingdom

Using a large dataset, we evaluate whether supply chain financing (SCF) leads to quicker supplier payments and examine the role of e-invoicing in leveraging SCF. We show, for example, that firms using SCF and e-invoicing have longer payment terms and unpack the reasons behind this arguably counter-intuitive phenomenon.

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101-1587   Value of Reverse Factoring in Multi-stage Supply Chains

Fehmi Tanrisever, Associate Professor, Faculty of Business Administration, Turkey
Matthew reindorp, Associate Professor, University of Maryland, United States
Jan Fransoo, Professor, Tilburg University, Netherlands

We consider a two-stage supply chain where a large corporate customer procures from a credit-constrained small or medium-sized supplier. In this setting, we examine how application of reverse factoring can influence the operational and financial decisions of the firms and create value.

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101-0937   Supply Chain Capacity Investment and Debt Financing

Qiaohai (Joice) Hu, Assistant Professor, University of Missouri St Louis, United States

A supplier often under-builds capacity for its buyer because supply chain partners cannot commit ex ante to firm future trade terms through court-enforceable contract terms. This paper studies how the supplier's capital structure affects its capacity investment and thereby the supply chain efficiency.

Invited Session

915

Monday, 11:30 AM - 12:30 PM, Healthcare Analytics   Track: Healthcare Analytics

Invited Session: Improving healthcare delivery

Chair(s): Karthik V. Natarajan

101-1467   Designing Safe and Scalable Precision Medicine Supply Chains: Evaluating the Impact of Clinical Guidelines

Jingwen Yang, Student, University of Minnesota, United States

Anant Mishra, Associate Professor, University of Minnesota, United States

Kingshuk Sinha, Professor, University of Minnesota, United States

Given the documented challenges of integrating precision medicine-based care into routine clinical practices, we empirically examine the impact of CPIC guidelines, providing personalizing drug prescriptions, on enabling safe and scalable precision medicine supply chains. The analysis is based on a sample of 26 FDA approved psychiatric precision medicines.

101-2251   Designing a quality measure for birth delivery

Anna Streichhardt, Student, Texas State University, United States

Emily Zhu, Assistant Professor, Texas State University, United States

Precise health status can provide healthcare professional objective criteria. However, it is challenging to quantify health status with multiple observational health metrics. We design a health quality measurement for birth delivery which includes the health of mothers and newborns using a latent variable model to quantify health.

101-1346   The Effect of Standardization on Hospital Performance

Anand Bhatia, Student, Kenan-Flagler Business School, United States

Jayashankar Swaminathan, Professor, University of North Carolina Chapel Hill, United States

We study the impact of standardization of care on hospital outcomes. Using patient-level panel data we examine the standardization of procedural care of similar patients for all inpatient visits across multiple departments and hospitals. Our results show standardization increases quality and decreases both cost and variation in quality.

Invited Session

916

Monday, 11:30 AM - 12:30 PM, Healthcare OM 1   Track: Healthcare Operations Management

Invited Session: Capacity Management in Healthcare

Chair(s): Nan Liu   Christos Zacharias

101-0016   Surgical Case-Mix and Discharge Decisions: Does Within-Hospital Coordination Matter

Hessam Bavafa, Assistant Professor, University of Wisconsin-Madison, United States

Lerzan Ormeci, Associate Professor, Koc University, Turkey

Sergei Savin, Professor, University of Pennsylvania, United States

Vanitha Virudachalam, Assistant Professor, University of Illinois Urbana-Champaign, United States

We study the problem faced by a hospital that controls patient inflows via the case-mix of elective procedures and patient outflows via discharges. We analyze the impact of these decisions on the utilization of ORs and recovery beds. We assess the benefit of coordinated decision-making when compared to decentralized approaches.

101-1905   Coordinated Care for Mental and Physical Health

Sandeep Rath, Assistant Professor, University of North Carolina Chapel Hill, United States

Jayashankar Swaminathan, Professor, Kenan-Flagler Business School, United States

Charles Coleman, Professor, University of North Carolina Chapel Hill, United States

Clinical trials have demonstrated the benefits of coordinating treatment of mental health and physical conditions. However, sustainability of coordinated care outside trial settings has not been fully demonstrated. We propose a mathematical optimization model which would optimize care management plans to improve patient outcomes and resource utilization.

101-0244   Managing Outpatient Care with Strategic Walk-ins

Nan Liu, Associate Professor, Boston College, United States

Willem Van Jaarsveld, Assistant Professor, Eindhoven University of Technology, Netherlands

Shan Wang, Assistant Professor, Sun Yat-sen University, China

Guanlian Xiao, Student, tu/e, China

In outpatient care, patients may choose to book an appointment or walk in for service directly, depending on their health conditions and the utility of each option. We discuss how an outpatient care provider should design and manage her appointment scheduling system taking into account such strategic behavior of patients.

Invited Session

917

Monday, 11:30 AM - 12:30 PM, Healthcare OM 2

Track: Healthcare Operations Management 2

Invited Session: Strategic Issues in Healthcare OM

Chair(s): David Dobrzykowski

101-2297   Ancillary Cost Implications of Physicians Multisiting and Organizational Boundary Spanning during Healthcare Delivery

Yingchao Lan, Assistant Professor, University of Nebraska Lincoln, United States

Deepa Wani, Assistant Professor, Georgia State University, United States

Aravind Chandrasekaran, Associate Professor, Ohio State University, United States

In this research, we examine the role of individual boundary spanners, namely multisiting physicians, who practice at more than one hospital, in reducing ancillary cost. We also look at how organizational boundary spanning abilities measured by the hospital's affiliation in an accountable care organization (ACO) model affect this relationship.

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101-2381   Local Physician Practice Migration and Changes in Practice Style

Gary Young, Professor, Northeastern University, United States

E. David Zepeda, Associate Professor, Boston University, United States

Much interest exists in identifying strategies for changing physician practice style as research demonstrates that many physicians practice in a way that is not aligned with the best available scientific evidence. We tracked physician migrations to new practice settings over 8 years to assess changes in practice style.

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101-2299   The effects of structural regulation and complexity on hospital operations

Jonathan Phares, Student, University of Arkansas, United States

David Dobrzykowski, Associate Professor, University of Arkansas, United States

Brian Fugate, Associate Professor, University of Arkansas - Fayetteville, United States

We examine the effects of certificate of need (CON) regulation and case mix index (CMI) on hospital cost and quality performance. Using econometric models and a unique data set from multiple sources, we find CMI intensifies the relationship between CON and cost but has limited impact on the CON -quality relationship.

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Contributed Session

918

Monday, 11:30 AM - 12:30 PM, Humanitarian Ops & Crisis Mgmt 1

Track: Humanitarian Operations and Crisis Management

Contributed Session: Social Media Applications

Chair(s): Mohammad Moshtari

101-0203   Understanding Crisis Through Social Media

Kevin Burnard, Assistant Professor, Western Connecticut State University, United States

This study aims to develop a topology of crisis events through the analysis of social media data. Based on data captured during four large-scale disasters (Egypt Air Crash, Hurricane Irma, Otto, Dorian), the constituent elements of a crisis are identified. A timeline for disaster and response activities is then developed.

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101-1030   Leveraging Social Media to Manage Influenza Pandemics

Sameer Kumar, Professor, Opus College of Business, United States

Muer Yang, Associate Professor, Opus College of Business, United States

Charu Chandra, Professor, College of Business, United States

Social media has been used for forecast and surveillance of influenza pandemics among population. We argue that social media can facilitate higher vaccination rates and encourage more people to take preventive measures during influenza season. We study the effectiveness of using social media to manage influenza pandemics using SEIR-V model.

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101-2355   Intended and Unintended Consequences of Social Media in Humanitarian Operations

Mohammad Moshtari, Assistant Professor, Tampere University, Finland

Paulo Goncalves, Associate Professor, University of Lugano, Switzerland

Amin Maghsoudi, Post Doc/Researcher, Hanken School of Economics, Finland

This study suggests that the use of social media benefits operational aspects of humanitarian operations but the dissemination of unverified and outdated information, emphasis on rapid service delivery, and negative and exaggerated claims about the performance of established humanitarian organizations have detrimental effects on humanitarian response activities.

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Invited Session

920

Monday, 11:30 AM - 12:30 PM, Information Systems & OM 1

Track: Information Systems and Operations Management

Invited Session: Digital Platforms and Markets

Chair(s): Shun Ye

101-1353   Comparing Open to Sealed Procurement Auction: Evidence from a Natural Experiment in Online Labor Market

Chenhui Guo, Assistant Professor, Michigan State University, United States

Qiang Gao, Assistant Professor, City University of New York, United States

Mingfeng Lin, Associate Professor, Scheller College of Business, United States

This research studies the effects of auction format change from open to sealed by exploring a natural experiment in online labor market. The findings show that bidders become more aggressive after the regime change, bidding less and earlier. As a consequence, the job matching and completion rates are both increased.

101-1750   The Impact of Crime on the Sharing Economy in Urban Areas

Inkyu Kim, Student, Michigan State University, United States

Chenhui Guo, Assistant Professor, Michigan State University, United States

Anjana Susarla, Associate Professor, Michigan State University, United States

We examine the impact of crime on demand and supply for the sharing economy in urban areas. We are interested in how features of the sharing economy associated with deterrence on crime moderate some of the negative externalities of crime and how the relationship varies at census-tract level.

101-2840   Team Alliance Strategies in Crowdsourcing Platforms

Sina Zare, Assistant Professor, Arkansas State University, United States

Samaneh Samiee, Student, College of business, UTA, United States

Various factors play crucial roles in team alliance that may originate from the tendency to work with those who have similar technical backgrounds. On the contrary, the lack of specific expertise may initiate alliance and collaboration across teams. This study investigates alliance strategies and motivations in crowdsourcing platforms.

Invited Session

928

Monday, 11:30 AM - 12:30 PM, Procurement & Supplier Management   Track: Procurement and Supplier Management

Invited Session: Multi-tier sustainable supply chain management I

Chair(s): Chee Wong

101-0050   Social Impact Supply Chain Management: Future Directions

Madeleine Pullman, Professor, Portland State University, United States

Davide Luzzini, Associate Professor, Eada Business School , Spain

Annachiara Longoni, Assistant Professor, Esade Business School, Spain

Social impact supply chain management considers supply chain strategies and mechanisms adopted by a social enterprise as the focal actor. Increasingly, these unique hybrid organizations and their supply chain management offer research opportunities. In this paper, we present a summary of existing themes and research questions for the future.

101-2614   Cascading Sustainability in Multi-tier Supply Chains:When do Chinese Suppliers Adopt Sustainable Procurement?

Miriam Wilhelm, Associate Professor, University of Groningen, Netherlands

Veronica Villena, Assistant Professor, Penn State University University Park, United States

The paper investigates the role of first-tier suppliers in "cascading" global brands' sustainability requirements to second-tier suppliers. We investigate the individual and joint effects of first-tier suppliers' sustainability attributes and dyadic factors that facilitate cascading through first-tier suppliers' adoption of sustainable procurement.

101-0340   Greening Behaviours among Supply Chain Employees: Building Theory From Five Case Studies

Savita Verma, Post Doc/Researcher, Lancaster University, United Kingdom

Chee Wong, Professor, Leeds University, United Kingdom

Case studies of five firms are investigated to build a framework of the factors necessary to promote proactive greening behaviours among supply chain employees. Semi-structured interviews of 24 employees reveal their greening behaviours (proactive versus compliance), motivations, sense of responsibility and supporting organisational factors.

Invited Session

929

Monday, 11:30 AM - 12:30 PM, Product Innovation & Technology Mgmt   Track: Product Innovation and Technology Management

Invited Session: Product Line Planning and Development under Uncertainty

Chair(s): Sreekumar Bhaskaran

101-0964   Screening in Complex Contests

Sina Moghadas Khorasani, Student, University of California San Diego, United States

Lakshminarayana Nittala, Assistant Professor, University of Dayton, United States

Vish Krishnan, Professor, University of California San Diego, United States

Innovation contests, despite their potential to benefit solution-seeking firms, face challenges. To address the lack of engagement and encouragement faced by solvers, we propose the use of screening in complex contests which encourages contestant effort for solving complex problems and also helps to manage the competition among them.

101-1356   Product Line Decisions in Multi-sided Platforms

Abhishek Roy, Assistant Professor, Temple University, United States

Edward Anderson, Professor, University of Texas Austin, United States

Geoffrey Parker, Professor, Dartmouth College, United States

We examine the product line decision made by a multi-sided platform for its interface, which is used by consumers to access products offered by third-party sellers. More interfaces help the platform differentiate between consumers, but may adversely affect the sellers. We study both monopolist and competing platforms.

- -

101-2547   The Impact of Narrow Framing, Overconfidence, and Overprecision on Entrepreneurial Product Development

Janne Kettunen, Associate Professor, George Washington University, United States

Shivraj Kanungo, Associate Professor, George Washington University, United States

We investigate how entrepreneurs' narrow framing, overconfidence, and overprecision impact new product development. We show how the biases impact the (i) likelihood of pivoting from the initiated product and (ii) type of entrepreneurs that venture capitalists with different risk aversion would prefer to invest in.

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Invited Session

931	Monday, 11:30 AM - 12:30 PM, Retail Operations Track: Retail Operations Invited Session: Retail assortment planning Chair(s): Olga Pak

101-0145   The spillover effects on grocery store check-out productivity

Hyun Seok (Huck) Lee, Assistant Professor, Oregon State University, United States

Guanyi Lu, Assistant Professor, Florida State University, United States

Junbo Son, Assistant Professor, University of Delaware, United States

Using a scanner data set from a middle-sized retail chain, we examine how cashier's productivity level affects other cashiers' performance. We further extend our analysis to the "team" level and explore if existence of "super-star" will produce positive effects on overall team performance.

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101-0164   Omni-channel Assortment, Shelf-Space and Inventory Optimization with Substitution and Space-Elasticity Demand

Jonas Hense, Student, Technische Universitat Munchen, Germany

Alexander Hübner, Professor, Technische Universitat Munchen, Germany

Driven by customer needs, retailers make omni-channeling an essential part of their value proposition. To meet omni-channel customer demand, retailers need to integratively define assortments cross-channel. A Newsvendor-based profit model is formulated that optimizes assortment and inventory under stochastic, space-elastic demand and out-of-assortment and out-of-stock substitution within and between channels.

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101-1873   Estimating Consumer Decision Trees Using Aggregate Sales Data Without Identified Customers

Olga Pak, Assistant Professor, Penn State University University Park, United States

Mark Ferguson, Professor, University of South Carolina, United States

Olga Perdikaki, Associate Professor, University of South Carolina, United States

Su-Ming Wu, Scientist, Oracle, United States

Limited attention exists on developing algorithms that allow to generate, analyze, and test theoretically driven but data-informed decision trees. Our study utilizes demand structures extracted from retail scanner data and tests dynamic hierarchies of consideration choices as decision trees.

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Invited Session

932	Monday, 11:30 AM - 12:30 PM, Revenue Management & Track: Revenue Management and Pricing Pricing Invited Session: Platform Revenue Management I Chair(s): Yao Cui

101-0185   Autonomous Vehicle Market Design

Zhen Lian, Student, Cornell University, United States

Garrett van Ryzin, Professor, Cornell Tech; Lyft, Inc., United States

We analyze a model of autonomous vehicle (AV) ride hailing markets in in which uncertain aggregate market demand can be served using a combination of a fixed fleet of AVs and human driver contractors. The market outcome is examined for different levels of competition and market designs.

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101-0226   Dimensioning On-demand Vehicle Sharing Systems

Saif Benjaafar, Professor, University of Minnesota, United States

Shining Wu, Assistant Professor, The Hong Kong Polytechnic University, Hong Kong

Hanlin Liu, Assistant Professor, South China University of Technology, China

Einar Gunnarsson, Student, University of Minnesota, United States

We consider the problem of optimal fleet sizing in an on-demand vehicle sharing system. We model the system as a closed queueing network and obtain a closed form approximation of the number of vehicles needed to meet a target service level. The approximation is remarkably accurate and highly interpretable.

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101-0297   Should Gig Platforms Decentralize Dispute Resolution?

Wee Kiat Lee, Student, Cornell University, United States

Yao Cui, Assistant Professor, Cornell University, United States

Dispute can occur in online labor platforms because of participant's attempts to game the system or misunderstanding of objectives. We examine both the centralized dispute resolution system used by traditional platforms and the decentralized dispute resolution system proposed by emerging platforms, and show that the decentralized system can perform better.

Invited Session

934

| Monday, 11:30 AM - 12:30 PM, Service Operations | Track: Service Operations |

Invited Session: Policy Design and Process Design in Service OM

Chair(s): Aaron Bonnett

101-1177 Enhancement of service reliability via failure modes and effects analysis

Jacob Simons Jr, Professor, Georgia Southern University, United States

Service recovery can mitigate the damage caused by service failures that have already occurred. But to achieve quality at the source, we prefer to prevent potential failures. Borrowing from the design of military aircraft, we explain how this can be facilitated using failure modes and effects analysis.

101-1178 Name that process: the blueprint of a dysfunctional, large-scale, multi-agent service delivery process

Jacob Simons Jr, Professor, Georgia Southern University, United States

We describe a large-scale service process in which multiple agents pursue differing objectives. The blueprint reveals threats to effectiveness and efficiency resulting from communication disconnects and sub-optimization. To facilitate identification of similar processes and to provide entertainment, attendees will have chances to identify the process before its revelation.

101-0273 The Effects of Midlevel Providers on Health Care Cost and Quality

Aaron Bonnett, Student, Texas A&M University College Station, United States

This study aims to add to the literature on cost savings for hospitals, by investigating whether or not hiring mid-level practitioners, such as physician assistants (PAs) and nurse practitioners (NPs), help to reduce hospital cost while maintaining or improving quality.

Invited Session

938

| Monday, 11:30 AM - 12:30 PM, Supply Chain Management | Track: Supply Chain Management |

Invited Session: Student Best Paper Competition of the College of Supply Chain Management Session II

Chair(s): Retsef Levi   Xiajun Pan

101-2908 Store Brand Introduction and Multilateral Contracting

Hongseok Jang, Student, University of Florida, United States

Quan Zheng, Associate Professor, University of Science and Technology of China, China

Xiajun Pan, Assistant Professor, University of Florida, United States

We study whether a retailer should introduce a store brand (SB) and its impact on multilateral contracting with two national brand manufacturers (NBM). Although simultaneous contracting benefits the retailer without SB, SB presence could lead to a co-opetition behavior between the NBM such that the retailer would prefer sequential contracting.

101-2909 Fulfillment by Platform: Antitrust and Upstream Market Power

Amandeep Singh, Student, The Wharton School, United States

Jiding Zhang, Student, The Wharton School, United States

Senthil Veeraraghavan, Professor, University of Pennsylvania, United States

Fulfillment by Platform has been adopted by many e-commerce sellers. We examine whether the mere adoption of fulfillment services affects competition in the upstream markets among sellers. Using data from a leading online retailing marketplace we find that the adoption of fulfillment by the platform can hurt upstream market competition.

101-2910 Contingent Free Shipping: Drivers of Bubble Purchases

Sahar Hemmati, Student, Robert H. Smith School of Business, United States

Wedad Elmaghraby, Professor, Robert H. Smith School of Business, United States

Ashish Kabra, Assistant Professor, University of Maryland - College Park, United States

Nitish Jain, Assistant Professor, London Business School, United Kingdom

In this paper we empirically estimate how contingent free shipping policies, where orders surpassing a threshold are shipped for free, induce shoppers to pad their orders (increase order size to avoid paying shipping charges) and engage in bubble purchases (padded orders with above par return propensity).

Invited Session

939

| Monday, 11:30 AM - 12:30 PM, Supply Chain Risk Management | Track: Supply Chain Risk Management |

Invited Session: Managing Supply Risk

Chair(s): Burcu Tan Erciyes   Gokce Esenduran

101-2656   Inventory Management under Catastrophic Risk

Canan Gunes Corlu, Associate Professor, Boston University, United States
Enver Yucesan, Professor, INSEAD, France
Bahar Biller, Senior Scientist, Sas Institute, United States
Elliot Wolf, NA, Chemours, United States

We evaluate stocking decisions in the presence of operational disruptions. We combine the newsvendor model capturing demand uncertainty costs with catastrophe models capturing not only the cost of supply disruption, but also the cost of recovery, to obtain insights for managing inventory in a supply chain under disruption risk.

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101-1056   The Value of Supply Chain Disruption Duration Information

Mili Mehrotra, Associate Professor, University of Illinois, United States
William Schmidt, Assistant Professor, Cornell University, United States

We develop an analytical model to examine the impact of the disruption based on a firm's optimal response given the available information about disruption duration. We use this model to quantify the value of disruption duration information, and to identify characteristics of the disruption that influence the value of information.

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101-0049   Beyond Retail Stores: Managing Product Proliferation Along the Supply Chain

Florian Lucker, Assistant Professor, Cass Business School, United Kingdom
Isik Bicer, Assistant Professor, York University, Canada
Tamer Boyaci, Professor, ESMT Berlin, Germany

We consider a multi-echelon and multi-product newsvendor problem with demand forecast evolution to analyze the value of operational levers that create responsiveness and efficiency. Our research indicates that delaying the proliferation may cause a loss of profit even if it can be achieved with no additional cost.

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Invited Session

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941 | Monday, 11:30 AM - 12:30 PM, Sustainable Operations 1   Track: Sustainable Operations
| Invited Session: Editors' Panel: Sustainable Operations
| Chair(s): Brian Jacobs

101-2068   Editors' Panel on Sustainable Operations

Brian Jacobs, Associate Professor, Pepperdine University, United States
Charles Corbett, Professor, UCLA Anderson School of Management, United States
Mark Ferguson, Professor, University of South Carolina, United States
Gilvan Souza, Professor, Indiana University Bloomington, United States
Michael Galbreth, Professor, University of Tennessee Knoxville, United States
Robert Klassen, Professor, Ivey Business School, Western University, Canada
Beril Toktay, Professor, Georgia Institute of Technology, United States

In this panel session, editors from the leading OM journals will discuss research trends, opportunities, and challenges they see in the field of sustainable operations.

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Contributed Session

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943 | Monday, 11:30 AM - 12:30 PM, Teaching/Pedagogy in POM   Track: Teaching/Pedagogy in POM
| Contributed Session: Workshop: Contemporary Pedagogy in Project and Supply Chain Management Courses: An Intr
| Chair(s): Seth Powless

101-2344   Learn-By-Doing Approaches in Project and Supply Chain Management Courses

Seth Powless, Lecturer, Penn State University Erie, United States
Sarah Sengupta, Assistant Professor, St.Cloud State University, United States

Learn-by-Doing (LBD) pedagogy appeals to today's business students because of its applicability to career pathways. LBD activities promote greater student learning assessment, retention, and satisfaction. This interactive workshop will discuss LBD research and practices including offering suggestions and approaches to implementing LBD curricula. Practical examples will be shared and disseminated.

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Invited Session

945

Monday, 12:45 PM - 01:45 PM, 2- Meetings & Programs - All are Welcome

Track: All Meetings & Programs A: Open to Everyone

Invited Session: Meet the POM Journal Editors

Chair(s): Subodha Kumar

101-2121   Meet the POMS Journal Editors

Subodha Kumar, Professor, Temple University, United States

The Production and Operations Management Journal's departmental editors and the editor-in-chief will be here to meet conference participants in order to discuss any publication issues. All are welcome.

Monday, 02:00 PM - 03:00 PM

Invited Session

987

Monday, 02:00 PM - 03:00 PM, 3- POMS Tutorials

Track: All POMS Invited Tutorials

Invited Session: Discrete Convex Analysis and Its Applications in Operations

Chair(s): George Shanthikumar

101-2110   Discrete convex analysis and its applications in operations

Xin Chen, Professor, Industrial & Systems Engineering, United States

Discrete convex analysis provides a powerful framework to analyze and solve various operations models. In this tutorial, I will introduce several key discrete convexity concepts and their fundamental properties. I will then illustrate how they can be used on applications in inventory management and appointment scheduling to bike sharing.

Contributed Session

989

Monday, 02:00 PM - 03:00 PM, Behavior in OM

Track: Behavior in Operations Management

Contributed Session: Operations and HR/OB Interface

Chair(s): Michela Carraro

101-2696   The actual compensation practices and impacts on organizational strategy under human resources manager perception

ISABEL SANTOS, Student, UNIVERSIDADE ESTACIO DE SA, Brazil

Annibal Scavarda, Associate Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil

ANA DIAS, Student, CEFET, Brazil

Thierry Roques, Professor, Kedge Business School, France

Xu xiabo, Professor, International Business School Suzhou, Xi'an Jiaotong-Liverpool University, China

Companies dispute hard competitions considering technological innovation, process improvement, qualified employees, managed and paid efficiently. Thus, the goal of this research, up to interview, is to describe compensation practices adopted by companies and perceptions of alignment between the practice of compensation and its integration with the organizational strategy.

101-0999   To what extent does human resources management affect new product development success? A meta-analysis

Jian Qin, Student, Nyenrode Business University, Netherlands

Bo Van Der Rhee, Professor, Nyenrode University, Netherlands

Melanie De Ruiter, Associate Professor, Nyenrode University, Netherlands

This paper implements a meta-analysis based on 103 studies to determine to what extent the ability-motivation-opportunity (AMO) HR practices affect NPD success, and to what extent social capital and human capital mediate this relationship, we also explore moderating effects such as research design, national culture, and market characteristics.

101-2408   Behind Worker Perceptions Accuracy: The Role of Work Environment and Cognitive-Motivational States in Operations

Michela Carraro, Student, University of Padova, Italy

Andrea Furlan, Professor, Padova University, Italy

Understanding teamwork requires looking at its microfoundations: human actions are indeed driven by individual perceptions over task and team requirements. In this paper, we employ a vertical dyad linkage model to investigate the role of work environment and cognitive-motivational states as antecedents for the accuracy of shop floor employees' perceptions.

Contributed Session

990

Monday, 02:00 PM - 03:00 PM, Covid-19 & Other Pandemics

Track: Covid-19 and Other Pandemics

Contributed Session: Healthcare Capacity/ Supply chain 1

Chair(s): Reza Zanjirani Farahani

101-2424   Resilience of the healthcare supply chain during the COVID-19 pandemic

Maximilian Gebhardt, Student, Friedrich-Alexander Universitat Erlangen-Nurnberg, Germany
Alexander Spieske, Student, University Erlangen-Nuremberg, Germany
Matthias Kopyto, Student, University Erlangen-Nuremberg, Germany
Hendrik Birkel, Student, University Erlangen-Nuremberg, Germany

COVID-19 posed unprecedented challenges to healthcare supply chains. We present empirical evidence from a multi-tier case study spanning medical supply manufacturers and hospitals. Based on the resource dependence theory, we conduct 37 semi-structured interviews and derive ten propositions on buffering and bridging strategies for strengthening resilience in a pandemic.

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101-2316   The Impact of the Covid-19 Pandemic on the United States Hospital Supply Chain

Serina Al-Haddad, Assistant Professor, Rollins College, United States
Louise Riviere, Student, Rollins College, United States

Covid-19 pandemic threats severely impacted the global economic stability as well as human lives. Such threats had a significant impact on hospitals' supply chain management and their perception of equipment inventory. This research investigated the problems and changes that occurred in the hospitals' supply chain in the U.S.A. in 2020.

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101-2411   Optimal Configuration of Patient Transfer and Care Facilities in the COVID-19 Pandemic

Navid Izady, Senior Lecturer, City University - London, United Kingdom
Reza Zanjirani Farahani, Associate Professor, Kingston University London, United Kingdom

We investigate care delivery in ICUs of a hospital network dealing with two types of patients: Covid-19 and non-Covid-19. We examine whether each hospital should be dedicated to one patient type or both. Using analytical and numerical methods and real data, we extract insights to indicate appropriate capacity utilization strategies.

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Invited Session

991   Monday, 02:00 PM - 03:00 PM, Economic Models in OM   Track: Economic Models in Operations Management

Invited Session: OM and Marketing Interface

Chair(s): Xiajun Pan   Quan Zheng

101-1179   Probabilistic Capacity Allocation in Ride-Hailing Platforms

Di Wu, Student, Xi'An Jiaotong University, China
Gang Li, Professor, Xi'An Jiaotong University, China
Xiajun Pan, Assistant Professor, University of Florida, United States

Motivated by Didi's unique practice allowing consumers simultaneously calling for difference riding services, we consider the impact of probabilistic capacity allocation (PCA) on the drivers and riders in a ride-haling platform. Surprisingly, we find that PCA may increase competition in driver-side and congestion in rider-side but benefit both sides.

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101-2483   The Role of Dealer Demonstration in the Adoption of Electric Vehicles

Vishal Agrawal, Associate Professor, Georgetown University, United States
Ioannis Bellos, Associate Professor, George Mason University, United States
Hang Ren, Assistant Professor, George Mason University, United States

An important reason for customers' hesitation to adopt electric vehicles is that they are unsure about the achievable range as it depends on driving conditions realized post-purchase. To address it, car dealers can offer demonstration services. We study a dealer's optimal demonstration strategy and its environmental impact.

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101-1085   Agency or Wholesale? The Role of Retail Pass-Through

Honggang Hu, Student, University of Florida, United States
Quan Zheng, Associate Professor, University of Science and Technology of China, China
Xiajun Pan, Assistant Professor, University of Florida, United States

Prior studies suggest that e-tailers prefer agency selling to traditional wholesale selling due to channel efficiency. However, in a common e-tailer channel, we discover that the e-tailer's choice of selling format is critically moderated by the relative intensity of supplier competition, driven by retail pass-through behavior and competition mode.

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Contributed Session

994   Monday, 02:00 PM - 03:00 PM, Empirical Research in OM   Track: Empirical Research in Operations Management

Contributed Session: Digital and Smart Operations

Chair(s): Muge Yayla-Kullu

101-2708   Ambidextrous high levels of value delivery and value design processes lever the "Smart digital transformation"

Jose A.D. Machuca, Retired, Universidad De Sevilla, Spain
Michiya Morita, Retired, Gakushuin University, Japan
Antonio-M. Moreno-Moreno, Student, Universidad De Sevilla, Spain

We empirically test and confirm for different sectors, country contexts and company sizes that the use of joint high levels of competencies of supply processes and product development processes in an ambidextrous way drives the implementation of I4.0 (represented by Smart product and Smart factory concepts) Projects:(AEI-PID2019-105001GB-I00)(FEDER-1381039)-(PAIDI- PY20_01209)

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101-2704   Testing drivers of the implementation of Smart Factory and Smart Product in a multi-country database

Michiya Morita, Retired, Gakushuin University, Japan

Jose A.D. Machuca, Retired, Universidad De Sevilla, Spain

Antonio-M. Moreno-Moreno, Student, Universidad De Sevilla, Spain

Based on an international multi-country and multi-sector survey on Industry 4.0, our paper empirically tests and confirms that the competencies of supply processes and product development, which have been designed normatively, can be considered drivers of implementing Smart Factory and Smart Product. Projects:(AEI-PID2019-105001GB-I00)-(FEDER-1381039)-(PAIDI- PY20_01209)

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101-2511   Digital supply chain operation announcements and firm's stock prices

Weihua Liu, Professor, Tianjin Uinversity, China

Jingkun Wang, Student, Tianjin University, China

The essence of digital supply chains is the combination of supply chain management and digitalization. Using a combination of event study and case study, we find that digital supply chain operations announcements of listed companies have a positive effect on company stock prices.

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Contributed Session

995

Monday, 02:00 PM - 03:00 PM, Finance & OM	Track: Finance and Operations Management

Contributed Session: Financing, Contracting and Bankruptcy Prediction

Chair(s): Rudolf Grünbichler

101-2189   Research on Incentive Mechanism under Dual Information Asymmetry in Inventory Financing

Lu Wang, Student, Peking University, China

Lihua Chen, Professor, Peking University, China

Considering moral hazard and adverse selection, we explore how to design the optimal contract to induce third party logistics to improve supervision quality in inventory financing. Three models are established, and the optimal incentive mechanism of three scenarios and corresponding properties are further analyzed.

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101-2250   Effect Of Contingent Wholesale Price Contract On Target And Pledge Amount In Crowdfunding

Joyaditya Laik, Student, University of Pittsburgh, United States

Prakash Mirchandani, Professor, University of Pittsburg, United States

We study a wholesale price contract between an entrepreneur and a supplier that is enforceable if the expected sales quantity is large enough for the supplier to cover a known development cost. The supplier estimates the size of the new product based on a signal received from a crowdfunding.

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101-2688   A systematic literature review on corporate insolvency prevention using selected artificial intelligence algorithms

Rudolf Grünbichler, Student, Graz University of Technology, Austria

Tibor Kezelj, Student, Graz University of Technology, Austria

Volker Koch, Student, Graz University of Technology, Austria

Corporate insolvencies cause enormous damage at both the private and societal level. Artificial intelligence can help by revealing critical areas. In the research topic, we address the status quo on this topic. In a systematic literature review, the application of selected algorithms is investigated.

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Invited Session

997

Monday, 02:00 PM - 03:00 PM, Healthcare Analytics	Track: Healthcare Analytics

Invited Session: Process Improvement in Healthcare

Chair(s): Sriram Venkataraman

101-0241   The Physician Learning Curve For Quality And Cost Outcomes For Congestive Heart Failure Patients

Benjamin Grant, Assistant Professor, Clemson University, United States

Jillian Berry Jaeker, Assistant Professor, Boston University, United States

R. Kannan Mutharasan, Assistant Professor, Northwestern University, United States

Clyde Yancy, Professor, Northwestern University, United States

Jan Van Mieghem, Professor, Northwestern University, United States

We study physician learning for patients with a medically managed disease. While physician learning for procedural healthcare has been studied with consistent results, the evidence of learning for medically managed diseases is mixed. We give evidence that physician learning is present and can reduce poor quality outcomes and costs.

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101-0006   How Continuity in Service Impacts Process Variability: Evidence from a Primary Care Setting

Vishal Ahuja, Assistant Professor, Southern Methodist University, United States

Carlos Alvarez, Associate Professor, Texas Tech University, United States

Bradley Staats, Professor, University of North Carolina Chapel Hill, United States

Process variability plays an important role in service operations. We use a detailed dataset on diabetes patients to empirically quantify the relationship between glycemic variability and (i) health outcomes, (ii) care continuity, where we find a U-shaped relationship. We also estimate the mitigation effects of patients' adherence to medical protocols.

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101-2301   Nonprofit vs. For-Profit: Allocation of Beds and Access to Care in U.S. Nursing Homes

Yangzi Jiang, Student, Northwestern University Kellogg School o, United States

Lauren Lu, Associate Professor, Dartmouth College, United States

Jan Van Mieghem, Professor, Northwestern University, United States

Motivated by empirical observations of U.S. nursing homes, we formulate a queueing network model to study bed allocation decisions and access-to-care for economically disadvantaged populations. We show both analytically and empirically that for-profit nursing homes do not necessarily hurt access-to-care, in fact, under high Medicaid demand, they provide higher access.

Invited Session

998

Monday, 02:00 PM - 03:00 PM, Healthcare OM 1　　　　　Track: Healthcare Operations Management

Invited Session: Telemedicine and Reimbursement Methods in Hospitals

Chair(s): Feng (Susan) Lu

101-2147　　The Impact Of Effort Cost On Healthcare Platform With Heterogeneous Preferences

Fang Wan, Student, University of Rochester, United States

Jagan Jacob, Assistant Professor, Xavier University, United States

We study analytically how conflicting incentives between doctors and hospitals could impact the widespread adoption of telemedicine. We construct a principal-agent model to research the incentive misalignment because of effort costs and the resulting optimal strategies for the principal and agent.

101-0575　　Reverse Cross Subsidization in Healthcare Capitation Programs: Evidence from Medicare Advantage

Zhaowei She, Student, Georgia Tech, United States

Turgay Ayer, Associate Professor, Georgia Tech, United States

Bilal Gokpinar, Professor, University College London, United Kingdom

Risk selection is a common problem in capitation programs, where the payer systematically over and under reimburses certain patient subgroups. This paper provides patient-level evidence on how risk selection is conducted in Medicare Advantage, and empirically shows that risk selection problem cannot be eliminated by pure statistical risk adjustment designs.

101-1470　　Efficient Transition to Post-Acute Care

Jonathan Helm, Associate Professor, Kelley School of Business, United States

Alex Mills, Associate Professor, Baruch College, United States

New payment models are changing the way hospitals arrange for short-stay skilled post-acute care. We show that value-based payment with gainsharing may surprisingly lead patients to be worse off by de-pooling skilled nursing capacity.

Contributed Session

999

Monday, 02:00 PM - 03:00 PM, Healthcare OM 2　　　　　Track: Healthcare Operations Management 2

Contributed Session: Value-based Healthcare & Integration

Chair(s): Urban Wemmerlöv

101-0825　　Implementing Value-Based Health Care At The Provider-Organization Level: Critical Decision Areas And Related Contextual Factors

Mandar Dabhilkar, Associate Professor, Stockholm University, Sweden

Urban Wemmerlöv, Professor, University of Wisconsin Madison, United States

Alexandre Chakhunashvili, Karolinska University Hospital, Karolinska University Hospital, Sweden

We report on field research of value-based health care implementations at the provider-organization level from an operations strategy perspective. The purpose is to propose an operationalized framework of value-based organizational transformations that captures critical decision areas and related contextual factors in the transition towards value.

101-1742　　Vertical Integration and Quality: Evidence from Specialists-Hospital Integration

Lina Song, Assistant Professor, UCL School of Management, United Kingdom

Soroush Saghafian, Assistant Professor, Harvard University, United States

Joseph Newhouse, Professor, Harvard University, United States

Mary Beth Landrum, Professor, Harvard University, United States

John Hsu, Associate Professor, Harvard University, United States

U.S. hospitals and physicians increasingly are consolidating ("vertical integration"). In theory, integration could affect the quality of care by changing the operating strategies of the organizations. We find that integration reduces the care quality of gastroenterologists, driven by lower use of appropriate care. Financial integration does not ensure quality Improvement.

101-2625　　The Effects of Hospital-Physician Integration On Cardiac Surgery Outcomes

Bogdan Bichescu, Associate Professor, University of Tennessee Knoxville, United States

Haileab Hilafu, Assistant Professor, University of Tennessee, United States

Hui Jia, Student, University of Tennessee Knoxville, United States

We measure integration between hospital and cardiovascular surgeons as the fraction of single-site surgeons and evaluate associated effects on patient care outcomes. We find that hospital integration has a U-shape effect on patient outcomes, which have not been evaluated before. Our results provide practical implication to healthcare management.

Invited Session

1000

Monday, 02:00 PM - 03:00 PM, Humanitarian Ops & Crisis Mgmt 1

Track: Humanitarian Operations and Crisis Management

Invited Session: Service Trends in Humanitarian Operations

Chair(s): Joe Viana

101-0249   Collaboration in the field. A behavioural approach

Lea Rüsch, Student, Kuehne Logistics University, Germany
Maria Besiou, Professor, Kuehne Logistics University, Germany
Murat Tarakci, Associate Professor, Erasmus University, Netherlands
Niels Van Quaquebeke, Professor, Kuehne Logistics University, Germany

Our study focuses on barriers and facilitators during Logistics Cluster meetings where aid workers share resources. Based on insights from a case study and a subsequent agent-based simulation, we conclude that (1) the integration of locals and (2) the cluster lead acting as a pure facilitator lead to effective meetings.

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101-2482   A Mutual Catastrophe Insurance Framework for Horizontal Collaboration in Prepositioning Strategic Reserves

Hani Zbib, Post Doc/Researcher, HEC Montréal, Canada
Burcu Balcik, Associate Professor, Ozyegin University, Turkey
Marie-Eve Rancourt Rancourt, Associate Professor, HEC Montréal, Canada
Gilbert Laporte, Professor, HEC Montréal, Canada

We present a mutual catastrophe insurance framework for horizontal collaboration in prepositioning strategic reserves. The insurer offers multi-year insurance contracts to a portfolio of policyholders. The framework encompasses the functions of planning prepositioning, providing insurance coverage from the prepositioning network, managing the insurer's capital, and allocating premiums among policyholders.

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101-2319   Risk, Resilience and Sustainability in Paracetamol Supply Chain Networks: A Norwegian Case Study

Joe Viana, Post Doc/Researcher, BI Norwegian Business School, Norway
Marianne Jahre, Professor, BI Norwegian Business School, Norway
Christine Årdal, Senior Adviser, Norwegian Institute of Public Health, Norway

This supply chain risk management case study investigates the supply resilience of paracetamol in Norway. Simulation models were developed based upon production and distribution network mapping and stakeholder interviews. This case illuminates complex supply systems for everyday essential medicines and provides evidence on strategies to avoid medicine shortages.

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Invited Session

1002

Monday, 02:00 PM - 03:00 PM, Information Systems & OM 1

Track: Information Systems and Operations Management

Invited Session: IT and innovation

Chair(s): Mariana Giovanna Andrade Rojas

101-1037   Power of the Chief Information Officer (CIO) and Firm Performance

Joseph Taylor, Assistant Professor, California State University Sacramento, United States
Jay Sahaym, Student, PHS, Pullman, WA, United States
Om Sahaym, Student, PHS, Pullman, WA, United States
Arvin Sahaym, Associate Professor, Washington State University Pullman, United States

We build on the premise that knowledgeable human actors, namely Chief Information Officers (CIOs), are associated with variation in IT-generated returns. Using insights of 'Power in Organizations' and 'RBV' on cross-industry data with 20,000 year/firm combinations, we find that powerful CIOs generate superior performance particularly when competitive intensity is present.

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101-2556   Blockchain Technology in Temperature-Controlled Maritime Logistics: Opportunities and Challenges

Johannes Schnelle, Student, Hamburg University of Technology, Germany
Amir Yunus, Lecturer, National University of Singapore, Singapore
Meike Schroeder, Lecturer, Hamburg University of Technology, Germany
Robert De Souza, Professor, National University of Singapore, Singapore
Wolfgang Kersten, Professor, Hamburg University of Technology, Germany

End-to-end tracing and real-time reaction are a challenging task in international maritime logistics, leading to process inefficiencies and wasted or contaminated goods. We explore how blockchain could improve the process by providing a decentralized ledger. Blockchain can help to increase service quality by enabling real-time tracking, direct communication, and automation.

- -

101-2597   Is the Supply Chain and Operations Blockchain Plateauing?

Anil Vaidya, Professor, S P Jain Institute of Management & Research, India

Blockchain has been the focus for traceable supply chain and operational efficiency. Walmart uses for supplies of perishable items like fruits and vegetables, Mondelez and Nokia for materials, Maersk and Indian government for efficient operations. There have been predictions about increasing blockchain deployment. However, IBM has pruned blockchain resources.

- -

Invited Session

1010

Monday, 02:00 PM - 03:00 PM, Procurement & Supplier Management

Track: Procurement and Supplier Management

Invited Session: Multi-tier sustainable supply chain management II

Chair(s): Miriam Wilhelm

101-0358 Making sense and communicating sustainability to manage suppliers across multi-tier sustainable supply chains

Kimberly Urbauer, Student, University of Leeds, United Kingdom

Chee Wong, Professor, Leeds University, United Kingdom

Jie Chen, Professor, ????, United Kingdom

How do organizations make-sense of sustainable supply chain management (SSCM), communicate understanding of SSCM through sustainability reporting, and how this understanding affects implementing SSCM across multi-tier supply chains? Through a directed content analysis based on dimensions of sensemaking as identified by Basu and Palazzo, 2008, four stages in the journey.

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101-0364 Depicting the scope of expected and perceived environmental responsibility in multi-tier apparel supply chains

Jacqueline Vater, Student, University of Leeds, United Kingdom

Chee Wong, Professor, Leeds University, United Kingdom

Mark Sumner, Lecturer, University of Leeds, United Kingdom

This research present findings of 34 interviews conducted with representatives (focal firms, upstream suppliers, stakeholders) of apparel supply chains. Findings reveal disparities in perceived and expected scope of environmental responsibility across actors. The initial analysis shows that knowledge, visibility, relational governance factors, and other structural components could cause such differences.

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101-1502 The Effects of Upstream and Downstream Information Exchange and Collaboration on Performance

Chee Wong, Professor, Leeds University, United Kingdom

Christina Wong, Associate Professor, The Hong Kong Polytechnic University, Hong Kong

Sakun Boon-Itt, Associate Professor, Thammasat University, Thailand

Survey data from 448 firms show collaboration across functions and with downstream customers led to environmental, cost and commercial performance while only commercial benefit is created by collaboration with upstream suppliers, and the exchange of operational, strategic and technical environmental information can support collaboration.

- -

Invited Session

1011

Monday, 02:00 PM - 03:00 PM, Product Innovation & Technology Mgmt

Track: Product Innovation and Technology Management

Invited Session: Innovation by Firms, Teams, and Partners

Chair(s): Niyazi Taneri

101-0657 More Investment Less Profit? An R&D Investment Conundrum of A Budget Constrained Firm

Junghee Lee, Assistant Professor, Tulane University, United States

Jingqi Wang, Assistant Professor, University of Hong Kong, Hong Kong

A firm can grow through R&D if it can appropriate enough benefits from its R&D. However, we find that a firm with limited resources for R&D may not obtain enough profits to grow. Furthermore, such a firm may earn smaller profits by investing more. We investigate this R&D investment conundrum.

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101-1180 Data Sharing in Innovations

Zhi Chen, Assistant Professor, National University of Singapore, Singapore

Jussi Keppo, Associate Professor, National University of Singapore, Singapore

Many innovations today are data-driven such as self-driving cars. To improve the algorithms of these products, firms make substantial investments in data collection. However, the data is limited for an individual firm. This paper studies whether data collected by individual firms should be shared in order to promote innovation.

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101-1489 Preference Programs and Performance of R&D Contracts: Evidence from U.S. Federal Government Set Asides Program

Dwaipayan Roy, Student, University of Minnesota, United States

Anant Mishra, Associate Professor, University of Minnesota, United States

Kingshuk Sinha, Professor, University of Minnesota, United States

We examine how the performance of R&D contracts awarded through the Set Asides program differs from that of similar R&D contracts awarded through open competition. We also study how a contract's task type and contractor firm experience affect the relationship between a contract's Set Aside status and its performance.

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Invited Session

1013

Monday, 02:00 PM - 03:00 PM, Retail Operations

Track: Retail Operations

Invited Session: Merchandising Activities in Retail Supply Chains

Chair(s): Oguz Cetin

101-0341 Predicting Retailer Compliance to In-Store Promotional Campaigns Using IoT Data

Jacob Zeng, Student, The University of Texas at Austin, United States

Yannis Stamatopoulos, Assistant Professor, The University of Texas at Austin, United States

Ashish Agarwal, Associate Professor, The University of Texas at Austin, United States

We use data from the adoption of an innovative IoT technology by a brick-and-mortar retailer in the United States to predict retailer compliance to supplier-designed promotional campaigns.

101-1077   Joint In-Season and Out-of-Season Promotion Demand Forecasting in a Retail Environment

Jannik Wolters, Student, Whu - Otto Beisheim School of Management, Germany

Arnd Huchzermeier, Professor, Whu - Otto Beisheim School of Management, Germany

We present a forecasting approach for seasonal, frequently promoted products that generates accurate predictions, can handle a large number of sales series, and requires minimal training data. We compare the forecasting accuracy of our model with popular seasonal promotion demand forecasting models at multiple aggregation levels, demonstrating significant accuracy improvements.

101-0202   Trade Deals and Retail Promotions

Oguz Cetin, Assistant Professor, Kelley School of Business, United States

Ali Parlakturk, Associate Professor, University of North Carolina Chapel Hill, United States

Adam Mersereau, Associate Professor, University of North Carolina Chapel Hill, United States

Manufacturers often provide incentives (trade deals) to induce retailers to feature their own products by displaying and discounting the retail price, but retailer's responses to such incentives differ across products. We study how different manufacturers should design their trade deal offers and how retailers should respond.

Contributed Session

1014	Monday, 02:00 PM - 03:00 PM, Revenue Management & Pricing	Track: Revenue Management and Pricing
	Contributed Session: Platform Revenue Management II	
	Chair(s): Feifan Zhang	

101-1532   Matching Technology and Competition in Ride-hailing Marketplaces

Kaitlin Daniels, Assistant Professor, Washington University St Louis, United States

Danko Turcic, Associate Professor, Washington University St Louis, United States

Taxis' and Uber's matching technologies differ: taxis random-walk in search of curbside pick-ups while Uber centrally dispatches drivers. We study how taxis can defend against Uber encroachment. We find that taxi market share plummets when mimicking Uber's centralized dispatch. Taxis benefit from a low-tech alternative: restricting their service area.

101-2631   Service Platform Pricing: Who Should Set Prices?

Tolga Dizdarer, Student, The Wharton School, United States

Gerard Cachon, Professor, The Wharton School, United States

Gerry Tsoukalas, Assistant Professor, University of Pennsylvania, United States

Motivated by Uber's recent driver-pricing practices in California, we investigate how a platform with large supply should set its fares when service providers are heterogeneous in costs. We use a stylized model to compare two prevalent methods in practice: platform-pricing, agent-pricing. We, then, compare these methods to an optimal contract.

101-1651   Dynamic Moral Hazard with Adverse Selection

Feifan Zhang, Student, Duke, United States

Feng Tian, Student, University of Michigan - Ann Arbor, United States

Peng Sun, Professor, Duke University Durham, United States

Izak Duenyas, Professor, University of Michigan - Ann Arbor, United States

We study the optimal incentive scheme for long term Poisson project with both moral hazard and adverse selection. For two agents with different costs, the optimal contract is a menu that contains a trial contract and a sign-on-bonus contract.

Invited Session

1016	Monday, 02:00 PM - 03:00 PM, Service Operations	Track: Service Operations
	Invited Session: Knowledge-Intensive Operations: Efficiency and Improvement	
	Chair(s): Guillaume Roels	

101-0368   Optimal Service Portfolio of Non-profits that Serve Distressed Individuals

Priyank Arora, Assistant Professor, University of Massachusetts Amherst, United States

Morvarid Rahmani, Assistant Professor, Georgia Institute of Technology, United States

Karthik Ramachandran, Associate Professor, Georgia Institute of Technology, United States

Non-profit organizations that serve distressed individuals are driven to not only offer a variety of services, but also engage in advisory activities to minimize mismatches between services clients receive and their true needs. We study the portfolio and service design problem for resource-constrained NPOs that aim to maximize their impact.

101-1403   Effect of Operations Department Power on Firm Performance

Sara Vessal, Assistant Professor, Essec Business School, France

Mehdi Nezami, Assistant Professor, Bradley University, United States

Drawing on longitudinal data, we show that Operations Department Power (ODP) has a positive and significant effect on firm value and a negative and significant effect on firm risk. We also show that greater R&D intensity weakens the effects of ODP on firm return and firm risk.

101-0365   Competitive Bundling in a Bertrand Duopoly

Araz Khodabakhshian, Post Doc/Researcher, Bain & Company, United States

Guillaume Roels, Associate Professor, INSEAD, France

Uday Karmarkar, Professor, UCLA Anderson School of Management, United States

We characterize the bundling and pricing strategies of two symmetric firms competing (in a Bertrand fashion) with regard to two homogeneous components. Our analysis indicates that in a competitive setting, bundling is essentially used to soften price competition or to defend a monopolistic position rather than to price discriminate.

Contributed Session

1020

Monday, 02:00 PM - 03:00 PM, Supply Chain Management   Track: Supply Chain Management

Contributed Session: Supply Chain Competitive Advantage

Chair(s): Lu Yang

101-0494   Bringing together Value, Variability, Volume, Velocity, Virtuality, Visibility & Variety to address Supply Chain efficiency

Scott Bambrick, Senior Lecturer, Manchester Metropolitan University, United Kingdom

This paper focuses on the supply chain efficiency, through the identification of critical success factors within the themes of Value, Variability, Volume, Velocity, Virtuality, Visibility & Variety. A Confirmatory Factor Analysis offers a Model that identifies where efficiency can be addressed within operational supply chains.

101-2607   A systematic literature review of the drivers leading to supply chain competitive advantage

Lu Yang, Student, Zhejiang University, China

Jose A.D. Machuca, Retired, Universidad De Sevilla, Spain

Rafaela Alfalla-Luque, Professor, Universidad De Sevilla, Spain

Baofeng Huo, Professor, Tianjin Uinversity, China

This research aims to build a comprehensive framework of the drivers leading to a supply chain sustainable competitive advantage through a systematic literature review (through WoS and Scopus databases). We will provide an overview of the landscape of this topic, where there is scarce research.Projects:(AEI-PID2019-105001GB-I00)-(FEDER-1381039)-(PAIDI- PY20_01209)

Invited Session

1021

Monday, 02:00 PM - 03:00 PM, Supply Chain Risk Management   Track: Supply Chain Risk Management

Invited Session: Interdisciplinary Studies on Combatting Supply Chain Risks

Chair(s): Guang Xiao   Xin Geng

101-0843   Crowdfunding Strategy with Word-of-Mouth Communication

Fasheng Xu, Assistant Professor, Syracuse University, United States

Xiaomeng Guo, Assistant Professor, Hong Kong Polytechnic Univ, Hong Kong

Guang Xiao, Student, Hong Kong Polytechnic Univ, Hong Kong

Fuqiang Zhang, Professor, Washington University St Louis, United States

Bank financing is a traditional source of capital for small businesses, whereas crowdfunding has recently emerged as an alternative fund-raising solution to support entrepreneurial ventures. We investigate the equilibrium relationship between a firm's funding choice and word-of-mouth communication, and its consequent impact on product quality, consumer surplus, and social welfare.

101-2775   How does supply chain resilience affect firms' performance? Towards an integrated conceptual framework

Li WAN, Associate Professor, Chongqing University of Posts & Telecom*, China

Shiming YANG, Student, Chongqing University of Posts and Telecommunications, China

Jie JIAN, Professor, Chongqing University of Posts and Telecommunications, China

The purpose of this study is twofold. First, it provides a systematic understanding of the relationship between supply chain resilience and firm performance. Second, it proposes an integrated conceptual framework, providing a preliminary effort towards a more nuanced understanding of the influencing mechanisms of supply chain resilience.

101-0862   Supply risk mitigation in a decentralized supply chain: Postpone price or postpone payment?

Xin Geng, Assistant Professor, University of Miami, United States

Xiaomeng Guo, Assistant Professor, Hong Kong Polytechnic Univ, Hong Kong

Guang Xiao, Student, Hong Kong Polytechnic Univ, Hong Kong

Nan Yang, Professor, University of Miami, United States

In a dyadic supply chain, we study two postponement strategies that the downstream firm may employ to mitigate the supply risk. We analyze four scenarios based on the combination of the strategic decisions, and show the implications of each strategy on the firm's profit and the channel performance.

Monday, 02:00 PM - 03:00 PM

Invited Session

1023 Monday, 02:00 PM - 03:00 PM, Sustainable Operations 1   Track: Sustainable Operations

Invited Session: Remanufacturing

Chair(s): Akshay Mutha

101-1734   Analyzing Product Recovery and Take-back Legislation: A Stakeholders' Perspective

Asit Tripathy, Student, Indian Institute of Management Kashipur, India
Ramakrishna Padhy, Assistant Professor, Indian Institute of Management Kashipur, India
Sidhartha Padhi, Associate Professor, Indian Institute of Management Kozhikode, India

This study develops the stylized economic models for take-back policy instruments to provide insight for decision-makers. First, the essential characteristics of the take-back legislation models in practice, namely Rate, Tax, Incentive, and Two-part policy-instruments, were studied. Second, impact analyses of these models concerning different stakeholders like manufacturer, social-planner were performed.

101-0084   Two-sided competition with vertical differentiation in both acquisition and sales in remanufacturing

Rainer Kleber, Assistant Professor, Universitaet Magdeburg, Germany
Marc Reimann, Professor, University of Graz, Austria
Gilvan Souza, Professor, Indiana University Bloomington, United States
Weihua Zhang, Lecturer, University of Northumbria, United Kingdom

We study competition between two remanufacturers in the acquisition of used products and the sales of remanufactured products. One firm has a market advantage; we consider separate cases where either firm could have an acquisition advantage. We find that a market advantage is significantly more powerful than acquisition advantage.

101-0925   Acquisition of used products for remanufacturing

Akshay Mutha, Assistant Professor, University of Vermont, United States
Saurabh Bansal, Associate Professor, Penn State University University Park, United States

We develop models to analyze the process of acquiring used products for remanufacturing. We perform numerical analyses to show the applicability of our models.

Invited Session

1025 Monday, 02:00 PM - 03:00 PM, Teaching/Pedagogy in POM   Track: Teaching/Pedagogy in POM

Invited Session: Going Beyond the Beer Game: Experiential Learning in Supply Chain Management

Chair(s): Yao Zhao

101-0436   VIRTUAL TEAM EXERCISES FOR SCM TEACHING IN ONLINE CLASSROOMS

Chamila DISSANAYAKE, Assistant Professor, Pennsylvania State University, United States

The article summarizes the existing teaching pedagogies utilized recently for team exercises in online classrooms; and introduces several virtual team exercises specifically for the Supply Chain Management courses. The exercises are to enhance the collaboration among the participants, instructor feedback during the exercises, as well as to evaluate the learning.

101-2414   Career Management Implemented Experiential Teaching Strategy During COVID-19

BIRASNAV MUTHURAJ, Assistant Professor, New York Institute of Technology, United States
Deborah Cohn, Professor, New York Institute of Technology, United States

In this study we formulated and executed a teaching strategy that revolves around career management for students engaged in academic service learning activities before and during COVID-19. We engaged students with not for profits and successfully resolved the challenges related to promotion and omni-channel retailing. Students gained career oriented competencies.

101-1818   Beyond the Beer Game - the Flower Game for teaching supply chain collaboration & competition

Yao Zhao, Professor, Rutgers University, United States

The Beer game focuses on supply chain collaboration but ignores partner conflict. The flower game simulates multiple competing supply chains where firms must collaborate to win the competition while defending themselves against their worst enemy: their partners.

Monday, 03:15 PM - 04:15 PM

Contributed Session

1030 Monday, 03:15 PM - 04:15 PM, Behavior in OM   Track: Behavior in Operations Management

Contributed Session: Quality and Improvement in Operations

Chair(s): Lizao Zhang

101-2277   On the OM approach to errors: A body of knowledge on errors

Eitan Naveh, Professor, Technion Israel Institute of Technology, Israel

Zhike Lei, Associate Professor, Pepperdine University, United States

The nature and underpinnings of errors in organizations address an important problem space, but one that often does not get a substantial amount of conceptual attention in the OM literature. We will present an integrative approach to errors that is more visible, inspectable, systematic, and influential on daily practice.

101-2002   Learning from Near Misses: How Organizational Structure Drives the Learning Process

Helge Klapper, Assistant Professor, Rotterdam School of Management, Netherlands

Juan Madiedo, Assistant Professor, Rotterdam School of Management, Netherlands

Firms often fail to identify and learn from near misses. Whereas previous research has focused on individuals as a source of such missed opportunities, we argue that organizational structure can attenuate or exacerbate the effect of individual biases. We use simulations to show the hypothesized effects.

101-2056   Generating and Testing Theory from Action Research: Behavioral Drivers of Six Sigma Project Success

Lizao Zhang, Assistant Professor, (CIF:ESG50985993), United States

Timothy Baker, Associate Professor, Washington State University, Tri-Cities, United States

We have performed action research at different six sigma project implementation. Data from the audit trails were used to build theory on behavioral drivers of project success. The key new theory posited was that team member openness to experience moderates the effect of strategic project selection on project performance.

Contributed Session

1031

Monday, 03:15 PM - 04:15 PM, Covid-19 & Other Pandemics   Track: Covid-19 and Other Pandemics

Contributed Session: Healthcare capacity/ Supply chain 2

Chair(s): Luca Urciuoli

101-2635   Rationing Scarce Healthcare Capacity: Unintended Consequences Of New York State Ventilator Allocation Guidelines

Eren Cil, Associate Professor, University of Oregon, United States

Tolga Aydinliyim, Associate Professor, Baruch College, United States

David Anderson, Assistant Professor, Villanova University, United States

Margret Bjarnadottir, Assistant Professor, University of Maryland, United States

Michaela Restivo, MD, Columbia University, United States

We assess the existing priority rules in place in NYS for allocating scarce ventilator capacity and propose an alternative priority scheme, which takes into account ventilator length-of-use as well as incremental survival probability due to ventilator use. We show that the proposed scheme demonstrably improves the expected number of survivals.

101-2786   Optimal Resource and Demand Redistribution for Healthcare Systems Under Stress from COVID-19

Felix Parker, Student, Johns Hopkins University, United States

Fardin Ganjkhanloo, Student, Johns Hopkins University, United States

Farzin Ahmadi, Student, Johns Hopkins University, United States

Kimia Ghobadi, Assistant Professor, Johns Hopkins University, United States

Managing COVID-19 capacity demands has been challenging for many hospitals and health systems. Patient transfers, if used effectively, can significantly help hospital systems cope with demand surges. We propose a data-driven optimization model to redistribute patients and resources between hospitals to alleviate this burden.

101-2436   Healthcare - supply chain challenges in COVID19 crisis

Luca Urciuoli, Associate Professor, Royal Institute of Technology (Kth), Sweden

Yari Borbon Galvez, Post Doc/Researcher, LIUC - Università Carlo Cattaneo, Italy

Alessandro Creazza, Associate Professor, LIUC - Università Carlo Cattaneo, Italy

In this study we review main supply chain challenges during COVID19 pandemics.The study emphasizes the role of healthcare supply chains and the challenges encountered to correctly function under COVID19 pandemics.

Contributed Session

1032

Monday, 03:15 PM - 04:15 PM, Economic Models in OM   Track: Economic Models in Operations Management

Contributed Session: Agricultural Supply Chains

Chair(s): Ehsan Valavi

101-2434   Global Agricultural Supply Chains under Tariff Rate Quotas

Behzad Hezarkhani, Associate Professor, Brunel University, United Kingdom

Sobhan Asian, Student, Nanyang Technological University, Singapore

Afshin Mansouri, Professor, Brunel University, United Kingdom

We study the operational aspects of TRQs by characterizing the competition among importers under a FCFS quota administration system. Using a case study of the EU and the UK imported beef market, we discuss how an unfit TRQ administration system curtails the performance of global agricultural supply chains.

101-0399   Intermediation in the Supply of Agricultural Products in Developing Economies

Kris Ferreira, Assistant Professor, Harvard University, United States

Joel Goh, Assistant Professor, NUS Business School, Singapore

Ehsan Valavi, Student, Harvard Business School, United States

The agricultural industry has been growing in developing economies, yet farmers continue to struggle. Recently, e-intermediaries (fixed-price channels who use technology) have emerged as an alternative channel to the traditional local auctions for which farmers can sell their crop. We study the impact that e-intermediaries have on the supply chain.

Contributed Session

1035

Monday, 03:15 PM - 04:15 PM, Empirical Research in OM   Track: Empirical Research in Operations Management

Contributed Session: Supply Chain Issues

Chair(s): Chitranshu Khandelwal

101-1017   The manufacturing strategy formation process in practice and its performance implications

Kalinga Jagoda, Associate Professor, University of Guelph, Canada

This paper investigates the dynamics of operations strategy formation processes and their associations with organizational contextual factors. By using a survey data, it attempts link operations performance to strategy formation processes. The analysis indicates that there are four strategy process configurations representing multiple combinations of the three alternative process modes.

101-1562   New FDI flow (China to European Developed Economies): Is supply chain capability of nations matter?

Di Li, Senior Lecturer, University of Warwick, United Kingdom

Xiaomin Jiang, Student, The University of Warwick, United Kingdom

Xiehua Ji, Lecturer, Birmingham City University, United Kingdom

Xinyu Kang, Student, Birmingham City University, United Kingdom

Martin Eley, Associate Professor, Birmingham City University, United Kingdom

In recent years, a new FDI flow from China to European Developed Economies becomes popular. However, research regarding this new FDI phenomenon is very limited. Therefore, this paper aims to explore the determinants at national level (e.g. supply chain capability, risks) for this new FDI flow, and its moderators.

101-1210   A novel hybrid assessment of sustainable performance criteria in Indian plastic industry

Chitranshu Khandelwal, Student, Indian Institute of Technology, Rookree, India

Mukesh Kumar Barua, Professor, Indian Institute of Technology Roorkee, India

This study examine the criteria of sustainable performance in the context emerging economies. Total 15 criteria identified which are supported through organizational theories like stakeholder's theory, ecological modernization theory, and institutional theory. A novel hybrid Best Worst Method and VIKOR methodology is employed for evaluating the performance of plastic industry.

Contributed Session

1036

Monday, 03:15 PM - 04:15 PM, Finance & OM   Track: Finance and Operations Management

Contributed Session: OM Finance Interface - Miscellaneous

Chair(s): Cheuk Kwong Fok

101-2421   What happened for the last three decades? - Inventory Analysis in the Pharmaceutical Industry

Jeong Hoon Choi, Associate Professor, University of Nebraska Kearney, United States

Sangdo Choi, Associate Professor, Bloomsburg University, United States

Nallan Suresh, Professor, Suny At Buffalo, United States

We examine the relationship between the inventory dynamics and return on assets of a large panel of pharmaceutical firms from 1990 to 2019. We explore and expand the theoretical foundations of the strategic group in this industry through Earns-Turns matrix derived from the DuPont analysis on profitability and inventory turns.

101-2341   Product Portfolio Decision Making Based on PnL Variant Analysis and Competitive Benchmarking at Intel

Elyse Hallstrom, Data Scientist, Intel Corporation, United States

Jason Megit, Strategic Planner, Intel Corporation, Canada

Intel is expanding its graphics portfolio into further segments of the graphics market. We utilize internal and competitive benchmarking, product cost, and market segmentation assumptions to analyze possible PnLs in order to make product decisions. Rapid analysis allows us to examine scenarios in parallel to create the best roadmap.

101-2598   Production efficiency as a mediator between inventory performance and financial return link

Mamta Sahare, Student, Indian Institute of Management Indore, India

Saurabh Chandra, Assistant Professor, Indian Institute of Management Indore, India

This work investigates how inventory performance influences financial returns of firms, with the focus on the mediation effect of production efficiency using panel data of manufacturing firms. The empirical result shows that production efficiency partially mediates the inventory performance-financial return link and the mediation effect vary with industries.

Contributed Session

1039

Monday, 03:15 PM - 04:15 PM, Healthcare OM 1

Track: Healthcare Operations Management

Contributed Session: Queueing Models

Chair(s): Saman Lagzi

101-2164   Generalized Bandits in Queueing Systems with Server Learning

Yanhan Tang Tang, Student, Carnegie Mellon University, United States
Alan Scheller-Wolf, Professor, Carnegie Mellon University, United States
Sridhar Tayur, Professor, Carnegie Mellon University, United States
Andrew Li, Assistant Professor, Carnegie Mellon University, United States

We study liver allocation where surgeons with different abilities learn split liver transplantation. We formulate a multi-armed bandit with embedded learning curves to address the trade-off between discovering talents (exploration) and strengthening extant surgeons' skills (exploitation). Our QFL-UCB algorithm, enhanced with queueing dynamics, and fairness, has $O(\log t)$ regret.

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101-2294   The Spillover Effects of Capacity Pooling in Hospitals

Jong Myeong Lim, Student, Wharton School, United States
Hummy Song, Assistant Professor, The Wharton School, United States
Julius Yang, Director of Medical Services, Beth Israel Deaconess Medical Center, United States

We quantify the spillover effects of off-service placement on patients who are placed on service. Our analyses show it is not only the average level of off-service placement, but also the volatility of off-service placement, that contributes to this spillover effect. We propose alternate routing policies using counterfactual analyses.

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101-2353   Negative Spillover on Service Level across Priority Classes: Evidence from a Radiology Workflow Platform

Timothy Chan, Professor, University of Toronto, Canada
Nicholas Howard, SVP Data Science , Assurance IQ, Canada
Bernardo Quiroga, Assistant Professor, Pontificia Universidad Católica de Chile, Chile
Saman Lagzi, Student, University of Toronto, Canada
Gonzalo Romero, Assistant Professor, University of Toronto, Canada

We study a radiology workflow platform where radiologists have discretion to select tasks. We show task turnaround time is decreasing in pay-to-workload. Furthermore, we show a spillover effect. Namely, that a large presence of economically attractive tasks with low priority can lead to longer turnaround times for higher priority tasks.

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Contributed Session

1041

Monday, 03:15 PM - 04:15 PM, Humanitarian Ops & Crisis Mgmt 1

Track: Humanitarian Operations and Crisis Management

Contributed Session: Healthcare Delivery in Humanitarian Settings

Chair(s): Harwin De Vries

101-0821   Decentralized Site Assignment for Family Planning Outreach Teams

Lisanne van Rijn, Student, Erasmus University Rotterdam, Netherlands
Harwin De Vries, Lecturer, Rotterdam School of Management, Netherlands
Luk Van Wassenhove, Professor, INSEAD, France

Development organizations often prefer decentralized decision-making processes, but the corresponding lack of coordination may lead to sub-optimal outcomes. The extent of this has not yet been quantified. Using Uganda as a case study and random instances, we study (de)centralized site assignment heuristics for family planning outreach teams.

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101-0850   Site Visit Frequency Policies for Mobile Family Planning Services

Harwin De Vries, Lecturer, Rotterdam School of Management, Netherlands
Lisa Swinkels, Post Doc/Researcher, INSEAD, France
Luk Van Wassenhove, Professor, INSEAD, France

This paper studies village visit frequencies for family planning outreach teams in developing countries. We gain insights into the structure of optimal frequencies and use them to develop simple frequency policies for practical use. Simulation suggests that the adopting these policies increases client numbers by 7 to 10%.

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Invited Session

1043

Monday, 03:15 PM - 04:15 PM, Information Systems & OM 1

Track: Information Systems and Operations Management

Invited Session: Information System, Operations, and Marketing Interface

Chair(s): Anurag Garg

101-2799   Compatible or incompatible? When a firm in a duopoly market created a breakthrough technology product

Youhyun Lee, Student, University of Florida, United States
Kenny Cheng, Professor, University of Florida, United States

Liangfei Qiu, Associate Professor, University of Florida, United States

Two firms, A(apple) and S(Samsung), were competing with products A and S (ex. smartphone) in a duopoly market. At a time, firm A succeeded to create a breakthrough technology product (ex. Apple TV). Then, firm A can make N compatible with product S or not. What is more appropriate?

101-2555   How the Cheaper Substitute for Add-on Affects Bundling Strategies

Yumeng Xie, Student, University of Science and Technology of China, China

Jie Wu, Professor, School of Management, China

Xiang Ji, Post Doc/Researcher, School of Management, China

We examine the effects of the cheaper substitute for add-on on the bundling strategies of the manufacturer. Results show that the cheaper substitute urges the manufacturer to bundle and that higher differences in qualify between cheaper substitute and add-on does not always result in higher profit for the platform.

101-2446   Pre-installed Application Policy by Asymmetric Firms

Ningxin Lei, Student, University of Science and Technology of China, China

Jie Wu, Professor, School of Management, China

Xiang Ji, Post Doc/Researcher, School of Management, China

We examine asymmetric smartphone firms' pre-installed application policies when there exsits technical consumers. Results show the marginal App income (MAI) is critical to the adoption but has opposite effects on profits of asymmetric firms. Competition urges firms to adopt the policy when the MAI is smaller.

Contributed Session

1045

Monday, 03:15 PM - 04:15 PM, Inventory Management   Track: Inventory Management

Contributed Session: Inventory Systems with Special Demand Characteristics

Chair(s): Arunachalam Narayanan

101-2009   Managing Slow-Moving and Highly-Perishable Grocery Items with Online Ordering

Chokdee Siawsolit, Post Doc/Researcher, Drucker School of Management, United States

Gary Gaukler, Associate Professor, Drucker School of Management, United States

Short shelf-life and low demand create unfavorable conditions due to costs from lost sale and spoilage. We provide an MDP-based model to assist grocers in their replenishment decisions, and show that advance online orders greatly reduce inventory and improve profit. We also identify product characteristics most conducive to inventory reduction.

101-2406   Inventory Control for Periodic Intermittent Demand

Sarah Van der Auweraer, Post Doc/Researcher, University of Luxembourg, Luxembourg

Thomas van Pelt, Student, University of Luxembourg, Luxembourg

Joachim Arts, Associate Professor, University of Luxembourg, Luxembourg

Intermittent demand is difficult to forecast as many periods have no demand at all. The time between demand events is often not memoryless but contrary to implicit forecasting model assumptions–displays periodicity. Consequently, the time since the last demand occurrence can be an important predictor for future demand.

101-1642   Demand classification and prediction in service parts supply chain

Arunachalam Narayanan, Associate Professor, University of North Texas, United States

Yuan Ye, Assistant Professor, California State University Sacramento, United States

Powell Robinson, Professor, University of Houston, United States

Demand for service parts arises from two events: preventive and corrective maintenance. While preventive maintenance's could be predicted based on the age/type of machine/service, corrective maintenance's inventory management is often very difficult. We assess the value of new classification and forecasting methods using data (55,000 items) from two industries.

Contributed Session

1051

Monday, 03:15 PM - 04:15 PM, Procurement & Supplier Management   Track: Procurement and Supplier Management

Contributed Session: Buyer-supplier relationship (II)

Chair(s): Janet Hartley

101-2737   Which proposal evaluation strategies improve supplier performance?

Beverly Osborn, Student, Ohio State University, United States

John Gray, Professor, Ohio State University, United States

We use a matching design to study the effects of proposal evaluation procedures, criteria, and their relative weighting on supplier performance by combining U.S. government data on contract awards with data extracted from RFP documents. Our performance measure, recontracting, captures subjective and difficult to measure aspects of supplier performance.

101-2724   Influences of formal and relational governances on supplier satisfaction

Sigrid Weller, Student, TU Graz, BWL Institut, Austria

Amila Omazic, Student, Graz University of Technology, Austria

Bernd Markus Zunk, Associate Professor, Graz University of Technology, Austria

Supplier satisfaction can have an impact on supplier performance and on supplier pricing policies. Therefore, this research examines how expectations in buyer-supplier relationships shape supplier satisfaction and how relational or formal governances influence it.

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101-0228   Are You a Good Customer: Suppliers' Perceptions of Supplier Relationship Management Practices

Steven Melnyk, Professor, Michigan State University, United States

Janet Hartley, Professor, Bowling Green State University, United States

Based on a survey of 1,000 small to medium-sized suppliers in the defense industry, we explore what it takes to be a good customer. Differences in perceptions of SRM practices based on the supplier's position in the supply network, and experience in working with a major customer are examined.

- -

Invited Session

1052

Monday, 03:15 PM - 04:15 PM, Product Innovation & Technology Mgmt   Track: Product Innovation and Technology Management

Invited Session: Current Issues in Learning-Curve Research

Chair(s): Michael Lapré

101-1001   Learning in High-Tech After-Sales Service: Exploring Cross-Site and Cross-Product Knowledge Transfer

Fêdde Zijlstra, Student, Eindhoven University of Technology, Netherlands

Alex Alblas, Assistant Professor, Eindhoven University of Technology, Netherlands

Fred Langerak, Professor, Eindhoven University of Technology, Netherlands

Organizations can accelerate learning by transferring knowledge, for example, across sites or products. Leveraging 10 years of data from a global high-tech organization, we study the simultaneous effect of cross-site and cross-product knowledge transfer and provide a detailed analysis of learning in high-tech after-sales service.

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101-0562   Adaptive Learning of Drug Quality and Optimization of Patient Recruitment for Clinical Trial with Dropout

Zhili Tian, Assistant Professor, Coastal Carolina University, United States

Clinical trials represent the largest cost in drug development. We model the physical process of enrolling patients and belief about the efficacy of a new drug and a placebo. We develop an optimal policy for determining when to cancel, continue, or stop and go to market, for new drugs.

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101-0509   Learning from Success and Failure at the Speed of Formula One: Driver versus Team Experience

Michael Lapré, Associate Professor, Vanderbilt University, United States

Candace Cravey, Student, Vanderbilt University, United States

In Formula One racing since 1950, we investigate driver learning from own and teammates' experience with success and failure. Unlike a previous surgery study, we find that drivers learn from teammates' success and own car failures. We use frequency and competitiveness of success to explain observed learning effects.

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Invited Session

1054

Monday, 03:15 PM - 04:15 PM, Retail Operations   Track: Retail Operations

Invited Session: Consumer returns I

Chair(s): Olga Perdikaki

101-0001   The impact of return logistics on future purchase

Guangzhi Shang, Assistant Professor, Florida State University, United States

Michael Galbreth, Professor, University of Tennessee Knoxville, United States

Li Wang, Assistant Professor, Hangzhou Dianzi University, China

Customer's online return journey can be divided into four stages with five timestamps in the return process: from return label creation to package drop-off (customer time), to package arrival at return processing facility (shipper time), and to refund issuance (retailer refund time). We study their impact on future purchase.

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101-0002   Customization and returns

Gokce Esenduran, Assistant Professor, Purdue University, United States

Paolo Letizia, Assistant Professor, University of Tennessee Knoxville, United States

Anton Ovchinnikov, Associate Professor, Queens University, Canada

Consumers are both interested in customizing their products and being able to return the purchased products. However, firms may or may not allow for product customization or right to return. We study why firms may adopt different strategies with respect to customization and returns.

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101-0044   Bracketing of Purchases to Manage Size Uncertainty: Should Online Retailers be Worried?

Aditya Balaram, Student, University of South Carolina, United States

Olga Perdikaki, Associate Professor, University of South Carolina, United States

Michael Galbreth, Professor, University of Tennessee Knoxville, United States

Bracketing is the practice of ordering multiple sizes of a product and returning all that do not fit. Customers adopt this practice to resolve uncertainty surrounding physical fit. We build a stylized model to show that online retailers can leverage this seemingly negative customer practice to improve profit.

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Invited Session

1055

Monday, 03:15 PM - 04:15 PM, Revenue Management & Pricing

Track: Revenue Management and Pricing

Invited Session: Topics in Revenue Management

Chair(s): Lifei Sheng

101-0706   Buying Frenzy with Resale Market: Operational Strategies of Limited Edition under Social Externality and Influence

Aaron (Yunzhe) Qiu, Student, Washington University St Louis, United States

One of the most successful selling strategies by generating buying frenzy is ``Yeezy'', a sneaker brand created by Kanye West. We model the behavior of strategic customers in a three-stage production/selling horizon of such conspicuous products including the limited selling, the resale market, and the mass production.

101-0778   Information Provision and Consumer Search for Products with Asymmetric Uncertainty

Zhaofang Mao, Professor, Tianjin University, China

Zhengbo Liang, Student, Tianjin University, China

Yan Liu, Assistant Professor, Hong Kong Polytechnic Univ, Hong Kong

This work studies seller's information provision strategy considering consumer search. We establish a model of a monopolist selling two substitutable products to a group of consumers with asymmetric uncertainty, and find out whether the seller should disclose the information of each product.

101-2257   Network Revenue Management Game in the Railway Industry

Dongjun Li, Lecturer, Northumbria University, United Kingdom

Jingxin Dong, Professor, Newcastle University Business School, United Kingdom

The interaction between a rail Infrastructure Manager and a Freight Operating Company is considered as a network-based Stackelberg game. The prices for the Stackelberg equilibrium and the system optimization were determined respectively. A subsidy contract is also designed to coordinate the decision making.

Invited Session

1057

Monday, 03:15 PM - 04:15 PM, Service Operations

Track: Service Operations

Invited Session: Customer Behaviors in Service Operations

Chair(s): Tingliang Huang   Hang Ren

101-0640   Optimal Delay Announcement Strategy to Improve Satisfaction of Loss-averse Customers

Sina Ansari, Assistant Professor, Driehaus College of Business, United States

Laurens Debo, Associate Professor, Dartmouth College, United States

Robert Shumsky, Professor, Dartmouth College, United States

Fueled by the increased availability of data, service firms have improved their forecasting systems to announce delays. But no forecasting system is perfect and customers react negatively to a longer-than-forecast delays. We develop a model to specify the delay announcement strategy that maximizes customer satisfaction, when customers are loss-averse.

101-2369   A Study on Business Analytics Services Supply Chain (BASSC) Initiation and Formation

Shylu John, Student, IIM Indore, India

Bhavin Shah, Associate Professor, Indian Institute of Management Indore, India

BASSC is an emerging area supported by service providers to achieve business outcome for analytics customer. The nature of service and its complexities motivated authors to study BASSC formation. A case study research was performed through selection of 30 engagements between Service Provider and Analytics Customer to establish the proposition.

101-0132   Opaque Selling and Last-minute Selling: Revenue Management in Vertically Differentiated Markets

Hang Ren, Assistant Professor, George Mason University, United States

Tingliang Huang, Assistant Professor, Boston College, United States

We analyze opaque selling as an inventory clearance strategy used after the major selling season in vertically differentiated markets. We find that opaque selling increases regular-season revenue by softening inter-temporal cannibalization from sales-season products, whereas it decreases sales-season revenue due to less flexibility in segmenting consumers.

Contributed Session

1061

Monday, 03:15 PM - 04:15 PM, Supply Chain Management

Track: Supply Chain Management

Contributed Session: Industry Specific Supply Chains

Chair(s): Rajendra Baraiya

101-0849   A Framework for Analyzing the U.S. Coin Supply Chain

Yiwei Huang, Assistant Professor, Penn State University-Shenango, United States

Yunxia Zhu, Assistant Professor, University of Nebraska Lincoln, United States

Subodha Kumar, Professor, Temple University, United States

Bala Shetty, Professor, Mays Business School, United States

Chelliah Sriskandarajah, Professor, Texas A&M University College Station, United States

We study a coin supply chain problem to provide a near-optimal operating policy that minimizes the total cost of producing, supplying, and managing coin inventory in the U.S. Coin Supply Chain. The extensive tools and insights developed in this study help the Federal Reserve System achieve its cost reduction goals.

101-2670   Optimization problem for Integrated Supply Chain System of Petroleum Industry

Narain Gupta, Associate Professor, Management Development Institute, India

Rohit Kapoor, Assistant Professor, Indian Institute of Management Indore, India

Rajendra Baraiya, Student, Indian Institute of Management Indore, India

In the present paper, we propose the mathematical formulation for the integrated supply chain system of the petroleum industry starting from oil procurement to oil transportation to refineries to refining process to transfer at depots to retailers, to minimize the inventory and transportation costs in the petroleum supply chain system.

Contributed Session

	Monday, 03:15 PM - 04:15 PM, Supply Chain Risk Management	Track: Supply Chain Risk Management
1062	Contributed Session: Supply Chain Risk Management 1	
	Chair(s): Annibal Scavarda	

101-0538   Weather Rebate Contracts for Risk Averse Supply Chain Members

Piyal Sarkar, Student, Ryerson University, Canada

Wahab Ismail, Professor, Ryerson University, Canada

Liping Fang, Professor, Ryerson University, Canada

Firms are often exposed to weather risk. A weather rebate contract is designed to improve the supply chain performance under weather risk. The CVAR technique is used to model risk aversion. The study aims to maximize the supply chain profit by hedging the weather risk using weather derivatives.

101-2752   Telemedicine: the safety interaction between healthcare professionals and patients during the COVID-19 pandemic

Thaís Lauria, Student, Universidade Federal do Estado do Rio de Janeiro, Brazil

Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil

Gláucya Daú, Student, Universidade Federal do Estado do Rio de Janeiro, Brazil

Ping Wang, Assistant Professor, Texas A&M - Galveston, United States

Gabriel Milan, Professor, UNISINOS, Brazil

The remote technologies in the COVID-19 pandemic have been applied in the healthcare sector. This research has developed a literature review about the telemedicine in Brazil. It analyzes the opportunities and the challenges in using the telemedicine for the security between healthcare professionals and the patients during the COVID-19 pandemic.

101-2813   An analysis of the impact of the Lockdown on the environment

Hildeliza Salles, Student, UNIRIO, Brazil

Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil

Gláucya Daú, Student, Universidade Federal do Estado do Rio de Janeiro, Brazil

Xu xiabo, Professor, Xi 'an jiaotong-liverpool university, China

Livia Salles, Student, Estácio University, Brazil

The supply chain has changed with the suspension of non-essential activities during the Covid-19 pandemic. This research study has developed a literature review about lockdown and sustainability. It analyzes the changes in the post-lockdown society and its impact on the planet's sustainability.

Invited Session

	Monday, 03:15 PM - 04:15 PM, Sustainable Operations 1	Track: Sustainable Operations
1064	Invited Session: Empirical Studies in Sustainable Operations	
	Chair(s): Wayne Fu	

101-0580   Buyer-Supplier Relationship and Supplier Working Conditions Improvement in Developing Countries

Xiaojin Liu, Assistant Professor, Virginia Commonwealth University, United States

How does the buyer-supplier relationship affect the likelihood of a supplier to improve the working conditions in developing countries? We investigate the research question using data from the transparency reports on safety inspection and the following correction progress on supplier factories.

101-0701   Simulation Parameter Optimization of Current Energy Converter with Multiple Correlated Functional Responses

Jack C. P. Su, Associate Professor, University of New Mexico, United States

Sterling Olson, Research Engineer, Sandia National Lab, United States

I-Hsuan Hong, Assistant Professor, National Taiwan University, Taiwan, Republic of China

Current energy converters are an essential source of sustainable energy. However, physical experiments are prohibitively expensive, making computer simulation a critical component of technology readiness. This research sought to optimize four turbulence parameters to minimize the deviations between two correlated and functional outputs and the results of physical experiments.

Monday, 03:15 PM - 04:15 PM

101-2036   Does Extended Producer Responsibility Affect Firm Eco-Innovation?

Yuqi Peng, Student, University of South Carolina, United States
Yan Dong, Professor, University of South Carolina, United States
Sining Song, Assistant Professor, University of Tennessee Knoxville, United States
Sriram Venkataraman, Associate Professor, University of South Carolina, United States

We empirically study if manufacturers have incentives to go beyond regulations and invest in eco-innovation. We find that firms with EPR programs perform better in eco-innovation achievement.

Invited Session

1066   Monday, 03:15 PM - 04:15 PM, Teaching/Pedagogy in POM   Track: Teaching/Pedagogy in POM

Invited Session: Teaching Colloquium - Best Practices Discussion - Part I

Chair(s): Bala Shetty

101-2879   Teaching Colloquium - Best Practices Discussion - Part I: Principles of Case Teaching

Rogelio Oliva, Professor, Texas A&M University College Station, United States
Luis Lopez, Professor, INCAE, Costa Rica

The Teaching Colloquium is a chance for faculty to share their knowledge and experience about teaching. This year emphasis will be on teaching cases, and analytics. Several master teachers in these areas will present their best practices, followed by Q&A involving attendees and speakers.

Monday, 04:30 PM - 05:30 PM

Contributed Session

1072   Monday, 04:30 PM - 05:30 PM, Covid-19 & Other Pandemics   Track: Covid-19 and Other Pandemics

Contributed Session: Healthcare capacity/ Supply chain 3

Chair(s): Fardin Ganjkhanloo

101-2841   A burnout managerial proposal framework for the nurses during the COVID-19 pandemic

EMANOELA GUSZAK KVIATKOWSKI, Student, Universidade Sociedade Educacional de Santa Catarina, Brazil
Gabriel Muskovski, Student, Universidade Sociedade Educacional de Santa Catarina, Brazil
PRISCILA CEMBRANEL CEMBRANEL, Student, CEFET, Brazil
Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil
Luciane Taschetto, Professor, Universidade Sociedade Educacional de Santa Catarina, Brazil

This study proposes a burnout managerial framework for the nurses during the COVID-19 pandemic. The framework pillars are: the use of personal protective equipment, the concern for family members, the concern for the health of the nurses, the cleaning protocol, the information reliability, and the to-do list of the nurses.

101-2802   PPE usage and preservation at the age of COVID-19

Cassandra Thiel, Assistant Professor, New York University, United States
Kimia Ghobadi, Assistant Professor, Johns Hopkins University, United States

Access to Personal Protective Equipment (PPE) became a concern, especially at the beginning of the COVID-19 pandemic. We investigate the resilience and sustainability of the healthcare supply chain under extreme stressors by focusing on the impacts of PPE shortage on medical centers.

101-2796   Establishing a Correlation Between Healthcare Capacity Attributes and the Number of Deaths Due to COVID-19

Fardin Ganjkhanloo, Student, Johns Hopkins University, United States
Farzin Ahmadi, Student, Johns Hopkins University, United States
Kimia Ghobadi, Assistant Professor, Johns Hopkins University, United States
Michael Lepori, Student, Johns Hopkins University, United States

We consider the question of the different factors effective in the rate of spread and mortality of the novel coronavirus. Specifically, we study the correlation of healthcare capacity with the COVID-19 early stage mortality. Results show a positive correlation between healthcare capacity indicators and COVID-19 early-stage mortality.

Contributed Session

1073   Monday, 04:30 PM - 05:30 PM, Economic Models in OM   Track: Economic Models in Operations Management

Contributed Session: Topics on Queueing, Scheduling, and Capacity Utilization

Chair(s): Anurag Agarwal

101-1487   Strategic Servers and Dynamic Games in Multi-server Queuing Systems

Hung Do, Associate Professor, University of Vermont, United States

We consider dynamic games of strategic servers in multi-server queuing systems, namely single-queue systems and parallel-queue systems. Each server incurs cost of holding customers in line and cost of exerting effort to work at a certain service rate. Models with asymmetric servers and general cost functions are also considered.

101-1219   Revisiting Objective Functions for Scheduling Models

Anurag Agarwal, Professor, Florida Gulf Coast University, United States

Ramakrishna Govindu, Senior Lecturer, University of South Florida, United States

Many types of objective functions are used for scheduling models, such as minimize makespan or minimize tardiness, or minimize penalties. The choice of objective functions may be driven by contractual obligations. But are contractual conditions rooted in sound economic principles? We revisit this issue and propose economically optimal objective functions.

Contributed Session

1077	Monday, 04:30 PM - 05:30 PM, Finance & OM Track: Finance and Operations Management
	Contributed Session: Financial Measures and Operational Performance
	Chair(s): Robert Obermaier

101-0339   Financial Metrics that Predict Supply Chain Effectiveness - a systematic review and analysis

Diep Ly, Student, The University of Auckland, New Zealand

Tava Olsen, Professor, The University of Auckland, New Zealand

Timofey Shalpegin, Lecturer, University of Auckland, New Zealand

In recent years, firms face a variety of challenges when making trade-offs between efficiency and effectiveness. We review papers on measurement of supply chain effectiveness over the period 2000-2019. By assessing the current stage of research, we propose a set of metrics for measurement of effectiveness in supply chain.

101-2677   A proposal for improving performance production practices measurement with financial measures

Darkys Lujan-Garcia, Assistant Professor, University of Sevilla, Spain

Jose A.D. Machuca, Retired, Universidad De Sevilla, Spain

Bernabé Escobar-Perez, Assistant Professor, UNIVERSIDAD DE SEVILLA, Spain

An original set of financial measures for measuring the impact of advanced production practices on financial performance is proposed. It takes into account the type of unit of analysis (company versus production plant). The proposal is based on a systematic literature review of prestigious OM Journals.

101-1344   The Myth of Vertical Disintegration: A Management Paradigm Revisited from a Capital Market's Perspective

Robert Obermaier, Professor, University of Passau, Germany

Florian Kaiser, Post Doc/Researcher, University of Passau, Germany

We investigate the relationship between vertical integration and long-term stock returns by comparing abnormal returns on stock portfolios sorted by their degree of vertical integration. The study is based on data from 2,787 European manufacturing firms from 1993 to 2015, with 19,580 firm-year observations.

Contributed Session

1080	Monday, 04:30 PM - 05:30 PM, Healthcare OM 1 Track: Healthcare Operations Management
	Contributed Session: Panel: University-Industry Partnership Supporting COVID-19 Response
	Chair(s): Dan Bumblauskas

101-2387   Panel: University-Industry Partnership Supporting COVID-19 Response and Healthcare Supply Chains During Pandemics

Dan Bumblauskas, Associate Professor, University of Northern Iowa, United States

Nikhil Vyas, Associate Professor, University of Southern California, United States

Laird Burns, Associate Professor, University of Alabama Huntsville, United States

David Dobrzykowski, Associate Professor, University of Arkansas, United States

Jeff Shockley, Associate Professor, Virginia Commonwealth University, United States

Sue Sundar, , ,

This Consortium is comprised of supply chain leaders from academia and industry, who were invited by the University of Southern California to develop new demand and supply planning models. The work addresses medical supply chain challenges regarding COVID-19 forecasting, supply requirements, procurement, logistics and last mile delivery.

Contributed Session

1082	Monday, 04:30 PM - 05:30 PM, Humanitarian Ops & Crisis Mgmt 1 Track: Humanitarian Operations and Crisis Management
	Contributed Session: New Technologies
	Chair(s): Yu Xia

101-2727   Role of Industry 4.0 technologies in Humanitarian Supply Chains

Mohammed Nawazish, Student, IIMK, India

Rupesh Pati, Associate Professor, IIM kozhikode, India

With the increase in global supply chain disruptions, this study analyzes the convergence of Humanitarian Operations and Supply Chain Management and Industry 4.0 technologies. We have adopted the descriptive analysis and content analysis methodology to determine the prominent research trends and themes from the interaction of the two domains.

101-2154   Fraud Prevention in NGO Operations Using Blockchain Smart Contracts

Yu Xia, Associate Professor, College of William and Mary, United States

Gillian Doby, Student, College of William and Mary, United States

Troy Wiipongwii, Lecturer, College of William and Mary, United States

This research investigates incidents of NGO frauds in supply chain and proposes the strategy of adopting blockchain technologies to prevent frauds from happening. We argue that blockchain smart contracts can significantly increase the efficiency of NGO operations and systematically prevent frauds by replacing human decisions with pre-set transparent contracts.

Invited Session

1084

Monday, 04:30 PM - 05:30 PM, Information Systems & OM 1   Track: Information Systems and Operations Management

Invited Session: Economics of Information Systems

Chair(s): Zhe Zhang

101-1089   New Retail-A Comprehensive Analysis of Channel Design

Srinivasan Raghunathan, Professor, UT Dallas, United States

Jianqing Chen, Associate Professor, UT Dallas, United States

Ping Tang, Student, UT Dallas, United States

Motivated by "new retail," this paper examines channel structures in a competitive market by developing a game-theoretic model in which two retailers sell in the same category of products. We capture the unique feature of new retail by modeling online shopping cost to be dependent on offline stores' location

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101-0398   Network Structure and Entry into Platform Markets

Feng Zhu, Associate Professor, Harvard Business School, United States

Xinxin Li, Associate Professor, University of Connecticut, United States

Ehsan Valavi, Student, Harvard Business School, United States

Marco Iansiti, Professor, Harvard Business School, United States

We examine how network structures affect interactions between an incumbent platform serving multiple markets and an entrant platform seeking to enter one of these markets. We find that having more mobile buyers, which increases interconnectivity among markets, reduces the incumbent's incentive to fight and increases the entrant's incentive to expand.

101-1128   An Agent-Based Approach for Building a Decentralized Platform in the Sharing Economy

Haozhao Zhang, Student, University of Texas at Dallas, United States

Zhe Zhang, Assistant Professor, University of Texas at Dallas, United States

Eric Zheng, Professor, University of Texas Dallas, United States

Varghese Jacob, Professor, University of Texas at Dallas, United States

We use an agent-based method to design a ride-sharing platform that matches riders and drivers based on blockchain technology. The platform solicits and selects matching proposals from a group of users (matchers) in a decentralized fashion. We consider the issues of fairness, efficiency and decentralization in our platform design.

Contributed Session

1086

Monday, 04:30 PM - 05:30 PM, Inventory Management   Track: Inventory Management

Contributed Session: Inventory Applications

Chair(s): Lucy Chen

101-2637   Using an Opaque Channel to Reduce Wastages in Perishable Inventory Systems

Katsunobu Sasanuma, Assistant Professor, Stony Brook University, United States

Akira Hibiki, Professor, Tohoku University, Japan

Opaque products are sold online at a discount price without certain product specifications. They are known to make the operation of perishable and non-perishable products efficient. In this paper, we evaluate the impact of opaque products on the amount of wastage in perishable inventory systems using simulations and analytical models.

101-2282   The effect of financial slack on stock returns. The mediating role of inventory leanness.

Lakshmi Madarasu, Student, Georgia Southern University, United States

This paper investigates the effect of financial slack on inventory leanness and the mediating effect of inventory leanness between financial slack and long - term stock returns of a large panel of U.S. firms.The results provide insights about how a firm's available financial slack drives inventory decisions andstock returns.

101-1678   Strategic Inventories in Supply Chains with Bargaining

Lucy Chen, Associate Professor, National University of Singapore, Singapore

Weijia Gu, Senior Strategy Manager, Philips Singapore Ltd, Singapore

Qinshen Tang, Post Doc/Researcher, National University of Singapore, Singapore

We investigate the existence and effect of strategic inventories for a supply chain under a bargaining framework and compare the results to those under a Stackelberg game. We then introduce supply chain competition into the system and study how the impact of strategic inventories changes.

Contributed Session

1093

Monday, 04:30 PM - 05:30 PM, Product Innovation & Technology Mgmt

Track: Product Innovation and Technology Management

Contributed Session: International Perspectives on Innovation

Chair(s): Vidyaranya Gargeya

101-1073   New product development to reduce fuel consumption and carbon dioxide emission in an oil refinery

Jayaraman Rajagopalan, Professor, S P Jain Inst. of Management & Research, India

Jaya Rawat, Student, S P Jain Inst. of Management & Research, India

Sanjay Bhargava, Director, Research & Development, Bharat Petroleum Limited, India

Controlling fouling of heat exchangers results in better heat recovery leading to fuel saving and reduced carbon emission. A new anti fouling compound has been developed in house to address the production and managerial issues. Pilot runs and plant trials have been successfully completed and product approved for regular use

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101-2605   Institutional Strategy for New Product Development: Mitsubishi Regional Jet vs Honda Jet

Haruo Horaguchi, Professor, Hosei University, Japan

Reiko Takenouchi, Professor, Seijo University, Japan

The aircraft manufacturing strategies of Mitsubishi Heavy Industries (MHI) and Honda throughout the 2000s show a good contrast of failure and success. Obtaining type certification (TC) in the United States was institutionally crucial for aircraft product development. Honda successfully obtained TC by developing its business jet in the US.

101-2441   Underlying Factors for Research and Development Investments by Foreign Companies

Venkatram Kolluri, Consultant, VKare Financial Advisors, India

Maria Gouvea, Professor, University of Sao Paulo, Brazil

Vidyaranya Gargeya, Professor, The University Of North Carolina At Greensboro, United States

Hundreds of books and articles have been written on investments in research and development activities by foreign companies. What are the underlying factors for those investments to take place? Using secondary data from the World Bank, this research addresses that question. The paper concludes with directions for future research.

Invited Session

1095

Monday, 04:30 PM - 05:30 PM, Retail Operations

Track: Retail Operations

Invited Session: Consumer Returns II

Chair(s): Olga Perdikaki

101-2325   Omni-Channel Partnerships to Manage Consumer Returns

Tolga Aydinliyim, Associate Professor, Baruch College, United States

Monire Jalili, Assistant Professor, Bentley University, United States

We study omni-channel partnerships between online and B&M retailers, and highlight their effectiveness in reducing returns due to high product valuation uncertainty. We also show that the type of adopted partnership depends on consumers' returns-channel choices, the online retailer's logistics costs, and how much B&M store-traffic the partnership can induce.

101-1039   The Impact of Online Product Reviews on Retailer's Pricing and Return Policy Decisions

Mehmet Altug, Associate Professor, George Mason University, United States

Customers feel increasingly more comfortable with posting and using on-line product reviews. In a two-period setting, we explore the impact of product reviews on customer's valuation uncertainty for an experience-type product and how that in turn affects a monopolist retailer's pricing and refund decisions. We also study duopolistic competition.

101-2072   Offline returns for online retailers

Leela Nageswaran, Assistant Professor, University of Washington, United States

Elina Hwang, Assistant Professor, University of Washington, United States

Soo-Haeng Cho, Associate Professor, Carnegie Mellon University, United States

We study the newly emerging business model where an online retailer enters into a partnership with a store retailer in order to offer its customers the option to drop off returns of online purchases. We explore when the online and store retailers have incentives to form such return partnerships.

Invited Session

1096

Monday, 04:30 PM - 05:30 PM, Revenue Management & Pricing

Track: Revenue Management and Pricing

Invited Session: Approximation algorithms in marketplaces

Chair(s): Jinglong Zhao   David Simchi-Levi

101-0639   Click-Based MNL: Algorithmic Frameworks for Modeling Click Data in Assortment Optimization

Jacob Feldman, Assistant Professor, Washington University St Louis, United States

Dennis Zhang, Assistant Professor, Washington University St Louis, United States

Ali Aouad, Assistant Professor, London Business School, Great Britain

Danny Segev, Professor, University of Haifa, Israel

In this paper, we introduce the click-based MNL choice model, a novel framework for capturing customer purchasing decisions in e-commerce settings. We study the resulting assortment optimization problem, where the objective is to select a subset of products, made available for purchase, to maximize the expected revenue.

101-1186   Data-Driven Approximation Schemes to Joint Pricing and Inventory Control

Hanzhang Qin, Student, Massachusetts Institute of Technology, United States

David Simchi-Levi, Professor, Massachusetts Institute of Technology, United States

Li Wang, Student, Massachusetts Institute of Technology, United States

We study the classic multi-period joint pricing and inventory control problem in a data-driven setting. A data-driven approximation algorithm, is proposed and analyzed (in terms of its sample and computational complexity) which uses the past demand data to solve the joint pricing and inventory control problem.

101-1841   Optimal Bidding Strategies in Logistics Procurement Auctions

Anna Errore, Student, University of Minnesota, United States

Christopher Nachtsheim, Professor, University of Minnesota, United States

Karen Donohue, Professor, University of Minnesota, United States

Procurement of logistic services via online auction is a critical stage in long-term contracts and transactional market. Both price and non-monetary factors ensure bidding success and profitability. We investigate the determinants to bidding price generation and auction winning in the big picture of long-term profitability, service level and reputation.

Contributed Session

1100

Monday, 04:30 PM - 05:30 PM, Socially Responsible Operations

Track: Socially Responsible Operations

Contributed Session: Innovation and Social Responsibility

Chair(s): Eyko Rios

101-2435   Performance Evaluation of Bike Sharing Systems

Sandeep Srivathsan, Assistant Professor, Great Lakes Institute of Management, India

Bike sharing systems offer a viable pollution-free alternative transportation mode. These systems are prone in inventory imbalance with customer pick-ups in one station and drop-off at another. Consequently, we develop a queueing-based optimization model to find the optimal number of bikes at the stations to attain a set service level.

101-2337   Analyzing the Impact of Social Capital on Firms and Supply chains

Vinay Ramani, Associate Professor, IIM Visakhapatnam, India

Debabrata Ghosh, Associate Professor, Malaysia Institute for Supply Chain Innovation, Malaysia

In this paper we consider the strategic decisions of firms that have undertaken steps to develop value chains while creating shared social value in emerging markets. Using a stylized two-period model of a supply chain dyad, we analyze scenarios when firm objectives include both profit and welfare objectives.

101-2815   An analysis of the physical and virtual technologies as bridges for the sustainable activities

Eyko Rios, Student, Centro Federal De Educacao Technologica - Cefet, Brazil

Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil

Miriam Borchardt, Post Doc/Researcher, Unisinos University, Brazil

Vesselina Dimitrova, Professor, University of Economics-Varna, Bulgaria

Rachel Mendes, Professor, Centro Federal De Educacao Technologica - Cefet, Brazil

A major trend over sustainability is the rise of the technology, ranging from physical to virtual. These technologies are opening the doors for new opportunities and business models that could change the industry dramatically. This paper intends to investigate the physical and virtual technologies as bridges for the sustainable activities.

Contributed Session

1102

Monday, 04:30 PM - 05:30 PM, Supply Chain Management   Track: Supply Chain Management

Contributed Session: Technology in Supply Chain Management

Chair(s): Xinyu Ma

101-1364   A Study of the Use of RFID in the Automotive Supply Chain

Maria Murguia, Student, Oakland University, United States

Henry Aigbedo, Associate Professor, Oakland University, United States

Radio Frequency Identification (RFID) Technology is being increasingly deployed in several industry sectors. While there are many benefits that can be derived from its use, there are also many challenges. We report on aspects of the planned implementation of this technology by an automotive supplier with its OEM partners.

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101-0611   How 'ABCD' Technology changes supply chain

Xinyu Ma, Student, Nanjing University of Aeronautics and Astronautics, China

Qing Zhang, Associate Professor, Nanjing University of Aeronautics and Astronautics, China

Supply chain can be more intelligent with 'ABCD' Technology applied, Artificial Intelligence for infrastructure and production tools, Blockchain for information backtracking, Cloud for lightweight operation and big Data for better resource allocation. It is a trend modern supply chain is developing towards and worth attention.

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Contributed Session

1103

Monday, 04:30 PM - 05:30 PM, Supply Chain Risk Management   Track: Supply Chain Risk Management

Contributed Session: Supply Chain Risk Management 2

Chair(s): Tony Lynch

101-1104   Optimization analysis of retail platform participation in upstream innovation R&D investment

Minlian Wu, Student, University of Science and Technology of China, China

Xihui Wang, Associate Professor, University of Science and Technology of China, China

The new product's development faces great financial pressure. Aiming at the phenomenon that some cooperated retail platforms have shifted their late-stage advertising investment to the high risky R&D investment, this article analyzes the above two cooperation and finds that retailer's investment choices are related to developers' innovation types.

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101-1208   Supply Chain Mapping of Cloud Computing

Kevin Borchers, Director of Network Services, Gage Marketing Group, United States

Failures with cloud-based information services increasingly impact manufacturing, physical supply chains, and operations. Current methods of identifying Nth-party cloud suppliers and resources cannot handle the complex cloud ecosystem. My research developed an innovative approach to automate the mapping of cloud computing supply chains.

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101-1120   An Empirical Examination of Gray Swan Risk and Firm Operating Performance

Tony Lynch, Lecturer, Auburn University, United States

Joo Jung, Associate Professor, University of Texas Rio Grande Valley, United States

Firm operating performance has been discussed extensively in the operations management literature. However, there is minimal discussion on the effects of the risk (Gray Swans) on firm performance. This paper empirically investigates the relationship between Gray Swans and the mediated effects of the buyer supplier relationship on firms' operating performance.

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Contributed Session

1105

Monday, 04:30 PM - 05:30 PM, Sustainable Operations 1   Track: Sustainable Operations

Contributed Session: Supply Chain & Carbon Management Models

Chair(s): Preethi K Ramanujam

101-1175   Flexible Technology Choice and Network Design for Reverse Supply Chain under Return and Yield Uncertainties

Chong Liu, Student, Tsinghua University Department of IE, China

Qiaofeng Li, Student, Tsinghua University, China

Zhi-Hai Zhang, Associate Professor, Tsinghua University, China

This article investigates process flexibility design and recycling network planning for electronics recycling while considering the uncertainty of wastes return and resource yield. Distributionally robust optimization method is employed for model formulation and an Outer Approximation based solution approach is proposed. With numerical experiments, managerial insights are explored.

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101-2778   Greening and abatement initiatives: Impact of advanced Carbon Capture technology

Prakash Awasthy, Assistant Professor, Indian Institute of Management Nagpur, India

Monday, 04:30 PM - 05:30 PM

We create a stylized model to analyze the impact of advanced Carbon Capture Technology (CCT) on firms' greening efforts and abatement initiatives. Advance CCT entails processes beyond traditional Carbon Capture and storage. We characterize the firm's decision under carbon trading and environmental tax scenario for advanced CCT.

101-1864   CARBON PRICING STRATEGIES FOR MULTI-UNIT FIRMS

Preethi K R, Student, Nanyang Technological University, Singapore

S. Viswanathan, Professor, Nanyang Technological University, Singapore

We examine a firm that is implementing internal carbon pricing among its business units that face convex abatement cost structures. We derive and analyze optimal carbon price structures as well as propose alternative carbon pricing strategies that does not erode its short-term competitiveness while meeting its science-based emission targets.

Invited Session

1107

Monday, 04:30 PM - 05:30 PM, Teaching/Pedagogy in POM   Track: Teaching/Pedagogy in POM

Invited Session: Teaching Colloquium - Best Practices Discussion - Part II

Chair(s): Bala Shetty

101-2138   Teaching Colloquium - Best Practices Discussion - Part II: Teaching Analytics

Subodha Kumar, Professor, Temple University, United States

Wayne Winston, , ,

The Teaching Colloquium is a chance for faculty to share their knowledge and experience about teaching. This year, emphasis will be on teaching cases and analytics. Several master teachers in these areas will present their best practices, followed by Q&A involving attendees and speakers.

Monday, 05:45 PM - 06:45 PM

Invited Session

1109

Monday, 05:45 PM - 06:45 PM, 2- Meetings & Programs - All are Welcome   Track: All Meetings & Programs A: Open to Everyone

Invited Session: POMS Business Meeting

Chair(s): Olga Perdikaki   Sushil Gupta

101-2880   POMS Business Meeting

Sushil Gupta, Professor, Florida International University, United States

Olga Perdikaki, Associate Professor, University of South Carolina, United States

POMS Business Meeting. POMS Board will meet the POMS members and present the state of the Society and answer any questions. All are welcome.

Tuesday, 09:00 AM - 10:00 AM

Invited Session

1153

Tuesday, 09:00 AM - 10:00 AM, Behavior in OM   Track: Behavior in Operations Management

Invited Session: Behavioral Issues in Supply Chain and Inventory Management

Chair(s): Cuihong Li

101-0353   Behavior in Rationing Inventory Across Retail Channels

Eirini Spiliotopoulou, Assistant Professor, Tilburg University, Netherlands

Nienke Hofstra, Lecturer, HAN University of Applied Sciences, Netherlands

When demand exceeds available inventory, companies ration their inventory among sales channels. How do inventory risk and payment schemes (timing and type of payments) affect allocation decisions in such cases? We study the role of risk aversion, loss aversion and mental accounting in inventory allocation decisions between two retail channels.

101-1295   Leveraging Service Level and Understock Costs to Improve Ordering Decisions

Jaime Andrés Castañeda, Assistant Professor, Universidad del Rosario, Colombia

Sebastian Villa, Assistant Professor, Indiana University Bloomington, United States

Gloria Urrea, Assistant Professor, University of Colorado Boulder, United States

We study the fundamental tradeoff between inventory costs and service level using a multi-method approach. We derive the optimal policy and run experiments to study how buyers make ordering decisions under different levels of target fill rates and understock costs. Lastly, we build a behavioral model to explain buyers' behavior.

101-1197   Supplier Competition and Investment: an Experimental Investigation

Elena Katok, Professor, University of Texas Dallas, United States

Cuihong Li, Associate Professor, University of Connecticut, United States

Zhixi Wan, Associate Professor, University of Oregon, United States

We consider a buyer facing two suppliers who invest in cost reduction before bidding for contracts. Using laboratory experiments, we investigate how supplier competition and investment observability affect suppliers' cost-reduction effort and buyer's reserve price decisions.

Invited Session

1157 | Tuesday, 09:00 AM - 10:00 AM, Emerging Topics in OM   Track: Emerging Topics in Operations Management

Invited Session: Operational Data Analytics

Chair(s): Salar Ghamat

101-0601   Improved Approximation Schemes for MNL-Driven Sequential Assortment Optimization

Jacob Feldman, Assistant Professor, Washington University St Louis, United States

Danny Segev, Professor, University of Haifa, Israel

In this paper, we consider assortment optimization under the sequential Multinomial-Logit (MNL) choice model, recently proposed by Liu et al. (2019) to capture a multitude of applications, ranging from appointment scheduling in hospitals, restaurants, and fitness centers to product recommendation in e-commerce settings.

101-1072   Inter-hospital Transfer of Heart Attack Patients: Performance Prediction and Evaluation

Qi Feng, Professor, Purdue University, United States

Yuanchen Li, Student, Purdue University, United States

Feng (Susan) Lu, Associate Professor, Purdue University, United States

George Shanthikumar, Professor, Purdue University, United States

The trade-off between recourse limitation (e.g., PCI recourses are limited) and decision effectiveness (i.e., whether to transfer a patient) has long existed in the context of the inter-hospital transfer of heart attack patients. We address two issues in this study: (1) find an appropriate performance measure; (2) data latency.

101-2388   Legal Cannabis Market Shares During Canada's First Year of Recreational Legalization

Michael Armstrong, Associate Professor, Brock University, Canada

This study estimated legal recreational products' total share of Canadian cannabis consumption from Oct 2018 to Sep 2019. It reached only 24% due to dry cannabis production shortfalls and insufficient licensed retailers. Differing store densities and pricing policies partly explained variations among the 10 provincial markets.

Invited Session

1162 | Tuesday, 09:00 AM - 10:00 AM, Healthcare OM 1   Track: Healthcare Operations Management

Invited Session: Improving Healthcare Delivery

Chair(s): Vedat Verter

101-1888   Scheduling Mobile Mammography Facilities For Community-based Care Considering Breast Cancer Risk

Ayca Erdogan, Assistant Professor, San Jose State University, United States

Samira Fazel Anvaryazdi, Lecturer, Washington University in St. Louis, United States

Michael Klein, Assistant Professor, San Jose State University, United States

Mahboubeh Madadi, Assistant Professor, San Jose State University, United States

Healthcare providers schedule mobile clinics to encourage participation in preventive care. We study the mobile facility location and scheduling problem for breast cancer screening. Considering that patients have different breast cancer risks, we propose a model to maximize health outcomes for a heterogeneous population and reduce disparities in the community.

101-1126   Technology Assessment for Hypertension Measurement; Investigating the Role of Information

Manaf Zargoush, Assistant Professor, Mcmaster University, Canada

Mehmet Gumus, Associate Professor, Mcgill University, Canada

Vedat Verter, Professor, Michigan State University, United States

Stella Daskalopoulou, Professor, Mcgill University, Canada

Modern techniques for measuring blood pressure are more accurate than the traditional techniques. Since they are more costly, the value of the information (VOI) is scrutinized by physicians. Employing dynamic optimization and machine learning, we assess VOI from the patients' perspective, based on real life data and common clinical practices

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101-2863   The Spillover Effect of Boarding Congestion on Emergency Departments

Zahra Jalali, Student, McGill University, Canada

Beste Kucukyazici, Assistant Professor, Michigan State University, United States

Mehmet Gumus, Associate Professor, Mcgill University, Canada

Can boarding patients affect service time in emergency departments ? This paper answers this question using data from eight emergency departments. Our results illustrate an inverted-U-shaped relationship between boarding congestion and service time. We propose two interventions which jointly mollify the impact of boarding congestion by 70%.

Invited Session

1164

Tuesday, 09:00 AM - 10:00 AM, Humanitarian Ops & Crisis Mgmt 1   Track: Humanitarian Operations and Crisis Management

Invited Session: Health supplies, crises and operations management

Chair(s): Marianne Jahre

101-1952   Optimization of the insecticide-treated bed nets distribution planning for malaria prevention

Fabiola de Oliveira, Post Doc/Researcher, Pontifícia Universidade Católica do Rio de Janeiro - PUC-Rio, Brazil
Douglas Alem, Lecturer, University of Edinburgh, United Kingdom
Fabricio Oliveira , Assistant Professor, Aalto University, Finland
Adriana Leiras, Professor, Pontifícia Universidade Católica do Rio de Janeiro - PUC-Rio, Brazil

Malaria is still a major health concern in several developing countries. This work proposes a location-allocation model for bed nets distribution that seeks to maximize the expected benefit of prioritizing the most vulnerable areas to malaria transmission according to a specific coverage level subject to facility location and transportation constraints

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101-2419   Red Blood Cell Inventory Allocation Policies to Reduce Shortages During Emergencies

Gina Dumkrieger, Post Doc/Researcher, Mayo Clinic, United States

Blood shortages kill. This research finds red blood cell allocation policies to prevent unmet demand during crises. Realistic simulated influenza pandemic and mass casualty events show the efficacy of these policies in preventing unmet demand in crisis situations. The policies are also effective at preventing outdating during normal operations.

101-2377   Medicine shortage and interventions in normal and abnormal times - the case of paracetamol

Marianne Jahre, Professor, BI Norwegian Business School, Norway
Victoria Ahlqvist, Student, Lund University, Sweden
Nonhlanhla Dube, Lecturer, Lancaster University, United Kingdom
Tsegaye Melaku, Assistant Professor, Jimma University, Ethiopia
Christine Årdal, Senior Adviser, Norwegian Institute of Public Health, Norway

This paper presents a conceptual framework for studying medicine supply chains in times of the COVID-19 pandemic. Based on a literature review of supply chain resilience and medicine shortages combined with a cross-country case study of paracetamol supply chains, we examine (potential) effects of key stakeholders' interventions on medicines availability.

Invited Session

1166

Tuesday, 09:00 AM - 10:00 AM, Information Systems & OM 1   Track: Information Systems and Operations Management

Invited Session: Economic analysis of IT-enabled innovative business models

Chair(s): Hong Guo

101-1383   Economic Analysis of Advertising Mechanisms in Mobile Apps Design

Xinxue Qu, Assistant Professor, University of Notre Dame, United States
Xuying Zhao, Associate Professor, University of Notre Dame, United States
Hong Guo, Associate Professor, University of Notre Dame, United States
De Liu, Associate Professor, University of Minnesota, United States

Advertising has become the main revenue source for app developers. Pushed-ads are the most common advertising mechanism. In some cases, consumers can choose to view extra ads (i.e., pulled ads) in exchange for more content. This study compares different advertising mechanisms and their influences on developers' profits and consumer surplus.

101-2843   AN ANALYSIS OF THE CLOUD COMPUTING IN THE TEXTILE INDUSTRY

Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil
PRISCILA CEMBRANEL CEMBRANEL, Student, CEFET, Brazil
Sergio Luis Cunha Jr., Student, Universidade Sociedade Educacional de Santa Catarina, Brazil
Bruna Ribeiro Barçala, Student, Universidade Sociedade Educacional de Santa Catarina, Brazil
Xu xiabo, Professor, Xi 'an jiaotong-liverpool university, China

This research study analyzes the risks and the benefits of the cloud computing from the perspective of the information technology managers from a large company that is in the final adoption of this technology. The results point to efficiency, flexibility, security in results, ease of use, and low cost.

101-1000   IT infrastructure capability and new product development success: Is market knowledge the missing link?

Jian Qin, Student, Nyenrode Business University, Netherlands
Bo Van Der Rhee, Professor, Nyenrode University, Netherlands
Venu Venugopal, Professor, Nyenrode University, Netherlands
Taher Ahmadi, Assistant Professor, Nyenrode University, Netherlands

Drawing on organizational information processing theory and the knowledge-based view, this study empirically investigates to what extent IT infrastructure capability affects NPD success and to what extent market knowledge mediates this relationship. Furthermore, we investigate the moderating role of innovation process formality.

Invited Session

1168

Tuesday, 09:00 AM - 10:00 AM, Inventory Management   Track: Inventory Management

Invited Session: Inventory Management Advances

Chair(s): Joachim Arts   Melvin Drent

101-2504   Joint Inventory Model with Supply Uncertainties and Partial Substitution

Donggyu Jeon, Student, Seoul National University, South Korea
Michael Lim, Associate Professor, Seoul National University, South Korea
Zhenkang Peng, Student, Shanghai Jiao Tong University, China
Ying Rong, Professor, Shanghai Jiao Tong University, China

We study the joint inventory problem for two substitutable products where they face different levels of supply reliability. Increasing substitution rate and decreasing substitution price gap result in a decreased organic order but an increased regular order. Increasing risk of supply disruptions and yield uncertainty result in different response strategies.

101-0518   Projected Expedited Inventory Position Policies for Dual-Sourcing Systems

Melvin Drent, Student, University of Luxembourg, Luxembourg
Joachim Arts, Associate Professor, University of Luxembourg, Luxembourg

We propose the Projected Expedited Inventory Position policy for operating periodic review dual-sourcing inventory systems. We show that this policy is asymptotically optimal as the shortage cost and the cost premium for expedited units grow large simultaneously. We further show that this result also holds for several existing heuristics.

101-1382   Expediting in Two-Echelon Spare Parts Inventory Systems

Melvin Drent, Student, University of Luxembourg, Luxembourg
Joachim Arts, Associate Professor, University of Luxembourg, Luxembourg

We consider dual sourcing in a distribution network for spare parts consisting of one central warehouse and multiple local warehouses. We illustrate the results by a case study at the Dutch railways where significant savings can be achieved.

Invited Session

1169

Tuesday, 09:00 AM - 10:00 AM, Manufacturing Operations   Track: Manufacturing Operations

Invited Session: Analytics in manufacturing operations

Chair(s): Honggang Wang   Wei Xie

101-1397   Metamodel-based cycle time quantile estimation for real-time control of manufacturing systems

Giulia Pedrielli, Assistant Professor, Arizona State University, United States
Russell Barton, Professor, Durham University, United States

Controlling the release of jobs in a manufacturing system is key to meet delivery targets and guarantee reasonable work in process. However, accurate cycle time estimates are required in real time. Our method efficiently produces such estimates for quantiles of job cycle time as a function of the system state.

101-1160   Distributionally robust optimization for pricing and network design of a returns remanufacturing system

Hailei Gong, Student, Tsinghua University, China
Zhi-Hai Zhang, Associate Professor, Tsinghua University, China

We consider a remanufacturing system pricing and network design problem under capacity constraints. Returns quality and quantity in remanufacturing system are highly uncertain and related to the acquisition price. A DRO model with decision dependent ambiguity sets is proposed to incorporate this factors.

101-2448   Probabilistic Knowledge Graph Assisted Reinforcement Learning for Biomanufacturing Process Control

Wei Xie, Assistant Professor, Northeastern University, United States
Ilya Ryzhov, Associate Professor, University of Maryland, United States

Driven the critical challenges of biomanufacturing, including complexity, high variability, and limited process data, we introduce a bioprocess probabilistic knowledge graph characterizing the production process spatial-temporal causal interdependencies. Then, we develop model-based reinforcement learning, accounting for model risk, to accelerate the integrated biomanufacturing process learning and development.

Invited Session

1170

Tuesday, 09:00 AM - 10:00 AM, Marketing & OM   Track: Marketing and Operations Management

Invited Session: Empirical Research on OM-Marketing Interface

Chair(s): Kedong Chen

101-2379   Impact of Consumer Complaints on Time to Recall: Empirical Investigation of the Automobile Industry

Weihan Jia, Student, Trinity College Dublin, Ireland

Yufei Huang, Associate Professor, Trinity College Dublin, Ireland

Xingjie Wei, Assistant Professor, Leeds University, United Kingdom

We merge three data files in a car recall dataset from National Highway Traffic Safety Administration in the USA. We measure consumer complaints with both dictionary-based analysis and Latent Dirichlet Allocation model, and then examine the effect of consumer complaint on the manufacture's recall timing decision via multinomial logistic model.

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101-0915   Exploring operational sustainability and marketing strategy of a New Zealand based fruit exporting company

Ram Roy, Senior Lecturer, Eastern Institute of Technology, New Zealand

Alex Abraham, CEO, Lean Enterprise Institute, Canada

This paper deals with marketing and operational aspects of a company involved in production, packaging, and export of apples to global markets. The paper is based on operational observations, interviews and survey of overseas consumers, and data from various sources. The paper offers solutions for efficient operations/marketing for better profits.

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101-2318   Interpretable Statistical Learning of High-Dimensional Marketing Effects and Retail Performance

Howard Hao-Chun Chuang, Associate Professor, National Chengchi University, Taiwan, Republic of China

Ping Chou, Student, National Chengchi University, Taiwan, Republic of China

Understanding the complementary/substitute effects of marketing on sales performance among many product offerings is crucial for retail operations. Yet, such data analyses are challenging because of the inherent high-dimensionality in product categories, time periods, and marketing initiatives. We develop interpretable statistical learning approaches and optimization algorithms to address this issue.

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Invited Session

1171   Tuesday, 09:00 AM - 10:00 AM, Operational Excellence   Track: Operational Excellence

Invited Session: Tutorial: Teaching POM and Operational Excellence with Virtual Reality

Chair(s): Torbjørn Netland

101-2077   Teaching POM and Operational excellence with Virtual Reality

Torbjørn Netland, Assistant Professor, Eth Zurich, Switzerland

We explain and demonstrate how we use Virtual Reality (VR) to teach POM, operational excellence, and lean concepts at ETH Zurich. Session participants will be enabled to implement this cost-efficient and learning-effective teaching innovation in their own courses.

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Invited Session

1173   Tuesday, 09:00 AM - 10:00 AM, POM in Practice   Track: POM in Practice

Invited Session: Emerging Topics in RM: Pricing, Matching and Learning

Chair(s): Murray Lei

101-0375   Price, wage and on-demand matching

Ming Hu, Professor, University of Toronto, Canada

Yun Zhou, Assistant Professor, Mcmaster University, Canada

We consider the problem faced by an on-demand platform to determine the optimal price to charge customers and optimal wage to compensate the crowdsourced supplier. We study the performance of simple commission structures and possible intervention by policy makers by imposing a minimum wage requirement.

- -

101-2590   Privacy-Preserving Personalized Revenue Management

Murray Lei, Assistant Professor, Queen's University, Canada

Sentao Miao, Assistant Professor, McGill University, Canada

Ruslan Momot, Assistant Professor, Hec Paris, France

We examine how data-driven personalized decisions can be made while preserving consumer privacy. We extend this classical framework of personalized pricing by requiring also that the firm's pricing policy preserve consumer privacy, or (formally) that it be differentially private.

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101-0295   Real-time Spatial Dynamic Pricing in a Ride-Sharing Network

George Chen, Assistant Professor, London Business School, United Kingdom

Murray Lei, Assistant Professor, Queen's University, Canada

Stefanus Jasin, Associate Professor, University of Michigan, United States

We study a real-time spatial pricing problem where a firm who uses reusable resources in a network to serve price-sensitive customers arriving stochastically over time. Firm charge prices for trips dynamically over time to maximize his revenue. We develop several classes of efficient pricing policies with near-optimal performances.

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Invited Session

1176

Tuesday, 09:00 AM - 10:00 AM, Public Sector OM   Track: Public Sector Operations Management

Invited Session: Operational interventions for improving public sector outcomes

Chair(s): Maya Ganesh

101-2592   Decision Support Tool at the U.S. POE: A Human Trafficking focus

Priscila de Azevedo Drummond, Student, University of Texas Rio Grande Valley, Brazil

Hiram Moya, Associate Professor, University of Texas Rio Grande Valley, United States

The Port-of-Entry effective operation can be the key to disrupt illicit supply chains. The Human Trafficking problem is challenging for several reasons, but foremost because people don't usually identify themselves as victims. The proposed model gives the optimal screening policy at the U.S. POE (POE) considering anti-human trafficking operations.

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101-1500   Does agent-choice in last-mile delivery of public programs increase welfare?

Rakesh Allu, Student, Cornell University, United States

Maya Ganesh, Student, Indian School of Business, India

Sarang Deo, Associate Professor, Indian School of Business, India

Sripad Devalkar, Assistant Professor, Indian School of Business, India

Last-mile delivery of entitlements in most public programs is executed through agents pre-assigned to beneficiaries. We examine the welfare impact of replacing agent pre-assignment with unconditional agent-choice. Using a natural experiment in India's food security program, we estimate a 3% increase in average monthly uptake of subsidized rice per household.

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101-2329   How Does Warfare Affect Firms' Productivity?

Andres Jola-Sanchez, Assistant Professor, Mays Business School, Texas A&M University, United States

We examine how warfare affects firms' total factor productivity (TFP). Using a propensity score analysis and data from Colombia, we find that warfare increases the TFP of service firms but that it decreases the TFP of non-service operations; this effect has roots in firms' intellectual capital growth during warfare.

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Invited Session

1177

Tuesday, 09:00 AM - 10:00 AM, Retail Operations   Track: Retail Operations

Invited Session: Emerging Topics in Retail Supply Chain I

Chair(s): Ying Cao

101-0466   The Effect of Shelf-Space Dependent Demand on Category Captainship

Ozgun Caliskan Demirag, Associate Professor, Penn State University Erie, United States

Weili Xue, Professor, Southeast University, China

Minghui Xu, Professor, Wuhan University, China

Mengchu Wu, Student, Southeast University, China

We compare category captainship and retailer category management practices in a supply chain with two manufacturers selling substitutable products through a common retailer under shelf-space-dependent demand. We investigate conditions under which category captainship benefits the retailer and the captain manufacturer. We also analyze the implications for the non-captain manufacturer.

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101-1418   Selective Newsvendor Problem with Integrated Marketing, Sales, and Operations

Jianing Zhi, Lecturer, Penn State University Erie, United States

Zhifeng Xiao, Associate Professor, Penn State University Erie, United States

Burcu Keskin, Professor, University of Alabama Tuscaloosa, United States

We consider a wholesaler that procures a product from a distant supplier to serve strategically selected customers. We build a mixed integer nonlinear programming (NLP) model, integrating marketing and sales strategies. We develop an effective search-based algorithm to solve the problem.

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101-2405   Buyback in a Decentralized Supply Chain with Additive and Price-Dependent Demand

Weixin Shang, Associate Professor, Lingnan Univ, Hong Kong

Kairen Zhang, Associate Professor, University of Science and Technology of China, China

Weihua Zhou, Professor, Zhejiang University, China

We examine buyback contracts in a dyadic supply chain where a monopolistic retailer orders from a supplier. Consumer demand is modeled as the sum of a random variable and a deterministic function of retail price. Buyback contracts with such demand models are understudied due to technical difficulties.

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Invited Session

1178

Tuesday, 09:00 AM - 10:00 AM, Revenue Management & Pricing   Track: Revenue Management and Pricing

Invited Session: Choice Models and Assortment Optimization I

Chair(s): Guang Li   Sumit Kunnumkal

101-0755   What Is The Impact of Non-Randomness on Random Choice Models???

Ruxian Wang, Associate Professor, Johns Hopkins University, United States

The literature often assumes that the random utility components follow some i.i.d. distribution. This assumption is too restrictive in some real-world scenarios, so in this talk, we examine the impact of non-randomness on random choice models.

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101-1856   Two-stage Assortment Optimization with Product Recommendations

Venus Lo, Assistant Professor, City University of Hong Kong, Hong Kong

A customer requests a product following independent demand. If the product is in the retailer's assortment, she purchases it and leaves. Otherwise, the retailer recommends a subset assortment. The customer substitutes according to MNL, conditional on her first-choice. Assortment optimization is APX-hard, and I present a FPTAS for semi-heterogeneous customers.

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101-0932   Balancing Assortment Breadth vs. Depth when Stores have Limited Capacity

Victor Martínez-De-Albéniz, Professor, I E S E, Spain

Sumit Kunnumkal, Assistant Professor, Indian School of Business, India

Integrating inventory and assortment planning decisions is a challenging task that requires comparing the value of demand expansion through broader choice for consumers, with the value of higher product availability. We develop a model for trading off these values in a setting with limited store capacities and inventory replenishment.

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Invited Session

1182	Tuesday, 09:00 AM - 10:00 AM, Socially Responsible Operations	Track: Socially Responsible Operations
	Invited Session: People, Planet, Profits: Modeling and Experiments in Social and Environmental Sustainability	
	Chair(s): Jacob Chestnut	

101-0961   Reining in Onion Prices by Introducing a Vertically Differentiated Substitute: Models, Analysis, and Insights

Muge Yayla-Kullu, Associate Professor, University of Central Florida, United States

Omkar Palsule-Desai, Assistant Professor, IIMA, India

Srinagesh Gavirneni, Professor, Cornell University, United States

Onion is an indispensable ingredient of the Indian diet, and plays a vital role in Indian economy, society, and politics. In this paper, we are interested in analyzing the situation and helping decision makers to evaluate a promising socially sustainable policy proposal: the introduction of dehydrated onion.

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101-2512   Leveraging the Deep Pockets: How can NGOs Incentivize Local Suppliers' Environmental Improvement through MNCs

Lei Guo, Associate Professor, East China University of Science & Tehcnology, China

Haitao Yin, Professor, Shanghai Jiao Tong University, China

Qinghua Zhu, Professor, Shanghai Jiao Tong University, China

In spite of its practical prevalence, the phenomenon in which NGOs pressurize MNCs to discipline their suppliers for better environmental management and performance has received little theoretical attention. We build up a model in an attempt to provide theoretical probe into the dynamics of this NGO-MNC-supplier relationship.

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101-0861   Shared Supplier Capacity as a Barrier to Socially Responsible Sourcing

Jacob Chestnut, Assistant Professor, Cornell University, United States

Ravi Anupindi, Professor, University of Michigan Ann Arbor, United States

This experimental project considers the role of buyer behavior (e.g., time pressure, low margin, near delivery specification changes) in their supplier's performance along the dimension of social sustainability (forced OT, child labor, unauthorized outsourcing, etc.). We attempt to understand the relevant features (contractual/non-contractual) that suppliers use when creating preference rankings

- -

Contributed Session

1183	Tuesday, 09:00 AM - 10:00 AM, Sports OM	Track: Sports Operations Management
	Contributed Session: Sports Operations Management 1 of 2 - Applied Theory / Volunteers	
	Chair(s): David Bamford	

101-1410   Sport logistics and equipping of athletes

Christoph Pott, Post Doc/Researcher, Technische Universität Dortmund, Germany

Sport logistics takes place whenever material is transported and information is transmitted in the field of sports. Especially to today's highly professionalized sport, logistics makes a significant contribution. For the first time ever, the field of sport logistics is elaborated scientifically.

- -

101-0519   Improving off-field performance by utilising volunteers: A Rugby case study, 160 years in the making

Scott Bambrick, Senior Lecturer, Manchester Metropolitan University, United Kingdom

Joanne Bambrick, Senior Lecturer, Manchester Metropolitan University, United Kingdom

Michael Bull, Associate Professor, Dr, United Kingdom

By utilising volunteers, English Rugby Clubs are able to operate off-field as financially sustainable businesses. Through a case study, this paper lays out a quantitative research strategy which will seek to identify the factors attributed to attracting volunteers to the sport, with the purpose of clubs enhancing off-field performance

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101-0493   Sport operations management: the application of planning, scheduling and control

David Bamford, Professor, Manchester Metropolitan University, United Kingdom

Iain Reid, Reader, Manchester Metropolitan University, United Kingdom

Jim Bamford, Senior Lecturer, University of Huddersfield, United Kingdom

To examine sports OM we present findings of interviews with professional sporting practitioners. Key themes are presented with particular attention to planning, scheduling and control in off-field sporting operations. Areas for further research with an emphasis on the application of OM theory to off-field sporting practice are presented.

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Invited Session

1184	Tuesday, 09:00 AM - 10:00 AM, Supply Chain Management Track: Supply Chain Management
	Invited Session: Panel: Holding the Door Open: A Networking Workshop for Women
	Chair(s): Kaitlin Wowak

101-2891   Holding the Door Open: A Networking Workshop for Women

Cheryl Gaimon, Professor, Georgia Institute of Technology, United States

Aleda Roth, Professor, Clemson University, United States

Susan Helper, Professor, Case Western Reserve University, United States

Janice Carrillo, Professor, University of Florida, United States

Kaitlin Wowak, Assistant Professor, University of Notre Dame, United States

This session will feature current female editors at top OM journals. The session will begin with short presentations by our distinguished invited panel reflecting on their "path to power," as well as advice about high quality reviewing, obtaining editorial board memberships, and developing a good co-author network.

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Invited Session

1186	Tuesday, 09:00 AM - 10:00 AM, Supply Networks Track: Supply Networks
	Invited Session: Leveraging Supply Networks for Competitive Advantages
	Chair(s): Yusoon Kim

101-0586   Technological Innovation Spillover in Supply Networks

Hyunwoo Park, Assistant Professor, Ohio State University, United States

Waleed Muhanna, Professor, Ohio State University, United States

In this work, we study how innovation outcomes propagate in supply networks. From a buyer's perspective, sourcing innovation from suppliers and developing own innovation are complementary. Our empirical analysis include the effect of supplier innovation on buyer's supplier portfolio and own innovation activities. We also consider spillover through indirect relationships.

- -

101-2328   Network Asymmetry and Supply Contract Competition

Lei Hua, Student, University of Texas Arlington, United States

Alper Nakkas, Assistant Professor, University of Texas Arlington, United States

Kay Yut Chen, Professor, University of Texas Arlington, United States

We build a game-theoretic model to examine supply contract negotiations under competition when retailers have asymmetric supplier bases. Overall, our research suggests that the supply chain network structure can fundamentally impact firms' contracting behaviors, and thus, needs to be considered to better reflect the reality of contractual negotiation under competition.

- -

101-1158   Do Inspections Interrupt Production? An Empirical Examination in the Oil Industry

Sehwon Kang, Assistant Professor, Tilburg University, Netherlands

This study examines the consequence of inspections on the production outcomes of inspected organizations. We deal with the monthly production data from over 1,000 oil production platforms to identify the relationship among disrupted unit, its production, and other units' production.

- -

Invited Session

1187	Tuesday, 09:00 AM - 10:00 AM, Sustainable Operations 1 Track: Sustainable Operations
	Invited Session: Climate Change and Renewable Energy
	Chair(s): Christian Blanco

101-2685   Solar energy adoption: A systematic literature review and bibliometric analysis

Vishnu Rajan, Assistant Professor, Xavier Institute of Management & Entrepreneurship, India

Joshin John, Assistant Professor, (CIF:ESG50985993), India

In recent times, commercial firms and consumers have demonstrated higher traction in adoption of solar power. The reasons could be economic, environmental or social. In this paper, we undertake a systematic review of literature on solar energy adoption and identify areas ripe for future empirical research.

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101-1218   Harvesting Solar Power Foments Prices in a Vicious Cycle:Breaking the Cycle with Price Mechanisms

Metin Cakanyildirim, Professor, University of Texas Dallas, United States

Fariba Farajbakhsh Mamaghani, Student, 1989, United States

The regulated utility raises the electricity price by the growth of residential solar power. We provide a novel revenue maximization formulation and reveal the interaction between optimal price and solar power adoption. Iterating with this interaction, we analytically explain when and how the utility death spiral occurs and offer solutions

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101-1828   Do Noisy Customer Reviews Discourage Platform Sellers? Empirical Analysis of an Online Solar Marketplace

Herbie Huang, Student, Kenan-Flagler Business School, United States

Nur Sunar, Assistant Professor, Kenan-Flagler Business School, United States

Jayashankar Swaminathan, Professor, Kenan-Flagler Business School, United States

An effective way to combat climate change is to make the renewable energy technologies more accessible. Using a unique data set, we study an online solar marketplace to understand how the dispersion in customer reviews impacts the installer's marketplace activity level as well as market-level matches.

- -

Tuesday, 10:15 AM - 11:15 AM

Invited Session

1194	Tuesday, 10:15 AM - 11:15 AM, Behavior in OM Track: Behavior in Operations Management Invited Session: CBOM Junior Scholar Paper Competition Finalists Chair(s): Nikolay Osadchiy Eirini Spiliotopoulou

101-2912   Finalist A: Data Caps Expand Access to Digitally-led Health Services -- Evidence from a Mumbai

Alp Sungu, Student, London Business School, United Kingdom

Kamalini Ramdas, Professor, London Business School, United Kingdom

Do the poor view their smartphones as a temptation good? Mumbai slum dwellers randomly assigned to a `commitment plan', with daily data usage caps, are more likely access and act-upon health information. Our usage-tracking app reveals why. Absent caps, participants binge on YouTube and social media, resulting in data shortages

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101-2913   Finalist B: Learning Best Practices: Can Machine Learning Improve Human Decision-Making?

Park Sinchaisri, Student, The Wharton School, United States

Hamsa Bastani, Assistant Professor, University of Pennsylvania, United States

Osbert Bastani, Assistant Professor, University of Pennsylvania, United States

Workers spend a significant amount of time learning how to make good decisions. We propose a novel machine-learning algorithm for inferring interpretable tips that can help human workers improve their performance in sequential decision-making tasks. Our behavioral study reveals insights into the algorithm's effectiveness and how humans interact with AI

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101-2914   Finalist C: To What Extent Do Workers' Preferences Matter?

Zhenzhen Jia, Student, Fudan University, China

Kejia Hu, Assistant Professor, Vanderbilt University, United States

Jianqiang Hu, Professor, Fudan University, China

Vishal Ahuja, Assistant Professor, Southern Methodist University, United States

People have psychological preferences for choices, even if these options are identical. Using the PSM methods, we show that the satisfaction of preferences stimulus people to work quicker and better. Moreover, our counterfactual analysis shows that incorporating the preference effect in the scheduling system can improve service efficiency and quality

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Invited Session

1198	Tuesday, 10:15 AM - 11:15 AM, Emerging Topics in OM Track: Emerging Topics in Operations Management Invited Session: Future of risk management in supply chains Chair(s): Srimathy Mohan

101-2031   Understanding Supply Chain Threats and Corresponding Security Practices

Victor Benjamin, Assistant Professor, Arizona State University Tempe, United States

Mohan Gopalakrishnan, Associate Professor, Arizona State University Tempe, United States

Despite firms investing more into cybersecurity, the number of breaches and their impact seem to continue unabated. Are companies addressing the right issues? We review over 500 publicly disclosed cyber breaches and interview senior management at 6 large North American-based organizations to identify common attack archetypes and potential defense strategies.

- -

101-2033   Role of Block Chain Technology in Supply Chain's Future - A Research Review

Raghu Santanam, Professor, Arizona State University Tempe, United States

Mohan Gopalakrishnan, Associate Professor, Arizona State University Tempe, United States

Blockchain, an emerging digital phenomenon, is a form of distributed ledger technology. It is touted as a panacea for improving visibility in supply chains. This paper presents the strengths and weaknesses of blockchains, how these impact the effectiveness of tracking and tracing in supply chains and mitigating counterfeit parts.

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101-2819   A study of hospital waste management methods in South America

Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil

Camila Ganeff Moraes, Student, CEFET-RJ, Brazil

Igor dos Santos, Professor, CEFET-RJ, Brazil

Joseph Shevel, Professor, Galilee Institute, Israel

Gerardo Heckmann, Professor, Universidad Nacional de Córdoba, Argentina

Hospital waste can have some characteristics like contamination and radioactivity. Because of this, the hospital waste management is a challenge for healthcare logistics. The correct management of this waste is strategic for these institutions. This works aims to investigate the main methods of hospital waste management in South American.

Invited Session

1203 Tuesday, 10:15 AM - 11:15 AM, Healthcare OM 1   Track: Healthcare Operations Management

Invited Session: CHOM Best Paper Finalist Presentations (1)

Chair(s): Vikram Tiwari

101-2925   Value-based clinical trials - selecting recruitment rates and trial length in different regulatory contexts

Andres Alban, Student, INSEAD, France

Stephen Chick, Professor, INSEAD, France

Martin Forster, Lecturer, University of York, UK, United Kingdom

Health systems are placing an increasing emphasis on improving the design and operation of clinical trials, with the aim of making the health technology adoption process more 'value-based'. We present a model of a value-based two-armed clinical trial in which both the recruitment rate and trial length are optimized.

101-2926   Partially-partitioned Templating Strategies for Specialty Outpatient Practices

Miao Bai, Assistant Professor, University of Connecticut, United States

Bjorn Berg, Assistant Professor, University of Minnesota, United States

Esra Sisikoglu Sir, Senior Scientist, Amazon.com, United States

Mustafa Sir, Senior Scientist, Amazon.com, United States

We present a stochastic optimization approach to design optimal patient prioritization schemes which maintain desired patient mix and service level while simultaneously minimizing system inefficiencies (i.e., unfilled slots and overbooked appointments). Optimal capacity allocation prioritization policies are presented based on patient demand data from a large academic medical center.

101-2927   Feature-Based Design of Priority Queues: Digital Triage in Healthcare

Simrita Singh, Student, Northwestern University, United States

Itai Gurvich, Associate Professor, Cornell University, United States

Jan Van Mieghem, Professor, Northwestern University, United States

Two building blocks of AI-assisted triage - the priority prediction algorithms, and the priority dependent workflows -are typically designed in silos, and can be system sub-optimal . We develop an integrated model of algorithm training, prediction, and workflow optimization and investigate key design questions like number of priority levels.

Contributed Session

1205 Tuesday, 10:15 AM - 11:15 AM, Humanitarian Ops & Crisis Mgmt 1   Track: Humanitarian Operations and Crisis Management

Contributed Session: Disaster Preparedness, Recovery and Planning

Chair(s): Llord Brooks

101-0723   The Impact of Operational Barriers on Hurricane Evacuation Behavior

Nathan Kunz, Assistant Professor, University of North Florida, United States

Dong-Young Kim, Associate Professor, University of North Florida, United States

Disaster preparedness is crucial for mitigating the impact of hurricanes. Evacuating populations at risk is among the best solutions to reduce the death toll of hurricanes. Unfortunately, many residents do not follow evacuation orders. Through a survey conducted after Hurricane Irma, we study the operational barriers preventing residents from evacuating.

101-2161   Impact of Preparedness Investments

Jonas Stumpf Stumpf, Student, WU Vienna Univ of Economics and Business, Switzerland

Maria Besiou, Professor, Kuehne Logistics University, Germany

Tina Wakolbinger, Professor, Vienna Univ of Econ & Business Admin, Austria

Using system dynamics methodology, we model the humanitarian supply chain to analyze the impact of preparedness investments with respect to cost savings, lead-time reductions and social impact on local population in different operational settings. To quantify the results, we introduce the return on investment concept into humanitarian operations.

101-2367   The Influence of Trauma on Disaster Planning Integration

Llord Brooks, Student, University of Arkansas - Fayetteville, United States

Iana Shaheen, Assistant Professor, University of Arkansas - Fayetteville, United States

David Dobrzykowski, Associate Professor, University of Arkansas, United States

Using approach-avoidance theory perspective, we examine how exposure to trauma and social support influence the cooperative behaviors of aid workers and internal integration activities aimed at preparing for future disaster response.

Contributed Session

1206

Tuesday, 10:15 AM - 11:15 AM, Humanitarian Ops & Crisis Mgmt 2   Track: Humanitarian Operations and Crisis Mgmt 2

Contributed Session: Pandemic Vaccine Topics

Chair(s): Miao Bai

101-2203   Competition for Medical Supplies Under Stochastic Demand in the Covid-19 Pandemic: Generalized Nash Equilibrium Framework

Anna Nagurney, Professor, University of Massachusetts Amherst, United States

Mojtaba Salarpour, Student, University of Massachusetts Amherst, United States

June Dong, Professor, State University of New York at Oswego, United States

Pritha Dutta, Assistant Professor, Pace University, United States

In this paper, we construct the first Generalized Nash Equilibrium model with stochastic demands to model competition among organizations at demand points for medical supplies. The model includes multiple supply points and multiple demand points, along with prices of the medical items and generalized costs associated with transportation.

101-2280   No Panic in Pandemic: The Impact of Individual Choice on Public Health Policy and Vaccine

Zhenhuan Zhang, Student, University of Minnesota, United States

Miao Bai, Assistant Professor, University of Connecticut, United States

Ying Cui, Assistant Professor, University of Minnesota, United States

Guangwen Kong, Assistant Professor, Temple University, United States

We consider public health interventions (social distancing and lockdown) for COVID-19 pandemic by incorporating human responses to these policies. We derive insightful structural properties and find its implications for vaccine priority. We find that strict social distancing and lockdown policies should be more emphasized after the disease prevalence peak.

101-2422   Managing Concurrency in Projects under Stochastic Environments: Understanding Vaccine Development for Pandemics

Nagesh Murthy, Professor, University of Oregon, United States

Hossein Rikhtehgar Berenji, Assistant Professor, Pacific University , United States

Haikady Nagaraja, Professor, Ohio State University, United States

Aggressive overlapping of activities associated with vaccine development, approval, and gearing up for its manufacturing and distribution during COVID-19 pandemic has been one of the major levers to make effective vaccines available to the public, at "pandemic" or "warp" speed. We provide a framework to manage overlapping of stochastic tasks.

Invited Session

1207

Tuesday, 10:15 AM - 11:15 AM, Information Systems & OM 1   Track: Information Systems and Operations Management

Invited Session: Tutorial: Cryptocurrencies

Chair(s): Andrew Whinston

101-2107   Cryptocurrencies

Andrew Whinston, Professor, University of Texas at Austin, United States

This talk addresses how different cryptocurrencies are fundamentally different in the identity management of their ledger writers, consensus algorithms, and coin supply; how these factors determine performance, including security, privacy, and financial influence. It concludes with potential research topics around these cryptocurrencies that are still open, especially the privacy issue.

Invited Session

1208

Tuesday, 10:15 AM - 11:15 AM, Information Systems & OM 2   Track: Information Systems and Operations Mgmt 2

Invited Session: Operations Management and Marketing interface

Chair(s): Shubham Gupta

101-2829   A Blessing in Disguise: Advertisers May Sometimes Benefit From Not Adopting Blockchain

Yi Gao, Student, Tsinghua University, China

Subodha Kumar, Professor, Temple University, United States

Dengpan Liu, Professor, Tsinghua University, China

This paper develops a game-theoretic model to analyze the impact of blockchain on the digital advertising industry. Specifically, we examine whether advertisers should adopt the blockchain in equilibrium and how publishers should allocate spots facing this new technology. Moreover, we investigate how social welfare changes with the adoption of blockchain.

101-2832   Economics of Affiliate Marketing on User-Generated Content Platforms

Meilin Gu, Student, Tsinghua University, China

Subodha Kumar, Professor, Temple University, United States

Dengpan Liu, Professor, Tsinghua University, China

Recently, some user-generated content platforms have adopted a novel commission-based affiliate marketing business model in which the users can monetize their contents through providing shoppable links to e-commerce sites. Through the lens of analytical modeling, we examine how the platforms and the users are impacted by this emerging business model.

101-2848   Economics of Advertising Misattribution on Ecommerce Platforms

Zizheng Liu, Student, Tsinghua School of Economics and Management, China

Subodha Kumar, Professor, Temple University, United States

Dengpan Liu, Professor, Tsinghua University, China

We develop a game-theoretic model to investigate the impact of advertising misattribution on E commerce platforms. Additionally, we examine whether the third-party sellers on a platform would benefit from adopting the advertising attribution tools provided by the platform who may act strategically in attributing the effects of digital advertising.

Invited Session

<table>
<tr><td rowspan="3">1209</td><td>Tuesday, 10:15 AM - 11:15 AM, Inventory Management   Track: Inventory Management</td></tr>
<tr><td>Invited Session: Aggregation and Decomposition Approaches in Inventory Management</td></tr>
<tr><td>Chair(s): Guohua Wan</td></tr>
</table>

101-1052   Segmentation, Aggregation, and Disaggregation Process For Inventory Optimization Size Reduction

Alireza Sheikh-Zadeh, Assistant Professor, Texas Tech University, United States

This research develops a framework for reducing the size of large-scale multi-item inventory optimization problems, including three stages: decision-variable segmentation, aggregation, and disaggregation. The new solution is implemented on multi-echelon spare-part provisioning systems and reduced the execution time of optimization in a range between 90-99.5% with a low error.

101-2733   Extending Parametric Decomposition Method to Evaluate the Performance of a Production-Inventory Networks with Batch Service

Sandeep Srivathsan, Assistant Professor, Great Lakes Institute of Management, India

Manjunath Kamath, Professor, Oklahoma State University, United States

We present an extension of the parametric decomposition approach to evaluate the performance of a production-inventory network (PIN) with batch service. The extension involves the use of backorder distributions to link successive stages in the PIN. We compare the performance of our model with two existing approaches.

101-1510   Base-Stock Policies for a Divergent Two-Echelon Inventory System with Lost Sales

Marco Bijvank, Assistant Professor, Haskayne School of Business, Canada

Arjan Dijkstra, Sales Analyst, ?, Netherlands

We propose a decomposition procedure to approximate the performance of an inventory system with one supplier (or DC) and multiple retailers that is controlled by base-stock policies. A numerical investigation illustrates that the procedure can be used to set the base-stock levels such that the performance is near optimal.

Invited Session

<table>
<tr><td rowspan="3">1210</td><td>Tuesday, 10:15 AM - 11:15 AM, Manufacturing Operations   Track: Manufacturing Operations</td></tr>
<tr><td>Invited Session: Modeling and optimization of biomanufacturing operations</td></tr>
<tr><td>Chair(s): Wei Xie   Tugce Martagan</td></tr>
</table>

101-2476   Production System & Supply Chain Considerations for Tissue Engineered Medical Products

Rohan Shirwaiker, Associate Professor, North Carolina State University, United States

Reha Uzsoy, Professor, North Carolina State University, United States

The manufacturing of tissue engineered medical products (TEMPs) involves multi-stage processing of perishable materials, typically characterized by high variability, over weeks in highly regulated, aseptic environments. This presentation will highlight opportunities and challenges involved in engineering production systems and supply chains to enable TEMPs' commercially-viable translation from lab to clinics.

101-2477   Increasing Biomanufacturing Yield with Bleed-Feed: Optimal Policies and Insights

Tugce Martagan, Assistant Professor, Technische Universiteit Eindhoven, Netherlands

Bleed-feed is a novel technology that allows biomanufacturers to skip bioreactor setups. However, the specific time at which bleed-feed is performed is critical for success. We develop a finite-horizon Markov decision process model, and analyze the structural characteristics of optimal bleed-feed policies. We also present an industry case study.

101-2454   Optimizing Biomanufacturing Harvesting Decisions under Limited Historical Data

Wei Xie, Assistant Professor, Northeastern University, United States

Tugce Martagan, Assistant Professor, Technische Universiteit Eindhoven, Netherlands

Alp Akcay, Assistant Professor, Eindhoven University of Technology, Netherlands

Since biopharmaceutical manufacturing often has very limited batch data, we introduce a model-based reinforcement learning accounting for model risk to support bioprocess online learning and guide the optimal decision making. We conduct the structural analysis of optimal policy and study the impact of model risk on the policy selection.

Invited Session

1211

Tuesday, 10:15 AM - 11:15 AM, Marketing & OM   Track: Marketing and Operations Management

Invited Session: Return Policies, Add-on Pricing and Minimum Sales Requirement

Chair(s): Xiuli He

101-0667   Return Window Decision in a Distribution Channel

Buqing Ma, Assistant Professor, University of Science and Technology of China, China
Chenchen Di, Student, University of Illinois at Urbana Champaign, United States
Lu Hsiao, Associate Professor, National Chung Hsing University, Taiwan, Republic of China

This paper studies a frm's return window decision in a distribution channel. By building a model consisting of one manufacturer, one retailer, and consumers who are heterogeneous in product valuations, we find several counterintuitive results.

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101-1866   Sales Contest with a Minimum Sales Volume Requirement

Qinglong Gou, Associate Professor, University of Science and Technology of China, China
Zhen Shao, Student, University of Science and Technology of China, China
Wenjuan Li, Student, Johns Hopkins University, United States

We investigate whether a firm can benefit from a sale contest with a minimum sales requirement. To achieve this purpose, we derive the salespersons' equilibrium efforts and the firm's optimal award for sales contests with or without the minimum requirement. A comparison between the two contests is provided.

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101-2651   Optimal Subscription Box Services Design: Habituation Exploitation and Exploration

Dawei Jian, Student, University of California Riverside, United States

We study subscription box services design problem, where the provider can shape consumer's taste through habituation. The optimal plan resolves a dynamic tradeoff between habituation exploitation and exploration, screening new information, and optimizing profit. With subscription, the provider benefits with uncertainty leveraging, habituation internalization and consumer taste unification.

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Invited Session

1212

Tuesday, 10:15 AM - 11:15 AM, Operational Excellence   Track: Operational Excellence

Invited Session: Human side of Operational Excellence

Chair(s): Andrea Furlan

101-1335   Role of top-management commitment in production improvement programs

Sven Januszek, Student, Swiss Federal Institute of Technology Zurich, Switzerland
Andrea Furlan, Professor, Padova University, Italy
Torbjørn Netland, Assistant Professor, Eth Zurich, Switzerland

Managerial commitment is crucial for implementing and sustaining production improvement programs. In this article, we study how specific beliefs and actions of top-management relate to the success of improvement programs. The results provide insights into the role of top-managers for manufacturing firms to achieve operational excellence.

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101-1480   The Interplay Between Process Improvement Approaches and Product Innovation. A Literature Review and Research Agenda

Rima Al Hasan, Assistant Professor, University of Jordan, Jordan
Pietro Micheli, Professor, University of Warwick, United Kingdom

Through systematically review the literature on the relationship between process improvement approaches - such as lean, six sigma - and product innovation, findings proposed that two main views exist in the literature: control-oriented and learning-oriented. The former finds a mainly negative relationship, whereas the latter identifies a positive one.

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101-1259   The root of continous improvement: employees proactivity and mental models

Andrea Furlan, Professor, Padova University, Italy
Torbjørn Netland, Assistant Professor, Eth Zurich, Switzerland
Michela Carraro, Student, University of Padova, Italy

All continuous improvement initiatives ultimately rely on employees' proactivity and yet operational excellence literature rarely addresses it. In this paper we study whether working in teams with similar mental models enhances employees' proactivity

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Invited Session

1214

Tuesday, 10:15 AM - 11:15 AM, POM in Practice   Track: POM in Practice

Invited Session: Supply Chain Management in Practice

Chair(s): Yixin Iris Wang

101-0407   The Impact of Logistics on Retail Platform Competition: Evidence from Alibaba

Jiankun Sun, Assistant Professor, Imperial College London, United Kingdom
Dennis Zhang, Assistant Professor, Washington University St Louis, United States

Logistics is a key component of consumers' online shopping experience and is important to online retailing business. Using data from Alibaba Group, we investigate the impact of the improvement in logistics service on consumers' consumption and the resulting economic value to the online retailers and the retail platform.

101-0289   Information overloading in supplier selection

Kejia Hu, Assistant Professor, Vanderbilt University, United States

Yixin Iris Wang, Assistant Professor, University of Illinois Urbana-Champaign, United States

When buyers are provided with an extensive list of supplier attributes, we observe less consistent supplier choices in the lab environment. Using the observational data, we also find that the buyers tend to focus on a smaller set of attributes in the case of information overloading.

101-2698   Fake News and Fact Checking: Impact on News Consumption and Dissemination

Senthil Veeraraghavan, Professor, University of Pennsylvania, United States

Ken Moon, Assistant Professor, The Wharton School, United States

Jiding Zhang, Assistant Professor, New York University Shanghai, China

Our study links the online spread of news to consumers' preferences for consuming a mix of online content. We use data-driven methods to identify patterns of substitution and complementaries in online news consumption, allowing for interactions between specific demographic segments and news sources.

Invited Session

1217	Tuesday, 10:15 AM - 11:15 AM, Public Sector OM Track: Public Sector Operations Management
	Invited Session: Methods for Public Sector Operations
	Chair(s): Mark Brennan Timothy Breitbach

101-2307   Fair Resource Allocation Under Uncertainty

Philippe Blaettchen, Student, INSEAD, France

Peter Zhang, Assistant Professor, Carnegie Mellon University, United States

We study the theoretical problem of allocating scarce resources under uncertainty. The operations literature has largely studied efficiency-fairness tradeoff, but largely ignored the issue of uncertainty. We show that ignoring uncertainty will systematically create bias in solution, in terms of equity loss.

101-1662   Facility Locations in Public Policy

Mark Brennan, Student, Massachusetts Institute of Technology, United States

Jonars Spielberg, Student, Massachusetts Institute of Technology, United States

Bishwapriya Sanyal, Professor, Massachusetts Institute of Technology, United States

We use analytics on a unique dataset of 250 firms across 30 cities in the irrigated areas of Senegal to characterize where firms locate. A crucial feature of these firms is they provide goods and services necessary for irrigation policy--but public decisionmakers have little say in where they locate.

101-2209   How Boston Emergency Medical Services Maintained Sufficient Capacity During The COVID-19 Pandemic

Mark Brennan, Post Doc/Researcher, Massachusetts Institute of Technology, United States

Justin Steil, Associate Professor, Massachusetts Institute of Technology, United States

Sean Willems, Professor, University of Tennessee Knoxville, United States

Jeff Rosenblum, Post Doc/Researcher, Massachusetts Institute of Technology, United States

Boston Emergency Medical Services (EMS) provides 9-1-1 pre-hospital care and transport. Boston EMS maintained sufficient capacity throughout the COVID-19 pandemic by employing time-tested capacity management policies to increase capacity available, while implementing innovative data-driven policies to shape demand and preserve resource availability. This paper presents the Boston EMS planning effort.

Invited Session

1218	Tuesday, 10:15 AM - 11:15 AM, Retail Operations Track: Retail Operations
	Invited Session: Emerging-market Retail Operations II
	Chair(s): Jiwen Ge

101-2580   Strategies and Challenges of Grocery Retailing during COVID-19: The Case of Colombia

Johanna Amaya Leal, Assistant Professor, Iowa State University, United States

Trilce Encarnacion, Assistant Professor, University of Missouri St Louis, United States

Estefania Martinez-Larios, Student, Universidad del Norte, Colombia

Maria Acosta-Lopez, Student, Universidad del Norte, Colombia

The Covid-19 pandemic brought several challenges and restrictions on grocery retailing operations, these retailers have had to devise strategies to maintain their levels of service. This research presents an analysis of these adaptive measures using social media as well as in-depth interviews with grocery chains in Colombia.

101-2356   Base-of-Pyramid Market Preferences Towards the Nanostore Retail Channel

Cristiano Flore e Silva , Student, INESC TEC, Faculty of Engineering, Portugal

Pedro Amorim, Associate Professor, INESC TEC and Faculty of Engineering, UP, Portugal

Jan Fransoo, Professor, Tilburg University, Netherlands

Traditional retailers face hard choices when deciding how to improve the way they serve their customers in urban slum markets. Based on empirical evidence, our study explores the changes in BoP customer's preferences and captures the nanostore owners' perception to design an optimal nanostore offering configuration.

101-0155   Competition between modern retail chains and unorganized retailers in emerging markets

Jiwen Ge, Assistant Professor, Dongbei University of Finance & Ecnomics, China

Brian Tomlin, Professor, Dartmouth College, United States

Jan Fransoo, Professor, Tilburg University, Netherlands

Emerging-markets feature the co-existence of large-scale supermarkets as organized retailers and high-density mom-and-pops as unorganized retailers. We model a multi-unit game where a CPG manufacturer sells a product to both retail formats which compete for consumers via retail pricing. We study the wholesale and retail pricing equilibrium.

Invited Session

1219

Tuesday, 10:15 AM - 11:15 AM, Revenue Management & Pricing

Track: Revenue Management and Pricing

Invited Session: Choice Models and Assortment Optimization II

Chair(s): Guang Li

101-1274   Optimal Pricing under Multiple-Discrete Customer Choices and Diminishing Return of Consumption

Tim Huh, Professor, Sauder School of Business, UBC, Canada

Hongmin Li, Professor, Arizona State University Tempe, United States

We consider a utility-based customer choice model where the customer may purchase multiple products and even possibly multiple units of each product. We study the firm's optimal pricing problem, and present an algorithm to find the optimal prices.

101-1079   Restaurant Delivery Platforms, Commission Rates, and Delivery Fees

Chloe Glaeser, Assistant Professor, Kenan-Flagler Business School, United States

Jaelynn Oh, Assistant Professor, University of Utah, United States

Xuanming Su, Professor, University of Pennsylvania, United States

Restaurant delivery platforms generate online demand for restaurants and deliver food to customers. This paper studies the pricing problem: how much commission should restaurants pay to the platform and how much delivery fees should the platform charge customers?

101-1817   Pricing and Waiting Behaviour of Individual Sellers in Electronic Marketplaces

Guang Li, Assistant Professor, Smith School of Business, Canada

Mikhail Nediak, Associate Professor, Queens University, Canada

Shweta Singh, Assistant Professor, Warwick Business School, United Kingdom

We present an empirical study of the pricing and waiting behaviour of individual sellers in an electronic marketplace and discuss its implications for design of price recommendation systems that target seller trade-off between revenue and time to sell.

Invited Session

1223

Tuesday, 10:15 AM - 11:15 AM, Socially Responsible Operations

Track: Socially Responsible Operations

Invited Session: Socially responsible operations and welfare programs

Chair(s): Anna Saez De Tejada Cuenca

101-2602   The Interrelation Between Smallholder Livelihood Portfolios, Poverty, and Natural Resources

Sytske Wijnsma, Student, University of Cambridge, United Kingdom

How do livelihood portfolios of rural smallholders bear upon village poverty? With data on 4,000 smallholders, we differentiate between environmental, farm, and off-farm income sources and find that some portfolios alleviate poverty while others exacerbate it. Operational interventions should adopt system-wide perspectives and target income components simultaneously rather than sub-components.

101-1075   Introduction of store choice in India's food security program: Implications on demand distribution and welfare

Maya Ganesh, Student, Indian School of Business, India

Sarang Deo, Associate Professor, Indian School of Business, India

Sripad Devalkar, Assistant Professor, Indian School of Business, India

Advances in technology have enabled policy makers to introduce store choice in India's food security program to empower beneficiaries. We develop a structural model of beneficiaries' store choice, use its estimates to construct baseline scenario & evaluate impact of choice on demand variation at the store and resulting beneficiary welfare

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101-2871   Moderating Trade-offs between Safety and Operational Efficiency: Public Relative Performance Feedback and Best Practice Sharing

Soh Hyun Chu, Student, Ohio State University, United States

Elliot Bendoly, Professor, Ohio State University, United States

James Hill, Associate Professor, Ohio State University, United States

We adopt a time-and-motion study embodying work activities and accidents in a warehouse environment. Subjects view public relative performance feedback or best practices on either safety or operational efficiency, neither or both. Our intent is to examine how these factors augment complementary or trade-off relationships between safety and operational efficiency.

Contributed Session

1224

Tuesday, 10:15 AM - 11:15 AM, Sports OM   Track: Sports Operations Management

Contributed Session: Sports Operations Management 2 of 2 - Economic / Finance

Chair(s): Iain Reid

101-2535   Does Salary Dispersion Affect Team Performance in Cricket? - The Context of IPL

Deepak Srivastav, Student, Indian Institute of Management Kozhikode, India
Puram Praveen, Student, Indian Institute of Management Kozhikode, India
Anand Gurumurthy, Associate Professor, Indian Institute of Management Kozhikode, India
Rudra Sensarma, Professor, Indian Institute of Management Kozhikode, India

This study examines the relationship between salary dispersion among players, and team performance in the context of Twenty20 cricket. Equity theory and Tournament theory are tested for their applicability using a dynamic panel estimation approach. Results show that higher salary dispersion positively affects team performance, thereby supporting the tournament theory.

101-2669   We will Bowl First! - Understanding Decision Making and Team Performance in T20 Cricket

Puram Praveen, Student, Indian Institute of Management Kozhikode, India
Deepak Srivastav, Student, Indian Institute of Management Kozhikode, India
Soumya Roy, Assistant Professor, Indian Institute of Management Kozhikode, India
Anand Gurumurthy, Associate Professor, Indian Institute of Management Kozhikode, India

This study aims to determine relative importance of situational factors on match outcomes in cricket. Using data for nine seasons of IPL T20, Machine learning models were employed on variables such as victory margin, day/night match, home/away conditions, toss winner, toss decision to provide match-wise insights to improve team performance.

101-0516   Are fans forums a platform for meaningful engagement? A case study of Arsenal Football Club

Michael Bull, Associate Professor, Dr, United Kingdom
Geoff Whittam, Associate Professor, Glasgow Caledonian University, United Kingdom
Simon Adderley, Senior Lecturer, Oxford Brookes University, United Kingdom
Scott Bambrick, Senior Lecturer, Manchester Metropolitan University, United Kingdom

This paper uses content analysis of 200,000 words of fans forum minutes of Arsenal Football Club over seven years to analyse what meaningful engagement looks like at Arsenal, and if it marries with the ideology espoused by FIFA. We conclude with some policy recommendations and suggested avenues for further research

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Invited Session

1225

Tuesday, 10:15 AM - 11:15 AM, Supply Chain Management   Track: Supply Chain Management

Invited Session: Panel: Reviewing and Obtaining Editorial Board Memberships

Chair(s): Kaitlin Wowak

101-2892   Reviewing and Obtaining Editorial Board Memberships

Manpreet Hora, Associate Professor, Georgia Institute of Technology, United States
Alan Mackelprang, Associate Professor, Georgia Southern University, United States
Rachna Shah, Associate Professor, University of Minnesota, United States
Xenophon Koufteros, Professor, Texas A&M University College Station, United States
Kaitlin Wowak, Assistant Professor, University of Notre Dame, United States

This session will feature Editors-in-Chiefs, Department Editors, and Senior Editors at leading OM journals who will offer insights about what they look for in reviews, how to avoid common reviewing mistakes, and how to obtain editorial board memberships.

Invited Session

1227

Tuesday, 10:15 AM - 11:15 AM, Supply Networks   Track: Supply Networks

Invited Session: Competitive Supply Networks

Chair(s): Yingchao Lan

101-1311   Coopetition-based business models for the management of dynamic supply-chain networks

Marko Budler, Lecturer, University of Ljubljana, School of Economics and Business, Slovenia

In dynamic supply-chain networks with inherent presence of 'co-opetition', diverse set of interactions among competitors-partners entail tensions because of overlapping roles. To manage tensions and overlapping roles, we need 'network-based' models that focus on value co-creation and appropriation among competitors-partners. We discuss and conceptualize such models for strategic supply-chain management.

101-0604   LINKING SUPPLY NETWORKS TO COMPETITIVE DYNAMICS: FIRM AND DYADIC LEVEL EVIDENCE

Mengge Li, Assistant Professor, University of Texas at El Paso, United States

Xiaojin Sun, Assistant Professor, University of Texas at El Paso, United States

Yang Yang, Assistant Professor, University of Texas at El Paso, United States

This study bridges the gap between the strategic management and supply chain management domains by examining how firms' structural characteristics in supply networks influence their competitive behavior and inter-firm rivalry. Our results show that can be explained by the difference in structural characteristics between rival pairs.

101-0130   Impact of Historical Performance and Network Position on Partner Selection

Yingchao Lan, Assistant Professor, University of Nebraska Lincoln, United States

Tingting Yan, Associate Professor, Wayne State University, United States

Brett Massimino, Assistant Professor, Virginia Commonwealth University, United States

In this paper, we investigate how a product publisher selects its partners. We specifically study two factors: the historical performance and the network position of the potential partner. Leveraging on a unique panel dataset, we find some interesting results.

Invited Session

1228	Tuesday, 10:15 AM - 11:15 AM, Sustainable Operations 1 Track: Sustainable Operations
	Invited Session: Economic and Environmental Implications of New Business Models
	Chair(s): Safak Yucel

101-0172   Sharing of Heavy Equipment

Philippe Blaettchen, Student, INSEAD, France

Niyazi Taneri, Assistant Professor, National University of Singapore, Singapore

Sameer Hasija, Associate Professor, INSEAD, Singapore

Product sharing not only influences sales but also impacts after-sales services through changes in utilization—an important factor for the heavy equipment industry. We answer how a manufacturer should manage a sharing platform, when it would prefer sharing over other business models, and when an independent platform constitutes a threat.

101-0369   The Impact of the Gig-Economy on Financial Hardship among Low-Income Families

Kaitlin Daniels, Assistant Professor, Washington University St Louis, United States

Michal Grinstein-Weiss, Professor, Washington University St Louis, United States

We empirically measure the impact of Uber's entrance into a market on the financial health of workers. We find that low-income workers are more likely to fail to meet regular, short-term financial obligations (e.g. monthly bills) following Uber entry. We explore mechanisms and illustrate the robustness of our findings.

101-0872   Smart charging of electric Vehicles: An innovative business model for utility firms

Owen Wu, Associate Professor, Indiana University, United States

Safak Yucel, Assistant Professor, Georgetown University, United States

Yangfang (Helen) Zhou, Assistant Professor, Singapore Management University, Singapore

We show that substantial cost and emissions savings can be achieved by smart charging of electric vehicles, i.e., delaying charging until the electricity generation cost is low, compared to the current practice of charging vehicles as soon as possible. We quantify benefits of smart charging by using real data.

Tuesday, 11:30 AM - 12:30 PM

Invited Session

1233	Tuesday, 11:30 AM - 12:30 PM, 3- POMS Tutorials Track: All POMS Invited Tutorials
	Invited Session: Discrete Choice Models and Their Applications in Assortment and Pricing Management
	Chair(s): George Shanthikumar

101-2115   Discrete Choice Models and Their Applications in Assortment and Pricing Management

Ruxian Wang, Associate Professor, Johns Hopkins University, United States

In this tutorial, I will review recent development on discrete choice models, and their applications in assortment optimization and pricing management. Meanwhile, I will also share my views on the remaining challenges, future research directions and potential impact on real business.

Invited Session

1235	Tuesday, 11:30 AM - 12:30 PM, Behavior in OM Track: Behavior in Operations Management
	Invited Session: Lab and Field Studies of Perceptions, Emotions, and Social Interaction
	Chair(s): Samantha Keppler

101-0293   Artificial Intelligence in Customer Service Operations

Aykut Turkoglu, Student, Boston University, United States

Michelle Shell, Assistant Professor, Boston University, United States

Companies are deploying artificial intelligence applications into service settings in a variety of ways from automating agent tasks to replacing human servers altogether. Using data from a field study, we provide early evidence that AI-based call monitoring and agent coaching improves both efficiency and customer satisfaction over human supervision alone.

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101-1352   Sequential Decision Making in Product Development

Jiawei Li, Student, University of Michigan - Ann Arbor, United States

Damian Beil, Professor, University of Michigan, United States

Stephen Leider, Associate Professor, University of Michigan Ann Arbor, United States

In the automotive industry, the launch of a vehicle involves making design change decisions. These decisions come in a sequential manner, with ex-ante unknown benefits and costs, and need to be handled under a given total budget. This paper studies experimentally on how human subjects make such dynamic decisions.

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101-1857   Learning Best Practices: Can Machine Learning Improve Human Decision-Making?

Park Sinchaisri, Student, The Wharton School, United States

Hamsa Bastani, Assistant Professor, University of Pennsylvania, United States

Osbert Bastani, Assistant Professor, University of Pennsylvania, United States

Workers spend a significant amount of time learning how to make good decisions. We propose a novel machine-learning algorithm for inferring interpretable tips that can help human workers improve their performance in sequential decision-making tasks. Our behavioral study reveals insights into the algorithm's effectiveness and how humans interact with AI.

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Invited Session

1239

Tuesday, 11:30 AM - 12:30 PM, Emerging Topics in OM   Track: Emerging Topics in Operations Management

Invited Session: Panel: New Research Frontiers in Operations and Supply Chain Management

Chair(s): Adegoke Oke   Seongkyoon Jeong

101-2090   Frontiers of operations management - A Panel Discussion

Adegoke Oke, Associate Professor, Arizona State University Tempe, United States

Anand Nair, Professor, Michigan State University, United States

Thomas Choi, Professor, Arizona State University Tempe, United States

Morgan Swink, Professor, Texas Christian University, United States

Stephan Wagner, Professor, Swiss Federal Institute of Technology Zurich, Switzerland

Seongkyoon Jeong, Student, Arizona State University, United States

This interactive panel session brings together top scholars to discuss emerging topics in operations and supply chain management research. Several questions will be addressed in this session - What are the topical research issues in the field? How can academic research lead and inform practice? etc.

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Invited Session

1244

Tuesday, 11:30 AM - 12:30 PM, Healthcare OM 1   Track: Healthcare Operations Management

Invited Session: CHOM Best Paper Finalist Presentations (2)

Chair(s): Vikram Tiwari

101-2928   Focusing Provider Attention: Empirical Examination Of Incentives And Feedback In Flu Vaccinations

Robert Niewoehner, Student, UNC Kenan-Flagler Business School, United States

Bradley Staats, Professor, University of North Carolina Chapel Hill, United States

Influenza imposes heavy societal costs through healthcare expenditures, missed work, and numerous hospitalizations each year. We implement and study a randomized flu vaccine intervention among 145 clinics from 9 different states. We find clinics that received relative performance feedback outperformed all others, and we discuss the implications.

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101-2929   Redesigning Sample Transportation in Malawi Through Improved Data Sharing and Daily Route Optimization

Emma Gibson, Student, Massachusetts Institute of Technology, United States

Sarang Deo, Associate Professor, Indian School of Business, India

Jonas Jonasson, Assistant Professor, Massachusetts Institute of Technology, United States

Kara Palamountain, Associate Professor, Kellogg School of Management, United States

Mphatso Kachule, Country Director, Riders for Health, Malawi, Malawi

Sample transportation (ST) systems move medical samples (e.g. blood, sputum) between health centers and laboratories in many developing countries. In partnership with Riders for Health Malawi, we implemented an optimized ST algorithm to deploy motorcycle couriers on a daily basis and maximize the efficiency of the Malawian ST system.

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101-2930   To Catch A Killer: Data-Driven Personalized and Compliance-Aware Sepsis Alert System

Zahra Mobini , Student, The University of Texas at Dallas, United States

Mehmet Ayvaci, Associate Professor, University of Texas Dallas, United States

Ozalp Ozer, Professor, University of Texas Dallas, United States

We developed an alert system for early detection of sepsis, accounting for individual patient's risk factors and caregiver's compliance behavior. We formulate the problem of determining when to alert sepsis as an MDP and characterize threshold policies. Using clinical data, we demonstrate how our alert system can improve sepsis-care quality.

Contributed Session

1247

Tuesday, 11:30 AM - 12:30 PM, Humanitarian Ops & Crisis Mgmt 2   Track: Humanitarian Operations and Crisis Mgmt 2

Contributed Session: Humanitarian Logistics Inventory Management

Chair(s): Manoj Vanajakumari

101-0533   Improving Food Bank Equity and Delivery Capacity with Mobile Pantries

Jon Stauffer, Assistant Professor, Mays Business School, Texas A&M University, United States
Manoj Vanajakumari, Associate Professor, University of North Carolina Wilmington, United States
Subodha Kumar, Professor, Temple University, United States

Distribution equity is an important aspect of humanitarian operations and food banks. However, food bank equity is difficult since they do not directly control partner agencies that distribute their food. Using local food bank data, we illustrate how mobile pantries can fill food bank capacity and equity gaps.

101-1268   Inventory Management for Mobile Money Agents in the Developing World

Karthik Balasubramanian, Assistant Professor, Howard University, United States
David Drake, Assistant Professor, University of Colorado Boulder, United States
Douglas Fearing, CEO, Zelus Consulting, United States

Mobile money agents exchange cash for electronic value and vice versa, forming the backbone of an emerging electronic currency ecosystem in the developing world. We model the agent's inventory problem, develop policy recommendations, and evaluate these policies with East African data.

101-1616   Resale and Replenishment Policy of Disaster Relief Inventory Management

Yusen Ye, Associate Professor, Sichuan University, China
Hong Yan, Professor, The Hong Kong Polytechnic University, China

To guarantee the quality of relief supplies and reduce expiration waste, we examine the optimal timing of rotating short-life inventories in response to catastrophes with long recurrence periods. We also propose a resale and replenishment inventory policy to strategically manage relief supplies to create both economic and social benefits.

Invited Session

1248

Tuesday, 11:30 AM - 12:30 PM, Information Systems & OM 1   Track: Information Systems and Operations Management

Invited Session: Game Theory and Information Systems

Chair(s): Shubham Gupta

101-1296   Development for online encyclopedia, a optimal control based research

Ziqi Dong, Student, Temple University, United States

Online encyclopedia make the knowledge distribution more efficient. Recently, some user-managed crowdsourcing programs, like Wikipedia, provides a new idea on development of online encyclopedia. We analyze the operation of Wikipedia in the context of resource allocation to motivate the users' contributions, based on results we give some managerial insights.

101-1790   Online and offline competition under "showrooming" and "webrooming"

Jingxuan Geng, Student, Temple University, United States
Subodha Kumar, Professor, Temple University, United States
Amit Mehra, Associate Professor, University of Texas Dallas, United States

Our research focuses on the competition of online and offline channels under the condition of showrooming and webrooming. We develop a game-theoretical model to examine the effect of an entrant online retailer on the strategies of an incumbent dual-channel retailer. We present some interesting managerial insights for both the retailers.

101-2770   To Discount or Not to Discount:Game-Theoretic Analysis of Pricing and Survival Dilemma in Luxury E-commerce

Yingxin Zhang, Student, Dalian University of Technology, China
Shubham Gupta, Student, Temple University, United States
Subodha Kumar, Professor, Temple University, United States
Xiangpei Hu, Professor, Zhejiang University, China

Selling luxury products online is challenging for both luxury brands and third-party e-commerce platforms. Brands face trade-off between offering discount and maintaining high-end brand image. Platforms lack of authority in controlling prices. Using a game-theoretic model, we analyze interaction between luxury brands and third-party e-commerce platforms and provide several insights.

Invited Session

1249 | Tuesday, 11:30 AM - 12:30 PM, Information Systems & OM 2   Track: Information Systems and Operations Mgmt 2

Invited Session: Online news, ratings, and reviews

Chair(s): Debashish Ghose

101-2833   An Inconvenient Truth: Platforms Are Not Reliable in Tackling Fake Reviews

Zhe Wang, Student, Tsinghua University, China
Subodha Kumar, Professor, Temple University, United States
Dengpan Liu, Professor, Tsinghua University, China

E-commerce platforms have faced the enduring challenge of moderating fake reviews. In this paper, we investigate the platforms' economic incentives to remove fake reviews, which is an important yet unanswered question. Using a game-theoretic model, we analyze the sellers' review manipulation behavior and the platform's optimal fake review control strategy.

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101-2858   The Impact of Consumer Over reliance on Online Ratings on Repeat Sales

Aleksi Aaltonen, Assistant Professor, Temple University, United States
Regina Ruane, Post Doc/Researcher, Temple University, United States
Yulia Vorotyntseva, Assistant Professor, Saint Louis University, United States
Subodha Kumar, Professor, Temple University, United States
Paul Pavlou, Professor, University of Houston, United States

Online ratings have strong effect on sales. However, consumers may perceive ratings from others as a more reliable signal than what they are. Analyzing data from food truck business, we find that ratings influence customers who previously rated the truck in a way that suggests some degree of over-reliance.

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101-2859   The Impact of Brand Mentions in Traditional and Satirical News on Social-Media Engagement

Debashish Ghose, Student, Temple University, United States
Susan Mudambi, Professor, Temple University, United States
Subodha Kumar, Professor, Temple University, United States

News publishers try to create buzz around news stories. However, this context is complicated by interest in stories from satirical sources, rather than traditional outlets. Using data from a news platform that generated both traditional and satirical news stories, we quantify the effects of brand mentions on social-media engagement.

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Invited Session

1250 | Tuesday, 11:30 AM - 12:30 PM, Inventory Management   Track: Inventory Management

Invited Session: Replenishment Policies for Recent Inventory Systems

Chair(s): Marco Bijvank

101-2568   Asymptotic Optimality of Semi-Open-Loop Policies in Markov Decision Processes

Xingyu Bai, Student, University of Illinois at Urbana-Champaign, United States
Xin Chen, Professor, Industrial & Systems Engineering, United States
Menglong Li, Post Doc/Researcher, Massachusetts Institute of Technology, United States
Alexander Stolyar, Professor, University of Illinois Urbana-Champaign, United States

This paper considers MDPs with controls taking effect immediately and after a positive lead time. We provide sufficient conditions under which semi-open-loop policies are asymptotically optimal as the lead time grows, and prove asymptotical optimality of some specific semi-open-loop policies for lost-sales inventory models under different settings.

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101-2200   Data-driven optimization for performance-based replenishment systems

Alireza Zadeh, Assistant Professor, Texas Tech University, United States

Performance-based replenishment refers to supply systems that are constrained by target multi-item service levels. We propose a general framework that integrates prediction and optimization in a data-driven decision-making system. Our solution utilizes an objective-driven approach for prediction algorithms that directly captures the learning loss regarding the decision optimization problem.

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101-1507   Lookahead Replenishment Policies for Lost-Sales Inventory Systems with Fixed Order Cost

Marco Bijvank, Assistant Professor, Haskayne School of Business, Canada

In this paper we propose a lookahead replenishment policy for a lost-sales inventory system with periodic reviews by deciding to order at a particular review epoch or to postpone ordering. The orders in this policy resemble the optimal order quantities and it's performance is within 1% of the optimal policy.

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Invited Session

1252 | Tuesday, 11:30 AM - 12:30 PM, Marketing & OM   Track: Marketing and Operations Management

Invited Session: Analytical model in Operations, Marketing and Information System Interface

Chair(s): Gang Li

101-1038   How to Govern the Big Data Discriminatory Pricing Behavior in the Platform Service Supply Chain?

Weihua Liu, Professor, Tianjin Uinversity, China

Shangsong Long, Student, Tianjin University, China

This paper studies the design of the supervision mechanism for preventing the service platforms from carrying out BDDP in the platform service supply chain, the evolutionary game theory is used to construct the three-party evolutionary game model under a risk neutrality scenario. Some important results by model analysis are obtained.

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101-2691   Bayesian Estimation and Regularization of Customer Churn Modeling

Ping Chou, Student, National Chengchi University, Taiwan, Republic of China

Howard Hao-Chun Chuang, Associate Professor, National Chengchi University, Taiwan, Republic of China

Customer churn prediction is crucial for marketing and operations of many contractual services. We propose a beta-logistic churn model that accommodates high-dimensional covariates and extends widely-used probability models in the literature. We further develop a Bayesian model estimation and regularization approach, which delivers strong performance in extensive simulation studies.

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101-2599   Value of Group Leaders: When Sellers can Gain from the Community-based Group Buying Programs?

Xiaoran Shi, Assistant Professor, Tianjin University of Technology, China

Weihua Liu, Professor, Tianjin Uinversity, China

Community-based group buying, built on the social commerce has gained popularity in China, in which group leader plays a crucial role. How group leaders affect consumer's purchase behavior, to what extent they contribute to social commerce platform's performance, and when sellers can gain from such a program will be investigated.

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Invited Session

1253   Tuesday, 11:30 AM - 12:30 PM, Operational Excellence   Track: Operational Excellence

Invited Session: Data-driven Operational Excellence

Chair(s): Ahmet Colak   Yixin Iris Wang

101-0218   The More Monitoring, the Better Quality? Empirical Evidence from the U.S. Generic Drug Market

Anqi Wu, Student, University of Illinois Urbana-Champaign, United States

Yixin Iris Wang, Assistant Professor, University of Illinois Urbana-Champaign, United States

With growing concerns on drug qualities, FDA has implemented major moves to re-allocate its limited inspection resources. To assess whether such moves alleviate quality issues, we exploit a shift of resources from domestic to foreign facilities and study the effect of inspection frequency change on the drug recall occurrence.

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101-0326   Algorithm versus Human: Field Experiment on Algorithm, Perceived Fairness and Productivity in Warehouse Operations

Bing Bai, Student, Washington University St. Louis, United States

Hengchen Dai, Assistant Professor, University of California, Los Angeles, United States

Dennis Zhang, Assistant Professor, Washington University St Louis, United States

Fuqiang Zhang, Professor, Washington University St Louis, United States

Haoyuan Hu, Technical Specialist, Alibaba Group, China

People collaborate with algorithm because it more efficiently allocates tasks. In our field experiment, we find that besides efficiency, algorithm has another benefit that has been overlooked: it can also improve productivity by enhancing fairness concerns.

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Contributed Session

1254   Tuesday, 11:30 AM - 12:30 PM, POM in Food & Agriculture   Track: POM in Food and Agriculture

Contributed Session: Societal Issues in Agricultural Supply Chain

Chair(s): Yuting Dong

101-0276   Food Banks and Food Retailing

John Lowrey, Student, Ohio State University, United States

Timothy J Richards Richards, Professor, Arizona State University, United States

Stephen Hamilton, Professor, California Polytechnic State University San Luis Obispo, United States

Food banks allow retailers to limit food waste, and reduce food insecurity. We argue that there is a symbiotic, secondary-market relationship between food banks and retailers, and test our theory econometrically. We find that retailers are able to generate higher profits if they donate to food banks.

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101-0767   Worker Advocacy Groups as Agent of Change in Food Supply Chains

Alexander Trautrims, Associate Professor, University of Nottingham, United Kingdom

Thomas Chesney, Professor, University of Nottingham, United Kingdom

Nathan Kunz, Assistant Professor, University of North Florida, United States

Stefan Gold, Professor, University of Kassel, Germany

We study how a worker advocacy organization was able to infuse change in the food supply chain by promoting better working conditions for agriculture workers in Florida. We use a case study and agent based modelling technique to evaluate how these changes can be replicated in different supply chains.

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101-2600   The poverty alleviation effects of agricultural products geographical indication in online transaction

Yuting Dong, Student, Dalian University of Technology, China

Wenli Li, Professor, Dalian University of Technology, China

Whether geographical indication can increase farmers' income in online transaction is still controversial. Based on the data of 1364 counties in China from 2014 to 2018, this article investigates the poverty alleviation effect and function routes of geographical indication in e-commerce under regional public brand strategy of agricultural products.

Invited Session

1255   Tuesday, 11:30 AM - 12:30 PM, POM in Practice   Track: POM in Practice

Invited Session: Network and Sharing Economy

Chair(s): Shihong Xiao   Ankur Mani

101-0768   Referral, Learning and Inventory Decisions in Social Networks

Yuanchen Su, Student, University of Minnesota, United States

Guangwen Kong, Assistant Professor, Temple University, United States

Ankur Mani, Assistant Professor, University of Minnesota, United States

We study the interactions between social learning and referral programs and examine their impact on demand uncertainty and firms' inventory decisions. We characterize customers' purchasing strategies and firms' optimal inventory levels for a different number of referrals.

101-2716   Data-Driven Analysis for Optimal Pricing Strategies of Return-Freight Insurance in E-commerce

Wenzhao Dong, Student, Harbin Institute of Technology, China

Gangyan Xu, Assistant Professor, Harbin Institute of Technology Shenzhen, China

Xuan Qiu, Lecturer, Hong Kong University of Science and Technology, Hong Kong

This work analyzed the sales data of several online stores regarding the product return behaviors of customers, and their relationships with product types and special events. Meanwhile, the widely adopted pricing strategies of return-freight insurance were analyzed, based on which several suggestions to improve these pricing strategies are proposed.

101-2551   Effective Flexible Capacity Decisions of Supply Chain Network in Volatile Situation

Yuhong Li, Assistant Professor, Old Dominion University, United States

Kedong Chen, Assistant Professor, Old Dominion University, United States

Dmitry Ivanov, Professor, Berlin School of Economics and Law, Germany

Anand Nair, Professor, Michigan State University, United States

Faced with the pandemic lockdown, firms need to make flexible capacity decisions to maintain the operation and competitiveness. From a supply network's perspective, how does suppliers' risk preference in capacity decisions affect the performance of supply network? Using agent-based modeling, we find that being moderately aggressive improves network performance.

Contributed Session

1258   Tuesday, 11:30 AM - 12:30 PM, Public Sector OM   Track: Public Sector Operations Management

Contributed Session: Supply Chain Challenges in Higher Education

Chair(s): Konstantin Dreyer

101-0926   Literature review on sustainability at higher education institutions

Amila Omazic, Student, Graz University of Technology, Austria

Volker Koch, Student, Graz University of Technology, Austria

Sigrid Weller, Student, TU Graz, BWL Institut, Austria

Public sector and primarily higher education institutions (HEIs) play a crucial role towards more sustainable society. This research derives the main concepts that constitute sustainability at HEIs represented in the previous literature.

101-0924   Resources Allocation Efficiency in Education on Arapongas, Brazil: a Data Envelopment Analysis Study

Pablo Capucho, Student, Universidade Estadual de Londrina - UEL, Brazil

Saulo Fabiano Vieira, Associate Professor, Universidade Estadual de Londrina, Brazil

Vera Suguihiro, Professor, Universidade Estadual de Londrina, Brazil

This research aimed to analyze the resources efficiency of the first years of the public schools of Arapongas, Brazil, in relation to their performance. To attend this objective, the research used the Data Envelopment Analysis (DEA). The analysis showed that almost 59% of the schools have efficiency above 80%.

101-2675   Representation of sustainable development goals in sustainability reports of higher education institutions

Amila Omazic, Student, Graz University of Technology, Austria

Konstantin Dreyer, Student, Graz University of Technology, Austria

Bernd Markus Zunk, Associate Professor, Graz University of Technology, Austria

Previous literature recognizes the role of higher education institutions (HEIs) on the path towards more sustainable society as well as the role of sustainability reports (SRs) in communicating sustainability efforts. This research examines how sustainable development goals are represented in the SRs of HEIs.

Invited Session

1260

Tuesday, 11:30 AM - 12:30 PM, Revenue Management & Pricing

Track: Revenue Management and Pricing

Invited Session: Personalized Strategies in Pricing and Revenue Management I

Chair(s): Pelin Pekgun   Sanghoon Cho

101-0066   Learning Customer Preferences from Personalized Assortments

Yifan Feng, Student, University of Chicago, United States

Rene Caldentey, Professor, University of Chicago, United States

Christopher Ryan, Assistant Professor, University of British Columbia, Canada

A company wishes to identify the most popular version of a product from a menu of alternative options. We study how to dynamically individualize the set of versions shown to each customer, so that the company can learn from customer choices at the fastest speed.

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101-0521   Providing Data Samples for Free

Kimon Drakopoulos, Assistant Professor, University of Southern California, United States

Ali Makhdoumi, Student, Duke University Durham, United States

We consider the problem of a data provider (Seller of information) who sells information to a firm (Buyer of information) and establish conditions when the Buyer's objective is to improve operational decisions (e.g. better pricing decisions) under which selling gradually is beneficial for the seller.

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101-0063   Estimating Personalized Demand with Unobserved No-purchases using a Mixture Model

Sanghoon Cho, Student, University of South Carolina, United States

Mark Ferguson, Professor, University of South Carolina, United States

Pelin Pekgun, Associate Professor, University of South Carolina, United States

Andrew Vakhutinsky, Consulting Member of Technical Staff, Oracle, United States

We develop a new demand modeling approach that combines the estimation of discrete choice modeling under unobservable no-purchases with a data-driven identification of customer segments, providing a solution to the theory and practice of revenue management in the travel and hospitality industries.

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Invited Session

1264

Tuesday, 11:30 AM - 12:30 PM, Socially Responsible Operations

Track: Socially Responsible Operations

Invited Session: Emerging topics in sustainable operations

Chair(s): Gonzalo Romero

101-1591   The Customization-Completion Trade-off in Nonprofit Operations

Can Zhang, Assistant Professor, Duke University Durham, United States

Atalay Atasu, Professor, INSEAD, France

Karthik Ramachandran, Associate Professor, Georgia Institute of Technology, United States

Motivated by our observations in the NPO space regarding partial product or service provision and its interaction with customization choices, we study the customization vs. completion trade-off in budget-constrained NPO settings. We further calibrate our model using real-world data from Elemental and Daya and discuss managerial implications.

- -

101-1728   Innovative Business Models in Ocean Plastic Recycling

Opher Baron, Professor, University of Toronto, Canada

Gonzalo Romero, Assistant Professor, University of Toronto, Canada

Zhuoluo Zhang, Student, Chinese Univ of Hong Kong, Hong Kong

Sean Zhou, Professor, Chinese Univ of Hong Kong, Hong Kong

With growing concern about ocean plastic pollution, reducing it has become imperative. Based on collaboration with a plastic recycling start-up, we develop and analyze models that resemble its practices. Based on the optimal solutions derived, we discuss and compare various business models to quantify both their environmental and societal impact.

- -

101-1824   Net-Metered Distributed Renewable Energy: A Peril for Utilities?

Nur Sunar, Assistant Professor, Kenan-Flagler Business School, United States

Jayashankar Swaminathan, Professor, Kenan-Flagler Business School, United States

Electricity end-users have been increasingly generating their electricity via rooftop solar panels under the net metering policy. We show that in contrast to the common belief, net-metered distributed solar can strictly improve the utility's profitability when supply dynamics are factored in.

- -

Contributed Session

1266

Tuesday, 11:30 AM - 12:30 PM, Supply Chain Management

Track: Supply Chain Management

Contributed Session: Industry 4.0 in Supply Chain Management

Chair(s): Cesar Ortega

101-2364 Adoption factors of industry 4.0 technologies and supply chain benefits

Jose Franceli, Student, Universidade Federal do ABC, Brazil

Silvia Zilber, Associate Professor, Federal University of ABC (UFABC), Brazil

Industry 4.0 technologies represent a new paradigm of integration of cyber physical, information and communication solutions, however this topic has had little exploration in the social sciences, the study thru a systematic literature review presents a framework integrating factors of adoption, technologies 4.0 and supply chain benefits.

- -

101-2746 The interaction between the industry 4.0 and the sustainability: The Antarctic managerial applications and impacts

Gláucya Daú, Student, Federal University of the State of Rio de Janeiro, Brazil

Annibal Scavarda, Professor, Federal University of the State of Rio de Janeiro, Brazil

Lloyd Peck, Professor, British Antarctic Survey, United Kingdom

José Roberto da Silva, Professor, University of São Paulo, Brazil

The trends point to a rapid evolution in the industrial revolution stages. The industry 4.0 brought the disruption and the reflection in the interaction with the sustainable practices. This study presents the managerial applications and impacts of the interaction between the industry 4.0 and the sustainability in the Antarctic continent.

- -

101-2649 The interaction role of Industry 4.0 in SCM as a driver for high performance manufacturing

Mario Acevedo, Student, Universidad De Sevilla, Spain

Cesar Ortega, Student, UNAH, Honduras

Jose A.D. Machuca, Retired, Universidad De Sevilla, Spain

Pedro Garrido-Vega, Associate Professor, Universidad De Sevilla, Spain

Industry 4.0 helps plants to achieve higher performance (HP), but its interaction with SCM is still not clear. PLS-SEM is used to test interaction hypotheses. Results show that interaction exists when there are high implementation levels of companies' technology and network members communication. Projects:(AEI-PID2019-105001GB-I00)-(FEDER-1381039)-(PAIDI-PY20_01209)-(US126441)

- -

Invited Session

1268 Tuesday, 11:30 AM - 12:30 PM, Supply Networks   Track: Supply Networks

Invited Session: Assessing the Impact of Network Partners

Chair(s): Nikolay Osadchiy

101-1435 Drivers of the inventory performance in the manufacturing supply network

Deepak Agrawal, Student, Emory University, United States

Nikolay Osadchiy, Associate Professor, Emory University, United States

We investigate the proximity to final demand as a driver of inventory performance of manufacturers. Our results are useful for benchmarking and valuation of firms' performance.

- -

101-0535 Socially Connected Supply Chains

Haoyuan Ding, Associate Professor, Shanghai Univ. of Finance and Economics, China

Yichuan Hu, Assistant Professor, Shanghai Univ. of Finance and Economics, China

Jing Wu, Assistant Professor, The Chinese University of Hong Kong, Hong Kong

Yu Zhang, Assistant Professor, Peking University, China

Social connections built up via shared past working experience or non-business activities help facilitate information and therefore predict supply chain formation. We find that the facilitating effect of the social network is stronger for high-power connections. We also provide evidence on the performance of the socially connected supply chains.

- -

101-2663 Large-Scale Supply Chain Resilience Analysis using the Nexus Supplier Index

Francis Bowen, Assistant Professor, Butler University, United States

Janaina (Jane) Siegler, Assistant Professor, Butler University, United States

In this paper, we investigate the application of the Nexus Supplier Theory and Index (NSI) to analyze the supply chain resiliency for 40 major Indiana Manufacturers. Data collected involved 16,000 data points, up to tier-8 suppliers, and over 1,100 man-hours. Data analysis and visualization were performed programmatically, using Python.

- -

Invited Session

1269 Tuesday, 11:30 AM - 12:30 PM, Sustainable Operations 1   Track: Sustainable Operations

Invited Session: Topics in Sustainable Operations and Supply Chain Management

Chair(s): Wenqing Zhang

101-2066 When the wind of change blows, build batteries? Optimum renewable generation and energy storage investments

Christian Kaps, Student, Wharton School, University of Pennsylvan, United States

Serguei Netessine, Professor, The Wharton School, United States

Renewables have become inexpensive energy sources but their generation remains variable and difficult to predict. We develop a two-product newsvendor model to study the strategic investment decision of a utility in renewable generation and storage to match demand while using fossil-fuel backup in case of shortages.

- -

101-1080   A Location-inventory problem in a closed-loop supply chain with return quality decision

Yanzi Zhang, Post Doc/Researcher, Tsinghua University, China

Zhi-Hai Zhang, Associate Professor, Tsinghua University, China

The quality of recycled products is highly uncertain. The minimum acceptable return quality helps managers decide whether to accept recycled products. We study a location-inventory problem in a CLSC whereby the minimum acceptable quality is a decision variable, formulate the problem as an MINLP, explore managerial insights through numerical experiments.

101-0920   Subsidies Induced by an Adoption or a Budget : Mitigating Charging Inconvenience to Promote EVs

Lingling shi, Student, UT Dallas, United States

Metin Cakanyildirim, Professor, University of Texas Dallas, United States

Suresh Sethi, Professor, University of Texas Dallas, United States

Government subsidies are offered in many countries to promote electric vehicles because of the rising concern about environment, energy and economy. We model the interaction between the government and the charging supplier to study the optimal structure of subsidies while considering the impact of charging inconvenience.

Tuesday, 12:45 PM - 01:45 PM

Invited Session

1275

Tuesday, 12:45 PM - 01:45 PM, 4- Meetings & Programs - By Invitation

Track: All Meetings & Programs B: By Invitation

Invited Session: Meeting of POM Senior & Department Editors

Chair(s): Subodha Kumar

101-2889   Meeting of POM Senior & Department Editors

Subodha Kumar, Professor, Temple University, United States

This event is by invitation only. Those invited have received the link to this event in earlier correspondence.

Invited Session

1280

Tuesday, 12:45 PM - 01:45 PM, Emerging Topics in OM

Track: Emerging Topics in Operations Management

Invited Session: Data Analytics for OM Applications

Chair(s): Hoda Bidkhori

101-0343   Information Disclosure In Service Platforms: Optimizing For Supply

Kostas Bimpikis, Assistant Professor, Stanford University, United States

Yiangos Papanastasiou, Assistant Professor, University of California Berkeley, United States

Wenchang Zhang, Assistant Professor, Kelley School of Business, United States

This paper analyzes the as-of-yet unexplored interaction between information provision and supply-side incentives. We develop a dynamic model where providers of ex ante unknown quality choose whether to join a service platform and, if so, set their price in response to the platform's commission rates and feedback information-provision policy.

101-1848   Why Bitcoin Will Fail to Scale?

Nikhil Malik, Student, Carnegie Mellon University, United States

Manmohan Aseri, Assistant Professor, University of Pittsburg, United States

Param Singh, Professor, Carnegie Mellon University, United States

Kannan Srinivasan, Professor, Carnegie Mellon University, United States

Bitcoin falls dramatically short of the scale provided by banks for payments. We show that increasing the block capacity would be futile. A capacity increase can facilitate large miners to tacitly collude artificially reversing back the capacity via strategically adding partially filled blocks in order to extract economic rents.

101-0676   How Does Telemedicine Shape Physician's Practice in Mental Health?

Manqi Li, Student, University of Michigan - Ann Arbor, United States

Xiang Liu, Assistant Professor, Tsinghua University, China

Shima Nassiri, Assistant Professor, University of Michigan - Ann Arbor, United States

Chandy Ellimoottil, Assistant Professor, Department of Urology, United States

Telemedicine has been implemented recently to improve efficiency and access to care and reduce costs. This paper studies the effect of telemedicine adoption on follow-up visits. We propose an empirical model to test: whether telemedicine is a substitute for in-office visits, and the potential spillover effect of telemedicine adoption.

Invited Session

1283

Tuesday, 12:45 PM - 01:45 PM, Global Supply Chain Management

Track: Global Supply Chain Management

Invited Session: Global Supply Chain Coordination

Chair(s): Ying Liao

101-1508   Supply chain practices and quality management across small and medium firms

Ling Li, Professor, Old Dominion University, United States

The study analyzed supply chain practices over 100 small and medium firms. The results show that supply chain information sharing has significant positive impact on supplier specific investment and quality management, which significantly contribute to both market share performance and innovation performance.

- -

101-2773   Reshoring of Chinese firms: A multiple case study

Li WAN, Associate Professor, Chongqing University of Posts & Telecom*, China

Guido Nassimbeni, Professor, University of Udine, Italy

The purpose of this paper is to analyze the factors that influence Chinese reshoring firms. 〖1〗 What are the motivations of Chinese reshoring firms? 〖2〗 What is the relationship between reshoring motivations and offshoring motivations of Chinese firms?〖3) What are the differences between Chinese reshoring firms and Western reshoring firms?

- -

101-2780   COVID-19: Impacts and learnings in the global supply chain under sustainable development goal lenses

maria barbosa, Student, Federal University of State of Rio de Janeiro, Brazil

Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil

Gláucya Daú, Student, Universidade Federal do Estado do Rio de Janeiro, Brazil

Ednilson Bernardes, Professor, West Virginia University, United States

Uwe Schulz, Professor, Universidade do Vale do Rio dos Sinos, Brazil

COVID-19 pandemic has challenged the global supply chain, impacting on the sustainable development goals. This research has developed a literature review involving the COVID-19, the supply chain, and the 2030 Agenda. It has analyzed the COVID-19 impacts and learning in the supply chain under the sustainable development goals lenses.

- -

Invited Session

1285

Tuesday, 12:45 PM - 01:45 PM, Healthcare OM 1

Track: Healthcare Operations Management

Invited Session: Improving patient-centric care management

Chair(s): Pengyi Shi

101-0474   Optimizing Diabetes Screening Frequencies for At-Risk Groups

Chou-Chun Wu, Student, University of Southern California, United States

Sze-chuan Suen, Assistant Professor, University of Southern California, United States

We develop diabetes screening guidelines stratified by age, body mass index, and HbA1c test using a POMDP to identify whether a patient should be screened at every six-month epoch. We find that the current guidelines are sub-optimal, with the optimal policy generating higher net monetary benefits and reducing health spending.

- -

101-1127   A Value of Information Approach to Designing Sequential Clinical Trials for Personalized Health Care

Andres Alban, Student, INSEAD, France

Stephen Chick, Professor, INSEAD, France

Spyros Zoumpoulis, Assistant Professor, INSEAD, France

We formulate a model of a clinical trial with a heterogeneous population and heterogeneous response to treatment. We apply expected value of information methods to design a sequential trial to determine which patients can benefit from which treatment. Our method for personalized medicine performs well compared to previously proposed policies.

- -

101-0571   An Analytics-Driven Approach For Optimal Individualized Diabetes Screening

Hossein Kamalzadeh , Student, Southern Methodist University, United States

Vishal Ahuja, Assistant Professor, Southern Methodist University, United States

Michael Hahsler, Assistant Professor, Southern Methodist University, United States

Michael Bowen, Assistant Professor, Southwestern Medical Center, United States

Diabetes screening is an important clinical goal given the chronic nature of the disease. We propose an approach that combines multiple methods - partially observable MDPs, hidden Markov model, and a predictive risk model to develop an optimal screening policy, that is personalized for each patient based on their characteristics

- -

Invited Session

1287

Tuesday, 12:45 PM - 01:45 PM, Humanitarian Ops & Crisis Mgmt 1

Track: Humanitarian Operations and Crisis Management

Invited Session: Applications of Simulation in Humanitarian Logistics

Chair(s): Bernd Hellingrath   Adam Widera

101-1827   Simulation-based optimization for blood logistics in South Africa

Melanie Reuter-Oppermann, Post Doc/Researcher, Technical University Darmstadt, Germany
Michael Middelhoff, Post Doc/Researcher, University of Muenster, Germany
Adam Widera, Post Doc/Researcher, University of Muenster, Germany

Blood logistics in South Africa is a challenging topic, during a crisis and in everyday life. Simulation-based optimization approaches can help setting up and managing the blood supply chain. In this talk, we present an outline for a framework to determine and analyze storage and testing locations.

- -

101-1641   Application of Simulation in the Area of Humanitarian Logistics - A Systematic Literature Review

Adam Widera, Post Doc/Researcher, University of Münster/ERCIS, Germany
Bernd Hellingrath, Professor, University of Muenster, Germany

The amount and diverse nature of simulation approaches in humanitarian logistics research is continuously increasing. In order get a better understanding of existing simulation paradigms and their benefits for different application cases, we have executed a systematic literature review. The results provide a structured state of the art overview.

- -

101-2714   Managing Funerary Systems in the Pandemic: Lessons Learned and an Application of a Scenario Simulation

Irineu Brito Jr, Professor, Universidade Estadual Paulista Julio De Mesquita Filho - Unesp, Brazil
Manoel Capistrano, Project Manager, Paragon Tecnologia, Brazil
Luiz Tozi, Professor, Centro Paula Souza, Brazil
Márcia Lorena Frazão, Student, Universidade de São Paulo, Brazil
Adriano Bressane, Professor, Universidade Estadual Paulista Julio De Mesquita Filho - Unesp, Brazil

We present a model which quantifies the demand for vehicles, coffins, graves, and teams in the cemeteries in different simulated scenarios and, the lessons learned about the coordination, inventory management, and other operational characteristics in funerary logistics and, in São Paulo City, Brazil, during the COVID-19 pandemic.

- -

Contributed Session

1288

Tuesday, 12:45 PM - 01:45 PM, Humanitarian Ops & Crisis Mgmt 2

Track: Humanitarian Operations and Crisis Mgmt 2

Contributed Session: Humanitarian Logistics Decision Making

Chair(s): Shraddha Rana

101-2359   The impact of transportation capacity in prepositioning humanitarian supplies

Alexander Rothkopf, Lecturer, Massachusetts Institute of Technology, United States
Jason Acimovic, Associate Professor, Penn State University State College, United States
Jarrod Goentzel, Lecturer, Massachusetts Institute of Technology, United States

To effectively prepare, humanitarian organizations solve optimization models to allocate inventory minimizing expected time-to-respond. However, these organizations also rely on transportation carriers to deliver this inventory, a feature often omitted from such models. We empirically estimate post-disaster trucking capacity, and analyze a US organization's inventory planning with this feature.

- -

101-2360   Mobile clinics deployment for humanitarian relief: A multiperiod location routing problem

Rosemarie Santa González, Student, ESG UQAM, Canada
Marilene Cherkesly, Assistant Professor, ESQ UQAM, Canada
Teodor Gabriel Crainic, Professor, ESG UQAM, Canada
Marie-Eve Rancourt Rancourt, Associate Professor, HEC Montréal, Canada

Mobile clinic deployments are commonly used to provide humanitarian relief. We model the tactical planning of mobile clinic deployment as a multiperiod location routing problem and quantify humanitarian relief as the benefit of covering locations and servicing the population. Results are presented for real world data from operations in Iraq.

- -

101-2606   Improving Fuel Terminal Throughput During Natural Disasters - A Discrete Event Simulation Approach

Shraddha Rana, Student, Massachusetts Institute of Technology, United States
Jarrod Goentzel, Lecturer, Massachusetts Institute of Technology, United States
Justin Boutilier, Assistant Professor, University of Wisconsin-Madison, United States
Timothy Russell, Post Doc/Researcher, Massachusetts Institute of Technology, United States

During natural disasters the increased demand for fuel is met with distribution infrastructure and processing constraints. We use discrete event simulation to model the movement of gasoline from fuel terminals to retail stations in Florida and identify interventions that increase throughput of fuel to aid hurricane evacuation and relief activities.

- -

Invited Session

1289

Tuesday, 12:45 PM - 01:45 PM, Information Systems & OM 1   Track: Information Systems and Operations Management

Invited Session: IT and its Business Applications

Chair(s): Chao Ding

101-2715   The medical record management: a challenge for quality project development

ANA DIAS, Student, CEFET, Brazil

Annibal Scavarda, Associate Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil

Augusto Reis, Professor, Centro Federal De Educacao Technologica - Cefet, Brazil

Keila Cassiano, Professor, Federal Fluminense University - UFF, Brazil

Andreas Weise, Professor, Hochschule 21, Germany

This paper aims to demonstrate the importance of a quality project for medical record management in healthcare institutions. Through analysis and observation, this paper will point out the benefits and the challenges achieved with the implementation of a quality record management project, its concept, feasibility, applicability, and practical justification.

- -

101-1454   Off With Their Headers! Incentives and Transparency in Multi-Layer Programmatic Advertising Auctions.

Francesco Balocco, Student, Rotterdam School of Management, Netherlands

Ting Li, Professor, Rotterdam School of Management, Netherlands

Yixin Lu, Assistant Professor, George Washington University, United States

We investigate the incentive structure of multi-layer Programmatic Advertising transaction mechanisms, focusing on the active role of intermediaries. Using computational simulations informed by empirical priors, we derive policy prescriptions to increase transaction transparency and market efficiency.

- -

101-1511   Data Analytics for Industrial Control Security Systems

Honggang Wang, Assistant Professor, California State Polytech University Pomona, United States

We apply new unsupervised learning algorithms for securing industrial control IoT systems. Cyber threat detection is crucial for highly networked critical industrial control systems. Being able to quickly detect or predict potential cyber attacks is more practically useful. We demonstrate the proposed methods with a real-life industrial case.

- -

Invited Session

1291

Tuesday, 12:45 PM - 01:45 PM, Inventory Management   Track: Inventory Management

Invited Session: Interface Between Inventory and Revenue Management

Chair(s): Xishu Li

101-2618   An optimal policy for a production control problem with uncertain price-sensitive demand

Eugene Khmelnitsky, Associate Professor, Tel Aviv University, Israel

Gonen Singer, Senior Lecturer, Bar-Ilan University, Israel

This paper investigates a business practice where a manufacturer makes a decision regarding both the operational and pricing policies, and where the demand uncertainty is modeled by a Wiener process. We find a closed-form solution for the operational policy, and develop a numerical procedure for determining the optimal price.

- -

101-1913   Trade credit financing in a financially constrained supply chain

Bhawna Priya, Student, Indian Institute of Management Lucknow, India

Indranil Biswas, Assistant Professor, Indian Institute of Management Lucknow, India

Trade credit financing has been employed to a dyadic financially constrained supply chain. A stylized model has been developed for trade credit to understand optimal inventory decision(s) of online retailers such as Myntra. The supply is coordinated under buyback and revenue sharing contracts.

- -

101-2336   Lifecycle Forecast for Consumer Technology Products with Short Lifecycles

Manrique David, Student, Leiden University, Netherlands

Xishu Li, Assistant Professor, Leiden University, Netherlands

Thomas Bäck, Professor, Leiden University, Netherlands

Ying Yin, Student, Leiden University , Netherlands

Characterized by a short lifecycle, innovative companies have to hold product lifecycle information for a swift response to the market. In this paper, we propose a two-step forecasting approach to project the lifecycle of innovative products. A case of Philips suggested our proposed forecasting approach outperform in accuracy and efficiency.

- -

Invited Session

1293

Tuesday, 12:45 PM - 01:45 PM, Marketing & OM   Track: Marketing and Operations Management

Invited Session: Building Operations-Marketing Excellence

Chair(s): Yuhong Li

101-1020   Optimal Warehouse Volume Capacity Allocations for Online Platforms when Facing with Competitive Retailers

Shu Hu, Post Doc/Researcher, Sun Yat-sen University, China

Shaoxuan Liu, Associate Professor, Shanghai Jiao Tong University, China

Dennis Yu, Associate Professor, The Reh School of Business, United States

Online platforms can serve as both marketplaces and resellers, and they often manage multiple products in their warehouses. This paper aims to design an effective way for the online platform on managing various products in its warehouse, under both existing and non-existing warehouse scenarios.

101-0988   The Value of Opaque Selling When Consumers Are Heterogeneous in Their Horizontal Preferences

Yi Liu, Student, Penn State University State College, United States

Nicholas Petruzzi, Professor, Penn State University State College, United States

We consider the firm that sells a product defined by both vertical and horizontal attributes to consumers characterized by heterogeneous preferences for the horizontal attribute. In that context, we explore the extent to which the firm should be transparent versus opaque in describing its product's horizontal attribute.

101-2193   The influence of home shopping network impulse buying on product shortages

Sangjoon Lee, Assistant Professor, Yonsei University, South Korea

Hojung Shin, Professor, Korea University, South Korea

Wc Benton, Professor, Ohio State University, United States

This study addresses the relationship between impulse buying and product shortages in the context of home shopping network. Based on the actual home shopping network data, a novel methodology is developed to measure the impact of consumers' impulse buying on the retailer's revenue and product shortages.

Contributed Session

1294	Tuesday, 12:45 PM - 01:45 PM, Operational Excellence Track: Operational Excellence
	Contributed Session: Operational Excellence in Developing Countries
	Chair(s): Karthik Balasubramanian

101-2825   A circular economy managerial proposal framework for emerging countries

Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil

WALLICE SOUZA, Student, Centro Federal De Educacao Technologica - Cefet, Brazil

Augusto Reis, Professor, Centro Federal De Educacao Technologica - Cefet, Brazil

Prem Chhetri, Professor, RMIT University, Australia

Deon Kruger, Professor, University of Johannesburg, South Africa

Based on environmental, sustainable, and economic factors, the reuse of waste has attracted attention of many countries of the world. Industry 4.0 has shown great progress in relation to waste management. Thus, through a systematic analysis, this article seeks to develop a circular economy managerial proposal framework for emerging countries.

101-2130   Mobile Money: Policies for Managing Cash and Digital Currency Inventories in the Developing World

Karthik Balasubramanian, Assistant Professor, Howard University, United States

David Drake, Assistant Professor, University of Colorado Boulder, United States

Douglas Fearing, CEO, Zelus Analytics, United States

Mobile money agents exchange cash for electronic value and vice versa, forming the backbone of an emerging electronic currency ecosystem in the developing world. We model the agent's inventory problem, develop policy recommendations, and evaluate these policies with East African data.

Contributed Session

1295	Tuesday, 12:45 PM - 01:45 PM, POM in Food & Agriculture Track: POM in Food and Agriculture
	Contributed Session: Sustainability Issues in Agriculture
	Chair(s): Hanuv Mann

101-1996   Productivity, Farmers and the Environment: Large-Scale Industrial Agriculture in the U.S. Mid-West

Canberk Ucel, Student, The Wharton School, United States

Marshall Fisher, Professor, The Wharton School, United States

John Macduffie, Professor, The Wharton School, United States

U.S. agriculture has shown outstanding productivity growth in the past half-century and remains globally competitive. However, there is increasing concern regarding low, volatile farmer incomes and environmental harm. We use unprecedented farm-level data o investigate economic, social and environmental performance of production practices and recommend alternative strategies.

101-1997   Productivity, Farmers and the Environment: Smallholder Farming in the Philippines

Canberk Ucel, Student, The Wharton School, United States

Marshall Fisher, Professor, The Wharton School, United States

John Macduffie, Professor, The Wharton School, United States

Despite participating heavily in the global commodity supply chains, many smallholder farmers live in extreme poverty due to low, volatile yields and prices, sub-par production practices and organizational inefficiencies. We use farm-level data to investigate the drivers of productivity and farmer poverty, and provide recommendations to farmers, buyers and policy-makers.

101-2703   Agricultural Yields in Developing Countries: Improving Conventional Cropping in Small-Space Rural

Hanuv Mann, Assistant Professor, (CIF:ESG50985993), Canada

Nehul Gullaiya, Founding Partner, Egon Blue LLP., India

We longitudinally examine 12 small-space conventional cropping farms in India over the time-period of 4 years to determine whether IoT support can create sustainable increases in yield or quality of produce. Proximity analysis of parameters associated with yield for 10 crop cycles determines the utility of the applied technology.

Contributed Session

<table>
<tr><td rowspan="3">1299</td><td>Tuesday, 12:45 PM - 01:45 PM, Public Sector OM</td><td>Track: Public Sector Operations Management</td></tr>
<tr><td colspan="2">Contributed Session: Public Sector Operations In Novel Contexts</td></tr>
<tr><td colspan="2">Chair(s): Ying Zhang</td></tr>
</table>

101-2207   Justice in Time: Evidence Based Operations Management Tools for Court Systems

Shany Azaria, Student, Tel Aviv University, Israel

Boaz Ronen, Emeritus Professor, Tel Aviv University, Israel

Noam Shamir, Assistant Professor, Tel Aviv University, Israel

We report on the adaptation of several operations management tools to the judicial system, and their role in alleviating court congestion. The results of our econometric analysis demonstrate a 46.1%-time reduction in the treated part of the judicial process, indicating the potential of adopting these operational tools in such environments.

101-2230   Economic Policy Research of South Korea for COVID-19 Pandemic

Donghun Yoon, Assistant Professor, (CIF:ESG50985993), South Korea

The global economy is facing a more serious economic crisis than the global financial crisis. We discuss and present the economic policy of South Korea for the economic growth and the COVID-19 pandemic. We conducted a policy research focusing on Korean New Deal.

101-0760   Research on the interaction of multi-cities' strategies under environmental regulation based on complex network

Haifeng Zhao, Professor, Tongji University, China

Ying Zhang, Student, Tongji University, China

Considering the incomplete enforcement of environmental regulations, a social network of city clusters is constructed. Then through multi-stage dynamic simulation of each subject's strategies, the rule of strategic interaction among regions is explored. Results show that the revenue size and revenue structure of the two strategies are of great significance.

Invited Session

<table>
<tr><td rowspan="3">1300</td><td>Tuesday, 12:45 PM - 01:45 PM, Retail Operations</td><td>Track: Retail Operations</td></tr>
<tr><td colspan="2">Invited Session: Emerging-market retail operations I</td></tr>
<tr><td colspan="2">Chair(s): Jiwen Ge</td></tr>
</table>

101-0683   The impact of freight parking bay availability on last-mile efficiency: a field experiment

Jan Fransoo, Professor, Tilburg University, Netherlands

Gaston Cedillo, Professor, Instituto Mexicano de Transporte, Mexico

Karla Gamez-Perez, Post Doc/Researcher, Massachusetts Institute of Technology, United States

We conduct a field experiment where we control for the amount of available parking space for unloading retail delivery vehicles in a high-density urban area, by deploying more traffic police. We estimate the effect size of a lack of unloading bay space and we find surprisingly impactful results.

101-1685   Evaluating new food access models to supply produce items to underserved communities

Lars Sanches, Professor, Insper, Brazil

Cristiano Flores e Silva, Student, Insper, Brazil

Christopher Mejia-Argueta, Assistant Professor, Center for Transportation and Logistics, United States

André Duarte, Professor, Insper, Brazil

Ricardo Cassel, Associate Professor, Univ Federal Do Rio Grande Do Su, Brazil

In this work, we evaluate alternative food access models to supply fresh products to underserved consumers, one of them via neighborhood markets. We use experimental design and advanced statistical modelling to study the effects of affordability, accessibility and awareness on customer's decisions to buy produce items.

101-2194   Trade Credits: the Commercial and Operational Benefits of Going Cashless

Rafael Escamilla Gonzalez Aragon, Student, Tilburg University, Germany

Jan Fransoo, Professor, Tilburg University, Netherlands

Santiago Gallino, Assistant Professor, The Wharton School, United States

Millions of mom-and-pop stores are supplied every day by multinational manufacturers. Because these stores are informal and independent, all transactions are conducted in cash. Also, store owners are cash constrained, leading to severe underordering. In this context, we examine the commercial and operational benefits of providing stores with trade credits.

Invited Session

1301

Tuesday, 12:45 PM - 01:45 PM, Revenue Management & Pricing

Track: Revenue Management and Pricing

Invited Session: Network Effects and Pricing

Chair(s): Ankur Mani

101-1188 Capacity, Pricing and Assortment Management under Discrete Choice Model with Anticipated Wait

Ruxian Wang, Associate Professor, Johns Hopkins University, United States

We develop a model to incorporate the anticipated waiting time in decision making. The endogenized waiting time depends on other consumers' choices, so it shares the same spirit of negative network effects.

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101-1506 Multi-Priority Queue for On-Demand Service Platforms with Delays

Osman Alp, Associate Professor, Haskayne School of Business, Canada

Marco Bijvank, Assistant Professor, Haskayne School of Business, Canada

Asligul Duran, Assistant Professor, University of Calgary, Canada

We model a sharing-economy platform where customers request service by providing price quotes (or bids) as a multi-priority queue where servers can take vacations. Expressions are derived to calculate expected wait times for a given state such that customers can make informed decisions when they place a bid.

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101-1247 One-way carsharing system personalized pricing and fleet size problem with relocation considering equity

Si Zhang, Student, Ministry of Transport, Beijing Jiaotong University, China

Huijun Sun, Professor, Ministry of Transport, Beijing Jiaotong University, China

We introduce a one-way carsharing system personalized pricing and fleet size problem by employing vehicle relocation, while considering implications on equity. An arriving traveler provides a signal (individual information) to the operator, which is an imperfect indicator of traveler's willingness-to-pay, and the operator makes a personalized pricing depending on it.

- -

Invited Session

1305

Tuesday, 12:45 PM - 01:45 PM, Socially Responsible Operations

Track: Socially Responsible Operations

Invited Session: Doing good with good OM

Chair(s): Wei Wei

101-2471 Emerging Market Reforms and Firm Innovation

Pankaj Kumar, Assistant Professor, Virginia Tech, United States

Xiaojin Liu, Assistant Professor, Virginia Commonwealth University, United States

aks Zaheer, Professor, University of Minnesota, United States

Emerging-economy firms are making significant efforts to move up the value chain by improving their innovativeness and increasing innovations abroad. We investigate whether and under what conditions policy reforms in emerging economy affect these firms' outward innovation behavior. Our result highlights that emerging-economy firms become more internationally competitive post-reform.

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101-2694 The value of long-term relationships when selling to informal retailers - Evidence from India

Olumurejiwa Fatunde, Student, Massachusetts Institute of Technology, United States

Joann de Zegher, Assistant Professor, MIT, United States

Andre Calmon, Assistant Professor, Georgia Institute of Technology, United States

Gonzalo Romero, Assistant Professor, University of Toronto, Canada

Informal retailers are a vital source of products for households at the base of the pyramid (BoP). We use quasi-experimental methods to study the impact of disrupted business relationships on informal versus formal retailers. Informal retailers recover more slowly, suggesting that long-term relationships are critical when selling to informal markets.

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101-2480 Allocation of Funds in Bilevel Subsidy Welfare Programs

Wei Wei, Student, University of Massachusetts Amherst, United States

Priyank Arora, Assistant Professor, University of Massachusetts Amherst, United States

Senay Solak, Associate Professor, University of Massachusetts Amherst, United States

We analyze inequity outcomes of different funding methods used to distribute limited funds within bi-level subsidy welfare programs (e.g., child care and housing voucher programs). Specifically, we develop a model that captures divergent objectives of the various entities (a funding agency and multiple service agencies), and geographic and socioeconomic differences.

- -

Contributed Session

1307

Tuesday, 12:45 PM - 01:45 PM, Supply Chain Management

Track: Supply Chain Management

Contributed Session: Logistics Performance and Leadership

Chair(s): Iain Reid

101-2596 A Framework for Factors Affecting Circular Supply Chain Implementation in the Smart Logistics Ecological Chain

Xiaoyu Yan, Student, Tianjin Uinversity, China

Weihua Liu, Professor, Tianjin Uinversity, China

Under the influence of smart technology and business innovation, a smart logistics ecological chain has gradually emerged, which plays an important role in promoting the circular supply chain implementation. Based on the RBV and SDM theory, this study explores a framework for factors affecting the CSCI in the SLEC.

101-2479   Logistics Challenges & Potential Solutions for Amazon in the Indonesian Marketplace

Kate Hughes, Assistant Professor, test, Australia

Rajavadivel Santhanakrishnan, Senior Expert & Project Manager, Dr Wamser+Batra India Private Limited, India

Chirag Naithani, MR, Industry, Cambodia

In 2018 Amazon commenced discussions with the Indonesia government after its expansion into Singapore. This will result in direct competition with Asian e-retailers Tokopedia, Lazada and Alibaba. In a nation where the logistics system is fragmented, Amazon will face challenges in providing quick response delivery of their products.

101-0847   Transforming to Industry 4.0: The Voice of Logistics and Supply Chain Managers

Iain Reid, Reader, Manchester Metropolitan University, United Kingdom

Benjamin Dehe, Reader, Manchester Metropolitan University, United Kingdom

Yiyi Fan, Lecturer, Lancaster University, United Kingdom

John Hopkins, Associate Professor, swinburne university of technology, Australia

This research in partnership with chartered institute of procurement and supply (CIPS) examines the perceived perceptions and insights of industry 4.0: adoption; performance and future impact. Our results emphasize the disparity of industry 4.0 perceptions from those core business functions involved in the supply chain operation and future digitalized disruption.

Invited Session

1309	Tuesday, 12:45 PM - 01:45 PM, Supply Networks Track: Supply Networks Invited Session: Supply Network Governance Chair(s): Yang Yang

101-0619   Supply network horizons and supply network governance

Paul Skilton, Assistant Professor, Washington State University, Tri-Citites, United States

Kevin Dooley, Professor, Arizona State University Tempe, United States

Zhaohui Wu, Associate Professor, Oregon State University, United States

Yusoon Kim, Associate Professor, Oregon State University, United States

Tingting Yan, Associate Professor, Wayne State University, United States

In this theory-development paper, we are trying to answer one question: How does the structure of network governance mechanisms inhibit the expansion of supply chain managers' network horizons? We see the problem as a double loop learning problem (Argyris & Schön, 1972) and thus as a complex adaptive system.

101-0943   Post-disruption supply network change

Sangho Chae, Assistant Professor, Tilburg University, Netherlands

Byung-Gak Son, Senior Lecturer, Cass Business School, United Kingdom

Canan Kocabasoglu Hillmer, Reader, Cass Business School, United Kingdom

The literature has generally suggested the negative influence of supply network complexity on supply chain resilience. Then, do firms change their supply network structures to reduce complexity after experiencing major supply chain disruptions? We aim to answer this question by analyzing supply network complexity changes after the 2011 Japan earthquake.

101-2181   An Artificial Intelligence Approach to Assess Shipbuilding and Repair Supply Networks

Rafael Diaz, Associate Professor, Old Dominion University, United States

Katherine Smith, Post Doc/Researcher, Old Dominion University, United States

The U.S. Defense Shipbuilding and Repair can be characterized by low-product volumes and high investments. Many shared resources and suppliers converge into large construction projects. In this environment, disruption is attributable to instabilities in sub-tier suppliers. A framework to leverage a real-time, data-driven environment to support decision-making is proposed

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Invited Session

1310	Tuesday, 12:45 PM - 01:45 PM, Sustainable Operations 1 Track: Sustainable Operations Invited Session: Energy and Water Supply Chains Chair(s): Wei Qi

101-1109   Optimal location and sizing for the EV battery swapping network with centrally-charging mode

Yuli Zhang, Associate Professor, Beijing Institute of Technology, China

Wei Qi, Assistant Professor, Mcgill University, Canada

Ningwei Zhang, Student, Beijing Institute of Technology, China

We consider an EV battery swapping (EVBS) network where depleted batteries are swapped with fully-charged batteries at decentralized swapping stations and then delivered to centralized charging stations to recharge. We propose both discrete and continuous joint location and inventory models, design algorithms and provide insights.

101-2178   An Exponential Cone Programming Approach for Managing Electric Vehicle Charging

LI CHEN, Student, National University of Singapore, Singapore

Long He, Assistant Professor, National University of Singapore, Singapore

Yangfang (Helen) Zhou, Assistant Professor, Singapore Management University, Singapore

We study EV charging management of a charging service provider facing customer arrivals of various types in arrival time, desired departure time and charging requirements, and a tariff structure including demand charges. We formulate a stochastic program and develop an exponential cone programming approach to solve it.

101-0645   When shared autonomous electric vehicles meet microgrids: Citywide Energy-Mobility Orchestration

Wei Qi, Assistant Professor, Mcgill University, Canada

Mengyi Sha, Student, University of Chinese Academy of Sciences, China

Shanling Li, Professor, Mcgill University, Canada

We envision the prospect where shared autonomous electric vehicles (SAEVs) will reinforce future urbane electricity infrastructure in the form of solar-powered microgrids. We integrate cross-disciplinary modelling of transport and power systems with optimization to investigate the potential of SAEVs for improving the self-sufficiency and resilience of urban microgrids.

Tuesday, 02:00 PM - 03:00 PM

Contributed Session

1318	Tuesday, 02:00 PM - 03:00 PM, Covid-19 & Other Pandemics	Track: Covid-19 and Other Pandemics
	Contributed Session: Information, communication, and technology 1	
	Chair(s): ANA DIAS	

101-2536   Batch Picking in e-commerce Warehouses under Pandemic Conditions

SIQIANG GUO, Student, The University of Texas at Austin, United States

Manjeet Singh, Research Director, DHL Supply Chain, United States

SHADI GOODARZI, Assistant Professor, University of Texas Austin, United States

This paper proposes an order batching algorithm that is designed for the scenario of scattered storage and zone-wave-batch picking in e-commerce warehouses. Especially, pickers' proximity is considered in generating and releasing the batches so that the risk of the virus spread in the picking area can be controlled.

101-2653   Can coworking help with the challenges of remote management?

Lídia Silva, Student, Centro Federal De Educacao Technologica - Cefet, Brazil

Annibal Scavarda, Associate Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil

ANA DIAS, Student, CEFET, Brazil

Sonja Lebe, Professor, University of Maribor, Slovenia

Mario Ferrer-Vásquez, Assistant Professor, Alfaisal University, Saudi Arabia

In the pandemic, companies have implemented the home office and, due to environmental, social and financial benefits, some intend to extend it. However individual entrepreneurs already made use of remote offices, known as coworking. Coworking offers office equipment and can be closer to employees' homes, which can contribute to management.

101-2710   The online education system transition: Strategies and impacts during the COVID-19 pandemical period

ANA DIAS, Student, CEFET, Brazil

Annibal Scavarda, Associate Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil

Augusto Reis, Professor, Centro Federal De Educacao Technologica - Cefet, Brazil

Mirian Mexas, Professor, Federal Fluminense University - UFF, Brazil

Wiliam Wegner, Professor, Universidade Federal do Rio Grande do Sul, Brazil

This paper aims to demonstrate the technologies used by lectures in teaching practices during the COVID-19 pandemic in Brazil (Rio de Janeiro city), through an email questionnaire sent to them. It emphasizes the rapid online education system transition, considering the social distance and the teachers' and students' relationship.

Contributed Session

1321	Tuesday, 02:00 PM - 03:00 PM, Emerging Topics in OM	Track: Emerging Topics in Operations Management
	Contributed Session: Digital Transformations in OM	
	Chair(s): Jay Daniel	

101-1389   Off-Platform Threats in On-Demand Services

Eryn Juan He, Student, National University of Singapore, Singapore

Sergei Savin, Professor, University of Pennsylvania, United States

Joel Goh, Assistant Professor, NUS Business School, Singapore

Chung-Piaw Teo, Professor, National University of Singapore, Singapore

Online platforms that provide on-demand services are often threatened by the phenomenon of leakage, where the "customer-provider" pairs decide to transact "off-platform" to avoid the platform's fee. We study the key characteristics of a service vulnerable to leakage, as well the leakage-curbing mechanisms.

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101-2350   Digital Transformation for Financial Success

Mina Nasiri, Post Doc/Researcher, LUT University, Finland

Minna Saunila, Reader, LUT University, Finland

Juhani Ukko, Reader, LUT University, Finland

Drawing on the literature on operations management and digital transformation, this study examines the three relevant antecedents of digital transformation - digital orientation, digital intensity, and digital maturity- and their influence on the financial success of companies. The results are based on statistical analyses using data from large companies.

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101-2640   How will Blockchain Technology Transform Supply Chains? Science mapping on Blockchain Technology

Jay Daniel, Senior Lecturer, University of Derby, United Kingdom

As most blockchain initiatives are yet at the first outset, this research explores blockchain technology in supply chain through literature survey and bibliometric review. The study reveals some interesting findings of the direction and trends of blockchain technology and emerging research themes, leading countries, key authors and new emerging topics.

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Contributed Session

1324	Tuesday, 02:00 PM - 03:00 PM, Global Supply Chain Management	Track: Global Supply Chain Management
	Contributed Session: Workshop: Using AI and Machine Learning to Predict Consumers' Behavior	
	Chair(s): Polly Mitchell-Guthrie	

101-2898   All You Need Is Consistent Promotions

Kanchana Padmanabhan, Director, Data Science, kinaxis, Canada

Tianle Chen, , ,

In retail demand planning, promotion planning is the task of deciding what products to promote, when, and what promotion parameters (mechanic, discount, amount that the vendor/supplier will fund etc.) to apply. We will describe interesting challenges when building an AI model for this use and our solutions to overcome them.

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101-2899   Machine Learning and Advanced Analytics to Forecast in a Volatile COVID Retail Market

Arash Habib, Director, Analytic Solutions, Kinaxis, Canada

Sharon Yang, , ,

Market disruptions such as a pandemic can lead to drastic changes in customer behavior, making it challenging to making predictions with confidence. In such market conditions, we demonstrate how advanced analytics can be leveraged to adjust and improve Machine Learning predictions, leading to better accuracy and confidence.

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Contributed Session

1326	Tuesday, 02:00 PM - 03:00 PM, Healthcare OM 1	Track: Healthcare Operations Management
	Contributed Session: Process Design	
	Chair(s): Yann Ferrand	

101-0463   The Effect of Operational Process Changes on Preoperative Patient Flow: Evidence from Field Research

Justin Kistler, Assistant Professor, University of Tennessee Knoxville, United States

Ramkumar Janakiraman, Professor, University of South Carolina, United States

Subodha Kumar, Professor, Temple University, United States

Vikram Tiwari, Associate Professor, Vanderbilt University Medical Center, United States

In this field study, we partnered with a leading U.S. academic medical center to implement and empirically examine the impact of two operational process changes, centralized decision making and the introduction of an IT enabled intraoperative prompt, on preoperative patient processing time.

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101-2219   Individualized dynamic patient monitoring under alarm fatigue

Hossein Piri, Student, Sauder School of Business, UBC, Canada

Tim Huh, Professor, Sauder School of Business, UBC, Canada

Steven Shechter, Associate Professor, Sauder School of Business, UBC, Canada

Darren Hudson, Professor, University of Alberta, Canada

Hospitals are rife with alarms, many of which are false. This leads to alarm fatigue, in which clinicians become desensitized and may inadvertently ignore real threats. We develop a Markov decision process model for recommending dynamic, patient-specific alarms in which we incorporate the undesirable cry-wolf feedback-loop of repeated false alarms.

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101-0947   Applying Design Science to Surgical Flow for Operating Room Efficiency and Patient Safety Improvement

Yann Ferrand, Assistant Professor, Augusta University, United States

Jaeyoung Kim, Student, Clemson University, United States

Lawrence Fredendall, Professor, Clemson University, United States

Dee San, Associate Professor, Medical University of South Carolina, United States

Kevin Taaffe, Associate Professor, Clemson University, United States

This study used a design science approach to study the design and implementation of separate support rooms for patient induction and surgical instrument handling, with the goal of improving patient safety and satisfaction, and improving operating room utilization through reduced room turn-around time and next case preparation time.

Contributed Session

1328

Tuesday, 02:00 PM - 03:00 PM, Humanitarian Ops & Crisis Mgmt 1

Track: Humanitarian Operations and Crisis Management

Contributed Session: Energy Systems Modeling

Chair(s): Dmitry Anokhin

101-1231   Renewable Energy Solutions for Off-grid Communities: Opportunities and Challenges

Feyza G. Sahinyazan, Assistant Professor, Beedie School of Business, Canada

Asligul Duran, Assistant Professor, University of Calgary, Canada

Rural communities rely on inefficient and environmentally harmful diesel-generated electricity systems. To meet the Sustainable Development Goals regarding clean energy and reduced inequalities, the policy makers need to develop solutions for these communities. In this study, we explore the operational opportunities and challenges for wide-adoption of renewable energy solutions.

101-2272   Mobility-As-A-Service for Resilience Delivery in Power Distribution Systems

Dmitry Anokhin, Student, George Washington University, United States

Payman Dehghanian, Assistant Professor, George Washington University , United States

Miguel Lejeune, Professor, George Washington University, United States

Jinshun Su, Student, George Washington University , United States

This study investigates mobility-as-a-service for resilience delivery during natural disasters. Focusing on effective service restoration in power distribution systems, we introduce mobile power sources as the restoration technology of the future, the mobility of which can be harnessed for spatio-temporal flexibility exchange and effective response and recovery during disasters.

101-2271   On the Use of Mobile Power Sources in Distribution Grids under Decision-Dependent Uncertainty

Payman Dehghanian, Assistant Professor, George Washington University , United States

Miguel Lejeune, Professor, George Washington University, United States

Jinshun Su, Student, George Washington University , United States

Dmitry Anokhin, Student, George Washington University, United States

Mobile power sources (MPSs), including mobile emergency generators and mobile energy storage systems, have promising potential for spatiotemporal flexibility exchange in power distribution systems. This study proposes a novel service restoration formulation that models and accounts for the endogenous sources of uncertainty in the MPSs routing and scheduling decision making.

Contributed Session

1329

Tuesday, 02:00 PM - 03:00 PM, Humanitarian Ops & Crisis Mgmt 2

Track: Humanitarian Operations and Crisis Mgmt 2

Contributed Session: Topics in Humanitarian Logistics

Chair(s): Florian Grenouilleau

101-0345   To What Extent Do Workers' Preferences Matter?

Zhenzhen Jia, Student, Fudan University, China

Kejia Hu, Assistant Professor, Vanderbilt University, United States

Jianqiang Hu, Professor, Fudan University, China

Vishal Ahuja, Assistant Professor, Southern Methodist University, United States

People have psychological preferences for choices, even if these options are identical. Using the PSM methods, we show that the satisfaction of preferences stimulus people to work quicker and better. Moreover, our counterfactual analysis shows that incorporating the preference effect in the scheduling system can improve service efficiency and quality.

101-1999   Industrialization of Charitable Services: The Role of Standards in Funding Emergencies

Jorge Mejia, Assistant Professor, Indiana University, United States

Gloria Urrea, Assistant Professor, University of Colorado Boulder, United States

Alfonso Pedraza-Martinez, Associate Professor, Indiana University, United States

Charities compete for donations in crowdfunding platforms. Donors face the challenge to evaluate charities' quality against standards. Donors rely on the standards developed by charity watchdog organizations. Using empirical models, we investigate how standards influence donation decisions from individual donors on crowdfunding platforms.

101-2861   A Scenario-Based Method for Resilient Humanitarian Logisitics

Florian Grenouilleau, Post Doc/Researcher, HEC Montréal, Canada

Marie-Eve Rancourt Rancourt, Associate Professor, HEC Montréal, Canada

In order to reach more beneficiaries and reduce populations' suffering, humanitarian organizations consistently attempt to improve their supply chains. In this perspective, we developed a scenario-based model allowing our partner to reduce the costs of supply, provide meals to more children, and improve its resilience vis-a-vis potential future natural disasters.

Invited Session

1330

Tuesday, 02:00 PM - 03:00 PM, Information Systems & OM 1   Track: Information Systems and Operations Management

Invited Session: Leveraging Information Systems to Improve Operational Efficiencies

Chair(s): Seokjun Youn

101-0532   Can Big Data Cure Risk Selection in Healthcare Capitation Programs?

Zhaowei She, Student, Georgia Tech, United States

Turgay Ayer, Associate Professor, Georgia Tech, United States

Daniel Montanera, Assistant Professor, Georgia State University, United States

We analyze the risk selection problem in Medicare Advantage (MA), the largest capitation payment program in the U.S. healthcare market, and show that MA cannot eliminate risk selection even if its risk adjustment design becomes informationally perfect (e.g. $R^2 = 1$) in the age of big data.

101-1046   The Effects of Algorithmic Governance on Open Collaboration: An Empirical Study

Seonjun Kang, Student, Information Systems, United States

Xiaojin Liu, Assistant Professor, Virginia Commonwealth University, United States

Yeongin Kim, Assistant Professor, Virginia Commonwealth University, United States

Victoria Yoon, , ,

Over the past few years, open collaboration platforms such as Wikipedia have implemented algorithm-enabled agents to facilitate user collaboration processes. By using a dataset from an open collaboration platform, we analyze the effects of intervention by such algorithm-enabled agents on user engagement in open collaboration.

101-2263   Effects of Telehealth on Hospital Operations

Yerin Heo, Student, Chung-Ang University, South Korea

Yong Won Seo, Professor, Chung-Ang University, South Korea

Seung Jun Lee, Assistant Professor, Chung-Ang University, South Korea

Telehealth is the use of electronic devices to support a wide range of services including patient care, education, and the system monitoring. Despite the increasing demand of telehealth, little research explore the operational impacts. Thus, this study examines how telehealth affects hospital operations, such as physician consultation.

Invited Session

1332

Tuesday, 02:00 PM - 03:00 PM, Inventory Management   Track: Inventory Management

Invited Session: Data-Driven Inventory Management

Chair(s): Sean Zhou

101-2474   Online Planning with Offline Simulation

Wang Chi Cheung, Assistant Professor, National University of Singapore, Singapore

Guodong Lyu, Post Doc/Researcher, National University of Singapore, Singapore

Chung-Piaw Teo, Professor, National University of Singapore, Singapore

Hai Wang, Assistant Professor, Singapore Management University, Singapore

We study online planning problems with concave objective functions and feasibility constraints under model non-stationarity. These problems model applications such as service level fulfillment in supply chain management. We propose an Offline-to-Online algorithm, involving an offline phase that generates a family of gradients to guide online decisions.

101-2475   Sampling-Based Approximation for Series Inventory Systems

Kairen Zhang, Associate Professor, Univ Sci & Technol China, China

Xiangyu Gao, Assistant Professor, The Chinese University of Hong Kong, Hong Kong

Zhanyue Wang, Student, The Chinese University of Hong Kong, Hong Kong

Sean Zhou, Professor, Chinese Univ of Hong Kong, Hong Kong

We study the inventory control problem of a serial multi-echelon inventory system over an infinite horizon when the one-period demand distribution is unknown but a random sample from it is available. For this problem, we establish a theoretical guarantee of the performance of sample average approximation method.

101-2613   Data-Driven Newsvendor Problem: Performance of he Sample Approximation Approach

Woonghee Huh, Professor, Sauder School of Business, UBC, Canada

Harish Krishnan, Professor, University of British Columbia, Canada

Meichun Lin, Student, University of British Columbia, Canada

Joline Uichanco, Assistant Professor, University of Michigan, United States

Meichun Lin, Student, University of British Columbia, Canada

We consider the data-driven newsvendor problem where a learns the unknown demand distribution based on observed samples of demand (no truncation). We study the widely-used sample average approximation approach and analyze its performance with respect to regret.

Invited Session

1334

Tuesday, 02:00 PM - 03:00 PM, Marketing & OM   Track: Marketing and Operations Management

Invited Session: Operations-Marketing interface

Chair(s): Ha Ta

101-2509   Strategic Analysis of Platform Within a Platform Arrangement in E-commerce Market

Yanjie Liang, Student, College of Management and Economy, China

Weihua Liu, Professor, Tianjin Uinversity, China

The reselling platform opens up a new channel on the agency platform, which is called platform within a platform arrangement (PWPA). we captured the impact of two key features on PWPA. One is that manufacturers have different sales channel settings, and the other is that different channels have different attractiveness.

101-1762   Large-scale customer assignment in direct marketing

Philipp Baumann, Associate Professor, University of Bern, Switzerland

Tamara Bigler, Student, University of Bern, Switzerland

Manuel Kammermann, Student, University of Bern, Switzerland

Companies often launch multiple direct marketing campaigns to target their customers with personalized product offers. The effectiveness of these campaigns greatly depends on the assignment of customers to campaigns. We present here a new matheuristic that delivers high-quality assignments for problem instances with millions of customers.

101-1577   Improving supply chain transparency with blockchain technology: the role of consumer trust.

Ha Ta, Assistant Professor, Florida International University, United States

The introduction of improved food traceability systems using blockchain technology aims to restore consumer confidence in brands, partly by being able to provide consumers with timely and trusted information about the origins of foods and food ingredients. Our research investigates how different blockchain offerings impact customers' trust and brand evaluation.

Contributed Session

1335

Tuesday, 02:00 PM - 03:00 PM, Operational Excellence   Track: Operational Excellence

Contributed Session: Operatioal Excellence in Service Settings

Chair(s): Glaucya Dau

101-0133   Some Like it Hot: Using Lean Six Sigma to Improve QSR Service Operations

Dan Bumblauskas, Associate Professor, University of Northern Iowa, United States

Paul Bumblauskas, President, PFC Services, Inc., United States

Talon Lamb, Student, University of Northern Iowa, United States

Adrienne Tebbe, Student, University of Northern Iowa, United States

Dayten Wittenburg, Student, University of Northern Iowa, United States

Six Sigma methodology was uniquely applied to improve service operations management at Bewley's Cafe. Bewley's is an upscale quick service restaurant located on Grafton St. in Dublin, Ireland. Research results included an improvement of hot beverage service arrival time by 82% with the usage of 5S and statistical methods.

101-1632   Lean maintenance with advanced PdM (predictive Maintenance) technology

Joe Li, Manager, Toyota Motor Corporation, United States

This article explains how the Advanced PdM (predictive Maintenance) can be applied to the equipment reliability process with equipment ownership system to minimize the operating cost. This business process focuses on managing equipment reliability with lean maintenance to meet the business goals of TPS (Toyota Production System)

101-2782   Information and communication technology as strategies to healthcare lifelong learning process: opportunities and lessons

Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil

maria barbosa, Student, Federal University of State of Rio de Janeiro, Brazil

Gláucya Daú, Student, Universidade Federal do Estado do Rio de Janeiro, Brazil

Martin Spraggon, Professor, Hamdan Bin Mohammed Smart University, United Arab Emirates

Eduardo Batista, Professor, Centro Universitário Cesuca, Brazil

Industry 4.0 brought the disruptive technologies to lifelong learning in healthcare institutions. This research is a literature review about information and communication technologies. It aims to analyze the opportunities and the lessons for the information and communication technology insertion in healthcare institutions as strategies to lifelong learning process adherence.

Contributed Session

1336

Tuesday, 02:00 PM - 03:00 PM, POM in Food & Agriculture   Track: POM in Food and Agriculture

Contributed Session: Use of Digital Technologies in Agriculture

Chair(s): Ishmael Acquah

101-1280   Users Profiles of Digital Shared-Economy Platforms for Food Waste Reduction

Laís Moltene, Student, FGV - EAESP, Brazil

Shared-economy digital platforms might reduce food waste, but initially they need to be accepted by the users. This exploratory qualitative research tries to understand which is the main consumers' acceptance factors in the Brazilian context, and also identify users profiles on these platforms.

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101-1872   Strategic Market Deployment: Farm-to-Table Platforms

Isabella Sanders, Student, Georgia Institute of Technology, United States
Benoit Montreuil, Professor, Georgia Institute of Technology, United States
Jiali Zhao, Student, Georgia Institute of Technology, United States

We introduce a data-driven market deployment planning methodology toward applicability in the context of farm-to-table logistics platforms that directly connect farmers to chefs through local supply chains. The process consists of a series of steps, utilizing heuristic and optimization models, resulting in roadmaps for platforms to use in market expansion.

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101-2692   Minimizing Post-harvest Losses through an ICT Enabled Supply Chain Visibility: A Design Science Approach

Ishmael Acquah, Student, Kwame Nkrumah University of Science and Technology, Ghana
Joseph Akyeh, Student, Kwame Nkrumah University of Science and Technology, Ghana
Francis Andoh-Baidoo, Associate Professor, University of Texas Rio Grande Valley, United States
John Marfo, Lecturer, Kwame Nkrumah University of Science and Technology, Ghana
David Asamoah, Associate Professor, Kwame Nkrumah University of Science and Technology, Ghana

Post-harvest losses is prevalent in Africa which affect the realization of the millennium development goal number one which seeks to eradicate extreme poverty and hunger. This study seeks to develop an artifact through design science approach which incorporates an ICT enabled supply chain visibility to minimize post-harvest losses.

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Contributed Session

1340

Tuesday, 02:00 PM - 03:00 PM, Public Sector OM   Track: Public Sector Operations Management

Contributed Session: New Insights on Purchasing and Transportation in Public Sector Operations

Chair(s): Kiran Patil

101-2370   Rise or Fall: Industry Problems of Internet Freight Platform Induced by Blockchain Technology

Ganquan Huang, Student, University of Science and Technology of China, China
Yugang Yu, Professor, University of Science and Technology of China, China

To reduce false value-added tax invoices, the government regulator would like to develop a supply chain consortium blockchain. For this purpose, a practical idea is proposed based on the industry of internet freight platform. Results shows that blockchain technology plays a dual role in the life cycle of this industry.

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101-0982   Public purchase in Universitary Hospitals: mapping and analyze of public purchases

Daniela Yamaji, Student, Universidade estadual de Londrina, Brazil
Saulo Fabiano Vieira, Associate Professor, Universidade estadual de Londrina, Brazil
Pablo Capucho, Student, Universidade Estadual de Londrina - UEL, Brazil
Vera Suguihiro, Professor, Universidade estadual de Londrina, Brazil

This paper had the objective to stablish a model of mapping and analyze the public purchases of a university hospital in Londrina, Brazil. The 2018 procurement processes were analyzed and the flows and economicity were monitored from 2019 onwards. It contributes to better management of processes of public procurement.

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101-1558   System Dynamics Based Simulation Study of Association Between Transportation and Economic Performance of United States

Himali Patil, Student, University of North Texas, United States
Kiran Patil, Student, University of North Texas, United States
Suman Niranjan, Assistant Professor, University of North Texas, United States
Terrance Pohlen, Professor, University of North Texas, United States

Transportation has been pivotal in the economic performance of US, as evident through its past dynamic growth. This study advances past research by capturing associations between transportation and economy, given their complex nature with nonlinear feedback loops, through use of system dynamics based simulation, and aids in better infrastructure development.

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Invited Session

1341

Tuesday, 02:00 PM - 03:00 PM, Retail Operations   Track: Retail Operations

Invited Session: Emerging Topics in Retail Supply Chain II

Chair(s): Ying Cao   Tong Wang

101-1028   Optimal Replenishment Policy for Perishable Products with LIFO Issuing Policy and Age-Dependent Demand

Achal Goyal, Student, Indian Institute of Management, Bangalor, India

Amar Sapra, Associate Professor, Indian Institute of Management, Bangalor, India

We study joint replenishment and clearance sales of a perishable product with general lifetime and a last-in, first-out issuance with age-dependent demand. Demand gets lost not only due to a lack of inventory but also due to old age of the product. We characterize the optimal replenishment policy.

101-2416   Supply chain coordination for perishable products under "minimum life on receipt" (MLOR) agreements

Navid Mohamadi, Student, Kuehne Logistics University, Germany

Sandra Transchel, Professor, Kuehne Logistics University, Germany

Jan Fransoo, Professor, Tilburg University, Netherlands

We design coordination contracts for a supply chain of perishable products when a retailer requires a certain freshness level (known as MLOR agreement) from a supplier who faces a positive lead time lost sale problem. We analyze the effect of MLOR agreements on profit and waste of supply chain members.

101-2811   Dynamic Substitution for Selling Multiple Products under Supply and Demand Uncertainties

Qi Feng, Professor, Purdue University, United States

Chengzhang Li, Assistant Professor, Shanghai Jiao Tong University, China

Mengshi Lu, Assistant Professor, Purdue University, United States

George Shanthikumar, Professor, Purdue University, United States

We study a firm selling multiple substitutable products over a selling horizon of multiple periods with uncertain supply. Extending the notion of stochastic linearity, we show that the replenishment problem is concave via transformation. We design an efficient algorithm to determine the allocation policy that delivers close-to-optimal performance.

Invited Session

1342

Tuesday, 02:00 PM - 03:00 PM, Revenue Management & Pricing   Track: Revenue Management and Pricing

Invited Session: Personalized Strategies in Pricing and Revenue Management II

Chair(s): Dmitry Mitrofanov

101-2505   Customized Coupon Promotion

Junyi DONG, Student, City University of Hong Kong, Hong Kong

Yanzhi Li, Associate Professor, City University of Hong Kong, Hong Kong

We propose a two-stage model for targeted coupon distribution, first predicting customer-coupon pairs' redemption probability and then recommending coupons to the right customers under a total budget constraint. Validation of our model on an open dataset shows significant performance improvement of both our prediction module and distribution strategy.

101-1464   Lyft and Uber IPOs: Before and After

Dmitry Mitrofanov, Student, New York University, United States

Maxime Cohen, Associate Professor, McGill University, Canada

The year 2019 witnessed two unicorn IPOs from ride-hailing platforms: Lyft filed its IPO on March 1 at a $24.3 billion valuation, and Uber filed its IPO on April 11 at a $82.4 billion valuation. Did these platforms adjust their operational decisions in anticipation of their IPOs? To answer this question, we use a comprehensive panel dataset with more than 13 million rides completed by more than 250,000 consumers between January 2018 and July 2019.

Contributed Session

1346

Tuesday, 02:00 PM - 03:00 PM, Socially Responsible Operations   Track: Socially Responsible Operations

Contributed Session: CSR in Operations Management

Chair(s): Siyuan Yan

101-1581   Sustainable Quality: An Empirical Study of the Impact of CSR Performance on Product Quality

Hsiao-Hui Lee, Professor, National Chengchi University, Taiwan, Republic of China

Cuihong Li, Associate Professor, University of Connecticut, United States

Ayush Sengupta, Student, University of Connecticut, United States

This research studies the relationship between product quality and corporate social responsibility (CSR) considered as process quality, in the context of consumer products. We posit that they are both affected by the corporate business strategy. We perform an empirical study on a CSR controversy data-set matched with product recalls data.

101-1807   The water footprint as a tool for quantifying CSR in the mining supply chain

othmane labied, Student, LARGEPA, Morocco

Pierre Fenies, Professor, Paris Panthéon Assas, France

The mining industry represents an exemplary case of CSR oriented environment and community development. One of the major components of sustainable mining practices is the management of water regime during mining operations for present generations. The social responsibility of the company will be dimensioned based on the water footprint accounting

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101-2352   Logistics Service Standardization and Corporate Social Responsibility Evidence from China

Xiaoxu Ling, Post Doc/Researcher, The Hong Kong Polytechnic University, Hong Kong

Siyuan Yan, Student, The Hong Kong Polytechnic University, Hong Kong

We examine how the staggered adoption of national logistics service standardization (LSS) shape corporate social responsibility (CSR) in China. Using the difference in differences method, we show that firms located in cities that adopted LSS exhibit better CSR disclosure quality and performance as well as enhanced supply chain transparency.

Contributed Session

1348

Tuesday, 02:00 PM - 03:00 PM, Supply Chain Management   Track: Supply Chain Management

Contributed Session: **Strategic Inventory Management**

Chair(s): Ganesh Balasubramanian

101-1106   Strategic inventory in the presence of cost learning

Ganesh Balasubramanian, Student, Indian Institute of Management Ahmedabad, India

Benny Mantin, Professor, University of Luxembourg, Luxembourg

Sachin Jayaswal, Associate Professor, Indian Institute of Management Ahmedabad, India

We investigate the joint impact of cost learning and strategic inventory on the manufacturer-retailer interactions in a decentralized supply chain. We show that the manufacturer refrains from carrying inventory even at zero holding cost in the presence of strategic inventory. We characterize the upstream and downstream inventory decisions.

101-0904   Strategic inventory in a Supply Chain in presence of shrinkage

Ganesh CB, Student, Indian Institute of Management Ahmedabad, India

Arulanantha Prabu Ponnachiyur Maruthasalam, Student, Indian Institute of Management Ahmedabad, India

Sachin Jayaswal, Associate Professor, Indian Institute of Management Ahmedabad, India

We investigate the effect of a retailer's process improvement, such as the adoption of RFID to eliminate its inventory shrinkage, on its strategic inventory and its supplier's profit. We show that the retailer's process improvement can be detrimental to its supplier profits.

Invited Session

1350

Tuesday, 02:00 PM - 03:00 PM, Supply Networks   Track: Supply Networks

Invited Session: **Performance in Supply Networks**

Chair(s): Yan Dong

101-0632   Bilateral R&D Productivity and Supply Chain Networks

Yuqi Peng, Student, University of South Carolina, United States

Yan Dong, Associate Professor, University of South Carolina, United States

Ahmet Colak, Assistant Professor, Clemson University, United States

Sriram Venkataraman, Associate Professor, University of South Carolina, United States

Using firm-supplier dyads, we construct a two-sided econometric model of supply chain R&D. Our findings show having R&D-productive partners plays a significant role in transforming an agent's R&D to revenues.

101-0721   The dual embeddedness of global corporations through their supply and internal networks: Performance implications

Fabienne Chedid, Student, Cass Business School, United Kingdom

Canan Kocabasoglu Hillmer, Reader, Cass Business School, United Kingdom

Joerg Ries, Senior Lecturer, Cass Business School, United Kingdom

Buying firms belong to two networks: the internal network consisting of the parent company and its subsidiaries, and the supply network consisting of suppliers and their subsidiaries. Incorporating social network theory and dual embeddedness, we empirically study the interplay of the two networks and the effect on performance.

101-1990   E-mobility and outsourcing in the electric sports car industry

Gary Graham, Associate Professor, Leeds University, United Kingdom

Laird Burns, Associate Professor, University of Alabama Huntsville, United States

Supply network (SN) configuration and infrastructural provisioning perspectives were used to examine the e-mobility trend and its impact on outsourcing in the electric sports car sector. A multiple case study tests an outsourcing model. Intensity sampling procedure was used to select six exemplar cases, enabling multiple engagements with network innovators.

Tuesday, 02:00 PM - 03:00 PM

Contributed Session

1351 | Tuesday, 02:00 PM - 03:00 PM, Sustainable Operations 1   Track: Sustainable Operations

Contributed Session: Issues in Social Sustainability

Chair(s): Mike Gordon

101-1118   Energy Poverty Alleviation Policy with Strategic Consumers

Jing Wang, Student, Tianjin University, China

huibin du, Professor, Tianjin Uinversity, China

The process of alleviating energy poverty is hampered by strategic customers who always delay their purchase for a lower price or higher subsidy in the future. To lift people out of energy poverty and improve social welfare, many countries implement fiscal incentive policies, such as tax-cut policy and direct subsidy policy. In this paper, we explore three policies--laissez-faire, tax-cut, and direct subsidy--in the absence and presence of strategic consumers, respectively. We find the direct subsidy policy does not always dominate the tax-cut policy from the aspect of improving social welfare, especially when consumers are highly strategic and the cost of energy poverty alleviation product is high. From the point of view of stimulating demand, direct subsidy policy can motivate consumers to buy earlier when their strategicity is moderate or high, whereas tax-cut policy cannot entice consumers to buy in advance.

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101-2233   Frameworks to Guide Sustainability Initiatives in the Fashion Industry: A Case of Indian Apparel Industry

Soumyadeep Kundu, Student, Indian Institute of Management Kozhikode, India

Rupesh Pati, Associate Professor, IIM kozhikode, India

Stakeholders in the fashion industry are increasingly implementing sustainability initiatives. However, they have varying spans of control over the value chain and often their initiatives are misplaced. Using case of seven firms, we propose frameworks to guide these efforts, making them optimal as per their span of control.

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101-2273   Buy One, Give One

Mike Gordon, Assistant Professor, Virginia Polytechnic Institute And State University, United States

An analysis of the options that firms have in making corporate social responsibility (CSR) investment. The focus is specifically on philanthropic donations and how firms can optimize donation choice.

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Tuesday, 03:15 PM - 04:15 PM

Contributed Session

1359 | Tuesday, 03:15 PM - 04:15 PM, Covid-19 & Other Pandemics   Track: Covid-19 and Other Pandemics

Contributed Session: Information, communication, and technology 2

Chair(s): Cristiane Do Nascimento

101-2224   Indian Pharmaceutical Industry, Cold Storage Infrastructure and Digitizing Vaccine Distribution to deliver COVID-19 vaccines

Monil Shah, Student, KJ SIMSR, India

While the Indian pharmaceutical manufacturing sector has a huge potential, our cold chaininfrastructure is underdeveloped and growing. While speaking about efficient and ethical vaccinedistribution of 1 billion doses, important parameters of digitalizing supply chains to track vaccinemovement and healthcare rationing are also highlighted.

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101-2731   Analyzing the impact of Covid-19 on Enterprise Blockchain: Development, Demand and Investment

Amit Karamchandani, Student, Indian Institute of Management Lucknow, India

Abha Abha, Student, Indian Institute of Management Lucknow, India

Samir Srivastava, Professor, Indian Institute of Management Lucknow, India

Shekhar Shukla, Assistant Professor, S.P. Jain Institute of Management and Research, Mumbai, India

Covid-19 brought the economy to a near standstill caused by global lockdowns. Enterprise blockchain has been under development and testing for the last few years. This study analyzes the impact of lockdowns on demand for enterprise blockchain and examines how economic slowdown affected the blockchain development and investment.

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101-2789   The Industry 4.0 in a perspective of the Pos-Covid-19 Pandemic.

Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil

Cristiane Do Nascimento, Student, UNIRIO, Brazil

ANA DIAS, Student, CEFET, Brazil

Joseph Shevel, Professor, Galilee Institute, Israel

Gerardo Heckmann, Professor, Universidad Nacional de Córdoba   , Argentina

The Industry 4.0 got more evidence after the Covid-19 Pandemic. However, it has been the object of promising economy and productivity' results in countries as Estonia. What are the future global trends of developed/ underdeveloped countries face to the Industry 4.0? This paper aims to draw paths for this question.

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Contributed Session

1365

Tuesday, 03:15 PM - 04:15 PM, Global Supply Chain Management

Track: Global Supply Chain Management

Contributed Session: **Challenges in Managing Supply Chains**

Chair(s): Kathryn Stecke   Duc Vu

101-1633   Green and Resilient Supply Chains

João Ribeiro, Student, Instituto Superior Técnico - Universidade de Lisboa, Portugal

Bruna Mota, Assistant Professor, Instituto Superior Técnico - Universidade de Lisboa, Portugal

Ana Barbosa-Póvoa, Professor, Instituto Superior Técnico - Universidade de Lisboa, Portugal

Environment and resilience are currently vital concerns when managing Supply Chains (SC). Doing so in a competitive setting, with diverse stakeholders' perspectives and dealing with unforeseen disruptive events is challenging. In this work, we propose an optimization model to assist the design and planning of resilient SC under sustainability concerns.

101-0514   Determinants of Driver Turnover in the Trucking Industry

Debjit Roy, Professor, Indian Institute of Management Ahmedabad, India

Jelle De Vries, Assistant Professor, Rotterdam School of Management, Netherlands

Driver turnover is a major problem in the Indian trucking industry. Companies are unable to retain their motorists, while their trucks outnumber the available drivers. We study the attrition pattern of 100-drivers over four years. Specifically, we study if operational characteristics such as stoppages, breaks, and wages explain driver attrition.

101-2467   The Dynamics of Distribution to Liquidity-constrained Mom-and-pop Stores

Zheyu Jiang, Student, University of Miami, United States

Harihara Natarajan, Associate Professor, University of Miami, United States

Nan Yang, Professor, University of Miami, United States

The study investigates the distribution dynamics to mom-and-pop stores with liquidity constraints by considering the distributor's trade-off - saving lost sales due to stores' liquidity constraints incurs high delivery costs. We find that more cash at different stores could motivate opposite delivery frequencies and have different impacts on retailers.

Contributed Session

1367

Tuesday, 03:15 PM - 04:15 PM, Healthcare OM 1

Track: Healthcare Operations Management

Contributed Session: **Quality & Safety**

Chair(s): Jonathan Helm

101-2088   Do Penalties Improve Quality in Nursing Homes

Alison Clement, Student, University of Minnesota, United States

Rachna Shah, Associate Professor, University of Minnesota, United States

We investigate the relationship between financial penalties and quality in US nursing homes during the next inspection period. Analyses show that high quality nursing homes improve in response to penalties and that low quality nursing homes decline in response; however, the effect sizes are not of practical significance.

101-2386   Quality Management Criteria and Patient-Centered Healthcare

Xinyu Wei, Student, Wichita State University, United States

Xianghui (Richard) Peng, Assistant Professor, Penn State University Erie, United States

Victor Prybutok, Professor, University of North Texas, United States

Healthcare experience contributes to patient satisfaction. A variety of healthcare operations measurements are selected using a quality management perspective. The theoretical model examines the structural relationship among these measurements and the perception of healthcare delivery as measured by patient satisfaction. Insights for practitioners and contributions to academia are discussed.

101-1814   Operational Framework for Adoption and Integration of New Diagnostic Tests into Emergency Department Workflow

Jonathan Helm, Associate Professor, Kelley School of Business, United States

Pengyi Shi, Assistant Professor, Purdue University, United States

H. Sebastian Heese, Professor, North Carolina State University, United States

Alice Mitchell, Associate Professor, Indiana University, United States

New diagnostic tests are evaluated solely on their efficacy in detecting an illness. Ignoring the workload impact can create barriers to adoption. In collaboration with an ED physician, we develop an analytical MDP-based framework to improve design and adoption of new medical tests wrt sensitivity, specificity, and test speed.

Contributed Session

1369

Tuesday, 03:15 PM - 04:15 PM, Humanitarian Ops & Crisis Mgmt 1

Track: Humanitarian Operations and Crisis Management

Contributed Session: Volunteer Management

Chair(s): Scott Rodilitz

101-2320   The Role of Volunteer Experience on Performance on Online Volunteering Platforms

Eunae Yoo, Assistant Professor, University of Tennessee, United States

Gloria Urrea, Assistant Professor, University of Colorado Boulder, United States

We investigate the relationship between online volunteers' experience levels and two indicators of success on online volunteering platforms: (1) project completion and (2) volunteer retention. Our analysis involves a novel dataset collected from a prominent online volunteering platform and provides insights for volunteer management in an online setting.

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101-2362   Online Policies for Efficient Volunteer Crowdsourcing

Vahideh Manshadi, Associate Professor, Yale School of Management, United States

Scott Rodilitz, Student, Yale School of Management, United States

Motivated by a trade-off nonprofits face between notifying more volunteers for the current task and saving them for future ones, we introduce the online volunteer notification problem and develop two online randomized policies that achieve constant-factor guarantees. Further, we test our policies on data from a volunteer-based food recovery platform.

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Contributed Session

1370

Tuesday, 03:15 PM - 04:15 PM, Humanitarian Ops & Crisis Mgmt 2

Track: Humanitarian Operations and Crisis Mgmt 2

Contributed Session: Prevention, Resiliency and Restoration

Chair(s): Christopher Zobel

101-0508   A methodology for planning reconstruction activities after a disaster considering priorities and interdependencies

Diana Rodriguez-C., Student, Oklahoma State University, United States

Manjunath Kamath, Professor, Oklahoma State University, United States

Ricki Ingalls, Chief Operating Officer, Other, United States

A restoration schedule for fixing roads damaged by a disaster should prioritize access to essential public facilities, and consider interdependencies arising from locations of equipment/crew and road network connectivity issues. A new sequential methodology incorporating Steiner Tree and scheduling algorithms will be presented using the Northridge earthquake case.

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101-0617   Using entropy theory for humanitarian prevention phase

Irineu Brito Jr, Professor, Universidade Estadual Paulista Julio De Mesquita Filho - Unesp, Brazil

Mario Chong, Professor, Universidad del Pacífico, Peru

Ana Luna, Professor, Universidad del Pacífico, Peru

Renato Altamirano, Student, Universidad del Pacífico, Peru

Rafael Renteria, Assistant Professor, Universidad Nacional De Colombia, Colombia

We study the relationship between entropy and disaster risk. We used entropy as a variable to measure the local risk, the disaster uncertainty and the regional vulnerability. The results based on population and housing data constitute a potential tool for the humanitarian decision makers in the prevention phase

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101-2577   Developing a Frame of Reference for Measuring Community Disaster Resilience

Christopher Zobel, Professor, Virginia Tech, United States

Cameron Mackenzie, Assistant Professor, Iowa State University, United States

Milad Baghersad, Assistant Professor, Florida Atlantic University, United States

Yuhong Li, Assistant Professor, Old Dominion University, United States

We present an approach for quantitatively measuring community disaster resilience that provides both consistency and flexibility across a wide variety of different contexts. The technique extends previous work on quantifying resilience by theoretically establishing a common frame of reference for directly comparing the relative performance of different resilience dimensions.

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Invited Session

1371

Tuesday, 03:15 PM - 04:15 PM, Information Systems & OM 1

Track: Information Systems and Operations Management

Invited Session: Creative Operations and Scalable Optimization in Smart Connected Environment

Chair(s): Jun Pei

101-1165   Incumbent firm's strategic decisions to extend B2C and C2C sharing

Jun Pei, Associate Professor, Hefei University of Technology, China

Ping Yan, Student, Heifei University of Technology, China

Subodha Kumar, Professor, Temple University, United States

Xinbao Liu, Professor, Hefei University of Technology, China

The sharing economy has developed rapidly using both business-to-customer (B2C) and customer-to-customer (C2C) models. This has exerted a profound impact on incumbent firms that follow a traditional sales model. This study compares the effects of B2C and C2C sharing and present several new managerial insights.

101-2867   Quid-Pro-Quo in Online Medical Consultation? Investigating the Effects of Small Monetary Gifts from Patients

Wei Zhao, Student, ., China

Ben Liu, Assistant Professor, City University of Hong Kong, Hong Kong

Xitong Guo, Professor, Harbin Institute of Technology, China

Tianshi Wu, Assistant Professor, Harbin Institute of Technology, China

Subodha Kumar, Professor, Temple University, United States

In China, many online medical consultation platforms allow patients to give small monetary gifts to doctors. There is an assumption that small gifts do not influence doctors' medical service. This study investigates whether small gifts from patients impact the quality of service provided to the gift-givers and to the non-givers.

101-0795   Prospections of the Utilization of Combinatorial Optimization to Solve Port-City Relationship Conflicts: the Port Access

Murillo Caldeira, Professor, Universidade Nove De Julho, Brazil

Fabio Pereira, Professor, Universidade Nove De Julho, Brazil

In modern metropolitan areas, the port-city relationship became a major issue for managers. A typical bottleneck is the port access, reducing the service level and affecting the productivity. This study aims to prospect solutions in international ports to these conflicts by using advanced combinatorial optimization and artificial intelligence techniques.

Invited Session

1373

Tuesday, 03:15 PM - 04:15 PM, Inventory Management   Track: Inventory Management

Invited Session: Advances in Stochastic Inventory Systems

Chair(s): Geert-Jan Van Houtum

101-2489   Adapting ASML's Service Supply Concept to Increase Customer-centricity

Douniel Lamghari-Idrissi, Program Manager - Customer Support, ASML, Netherlands

Rob Basten, Associate Professor, Eindhoven University of Technology, Netherlands

Geert-Jan Van Houtum, Professor, Eindhoven University of Technology, Netherlands

We developed a new service supply concept at ASML, focusing on extreme long downtimes (XLDs). Worldwide implementation resulted in a 5% total costs increase and a 20% XLD decrease. The value of the XLD decrease for ASML's customers is at least one order of magnitude higher than the cost increase.

101-2603   On the Role of Supply Information and Inventory for Mitigating Supply Disruption with Capacitated Suppliers

Li Xiao, Assistant Professor, Tsinghua University, China

Sean Zhou, Professor, Chinese Univ of Hong Kong, Hong Kong

We study the operational and economic role of inventory and supply information on a firm who sources from two capacitated suppliers, one of which is susceptible to disruption, over a multi-period planning horizon. Both dynamic newsvendor and multi-period inventory models are considered.

101-2407   Joint Inventory and Scheduling Control in a Repair Facility

Geert-Jan Van Houtum, Professor, Eindhoven University of Technology, Netherlands

Erhun Ozkan, Assistant Professor, Koç University, Turkey

Based on an asymptotic analysis, we develop a well performing heuristic for the inventory and scheduling control of repairable items. All items are repaired by the same repair facility. There is an option to apply emergency repairs. The heuristic is optimal when the repair facility is in heavy traffic.

Contributed Session

1377

Tuesday, 03:15 PM - 04:15 PM, POM in Food & Agriculture   Track: POM in Food and Agriculture

Contributed Session: Exploring New Technologies in Agriculture

Chair(s): Behzad Behdani

101-2726   Food Traceability Technologies: An Exploratory Study

Laís Moltene, Student, FGV - EAESP, Brazil

Food traceability is essential to ensure the safety and reliability of products and services along the chain, besides facilitating the identification of lots and producers in cases of contamination. Thus, this exploratory study aims to understand which technologies have been used to track food nowaday.

101-2732   Redesigning agri-food supply chains using intelligent containers: an analysis of a banana chain

Yun Fan, Student, Wageningen University, Netherlands

Behzad Behdani, Assistant Professor, Wageningen University, Netherlands

Quality of agri-food products continuously deteriorates throughout the chain. However, the set-up of quality management processes has important environmental/economic consequences. In this study, we investigate the value of intelligent containers- and how quality management and logistics process can be integrated - using a case of a banana chain.

Invited Session

1383

Tuesday, 03:15 PM - 04:15 PM, Revenue Management & Pricing

Track: Revenue Management and Pricing

Invited Session: Emerging Topics in Revenue Management and Pricing

Chair(s): A. Serdar Simsek

101-0106   Price to Gain or Price to Retain? The Impact of Pricing on Hotel Cancellations

Dan Zhang, Associate Professor, University of Colorado Boulder, United States

Xiao Huang, Associate Professor, Concordia University, Canada

Jian Wang, Vice President, The Rainmaker Group, United States

We use hotel transaction data to establish and quantify the impact of booking rates on cancellations. Based on our empirical findings, we propose an overbooking model with endogenous pricing. Our results show that hotels can suffer substantial revenue loss from ignoring the impact of pricing on cancellations.

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101-0107   Reviews and Self-selection Bias with Operational Implications

Ningyuan Chen, Assistant Professor, University of Toronto, Canada

Anran Li, Student, Columbia University, United States

Kalyan Talluri, Professor, Imperial College London, United Kingdom

It is important to understand how much the public ratings reflect true quality of the product or service. We develop a parsimonious choice model for consumer purchase decisions and show that the self-selection mechanism leads to an upward bias. We study the implication for optimal pricing and assortment.

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101-1066   Self-adapting robustness in demand learning

Boxiao (Beryl) Chen, Assistant Professor, School of Business, United States

Selva Nadarajah, Assistant Professor, University of Illinois at Chicago, United States

Parshan Pakiman, Student, University of Illinois at Chicago, United States

Stefanus Jasin, Associate Professor, University of Michigan, United States

We consider a dynamic pricing problem, where the demand distribution is unknown and needs to be learned. We propose a self-adapting robust demand learning framework that combines robust optimization and no-regret learning such that the seller is automatically "hedged" when ambiguity is large and minimizes regret when ambiguity is small.

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Contributed Session

1387

Tuesday, 03:15 PM - 04:15 PM, Socially Responsible Operations

Track: Socially Responsible Operations

Contributed Session: Global Sustainable OM

Chair(s): Haiying Yang

101-2522   Sustainable development through cross-company collaboration: an automotive case study of alliance phenomenon

Lukas Benz, Student, University of Erlangen-Nuremberg, Germany

Christopher Muench, Post Doc/Researcher, University of Erlangen-Nuremberg, Germany

Evi Hartmann, Professor, University of Erlangen-Nuremberg, Germany

In global supply chains, particularly at the bottom of the pyramid in emerging countries, sustainable development is a daunting challenge. Therefore, cross-company alliances are formed to enhance sustainability. Aim of this research is to analyze alliances based on an ellaborated framework by conducting a case study within the automotive industry.

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101-2673   Impact of Geographical Proximity on Corporate Social Responsibility

Somak Paul, Assistant Professor, California State University East Bay, United States

What impact does colocation have on socially responsible supply chain? Our analysis of archival panel data on over 1,800 suppliers observed for seven years in a developing country shows that colocation of supplier factory and consortium does matter in providing a safe workspace to the workers of the supplying firms.

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101-0981   The Impact of Audit on Supply Chain 's Social Responsibility Level

Haiying Yang, Student, Syracuse University, United States

Zhengping Wu, Associate Professor, Syracuse University, United States

Audit is becoming an increasingly important tool to improve supply chain efficiency. We investigate potential negative social responsibility externalities of audit, and discuss corresponding managerial implications. We also analyze the impact of social responsibility change on supply chain profitability.

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Contributed Session

1389

Tuesday, 03:15 PM - 04:15 PM, Supply Chain Management

Track: Supply Chain Management

Contributed Session: Supply Chain Competition and Coordination

Chair(s): Pinakhi Suvadarshini Suvadarshini

101-0175   Data-driven Platform-based Supply Chain Management: Eco-label Standard Design and Competition Strategy

Sijie Zhou, Student, University of Science and Technology of China, China

Yugang Yu, Professor, University of Science and Technology of China, China

Ye Shi, Associate Professor, University of Science and Technology of China, China

Based on the operational data from one of the largest furniture selling platform in China, we develop a data-driven study on eco-label standard design in a platform-based supply chain and platform's competition strategy. DID, regression analysis and game theory are adopted to analyze environment-concern platform's decisions with numerous merchants.

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101-2296   Supply Chain Coordination via Additive Manufacturing

Mohammad Arbabian, Assistant Professor, University of Portland, United States

3D printing is recognized as a new technology in manufacturing. In this study, we focus on a wholesale-price contract where, on top of the traditional manufacturing, either the manufacturer or the retailer could adopt this new technology to produce final products. We analyze the equilibrium of the resulting games.

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101-1675   Multi-Channel Closed-Loop Supply Chain Design: Information Asymmetry and Channel Coordination

Pinakhi Suvadarshini Suvadarshini, Student, Indian Institute of Management Lucknow, India

Indranil Biswas, Associate Professor, NEOMA Business School, France

Samir Srivastava, Professor, Indian Institute of Management Lucknow, India

The paper studies the designing of contract for a CLSC where the used products can be competitively collected back via three hybrid channels (OEM and retailer or OEM and third party or retailer and third party) where the retailer's and third party's cost of collection effort is the private information.

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Contributed Session

1392	Tuesday, 03:15 PM - 04:15 PM, Sustainable Operations 1 Track: Sustainable Operations
	Contributed Session: Studies in Sustainable Operations
	Chair(s): Christian Bautista

101-2744   The Antarctic continent expedition and research center supply chains: insights, trends, challenges, opportunities, and lessons

Annibal Scavarda, Professor, Federal University of the State of Rio de Janeiro, Brazil

Gláucya Daú, Student, Federal University of the State of Rio de Janeiro, Brazil

Lloyd Peck, Professor, British Antarctic Survey, United Kingdom

José Roberto da Silva, Professor, University of São Paulo, Brazil

The supply chains can demand several steps that can have different complexities. This research study has developed a literature review, involving the Antarctic continent expedition and research center supply chains. It analyzes the insights, the trends, the challenges, the opportunities, and the lessons of the supply chain management.

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101-0520   ANALYSIS OF THE IMPACT OF HIGH VOLTAGE POWER LINES ON THE VALUE OF PROPERTIES

Daniel Arias Aranda, Professor, University of Granada, Spain

Study case on a Spanish region vulnerable to a HVPL project indicates a decrease in the value of the property, The consequences of the HVPL project for the economies is incalculable in economic terms with a visual environmental impact in terms of the physical deterioration of landscapes of great beauty.

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101-1954   ENVIRONMENTAL MANAGEMENT PRACTICES FOR MANUFACTURING ENTREPRENEURIAL FIRMS' SUSTAINABILITY

Christian Bautista, Student, University of Texas Rio Grande Valley, United States

Empirical evidence confirms that small-medium enterprises (SMEs) have an important role to play in reducing the negative impacts of business on the environment . Operations management and entrepreneurship have the potential to create new strategies to develop and implement environment management practices (EMPs) on manufacturing young entrepreneurial firms (MYEFs).

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Tuesday, 04:30 PM - 05:30 PM

Contributed Session

1408	Tuesday, 04:30 PM - 05:30 PM, Healthcare OM 1 Track: Healthcare Operations Management
	Contributed Session: Modeling Methods
	Chair(s): Mohammad Zhalechian

101-0641   EMS Optimization Models with Survival Function

Dmitry Anokhin, Student, George Washington University, United States

Miguel Lejeune, Professor, George Washington University, United States

We propose new survival maximization models that implement the idea of survival function in emergency healthcare. We consider three families of survival functions with are each increasing with the service and waiting times.

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101-1146   Machine Learning Application for Developing a Patient Scheduling Model based on Patients Characteristics

Davood Golmohammadi, Associate Professor, University of Massachusetts Boston, United States

Hari Balasubramanian, Assistant Professor, University Of Massachusetts Amherst, United States

We developed an appointment scheduling model based on patients' characteristics in a clinic. Service time for each patient was predicted based on Neural Network modeling and the results were compared to the current scheduling system in this case study.

101-2291   Personalized Hospital Admission Control: A Contextual Learning Approach

Mohammad Zhalechian, Student, University of Michigan - Ann Arbor, United States
Esmaeil Keyvanshokooh, Student, University of Michigan - Ann Arbor, United States
Cong Shi, Assistant Professor, Department of Industrial Enginnering, United States
Mark Van Oyen, Professor, University of Michigan, United States

We develop an online algorithm to adaptively learn the readmission risk of patients and choose the best care unit based on the observed contextual-information. The objective is to minimize patient readmissions while capturing the trade-off between the benefit of better health outcomes versus the opportunity cost of reserving high-demand beds.

Invited Session

1410

Tuesday, 04:30 PM - 05:30 PM, Humanitarian Ops & Crisis Mgmt 1   Track: Humanitarian Operations and Crisis Management

Invited Session: HOCM - Best Paper Finalists 1

Chair(s): Christopher Zobel   Trilce Encarnacion

101-2916   HOCM - Disaster Mitigation: Leveraging Community Involvement to Improve Water Access in sub-Saharan Africa

Chengcheng Zhai, Student, Kelley School of Business, United States
Kurt Bretthauer, Professor, Indiana University, United States
Jorge Mejia, Assistant Professor, Indiana University, United States
Alfonso Pedraza-Martinez, Associate Professor, Indiana University, United States

HOCM Best Paper Finalist We investigate how can we involve the local communities to improve the drinking water accessibility and where should additional water projects be built to optimize water accessibility levels while maintaining costs.

101-2915   HOCM - No Panic in Pandemic: The Impact of Individual Choice on Public Health Policy

Zhenhuan Zhang, Student, University of Minnesota, United States
Miao Bai, Assistant Professor, University of Connecticut, United States
Ying Cui, Assistant Professor, University of Minnesota, United States
Guangwen Kong, Assistant Professor, Temple University, United States

HOCM Best Paper Finalist

101-2917   - The Role of Volunteer Experience on Performance on Online Volunteering Platforms

Eunae Yoo, Assistant Professor, University of Tennessee, United States
Gloria Urrea, Assistant Professor, University of Colorado Boulder, United States

HOCM Best Paper Finalist. We investigate the relationship between online volunteers' experience levels and two indicators of success on online volunteering platforms: (1) project completion and (2) volunteer retention. Our analysis involves a novel dataset collected from a prominent online volunteering platform and provides insights for volunteer management.

Invited Session

1412

Tuesday, 04:30 PM - 05:30 PM, Information Systems & OM 1   Track: Information Systems and Operations Management

Invited Session: Challenges of new information technology in emergency operations management

Chair(s): Dehai Liu

101-1715   Hyperparameter optimization of deep learning models for quality inspections of medical devices

Gautham Sunder, Student, University of Minnesota, United States
Christopher Nachtsheim, Professor, Carlson School of Management, United States
Thomas Albrecht, Principal PD Engineer, Boston Scientific, United States

Computer vision and deep learning models for quality inspections is an emergingparadigm in manufacturing operations. Widespread adoption of the models is limited by the high levels of expertise needed to train them. In this study we use designof experiments to automate model training for quality inspection tasks.

101-2530   Institutional Repository INCA: strategies for interoperability and integration

Robson Martins, Student, Instituto Nacional de Câncer José Alencar Gomes da Silva, Brazil
Annibal Scavarda, Associate Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil
Kátia Simões, Professor, Instituto Nacional de Câncer José Alencar Gomes da Silva, Brazil

The work presents the processes for creating the INCA institutional repository, the set of interoperable systems with each other and with other systems, in order to ensure the management of information and the promotion and visibility of institutional production as well as ensuring its relevance, reliability and preservation institutional memory

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101-2561   construction and development of communities and collections of the INCA Institutional

Annibal Scavarda, Associate Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil

Robson Martins, Student, Instituto Nacional de Câncer José Alencar Gomes da Silva, Brazil

The work presents the process of construction and development of communities and collections of the INCA Institutional Repository carried out through Design Thinking. Conducted by a group of 15 professionals from the Institute in the areas of Teaching, Research, Management, Prevention and Assistance in order to meet institutional demands.

Contributed Session

1418

Tuesday, 04:30 PM - 05:30 PM, POM in Food & Agriculture   Track: POM in Food and Agriculture

Contributed Session: Issues in Food Supply Chain

Chair(s): Foivos Anastasiadis

101-2658   Improving Perishable-Goods Dual-Channel Supply Chain Performance: Retailer's Selling Strategies and Supplier's New Technology Adoption

SHUAI ZHAO, Student, Dalian University of Technology, China

Wenli Li, Professor, Dalian University of Technology, China

Jianqing Chen, Associate Professor, University of Texas at Dallas, United States

Motivated by product quality losses and asymmetric information along supply chains for perishable goods, we explore how a supplier's adoption of new technologies benefits the supplier and the retailer with a dual channel under different pricing schemes. We find the supplier can most likely benefit when uniform price is used.

101-2158   Impact of market structure on Agricultural Supply Chain

Dewang Pagare, Student, Indian Institute of Management, Lucknow, India

Indranil Biswas, Assistant Professor, Indian Institute of Management Lucknow, India

Amit Agrahari, Associate Professor, Indian Institute of Management - Lucknow, India

Sriparna Ghosh, Assistant Professor, University of Cincinnati, United States

We analytically study the impact of market structure in the agricultural supply chain in India. We consider three types of marketplace and build a three-stage signaling game model to analyse the supplier's problem of choosing marketplace and the corresponding price discovery. We study both full and asymmetric information cases.

101-2548   Food supply chain stakeholders' behaviour on traceability systems: evidence from Greece

Foivos Anastasiadis, Post Doc/Researcher, Dept. of Agricultural Economics, Aristotle University of Thessaloniki, Greece

Ioanna Apostolidou, Post Doc/Researcher, Dept. of Agricultural Economics, Aristotle University of Thessaloniki, Greece

Food safety concerns continue to escalate and the growing demand for traceability systems is evident. The adaptation of such systems depends on the acceptance and willingness to pay of the supply chain stakeholders. The current study investigates these aspects providing valuable insights from a managerial and policy-making perspective.

Invited Session

1426

Tuesday, 04:30 PM - 05:30 PM, Service Operations   Track: Service Operations

Invited Session: Workshop: POMS College of Service Operations Mentoring Session

Chair(s): Jie Zhang   Enrico Secchi

101-2059   Workshop: POMS College of Service Operations Mentoring Session

Jie Zhang, Associate Professor, University of Victoria, Canada

Enrico Secchi, Assistant Professor, University College Dublin, Ireland

During this constructive and intimate session, interested participants will have the opportunity to discuss all aspects of a career as a service operations scholar with an experienced mentor. This session is dedicated to developing the mentoring initiative in the College of Service Operations.

Contributed Session

1430

Tuesday, 04:30 PM - 05:30 PM, Supply Chain Management   Track: Supply Chain Management

Contributed Session: Information Sharing in Supply Chain Management

Chair(s): Huaqing Hu

101-0951   Demand Visibility And Capacity Pooling Given Commitments.

Pol Boada Collado, Student, Northwestern University, United States

Sunil Chopra, Professor, Kellogg School of Management, United States

Karen Smilowitz, Professor, Northwestern University, United States

Demand visibility and capacity pooling are two hedging mechanisms against demand uncertainty for signing capacity contracts. Previous studies show that, without temporal commitment, the two mechanisms are substitutes. We show that commitment imposed across periods leads to new dynamics in which the two mechanisms act as both substitutes and complements.

101-2452   Value chain analysis for regional growth

Subhro Mitra, Associate Professor, University of North Texas at Dallas, United States

In this research paper propose to do Value chain analysis to map the flow of product from the producers to the customers. This analysis will helps to understand business-business relationship and also helps to understand ways to increase productivity and value addition.

101-2188   Committed or contingent? The retailer's information acquisition and sharing strategies when confronting manufacturer encroachment

Huaqing Hu, Student, Peking University, China

Lihua Chen, Professor, Peking University, China

We investigate how a retailer strategically acquires and shares consumer quality preference information when confronting manufacturer encroachment. We find that when the manufacturer's direct selling efficiency is high, the retailer prefers to make acquisition decision contingently and voluntarily share the information. Otherwise, she commits to acquire but holds the information.

Tuesday, 05:45 PM - 06:45 PM

Contributed Session

1440

Tuesday, 05:45 PM - 06:45 PM, Behavior in OM   Track: Behavior in Operations Management

Contributed Session: Business Meeting: College of Behavioral Operations Mgmt

Chair(s): Nikolay Osadchiy

101-2884   Business Meeting: College of Behavioral Operations Mgmt

Nikolay Osadchiy, Associate Professor, Emory University, United States

College of Behavioral Operations Mgmt Business Meeting

Contributed Session

1449

Tuesday, 05:45 PM - 06:45 PM, Healthcare OM 1   Track: Healthcare Operations Management

Contributed Session: Business Meeting: College of Healthcare Operations Mgmt

Chair(s): David Dobrzykowski

101-2885   Business Meeting: College of Healthcare Operations Mgmt

David Dobrzykowski, Associate Professor, University of Arkansas, United States

College of Healthcare Operations Mgmt Business Meeting

Contributed Session

1451

Tuesday, 05:45 PM - 06:45 PM, Humanitarian Ops & Crisis Mgmt 1   Track: Humanitarian Operations and Crisis Management

Contributed Session: Business Meeting: College of Humanitarian Operations and Crisis Mgmt

Chair(s): Nezih Altay

101-2886   Business Meeting: College of Humanitarian Operations and Crisis Mgmt

Nezih Altay, Professor, Depaul University, United States

Business Meeting: College of Humanitarian Operations and Crisis Mgmt

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Contributed Session

1458

Tuesday, 05:45 PM - 06:45 PM, Operational Excellence   Track: Operational Excellence

Contributed Session: Business Meeting: College of Operational Excellence

Chair(s): Morgan Swink

101-2887   Business Meeting: College of Operational Excellence

Morgan Swink, Professor, Texas Christian University, United States

Business Meeting: College of Operational Excellence

Contributed Session

1462

Tuesday, 05:45 PM - 06:45 PM, Product Innovation & Technology Mgmt

Track: Product Innovation and Technology Management

Contributed Session: **Business Meeting: College of Product Innovation and Tech Mgt**

Chair(s): Karthik Ramachandran

101-2896   Business Meeting: College of Product Innovation and Technology Management

Karthik Ramachandran, Associate Professor, Georgia Institute of Technology, United States

Business Meeting: College of Product Innovation and Technology Management

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Contributed Session

1467

Tuesday, 05:45 PM - 06:45 PM, Service Operations

Track: Service Operations

Contributed Session: **Business Meeting: College of Service Operations**

Chair(s): Jie Zhang

101-2894   Business Meeting: College of Service Operations

Jie Zhang, Associate Professor, University of Victoria, Canada

Business Meeting: College of Service Operations

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Contributed Session

1471

Tuesday, 05:45 PM - 06:45 PM, Supply Chain Management

Track: Supply Chain Management

Contributed Session: **Business Meeting: College of Supply Chain Management**

Chair(s): Lauren Lu

101-2895   Business Meeting: College of Supply Chain Management

Dorothee Honhon, Associate Professor, University of Texas Dallas, United States

Business Meeting: College of Supply Chain Management

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Contributed Session

1474

Tuesday, 05:45 PM - 06:45 PM, Sustainable Operations 1

Track: Sustainable Operations

Contributed Session: **Business Meeting: College of Sustainable Operations**

Chair(s): Vishal Agrawal

101-2893   Business Meeting: College of Sustainable Operations

Vishal Agrawal, Associate Professor, Georgetown University, United States

Business Meeting: College of Sustainable Operations

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Wednesday, 09:00 AM - 10:00 AM

Invited Session

1478

Wednesday, 09:00 AM - 10:00 AM, 2- Meetings & Programs - All are Welcome

Track: All Meetings & Programs A: Open to Everyone

Invited Session: **International Conference Organizers' Recognition**

Chair(s): Nagesh Murthy

101-2873   International Conference Organizers' Recognition

Nagesh Murthy, Professor, University of Oregon, United States

This event is by invitation only. Those invited have received the link to this event in earlier correspondence.

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Invited Session

1481

Wednesday, 09:00 AM - 10:00 AM, Behavior in OM   Track: Behavior in Operations Management

Invited Session: Empirical Research Using Behavioral Insights (Section II)

Chair(s): Maria Ibanez

101-1121   Should I use this app? Understanding barriers to technology adoption by nanoretailers

Rafael Escamilla Gonzalez Aragon, Student, Kuehne Logistics University, Germany
Prisca Brosi, Associate Professor, Kuehne Logistics University, Germany
Jan Fransoo, Professor, Tilburg University, Netherlands
Christopher Mejia-Argueta, Assistant Professor, Center for Transportation and Logistics, United States
Camilo Mora Quiñones, Student, Tecnologico De Monterrey, Colombia

Millions of nanostores around the world fail to adopt technology, which creates significant operational challenges for themselves and their suppliers - typically large Consumer Packaged Goods companies. Through the application of surveys and vignette experiments on the field, we explain the perceptions and processes that lead to a reduced adoption.

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101-0286   Mitigating the Negative Effects of Customer Anxiety through Access to Human Contact

Michelle Shell, Assistant Professor, Boston University, United States
Ryan Buell, Associate Professor, Harvard Business School, United States

Through a series of lab and field experiments, conducted in the high-anxiety domain of financial services, we document the negative effects of anxiety on customer performance and demonstrate how providing customers with access to human contact can improve customers' willingness to engage, elevate choice satisfaction and engender trust in companies.

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101-2693   Transparency Fosters Trust and Justice in Global Supply Chains

Emily Dickey, Student, Kuehne Logistics University, Germany
Prisca Brosi, Associate Professor, Kuehne Logistics University, Germany
Jan Fransoo, Professor, Tilburg University, Netherlands

Amid growing calls for operational transparency and corporate social responsibility, this paper theorizes that supply chain disclosures - particularly labor conditions and wage payments- positively relate to the perceived trustworthiness and justice adherence of the focal firm. We find support for our theorizing over two vignette experiments.

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Contributed Session

1482

Wednesday, 09:00 AM - 10:00 AM, Covid-19 & Other Pandemics   Track: Covid-19 and Other Pandemics

Contributed Session: Pharmaceuitcal intervention

Chair(s): Hildeliza Salles

101-2667   Covid - 19 - Optimization Modeling of the Containment Efforts and Progress in India

Nilakantan Narasinganallur, Associate Professor, KJ SIMSR, India
Arunachalam Narayanan, Associate Professor, University of North Texas, United States

Government of India is making various efforts to contain the COVID-19's progress through testing and vaccination. This work explores use of optimization models like transshipment and set-covering problem; and evaluates the utility of the models in a fluidic situation. We also review the progress of efforts by the local government.

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101-2761   Predicting COVID-19 Therapeutics: The Role of Firm's Supply Chain Network and Product Portfolio

Marouen Ben Jebara, Assistant Professor, University of South Carolina, United States
Sachin Modi, Professor, Wayne State University, United States

Since the emergence of the COVID 19 pandemic, pharmaceutical companies have been racing to develop treatments/vaccines for the virus. The current study investigates the influence of the pharmaceutical firm's network position and product portfolio characteristics on the development of treatments/vaccines. Results provide relevant research and managerial implications.

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101-2810   COVID-19 pandemic: An Analysis of laser thermometers in public environments

Hildeliza Salles, Student, UNIRIO, Brazil
Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil
Gláucya Daú, Student, Universidade Federal do Estado do Rio de Janeiro, Brazil
Fang Zhao, Professor, Edith Cowan University, Australia
Livia Salles, Student, Estácio University, Brazil

The COVID-19 pandemic continues to affect millions worldwide. This research study has developed a literature review about laser thermometers. It analyzes the use of body temperature measurement as a means of screening for disease, considering that laser thermometers have been widely used in public environments.

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Invited Session

1483

Wednesday, 09:00 AM - 10:00 AM, Economic Models in OM   Track: Economic Models in Operations Management

Invited Session: Online Platforms and Information Design in Supply Chain Management

Chair(s): Ping Su

101-0801   Trust Building in Supply Chain Management through Blockchain Technology

Yu Xia, Associate Professor, College of William and Mary, United States

Nitya Labh Labh, Student, College of William and Mary, United States

This research aims to envision blockchain's trust building benefit in supply chain operations. We extrapolate relationships between trust, information-sharing, and supply chain efficiency to draw a framework regarding blockchain's proposed advantages. We argue that blockchain technology accelerates trust and transparency, bolstering efficiency and productivity within supply chains.

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101-0811   Information Provision Under Showrooming and Webrooming

Yuyun Zhong, Assistant Professor, James Madison University, United States

Wenjing Shen, Associate Professor, Drexel University, United States

Oben Ceryan, Senior Lecturer, Cass Business School, United Kingdom

Consumers strategically choose a product information gathering channel and product purchasing channel. Showrooming and webrooming exist when the two channels deviate. We endogenize consumers' choices of information gathering and purchasing, and examine how the online retailer provides information effectively when competing with a brick-and-mortar retailer.

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101-0296   Dynamic Pricing for Trade-in Products

Murray Lei, Assistant Professor, Queen's University, Canada

Sean Zhou, Professor, Chinese Univ of Hong Kong, Hong Kong

Zhuoluo Zhang, Student, Chinese Univ of Hong Kong, Hong Kong

We study a dynamic pricing problem where a firm sells both new and used products. The firm acquires used products through trade-in programs, where customers sell their used products either for cash or for upgrade credits. We analyze the property of the optimal policy and propose near-optimal pricing policies.

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Invited Session

1485

Wednesday, 09:00 AM - 10:00 AM, Emerging Topics in OM   Track: Emerging Topics in Operations Management

Invited Session: Online Platforms

Chair(s): Heng Zhang   Heng Zhang

101-0800   Commercializing the Package Flow: Cross-sampling Physical Products Through E-commerce Warehouses

Brian Han, Assistant Professor, University of Illinois at Urbana Champaign, United States

Leon Chu, Associate Professor, University of Southern California, United States

Tianshu Sun, Assistant Professor, University of Southern California, United States

Lixia Wu, Data Scientist, Alibaba Group, China

We propose a business innovation for e-commerce platforms to distribute free samples with packages. In close collaboration with Alibaba, we carry out a large-scale field experiment to illustrate how e-commerce warehouses can leverage control (over physical products) and information (collected from the online marketplaces) to commercialize the logistics flow.

- -

101-1370   Social Nudges Boost Productivity on Online Platforms: Evidence from Field Experiments

zhiyu zeng, Student, Tsinghua University, China

Hengchen Dai, Assistant Professor, University of California Los Angeles, United States

Dennis Zhang, Assistant Professor, Washington University St Louis, United States

Max Shen, Professor, University of California Berkeley, United States

Heng Zhang, Assistant Professor, Arizona State University, United States

Extending prior work studying how managers can lift productivity, we examine a low-cost, information-based intervention that is conducted by other agents in the work environment (we call it social nudges). To test the effectiveness of social nudges, we conducted a randomized field experiment on a video-sharing social network platform.

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101-2050   Position Ranking and Auctions for Online Marketplaces

Leon Chu, Associate Professor, University of Southern California, United States

Hamid Nazerzadeh, Associate Professor, University of Southern California, United States

Heng Zhang, Assistant Professor, Arizona State University, United States

Online e-commerce platforms connect thousands of sellers and consumers every day. In this work, we study how such platforms should rank products displayed to consumers, and utilize the top and most salient slots. We present a model that considers consumers' search costs and the externalities

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Invited Session

1486

Wednesday, 09:00 AM - 10:00 AM, Empirical Research in OM

Track: Empirical Research in Operations Management

Invited Session: Empirical Research in Healthcare Operations

Chair(s): E. David Zepeda

101-2836 Pay-for-Performance Programs Effectiveness in Healthcare: The Case of the End-Stage Renal Disease Quality Incentive Program

Saeed Piri, Assistant Professor, University of Oregon, United States

This paper focuses on the first pay-for-performance program in the US, ESRD-QIP. QIP aims to promote high-quality services in dialysis facilities by tying their payments to their performance on a set of quality measures. We examine the effectiveness of QIP by exploring the changes in various clinical/operational measures.

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101-1036 Telemedicine Adoption and Practices in Clinics

Xiaojin Liu, Assistant Professor, Virginia Commonwealth University, United States

Susan Goldstein, Associate Professor, University of Minnesota, United States

Kingshuk Sinha, Professor, University of Minnesota, United States

How does telemedicine, the technology-enabled remote delivery of clinical care, interact with clinical practices to improve health care services? We investigate the antecedent role of socioeconomic, geographical, organizational and technological factors on adoption, and examine the consequential impact on health care delivery.

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101-1975 Extending the service boundary for care: the quality-cost appeal of an alternative care delivery model

John Lowrey, Student, Ohio State University, United States

Aravind Chandrasekaran, Associate Professor, Ohio State University, United States

There is no simple answer to the quality-cost problem in healthcare. However, recent innovation in the healthcare service delivery connects an expanded service boundary for care to a favorable quality and cost differential. We quantify this differential using a DID setup.

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Invited Session

1487

Wednesday, 09:00 AM - 10:00 AM, Finance & OM

Track: Finance and Operations Management

Invited Session: Risk Management in Operations & Finance

Chair(s): Mert Hakan Hekimoglu

101-1433 Risk Aversion, Policy Contingency, and Sourcing Options

Ran Ji, Assistant Professor, George Mason University, United States

Bardia Kamrad, Professor, Georgetown University, United States

We extend the newsvendor model in a contingent claims context by introducing a shortage retrieval option given a required service level constraint. The retrieval option is transcribed by an up-front reservation level and allows the procurer to exercise the contract. Tractable reformulation and analytical solutions are investigated.

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101-1625 Incorporating Option Value in Decision Making Using a Competitive Game

Suzanne De Treville, Professor, Univ of Lausanne, Swiss Finance Inst, Switzerland

Jordi Weiss, Student, University of Lausanne, Switzerland

Supply-chain responsiveness can produce valuable options but is difficult for decision makers to incorporate into their decisions. We demonstrate use of a competitive game that increases decision-maker awareness of these options and makes them better able to include them in calibrating supply-chain responsiveness.

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101-2084 Service at Risk in Delivery Operations

Mert Hakan Hekimoglu, Assistant Professor, Rensselaer Polytechnic Institute, United States

John Park, Assistant Professor, Pepperdine University, United States

Burak Kazaz, Professor, Whitman School of Management, United States

This paper helps a firm determine its inventory stocking decisions at its multiple fulfillment centers as a mitigation strategy against delivery disruptions. While risk-aversion generally leads to an increase in total inventory levels, we find a surprising result that total inventory can decrease in risk aversion.

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Invited Session

1489

Wednesday, 09:00 AM - 10:00 AM, Healthcare Analytics

Track: Healthcare Analytics

Invited Session: Data-Driven Models in Healthcare Operations

Chair(s): Hessam Bavafa

101-0157 The Impact of Medicaid Expansion on the Patient Flow in Emergency Department

Guihua Wang, Assistant Professor, University of Texas Dallas, United States

We study the effect of Medicaid expansion on the patient flow in Emergency Department (ED). We find that Medicaid expansion increases ED length of stay, wait time, and boarding time.

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101-2604   'Forecasting Emergency Department Length of Stay and Hospital Admissions During the Pandemic'

Siddharth Arora, Lecturer, University of Oxford, United Kingdom

James Taylor, Professor, University of Oxford, United Kingdom

This study investigates the impact of the pandemic on patient-flow in the emergency department (ED), focussing on attendances, emergency admissions to the hospital, length of stay (LOS), and the reason for attendance. Using machine learning, for each patient, we generate personalized and probabilistic estimates of their LOS and admission risk.

101-0874   Consistency is Key: The Variance Learning-Curve

Hessam Bavafa, Assistant Professor, University of Wisconsin-Madison, United States

Jonas Jonasson, Assistant Professor, Massachusetts Institute of Technology, United States

The expansive Learning-Curve literature in Operations Management has explored how various facets of prior experience improve average performance. We show that cumulate experience also results in improved performance consistency. Since variability is a key driver of performance in most service systems, our results have implications for capacity planning.

Invited Session

1490

Wednesday, 09:00 AM - 10:00 AM, Healthcare OM 1   Track: Healthcare Operations Management

Invited Session: Contemporary research into key healthcare concerns

Chair(s): David Dobrzykowski

101-1586   A Supply Chain Management Perspective of the Opioid Crisis: A Data-Driven Longitudinal Empirical Analysis

David Dreyfus, Assistant Professor, Rutgers Business School, United States

Eunseok Kim, Student, Rutgers Business School, United States

Alok Baveja, Professor, Rutgers University, United States

The opioid crisis continues to wreak havoc on communities across the U.S. Legislation has been passed to help curb this epidemic, yet, it continues. This study provides an examination of the opioid crisis by showing that it isn't just a public health crisis, but also a supply and demand crisis.

101-0838   Patient safety - Who and What do Matter?

Xin Ding, Assistant Professor, Rutgers Business School, United States

In this study, we examine patient safety culture in the hospital environment and identify how variation and consistency across different clinical units might drive patient safety outcome.

101-1442   Examining operational levers in hospitals

David Dobrzykowski, Associate Professor, University of Arkansas, United States

Kathleen McFadden, Professor, Northern Illinois University, United States

This study unpacks the operational levers, namely key servicescape dimensions, that can link a hospital's orientation and workplace characteristics to financial performance and patient satisfaction. Data collected from multiple sources reveals the differential effects of physical and social service scape on hospital performance.

Invited Session

1492

Wednesday, 09:00 AM - 10:00 AM, Humanitarian Ops & Crisis Mgmt 1   Track: Humanitarian Operations and Crisis Management

Invited Session: Disaster Preparedness and Response I

Chair(s): Raktim Pal

101-2180   Coastal Housing Recovery for Vulnerable Populations in a Post-Disaster Environment: A Supply Chain Perspective

Rafael Diaz, Associate Professor, Old Dominion University, United States

Joshua Behr, Associate Professor, Old Dominion University, United States

Beatriz Acero, Project Scientist, Old Dominion University, United States

Severe catastrophic storm events may substantially affect housing stock and regional capacity to rebuild and repair houses. Rebuilding this capacity takes time while affected regions face an unexpected surge in demand. Monte Carlo models are combined with Beta Distribution Models to assess costs, recovery times, and the effects of interventions

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101-0114   Impact of Incorporating Returns into Pre-Disaster Deployments for Rapid-Onset Predictable Disasters

Jon Stauffer, Assistant Professor, Mays Business School, Texas A&M University, United States

Subodha Kumar, Professor, Temple University, United States

Initial deployment decisions are critical to Humanitarian Organizations. Deploying too little or too much inventory can result in bad publicity and unhappy donors. We use a stochastic optimization model to investigate the initial deployment decision, the surrounding costs, and optics of returning/disposing of unused items in varying disaster scenarios.

101-0900   Information diffusion in social media environment following a disaster

Minoo Modaresnezhad, Assistant Professor, University of North Carolina Wilmington, United States

Manoj Vanajakumari, Associate Professor, University of North Carolina Wilmington, United States

Saba Pourreza, Assistant Professor, University of North Carolina Wilmington, United States

In this era of social media, propagation of information is quick, free, and unmoderated. In this research, we explore the social media ecosystem with a focus on Twitter, to study the role of influencers and their activities, particularly in information diffusion, during a disaster environment.

Invited Session

1494

Wednesday, 09:00 AM - 10:00 AM, Information Systems & OM 1

Track: Information Systems and Operations Management

Invited Session: The Use of Information in Improving Operational Performance

Chair(s): Xingzhi Jia

101-0790   Operational and Environmental Efficiency of Wastewater Treatment Agencies in the U.S.

Sandra Buzon, Student, Texas A&M University College Station, United States

Andres Jola-Sanchez, Assistant Professor, Mays Business School, Texas A&M University, United States

Neil Geismar, Professor, Texas A&M University College Station, United States

Rising concerns about water pollution, supply, and access have motivated governments toward more effective regulatory environments, which in turn drive companies to meet the standards in the use of resources. This research empirically analyzes the effect of water pollution regulation on companies that perform wastewater treatment.

101-1761   Fleet Composition in Response to Natural Disasters and Armed Conflicts

Telesilla Kotsi, Student, Indiana University, United States

Maria Besiou, Professor, Kuehne Logistics University, Germany

Alfonso Pedraza-Martinez, Associate Professor, Indiana University, United States

We examine empirically a humanitarian organization's fleet composition. We study how the organization decides on renting or subcontracting transportation to deliver services, combined with data on personnel deployment (locals and expatriates). A thirteen-year panel data reveals that safety concerns in armed conflicts can help explain the fleet composition.

101-2481   Dynamic L1 Regression

Jose Dula, Professor, University of Alabama, United States

Botan Citil, Student, University of Alabama, United States

L1 regression is a robust outlier alternative to OLS. L1 regression requires solving an LP. Modern data are dynamic. Updating L1 regression with streaming data is an unexplored topic. LPs must be solved on the fly. We present results on dynamic L1 regression with streaming data.

Contributed Session

1500

Wednesday, 09:00 AM - 10:00 AM, POM in Food & Agriculture

Track: POM in Food and Agriculture

Contributed Session: Emerging Trends and Opportunities in Agribusiness

Chair(s): Kunpeng Li

101-2584   Promoting Human-Robot Synergy to Improve Agricultural Operations Efficiency

Naoum Tsolakis, Post Doc/Researcher, University of Cambridge, United Kingdom

Eirini Aivazidou, Post Doc/Researcher, Centre for Research and Technology - Hellas (CERTH), Greece

Dionysis Bochtis, Professor, Centre for Research and Technology Hellas (CERTH), Greece

Mukesh Kumar, Lecturer, University of Cambridge, United Kingdom

Manoj Kumar Tiwari, Professor, NITIE, Mumbai, India

Agrifood demand spikes often necessitate the short-term use of additional workforce. However, emergency restrictions (e.g., limited mobility during Covid-19) can disrupt harvesting operations. Human-robot synergistic systems could be an alternative long-term solution. Our system dynamics model assesses how introducing robots in agriculture can efficiently increase capacity and meet consumers' needs.

101-2449   Blockchain in food supply chains: a synthesis analysis of benefits, opportunities and challenges

Kunpeng Li, Assistant Professor, California State University Northridge, United States

Amir Gharehgozli, Assistant Professor, California State University Northridge, United States

Blockchain is a promising decentralized information technology that could benefit supply chains by increasing transaction transparency and efficiency, reducing cost and transaction time, as well as building trust and secure transactions among participants. We explore how blockchain could benefit the food supply chain, also the opportunities and challenges involved.

Invited Session

1503

Wednesday, 09:00 AM - 10:00 AM, Product Innovation & Technology Mgmt

Track: Product Innovation and Technology Management

Invited Session: Innovation beyond Firm Boundaries

Chair(s): Gulru Ozkan-Seely

101-2278   Technology Contests

Jochen Schlapp, Associate Professor, Frankfurt School of Finance & Management, Germany

Jussi Keppo, Associate Professor, National University of Singapore, Singapore

Jurgen Mihm, Professor, INSEAD, France

Firms can oftentimes choose between using established or more experimental technologies in order to develop their innovative products. In this paper, we build a formal model of a dynamic technology contest and we study the technology choices of competing firms over time.

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101-2835   Managing Disruptive Innovation Threats

Xiaochen Gao, Student, University of California, San Diego, United States

Sreekumar Bhaskaran, Associate Professor, Southern Methodist University, United States

Vish Krishnan, Professor, University of California San Diego, United States

We investigate how product strategies help incumbents manage disruptive threats from the competitor. We offer operational formalization of the disruptive innovation theory by viewing the disruptive technology as a second dimension of quality, the accessibility dimension.

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101-2846   Managing New Product Development Knowledge Between Competing Firms

Gulru Ozkan-Seely, Assistant Professor, University of Washington Bothell, United States

Cheryl Gaimon, Professor, Georgia Institute of Technology, United States

We examine the knowledge acquisition and knowledge development strategies of two competing firms. Insights include the impact of knowledge levels, absorptive capacity and market and technical uncertainty on firms decisions on whether to engage in knowledge acquisition and to what degree, pursue knowledge development and launch their new products.

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Invited Session

1505	Wednesday, 09:00 AM - 10:00 AM, Retail Operations Track: Retail Operations
	Invited Session: Revenue management
	Chair(s): Ashwin Venkataraman

101-0035   Pricing with Fairness

Maxime Cohen, Associate Professor, McGill University, Canada

Adam Elmachtoub, Assistant Professor, Columbia University, United States

Xiao Lei, Student, Columbia University, United States

While discriminative pricing has become common, regulators often aim to impose fairness. We consider the problem of pricing with fairness constraints. We first propose four definitions of fairness in terms of price, demand, surplus, and no-purchase valuation. We then analyze the pricing strategy, and the impact on social welfare.

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101-0068   The Use of Binary Choice Forests to Model and Estimate Discrete Choices

Ningyuan Chen, Assistant Professor, University of Toronto, Canada

Guillermo Gallego, Professor, Columbia University, United States

Zhuodong Tang, Student, HKUST, Hong Kong

We use random forests to estimate discrete choice data with interpretable output. When the sample size is large, it always correctly estimates the choice behavior. We show the flexibility of the framework, which is able to handle aggregate data, pricing, product importance, and personal information.

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101-0154   The Generalized Stochastic Preference Choice Model

Gerardo Berbeglia, Associate Professor, Melbourne Business School, Australia

Ashwin Venkataraman, Assistant Professor, University of Texas Dallas, United States

We propose a new discrete choice model, called the Generalized Stochastic Preference (GSP) model, that generalizes the random utility model (RUM). We show that this model can explain several choice phenomena that can't be represented by a RUM such as the attraction effect and the compromise effect.

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Invited Session

1507	Wednesday, 09:00 AM - 10:00 AM, Scheduling & Logistics Track: Scheduling and Logistics
	Invited Session: Project Scheduling and Contracting
	Chair(s): Mengshi Lu

101-1877   Last-Mile Delivery and Sharing Economy

Mehdi Behroozi, Assistant Professor, Northeastern University, United States

Dinghao Ma, Student, Northeastern University, United States

We analyze a combined last-mile delivery system in which package delivery is performed by a big truck carrying a large number of packages to a neighborhood or a town in a metropolitan area and then assign the packages to crowdsourced drone operators to deliver them to their final destinations.

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101-2330   Lot scheduling optimization in make-to-order machinery industry

Rafael Souza, Student, Universidade Federal De Sã£O Carlos, Brazil

Eli Angela Toso, Associate Professor, Universidade Federal De Sã£O Carlos, Brazil

We address the lot sizing and scheduling problem in a machinery industry under a make-to-order flexible job shop production system. The problem is modeled as a MIP to define effective production planning considering many products, multiple operations and stages, unequal machines, and setup times.

101-1538   Coordinating Project Outsourcing Through Bilateral Negotiations

Chengfan Hou, Student, Tsinghua University, China

Mengshi Lu, Assistant Professor, Purdue University, United States

Tianhu Deng, Associate Professor, Tsinghua University, China

Max Shen, Professor, University of California Berkeley, United States

We study how companies can coordinate outsourced projects through bilateral contract negotiations. We model negotiations as a multi-unit bilateral bargaining game and derive the conditions for system coordination. Our study uncovers how project coordination is impacted by the contract form, bargaining power structure, network topology, and payment timing scheme.

Contributed Session

1508	Wednesday, 09:00 AM - 10:00 AM, Service Operations Track: Service Operations
	Contributed Session: Transport service outsourcing
	Chair(s): Jose A.D. Machuca

101-2615   Assessing the country context on the success of transport service outsourcing

Jose A.D. Machuca, Retired, Universidad De Sevilla, Spain

Carlos Sanchís-Pedregosa, Associate Professor, Universidad De Sevilla, Spain

Antonio L. Leal-Rodriguez, Associate Professor, Universidad de Sevilla, Spain

Mar González-Zamora, Associate Professor, Universidad De Sevilla, Spain

Structural dimensions interaction patterns for transport service outsourcing (SDIPTS) are proposed. PLS-SEM (complemented with Importance-Performance Map Analysis) is used to test the hypotheses in a sample of 259 plants from Europe and Asia. Results show that SDIPTS effect on outcome success is not contingent upon the mentioned geographical regions.

101-2617   Analysing the relationship buyer-seller communication and adaptation pattern and transport outsourcing success through PLS-IPMA

Mar González-Zamora, Associate Professor, Universidad De Sevilla, Spain

Carlos Sanchís-Pedregosa, Associate Professor, Universidad De Sevilla, Spain

Jose A.D. Machuca, Retired, Universidad De Sevilla, Spain

José L. Roldán, Professor, Universidad De Sevilla, Spain

The relationship between buyer-seller communication and adaptation patterns and transport outsourcing success is analyzed by PLS-SEM and 'Importance-Performance Map Analysis' . A database from 122 manufacturing plants from 5 Asian countries has been used. Results show a clear positive relationship and important managerial implications for transport outsourcing success.

Invited Session

1512	Wednesday, 09:00 AM - 10:00 AM, Supply Chain Management Track: Supply Chain Management
	Invited Session: Operations and Supply Chain Management Under COVID-19
	Chair(s): Xiande Zhao

101-2239   Restarting the Production and Supply Chain of Auto Manufacturers in Wuhan after the COVID-19 Disruption

Xueyuan Liu, Professor, Wuhan University, China

Li Chen, Associate Professor, Cornell University, United States

Lingli Luo, Assistant Professor, Zhejiang Gongshang University, China

A multi-case study on the auto manufacturers in Wuhan shows that they have quickly restored their production capacity and restarted their supply chain after the disruption by the collaborative efforts of the auto manufacturers, their suppliers and customers, and the local governments with hi-tech and higher mutual understanding and commitment.

101-2261   Is Supply Chain Integration An Effective Vaccine to COVID-19

Yinan Qi, Professor, University of International Business And Economics, China

Xiaorui Wang, Student, University of International Business & Economics, China

Min Zhang, Professor, Queen's University, United Kingdom

Qiang Wang, Professor, University of International Business & Economics, China

This study verifies the effects of supply chain integration on the supply chain resilience measured by "time-to-recover", which is defined by the time it takes to recover to full functionality after a disruption. The findings show that supply chain integration has different effects when facing the risk.

Contributed Session

1513

Wednesday, 09:00 AM - 10:00 AM, Supply Chain Risk Management

Track: Supply Chain Risk Management

Contributed Session: Supply Chain Risk in Practice

Chair(s): Ayman Nagi

101-0994   Institutional voids and supply chain risk management in Base-of-the-Pyramid: An empirical analysis

Attique Rehman, Student, Lahore University of Management Sciences, Pakistan

Muhammad Shakeel Sadiq Jajja, Assistant Professor, Lahore University of Management Sciences, Pakistan

Arguments of supply chain risk management (SCRM) are prevalent in BoP discourse, especially when BoP is characterized by institutional voids. This study examines the affect of institutional voids on firm performance mediated through SCRM. Data from BoP firms supports that SCRM mediates relationship between different institutional voids and firm performance.

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101-2433   Predicting air cargo transport risk using enhanced hybrid ensemble learning approach for intelligent logistics management

Rosalin Sahoo, Student, IIT, Kharagpur, India

Bhaskar Bhowmick, Assistant Professor, IIT, Kharagpur, India

Manoj Kumar Tiwari, Professor, NITIE, Mumbai, India

This study attempts to mitigate the transport risk in air cargo using an enhanced hybrid ensemble learning-based prediction technique to strengthen the global supply chain. The results will provide the forwarders and customers a roadmap to strategically decide to transport valuable cargo to avoid risk concerning to time.

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101-0782   A Conceptual Model for Cooperative Risk Management in Seaports

Ayman Nagi, Student, Hamburg University of Technology, Germany

Wolfgang Kersten, Professor, Hamburg University of Technology, Germany

Seaports often are located in immediate proximity to residential areas, which expose people to various risk categories. Based on a literature review and an in-depth case study, we present a conceptual model for cooperative risk management that enables stakeholders to utilize different cooperation aspects during prevention and response.

- -

Contributed Session

1515

Wednesday, 09:00 AM - 10:00 AM, Sustainable Operations 1   Track: Sustainable Operations

Contributed Session: Sustainable Food and Agricultural Products Supply Chains

Chair(s): Olushola Kolawole

101-2526   Innovative potential of improvements the productive and environmental performance in wood pellet production

Flavio Numata Junior, Student, ?, Brazil

Helena Navas, Assistant Professor, Universidade Nova De Lisboa, Portugal

Reusing waste for the closed-loop production is a complex industrial activity. Therefore, this article explores the production of wood pellets to develop solutions to increase the productive and environmental performance of a pellet industry of Brazil. The results lead to the evolution of the technical system with potential for innovation

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101-2523   Greener Food Production: Using Renewable Energy for Vertical Farming

Jose L Ruiz Duarte, Assistant Professor, San Jose State University, United States

Neng Fan, Associate Professor, University of Arizona, United States

Ying Zhang, Assistant Professor, University of Florida, United States

Murat Kacira, Professor, University of Arizona, United States

Vertical farming increases the productivity of food systems at the cost of being energy-intensive. In this presentation, the development of an optimization model for the energy and operations-related decisions of a vertical farm powered by onsite energy storage and renewable energy as well as the grid is shown.

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101-0089   Investigating how employee improvisation can reduce waste in food processing industry

Olushola Kolawole, Student, University of Bradford, United Kingdom

One third of every food produced is lost along the supply chain.This study seeks to explore how factory and human errors can be minimise through employee improvisation to reduce production waste in the Food Supply Chain (FSC) using a qualitative approach. This will ensure economic sustainability of FSC industries.

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Wednesday, 10:15 AM - 11:15 AM

Contributed Session

1519

Wednesday, 10:15 AM - 11:15 AM, 2- Meetings & Programs - All are Welcome

Track: All Meetings & Programs A: Open to Everyone

Contributed Session: Business Meeting of POMS India Chapter

Chair(s): Nagesh Murthy

101-2923   Business Meeting of POMS India Chapter

Nagesh Murthy, Professor, University of Oregon, United States

Business Meeting of POMS India Chapter

Contributed Session

1522

Wednesday, 10:15 AM - 11:15 AM, Behavior in OM

Track: Behavior in Operations Management

Contributed Session: Behavioral Issues in Healthcare and Service Delivery Systems

Chair(s): Kellas Cameron

101-2742   Data Caps Expand Access to Digitally-led Health Services -- Evidence from a Mumbai Slum

Alp Sungu, Student, London Business School, United Kingdom

Kamalini Ramdas, Professor, London Business School, United Kingdom

Do the poor view their smartphones as a temptation good? Mumbai slum dwellers randomly assigned to a `commitment plan', with daily data usage caps, are more likely access and act-upon health information. Our usage-tracking app reveals why. Absent caps, participants binge on YouTube and social media, resulting in data shortages.

101-2683   Customer Experience in the Design Duality. A conceptual framework for Service Delivery Systems.

Julia Santamaria, Student, Henley Business School, United Kingdom

In every service delivery system, the customer becomes a supplier of inputs and recipient of outputs, throughout this design duality the customer deploys emotional, cognitive and behavioural responses. To better understand these responses and inform the service design decisions, a Customer-Supplier Experience framework was developed.

101-2149   Who Should I Listen To? The Impact of Mixed Messaging on Patient Engagement

Kellas Cameron, Assistant Professor, University of South Florida, United States

Lu Kong, Assistant Professor, University of South Florida, United States

Deepti Singh, Student, University of South Florida, United States

Partisan mixed-messaging concerning best practices affected the spread of Covid-19, due to its impact on patient engagement. Our results show inconsistent messaging, and other behavioral factors, significantly drove infection rates. Implications of this work provide policies for healthcare professionals to adapt health messaging in misinformation-prone environments to maximize positive outcomes.

Contributed Session

1523

Wednesday, 10:15 AM - 11:15 AM, Covid-19 & Other Pandemics

Track: Covid-19 and Other Pandemics

Contributed Session: Resilience and risk management

Chair(s): SUBHODEEP MUKHERJEE

101-2498   How the Apparel Global Value Chains Fought a Pandemic?

Ivan Montiel, Associate Professor, Baruch College, United States

Leopoldo Gutierrez, Associate Professor, University of Granada, Spain

Ana Castillo, Assistant Professor, University of Granada, Spain

Andres Velez, Associate Professor, Eafit University, Colombia

We identify disruptions in global value chains and companies' responses to COVID-19 pandemic in the apparel industry. We identify distinctive firm capabilities and stakeholder partnerships used to mitigate damage and innovate rapidly and responsibly along their value chains. We offer managerial take-aways to help managers be prepared for disruptions.

101-2539   On the Contagion Number of a Tree: How Fast Can Disease Spread?

Trevor Hale, Professor, Texas A&M University, United States

Misty Blessley, Assistant Professor, Temple University, United States

The burning number is a well-known method to model disease spread. However, the burning number problem is NP-hard, even for trees. We define the contagion number, show that it is a better metric, and then delineate a method to solve for the contagion number of any tree in polynomial time.

101-2682   Developing Supply Chain Resilience Strategies from COVID-19 Disruptions

SUBHODEEP MUKHERJEE, Student, GITAM University, India

Venkataiah Chittipaka, Professor, GITAM University, India

Due to COVID-19, the supply chains have got disrupted in many ways. In this research, an empirical investigation is carried out to present our research framework. This study contributes to develop new theory to the existing body of literature in supply chain management.

Invited Session

1524

Wednesday, 10:15 AM - 11:15 AM, Economic Models in OM   Track: Economic Models in Operations Management

Invited Session: Data Envelopment Analysis: Theories and Applications II

Chair(s): Dariush Khezrimotlagh

101-1051   Does quality help the financial viability of hospitals? A data envelopment analysis approach

Ortac Onder, Student, York University, Canada
Wade Cook, Professor, York University, Canada
Murat Kristal, Associate Professor, York University, Canada

In this work, we analyze the financial viability of U.S. hospitals by investigating the impact of clinical and experiential quality as its determinants. We adopt Simar and Wilson's (2007) two-stage bootstrapped truncated regression approach. We find that both clinical and experiential quality are significantly associated with the higher financial viability.

101-0967   A Review on Airport Efficiency Measurement

Shreyas Gawali, Student, Pennsylvania State University Harrisburg, United States
Sepideh Kaffash, Assistant Professor, Suffolk University, United States
Dinesh Pai, Assistant Professor, Pennsylvania State University Harrisburg, United States
Dariush Khezrimotlagh, Assistant Professor, Pennsylvania State University Harrisburg, United States

In this study, more than 100 research articles on airport efficiency are reviewed. The most used inputs and outputs are reported. A numerical example is also presented including the performance evaluation of US airports in the recent years.

Contributed Session

1526

Wednesday, 10:15 AM - 11:15 AM, Emerging Topics in OM   Track: Emerging Topics in Operations Management

Contributed Session: Blockchain Applications in OM

Chair(s): Elias Maroun

101-2438   The impact of blockchain in emerging industrial ecosystems

Khuram Shahzad, Assistant Professor, University of Vaasa, Finland
Petri Helo, Professor, University of Vaasa, Finland

Blockchain technology is enabling radical innovations across all industries, thus, companies are transforming into a new ecosystem of developed capabilities and redesigning their business models. This paper explores what blockchain-based industrial ecosystems are emerging in current digital age and what kind of impact blockchain has on different ecosystems.

101-2650   Blockchain applied to industry 4.0: A systematic literature review

Mario Acevedo, Student, Universidad De Sevilla, Spain
Cesar Ortega, Student, UNAH, Honduras
Jose A.D. Machuca, Retired, Universidad De Sevilla, Spain
Pedro Garrido-Vega, Associate Professor, Universidad De Sevilla, Spain

Blockchain is arising through Industry 4.0, creating opportunities for supply chains, where the network members communicate and validate the data without a central authority. A systematic literature review methodology was used to provide an overview of how Blockchain contributed to achieved competitiveness along SCM. Projects:(AEI-PID2019-105001GB-I00)-(FEDER-1381039)-(PAIDI-PY20_01209)-(US126441)

101-2639   A case study for merging supply chain and blockchain in Australian manufacturer

Jay Daniel, Senior Lecturer, University of Derby, United Kingdom
Elias Maroun, Student, University of Technology Sydney, Australia
Brian Fynes, Professor, University College Dublin, Ireland

This paper examines implementation of Blockchain technology within an Australian manufacturer supply chain. We present a summary of the challenges in adopting this technology. The adoption of Blockchain technology has potential to bring greater transparency, validity across supply chain processes, and improvement of communication between all stakeholders and customers involved.

Invited Session

1527

Wednesday, 10:15 AM - 11:15 AM, Empirical Research in OM   Track: Empirical Research in Operations Management

Invited Session: Tutorial: Survey Research and Measurement

Chair(s): Aleda Roth

101-2087   Tutorial: Survey Research and Measurement

Aleda Roth, Professor, Clemson University, United States

In this tutorial, we will discuss survey research and design of reliable and valid measurement scales.

Invited Session

1528

Wednesday, 10:15 AM - 11:15 AM, Finance & OM   Track: Finance and Operations Management

Invited Session: Blockchain-Driven Operations & Finance

Chair(s): Lingxiu Dong   Fasheng Xu

101-2543   Virtual Microgrids: Implications of Blockchain Technologies for Peer-to-peer trading of electricity and renewable energy

Seulchan Lee, Student, Mays Business School, United States

Alexandar Angelus, Assistant Professor, Texas A&M University College Station, United States

Chelliah Sriskandarajah, Professor, Texas A&M University College Station, United States

A blockchain-enabled virtual microgrid - an organization of electricity prosumers - has the potential to disrupt the traditional buyer-seller relationships in electricity markets. We examine the impact of virtual microgrids on electricity consumer investment on renewable energy resources: the level of investment, the resulting cost savings from virtual microgrids.

101-0770   Values of Traceability in Supply Chains

Yao Cui, Assistant Professor, Cornell University, United States

Ming Hu, Professor, University of Toronto, Canada

Jingchen Liu, Assistant Professor, Nanjing University, China

We study the impact of Blockchain-enabled traceability on supply chain quality contracts in serial and parallel supply chains. We find that its impact critically depends on the supply chain structure. Blockchain-enabled traceability may be easier to gain traction in "long" multi-tier supply chains as opposed to "flat" multi-sourcing supply chains.

101-1279   To Infinity and Beyond: Financing Platforms with Uncapped Crypto Tokens

Rowena Gan, Assistant Professor, Southern Methodist University, United States

Gerry Tsoukalas, Assistant Professor, University of Pennsylvania, United States

Serguei Netessine, Professor, The Wharton School, United States

Initial Coin Offerings (ICOs) are an emerging form of crowdfunding. Many service-based platforms (e.g., Ethereum) use "uncapped" structures that forego limits on token supply, subjecting early investors to dilution risk. We examine the conditions under which such ICOs are optimal and provide guidance for their optimal design.

Invited Session

1530

Wednesday, 10:15 AM - 11:15 AM, Healthcare Analytics   Track: Healthcare Analytics

Invited Session: Healthcare delivery in resource-limited settings

Chair(s): Can Zhang

101-1148   Medication Recommendations for Diabetic Patients using Contrast-Specific Propensity Scores

Shasha Han, Post Doc/Researcher, Beijing International Center for Mathematical Research, Peking University, China

Joel Goh, Assistant Professor, NUS Business School, Singapore

Fanwen Meng, Operations Research Specialist, National Healthcare Group, Singapore, Singapore

Melvin Leow, Associate Professor, Cardiovascular and Metabolic Disorders Programme, Duke-NUS Medical School, Singapore

Donald Rubin, Emeritus Professor, Department of Statistics, Harvard University, United States

We consider the condition of dyslipidemia in diabetic patients and how physicians should choose between treatment with statins, fibrates, or non-pharmacologic interventions. We develop a new approach, based on contrast-specific propensity scores, to perform causal inference and obtain treatment recommendations.

101-1358   An Empirical Study of Fast-Track Routing and Its Implication for Patient Outcomes in Emergency Departments

Shuai Hao, Student, University of Illinois Urbana-Champaign, United States

Yuqian Xu, Assistant Professor, University of Illinois Urbana-Champaign, United States

Zhankun Sun, Assistant Professor, City University of Hong Kong, Hong Kong

In this work, we want to examine the potential impact of ED congestion on fast-track routing decision, heterogeneous impact of fast-track routing on patients with different severity levels and improve the routing decisions for the hospital.

101-1595   Optimal Prioritization and Discharge Policies for Medicaid Waiver Services

Qiushi Chen, Assistant Professor, Penn State University University Park, United States

Can Zhang, Assistant Professor, Duke University Durham, United States

We study the management of waitlists for Medicaid waiver programs that provide critical services for autism patients. In particular, we study the prioritization decisions in this context with possible early discharge of individuals being served on the waiver, and characterize the structure of the jointly optimal prioritization and discharge policies.

Invited Session

1531

Wednesday, 10:15 AM - 11:15 AM, Healthcare OM 1   Track: Healthcare Operations Management

Invited Session: Hospital Operations and Capacity Management

Chair(s): Vikram Tiwari

101-2563   Optimal Release of Future Operating Room Capacity

Seungyup Lee, Post Doc/Researcher, Vanderbilt University, United States

Vikram Tiwari, Associate Professor, Vanderbilt University Medical Center, United States

We investigate the optimal timing for release of unfilled operating room (OR) block capacity to improve the efficiency and effectiveness of OR use. We focus on the exact solution method through dynamic programming to analyze a Markov decision process and report the resulting insights into the optimal use of ORs.

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101-0292   How Standardization Should Be Offered in Healthcare Delivery

Kejia Hu, Assistant Professor, Vanderbilt University, United States

Vikram Tiwari, Associate Professor, Vanderbilt University Medical Center, United States

In this research, we use two-year of ortho surgeries dataset to study how standardization in healthcare delivery can impact clinical outcome, operation efficiency and performance. The research has a practical impact to guide the bundle payment offered by the insurance parties and conformance policy set by the government.

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101-1898   Does the Time-of-the-Day Surgery was Performed Impact Cardiac Surgical Patients' Outcomes?

Vikram Tiwari, Associate Professor, Vanderbilt University Medical Center, United States

Sriram Narayanan, Professor, Michigan State University, United States

Cardiac surgeries are long procedures and often tiring for surgeons. We examine whether cardiac surgery patient outcomes are influenced by the time of the day surgery was performed. We used seven years of detailed patient-level clinical data with patient flow data to test our hypothesis.

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Invited Session

1533

Wednesday, 10:15 AM - 11:15 AM, Humanitarian Ops & Crisis Mgmt 1   Track: Humanitarian Operations and Crisis Management

Invited Session: Disaster Preparedness and Response II

Chair(s): Raktim Pal

101-2681   Responsiveness of humanitarian response operations: An empirical investigation

Joshin John, Assistant Professor, (CIF:ESG50985993), India

In this paper, we study the responsiveness dimension of supply chain agility. The scope of this investigation is limited to the response phase of humanitarian operations for water based disasters such as hurricanes and floods. A model on supply chain responsiveness is proposed for testing from empirical data.

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101-1714   Reallocation of Pre-Positioned Disaster Relief Assets for Improved Rapid Response

Christopher Zobel, Professor, Virginia Tech, United States

Andy Arnette, Assistant Professor, University of Wyoming, United States

Duygu Pamukcu, Student, Virginia Tech, United States

This study tests and extends a risk-based relief asset pre-positioning model for disaster shelters that was developed for the Red Cross. It validates the pre-positioning model against shelter utilization data from the 2013 Colorado floods and explores the reallocation of available resources in support of extended service times.

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101-0630   Analysis of Disaster Relief Response to Recurrent Natural Disasters

Raktim Pal, Professor, James Madison University, United States

Santosh Mahapatra, Associate Professor, Clarkson University, United States

The relief operations in response to seasonal natural disasters are challenging and expensive. Using agent based modeling/simulation we investigate the cost-effectiveness of prepositioning and dynamic replenishment of relief materials in multitier humanitarian supply chains to address demand due to multiple disasters in an affected region during the disaster season.

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Invited Session

1535

Wednesday, 10:15 AM - 11:15 AM, Information Systems & OM 1   Track: Information Systems and Operations Management

Invited Session: Strategic Decisions in Operations Management Involving Information Systems

Chair(s): Abhishek Roy

101-1071   Effort Provisioning under Push vs. Pull Systems: Theoretical Predictions and Empirical Evidence

Sreekumar Bhaskaran, Associate Professor, Southern Methodist University, United States

Canan Savaskan, Associate Professor, Southern Methodist University, United States

Tom Tan, Assistant Professor, Southern Methodist University, United States

Using a principal agent framework, we first theoretically examine the impact of inventory policy of a firm on the effort invested into sales by downstream partners. Subsequently, the theoretical predictions are validated using a novel data set and Implications for assortment choices are discussed.

101-1803   Social Media and Humanitarian Operations

Changseung (Chang) Yoo, Assistant Professor, Mcgill University, Canada

Eunae Yoo, Assistant Professor, University of Tennessee, United States

We empirically investigate the impact of the Canadian Red Cross' social media efforts on fundraising activities and e-transfers during the 2016 Fort McMurray wildfire. We also identify opportunities of improvement for the organization's social media management strategies.

101-0590   When Worse Is Better: Strategic Choice of Vendors in a Complex Co-Creation Environment

Shubham Gupta, Student, Temple University, United States

Abhishek Roy, Assistant Professor, Temple University, United States

Subodha Kumar, Professor, Temple University, United States

Shreeram Mudambi, Professor, Temple University, United States

The increasing complexity of consulting, R&D, and IT projects have resulted in value co-creation between clients and multiple vendors. However, such multi-vendor co-creation has not been studied in academic literature. We investigate the trade-offs arising in multi-vendor co-creation, and develop novel and interesting insights relevant to both academics and practitioners.

Invited Session

1544

Wednesday, 10:15 AM - 11:15 AM, Product Innovation & Technology Mgmt   Track: Product Innovation and Technology Management

Invited Session: Crowdsourcing and Crowdfunding

Chair(s): Sidika Candogan   Bilal Gokpinar

101-2234   Prosocial Spectrum of Crowdfunding Projects

Wanjiang Deng, Student, National University of Singapore, Singapore

Ming Hu, Professor, University of Toronto, Canada

Mengze Shi, Professor, University of Toronto, Canada

Jiahua Wu, Associate Professor, Imperial College London, United Kingdom

In online reward-based crowdfunding platforms, backers often pledge more money than necessary. This paper studies the magnitude, types, and motivations of such prosocial funding behavior, using a pledge-level data set from Kickstarter.

101-2581   Right Contest at the Right Time? How Visiting Delay Affects Submission Behavior in Crowdsourcing Contests

Brian Lee, Assistant Professor, Penn State University State College, United States

Anant Mishra, Associate Professor, University of Minnesota, United States

We capture the heterogeneity in contest awareness on a platform among solvers in terms of visiting delay (i.e., the time that elapses between the start of a contest and a solver's first visit to the contest) and examine how it impacts submission behavior as well as contest outcomes.

101-2216   Product Development in Crowdfunding: Theoretical and Empirical Analysis

Sidika Candogan, Student, UCL School of Management, United Kingdom

Philipp Cornelius, Assistant Professor, Rotterdam School of Management, Netherlands

Bilal Gokpinar, Professor, University College London, United Kingdom

Ersin Korpeoglu, Assistant Professor, University College London, United Kingdom

Christopher Tang, Professor, University of California Los Angeles, United States

We study crowdfunding by focusing on entrepreneurs' product development decisions. We first construct a game-theoretical model, where an entrepreneur decides on both the initial development level of his product and whether to improve it further during his campaign. We then use a unique data set to test our theoretical predictions.

Invited Session

1546

Wednesday, 10:15 AM - 11:15 AM, Retail Operations   Track: Retail Operations

Invited Session: Empirical Research in Retailing and Logistics I

Chair(s): Stanley Lim

101-2184   The impacts of exploration behavior on the income of crowdsourced drivers

Qin Xiao, Student, Central University of Finance And Economics, China

Hongyan Dai, Associate Professor, Central University of Finance And Economics, China

Stanley Lim, Assistant Professor, University of San Diego, United States

Sheng Liu, Assistant Professor, University of Toronto, Canada

This paper investigates how exploration behavior of crowdsourced drivers affects their income. Our empirical results with 782755 transactions in one of the largest O2O platforms in China show that the increase in exploration rate reduces income, especially for the drivers with more experience, enhanced work ability and high delay rate.

101-2185   Estimation of Customer Availability in Attended Home Delivery

Pol Boada Collado, Student, Northwestern University, United States

Sunil Chopra, Professor, Kellogg School of Management, United States

Maria Ibanez, Assistant Professor, Kellogg School of Management, United States

Karen Smilowitz, Professor, Northwestern University, United States

Understanding customers' sensibility to delivery lead time can allow retailers to balance customer satisfaction and shipping costs in attended home-delivery. Using transactional data from a major furniture company, we find that speed of delivery is of limited importance relative to other priorities when customers choose their preferred delivery date.

101-2629   Contingent Free Shipping Policies: Drivers of Bubble Purchases

Sahar Hemmati, Student, Robert H. Smith School of Business, United States

Wedad Elmaghraby, Professor, Robert H. Smith School of Business, United States

Ashish Kabra, Assistant Professor, Robert H. Smith School of Business, United States

Nitish Jain, Assistant Professor, London Business School, United Kingdom

In this study we empirically estimate how contingent free shipping policies, where orders surpassing a threshold are shipped for free, induce shoppers to pad their orders (increase order size to avoid paying shipping charges) and engage in bubble purchases (padded orders with above par return propensity).

Invited Session

1548

Wednesday, 10:15 AM - 11:15 AM, Scheduling & Logistics   Track: Scheduling and Logistics

Invited Session: Scheduling Applications

Chair(s): Yunxia Zhu

101-0010   A decomposition for the combined inventory routing and crew scheduling problems

Carlos Franco, Assistant Professor, Universidad del Rosario, Colombia

Eduyn López-Santana, Student, Universidad Distrital Francisco José de, Colombia

In this research we propose an extension of the classical Inventory Routing Problem by in-cluding the crew scheduling problem considering breaks in the planning process. The aim of this work is to combine three operative interrrelated problems and including a stochastic planning of the demand by approaching with rolling horizon.

101-0573   Tactical Model for Drone Deployment and Customer Eligibility

Amro El-Adle, Student, Isenberg School of Management, United States

Ahmed Ghoniem, Associate Professor, University of Massachusetts Amherst, United States

Mohamed Haouari, Professor, Qatar University, Qatar

We explore a variant of the Traveling Salesman Problem with Drone with a set of practical considerations for parcel delivery by drone. Our work introduces eligibility for drone service based on geographic/physical factors and demand patterns, which motivates tactical policies. A computational study compares policies with exact/heuristic optimization approaches.

101-2317   A Framework for Analyzing Influencer Marketing in Social Networks: Selection and Scheduling of Influencers

Rakesh Mallipeddi, Assistant Professor, Tulane University, United States

Subodha Kumar, Professor, Temple University, United States

Chelliah Sriskandarajah, Professor, Texas A&M University College Station, United States

Yunxia Zhu, Assistant Professor, University of Nebraska Lincoln, United States

We developed a data-driven optimization framework to help a firm successfully conduct short-horizon and long-horizon influencer marketing campaigns using two models to maximize the firm's benefit. The models are based on the interactions with marketers, observation of firms' message placements on social media, and model parameters estimated via empirical analysis.

Contributed Session

1549

Wednesday, 10:15 AM - 11:15 AM, Service Operations   Track: Service Operations

Contributed Session: Advances in queuing

Chair(s): Yunzhi Wu

101-1446   Queueing Models for Bus-Rickshaw Combinations in Shared Economy in India

Nilakantan Narasinganallur, Associate Professor, KJ SIMSR, India

Kingsley Gnanendran, Professor, University of Scranton, United States

suvechcha sengupta, Post Doc/Researcher, KJ SIMSR, India

Governments in developing economies are interested in analysing public - private combinations for improved service to the society and we have attempted queueing applications in such contexts. Queueing models are explored through analytical and simulation modelling of the bus-taxi-rickshaw combinations in Mumbai. Results will be presented and discussed in the conference.

101-1488   Queuing Systems with Preferred Service Delivery Times and Multiple Customer Classes

Melis Boran, Student, Middle East Technical University, Turkey

Bahar Cavdar, Assistant Professor, Texas A&M University, United States

Tugce Isik, Assistant Professor, Clemson University, United States

Addressing operational problems in online shopping systems, we study the joint problem of admission control and capacity allocation in a queuing system where customers have preferred service delivery times. In our system, customers gain priority as they wait longer. We introduce a Markov Decision Process model, develop efficient solution methods.

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101-2404   Quality and quantity tradeoff of on-demand service platforms with congestion-sensitive customers

Yunzhi Wu, Student, Tsinghua University, China

Yong Liang, Associate Professor, Tsinghua University, China

Yongbo Xiao, Associate Professor, Tsinghua University, China

On-demand service platforms like bike-sharing platforms are main part of sharing economy. Customers of them are usually sensitive about system congestion and service quality. We build a M/M/s queueing model and customer choice model to study when platforms should focus on increasing quality or increasing the amount of production.

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Contributed Session

1553

Wednesday, 10:15 AM - 11:15 AM, Supply Chain Management

Track: Supply Chain Management

Contributed Session: Adoption and Development of Blockchain Technology

Chair(s): Wafaa Ahmed

101-2503   Collaborative development of blockchain technology between the core enterprises and small and the medium-sized enterprises

Xinyun Liu, Student, Tianjin Univercity, China

Weihua Liu, Professor, Tianjin Uinversity, China

We built a mathematical model to study the contract coordination between core enterprises and small and medium-sized enterprises in the supply chain with the consideration of collaborative development of blockchain technology，and design a supply chain contract to achieve the optimal coordination of the supply chain.

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101-2538   Drivers of Blockchain technology adoption: an empirical study

Amani Khalloud, Student, Wichita State University, United States

Mehmet Barut, Professor, Wichita State University, United States

Wagawattege Yasanthie Perera, Student, Wichita State University, United States

This empirical study develops a model predictive of behavioral tendency of adopting the Blockchain technology in supply chain management and its drivers for a successful transition. We provide a keen evaluation of the literature, and present details of the model in progress.

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101-2837   How do industry characteristics influence blockchain applications in the supply chain?

Wafaa Ahmed, Student, University of Nottingham, United Kingdom

Bart MacCarthy, Professor, University of Nottingham, United Kingdom

We present a qualitative NVIVO analysis of major blockchain projects reported across different industries to identify the drivers for adoption in the supply chain and to analyse the influence of industry characteristics. The analysis reveals prominent drivers for blockchain technology applications in the supply chain and differences across sectors.

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Contributed Session

1556

Wednesday, 10:15 AM - 11:15 AM, Sustainable Operations 1   Track: Sustainable Operations

Contributed Session: Impacts of Environmental Performance on Firm-Level Financial Performance

Chair(s): Wayne Fu

101-2616   A fuzzy-logic approach to building a recipe for sustainable firm failure

Olajumoke Awe, Assistant Professor, Coastal Carolina University, United States

Nisha Kulangara, Post Doc/Researcher, York University, Canada

Subhajit Chakraborty, Associate Professor, Coastal Carolina University, United States

With longitudinal data on firm competitive priorities, sustainable practices, and financial performance, we use fuzzy set/Qualitative Comparative Analysis (fs/QCA) software to model combinations of ingredients associated with sustainable firms' low financial performance over the years. Results provide a recipe for sustainable firm failure, and theoretical and practical implications are discussed.

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101-2862   Sustainability, Resources Interdependencies, and Firm Performance: The role of SSCM Controversies and Environmental Turbulence

Amir Naderpour, Student, University of Texas Arlington, United States

Investigating the relationship between sustainability and firm performance, researchers have found contradictory results. To address this, we study the indirect relationship between sustainability and firm performance and the role of moderating and mediating variables. A longitudinal sample from three archival sources provides evidence that supports our proposed hypotheses.

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101-1882   Water consumption, GHG emissions, profits, and risks in the CPG industry

Wayne Fu, Assistant Professor, University of Michigan Dearborn, United States

Brian Jacobs, Associate Professor, Pepperdine University, United States

Despite the increasing importance of water and GHGs as measures of environmental performance, their effects on financial performance and financial risk are not well-examined. In this work, we consider the relationships between water consumption, GHG emissions, financial performance, and financial risk for firms in the global consumer packaged goods industry.

Wednesday, 11:30 AM - 12:30 PM

Invited Session

1563

Wednesday, 11:30 AM - 12:30 PM, Behavior in OM   Track: Behavior in Operations Management

Invited Session: Emerging Topics in BOM

Chair(s): Yan Wu   Wanshan Zhu

101-1026   An Experimental Study for Peer to Peer Sharing Economy

Yanan Song, Post Doc/Researcher, Bejing University of Science &Technology, China
Xiaobo Zhao, Professor, Tsinghua University, China
Wanshan Zhu, Associate Professor, Tsinghua University, China

There is great uncertainty in both supply and demand in the platform of peer to peer sharing economy, for customers playing the role of both sides. We start with the problem of balancing supply with demand and conduct laboratory experiments to investigate the customer's behavior in such platforms.

101-1521   Do Attractive People Make a Better Deal? An Experimental Study

Lyudmyla Starostyuk Starostyuk, Assistant Professor, Metropolitan State University of Denver, United States
Yan Lang, Student, University of Texas Arlington, United States
Kay Yut Chen, Professor, University of Texas Arlington, United States

We explore the effect of human faces on the behavioral outcomes in the newsvendor setting. In the controlled experiments, we find that seeing the partner's face affects the decision-makers' choices. Moreover, the facial attractiveness and gender are significant motivators for the behavioral shifts in economic decisions.

101-2173   Human vs. Robot Advisors Under Asymmetric Information and Resource Allocation

Chenchen Di, Student, University of Illinois at Urbana Champaign, United States

Adopting a game-theoretic model, this paper studies how the conflict between robo- and human advisors may alleviate the principal agent problem and induce more transparent information disclosure. The existence of robo-advisors can alleviate principal agent conflict and benefit human labor, but may hurt consumer welfare.

Contributed Session

1564

Wednesday, 11:30 AM - 12:30 PM, Covid-19 & Other Pandemics   Track: Covid-19 and Other Pandemics

Contributed Session: Social impacts

Chair(s): Mohammadreza Makhan

101-2587   CONTROL OF AN EPIDEMIC WITH ENDOGENOUS TREATMENT CAPABILITY UNDER POPULAR DISCONTENT AND SOCIAL FATIGUE

Eugène Khmelnitsky, Associate Professor, Tel Aviv University, Israel
Suresh Sethi, Professor, University of Texas Dallas, United States
Fouad El Ouardighi, Professor, Essec Business School, France

This paper determines whether mobility restrictions or securing social interactions is most effective in countering an epidemic. We develop an optimal control model wherein the policymaker's inability to counter the disease gives rise to popular discontent and the non-therapeutic intervention policy engender social fatigue.

101-2783   Why to be there? Social isolation issues and lessons from Antarctica to the Globe

Gláucya Daú, Student, Universidade Federal do Estado do Rio de Janeiro, Brazil
Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil
José Roberto da Silva, Professor, University of São Paulo, Brazil
Lloyd Peck, Professor, British Antarctic Survey, United Kingdom

The COVID-19 pandemic has brought social isolation to prevent and to reduce the virus spread. Some professionals have in their activities the social isolation practice, like the Antarctic researchers. This study brings the issues and the lessons from the Antarctic social isolation to the Global social isolation experienced today.

101-2797   Covid-19 Vaccine distribution optimization

Mohammadreza Makhan, Student, University of Manitoba, Canada
Yuvraj Gajpal, Assistant Professor, Asper School of Business, Canada
Srimantoorao Appadoo, Associate Professor, University of Manitoba, Canada

Mass vaccination is one crucial tool to overcome the COVID-19 pandemic. A proper network design for the distribution of COVID-19 vaccines helps to immune more people in a shorter time and with lower costs. A vehicle routing problem for vaccine distribution is presented. The traditional cost objective has been modified.

Invited Session

1565

Wednesday, 11:30 AM - 12:30 PM, Economic Models in OM   Track: Economic Models in Operations Management

Invited Session: Operations and Economics in Platforms and Sharing Economy-2

Chair(s): Guangwen Kong

101-2793   Regulations in the gig-economy: Implications for service region design

Harish Guda, Assistant Professor, Arizona State University, United States

Ashish Kabra, Assistant Professor, Robert H. Smith School of Business, United States

Several cities across the US have adopted measures to improve the welfare of gig-economy workers. Common examples include measures to improve worker pay, reduce idling of workers, and a cap on the total number of workers. We show that such well-intentioned regulations may have unintended consequences on all stakeholders.

101-1854   The Role of Information and Reciprocity in Revenue-sharing Crowdfunding

Behrooz Pourghannad , Student, University of Minnesota, United States

Guangwen Kong, Assistant Professor, Temple University, United States

Laurens Debo, Associate Professor, Dartmouth College, United States

We investigate the role of Information and reciprocity in crowdfunding. We find that the reciprocity between the entrepreneur and the insider may hinder the information transmission from the insider to the outsider.

101-2882   An empirical analysis of sequential diagnostic decisions for bike returns

Hailong Cui, Assistant Professor, University of Minnesota, United States

Guangwen Kong, Assistant Professor, Temple University, United States

Raj Rajagopalan, Professor, Marshall School of Business, United States

We study diagnostic decisions for bike maintenance in which a judge and a worker sequentially decide whether to replace or repair a part of a bike. We examine the impact of decisions on repair or replacement of parts on bike return and find factors that impact repair or replacement choice.

Contributed Session

1567

Wednesday, 11:30 AM - 12:30 PM, Emerging Topics in OM   Track: Emerging Topics in Operations Management

Contributed Session: Advances in Logistics and Transportations

Chair(s): Rafael Diaz

101-0650   Managing Autonomous Vehicle Technology and Service Level for Ride Sharing

Fei Qin, Associate Professor, Shippensburg University, United States

Saravanan Kuppusamy, Assistant Professor, Rowan University, United States

We study Ride-Sharing (RS) Business that offers both Autonomous Vehicle (AV) and Conventional Vehicle (CV) services to consumers. We find that the incentive of RS to improve AV availability and affordability is met favorably with the market condition of high AV evaluation.

101-1695   Metro Railway: Boon or Bane for Environment? An Analysis of the Impact of leisure Commuters.

Sambit Rath, Student, Indian Institute of Management Calcutta, India

Megha Sharma, Associate Professor, Indian Institute of Management Calcutta, India

Introduction of metro railway increases total number of commuters ; however it has a positive environmental impact. We model the effect of leisure metro commuters on environment. We find that environment impact of metro railway might become negative due to it.We suggest a set of strategies to counter it.

101-2182   Digitalization of Maritime and Port Operations: A Sustainable and Resilient Perspective

Rafael Diaz, Associate Professor, Old Dominion University, United States

Katherine Smith, Post Doc/Researcher, Old Dominion University, United States

Joshua Behr, Associate Professor, Old Dominion University, United States

Beatriz Acero, Project Scientist, Old Dominion University, United States

Luca Urciuoli, Associate Professor, Royal Institute of Technology (Kth), Sweden

The transition from diesel-powered operations towards increased electrified methods and the digital transformation of the maritime environment will improve the sustainability and operational performance of ports and surrounding communities. This transformation entails ensuring that assets are adequately protected. We propose a systems approach to analyze vulnerabilities and operational performance concurrently

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Contributed Session

1568

Wednesday, 11:30 AM - 12:30 PM, Empirical Research in OM

Track: Empirical Research in Operations Management

Contributed Session: Quality and Performance Issues

Chair(s): peng xia

101-2623 An Empirical Examination of a Contextual-Contingent Framework of Lean Supply Management

Fernando Naranjo, Student, Ivey Business School, Western University, Canada

Larry Menor, Associate Professor, Ivey Business School, Western University, Canada

P. Fraser Johnson, Professor, Ivey Business School, Western University, Canada

To illustrate a contextual-contingent framework of lean supply management (LSM), we report our findings derived from an exploratory-descriptive research encompassing multiple case studies of lean Canadian agri-food processors. We focus on the workings and motivations behind the associations and specific alignments among supply challenges, lean pillars and performance objectives.

101-1332 Quality management and sustainability performance: A comparative study between Vietnamese and Japanese enterprises

Minh Nguyen, Post Doc/Researcher, Yokohama National University and University of Economics Ho Chi Minh City, Japan

Anh Phan, Associate Professor, VNU- University of Economics and Business, Vietnam

Yoshiki Matsui, Professor, Yokohama National University, Japan

This study examines the impact of quality management practices on sustainability performance in Vietnamese and Japanese enterprises. Based on 122 responses from Vietnamese enterprises and 106 responses from Japanese ones, analytical results found different contributions of quality management practices to three aspects of sustainability performance between Vietnamese and Japanese enterprises.

101-1168 The antecedents of product recall in Chinese automobile industry꞉ moderating role of ownership structure

peng xia, Student, Huazhong University of Science & Technology, China

Weijiao Wang, Assistant Professor, Central South University, China

Zhixue Liu, Professor, Huazhong University of Science & Technology, China

Using GEE panel model based on 293 recalls across 35 automakers from 2010 to 2016 in Chinese automotive industry, we provide a holistic framework to investigate the impact of three antecedent factors on product recalls, and further examine the moderating role of ownership structure between three factors and recalls.

Invited Session

1569

Wednesday, 11:30 AM - 12:30 PM, Finance & OM

Track: Finance and Operations Management

Invited Session: Emerging Topics in OM-Finance

Chair(s): Yinping Mu

101-0236 Disruptive technologies and operations management: A systematic review

Jing Dai, Associate Professor, Nottingham University , China

Dong Xu, Student, University of Nottingham Ningbo China, China

Jiajia Lim, Student, University of Nottingham Ningbo China, China

Alain Chong, Professor, University of Nottingham Ningbo China, China

Disruptive technologies are changing operations and supply chain management (OSCM), with new opportunity and challenges. We shed a light on how different types of disruptive technologies influence current OSCM in different functional areas through systematic literature review together with text mining from recent empirical work.

101-1701 When does It Pay to Serve a Socially Responsible Customer?

Jing Li, Post Doc/Researcher, Tsinghua University, China

Kunpeng Li, Professor, Capital University of Economics and Bus, China

Jiong Sun, Assistant Professor, Purdue University, United States

We document a reference role of major customers' social performance in the financial market's assessment of a firm's social performance. Our analysis reveals that the firm's shareholder value improves when its CSR practices are in line with its major customers'. Using network analysis, we identify an endogenous channel.

101-2804 Crises in Global Supply Chains: The Role of Impression Managed Communication

Jason Woldt, Assistant Professor, University of Wisconsin Oshkosh, United States

Supply chain disruptions negatively impact the performance of a firm resulting in a short term decrease in shareholder wealth. Using an event study methodology and the theory of impression management, we examine publicly released disruptions and the impact of account giving to positively moderate the decrease in shareholder returns.

Invited Session

1571

Wednesday, 11:30 AM - 12:30 PM, Healthcare Analytics

Track: Healthcare Analytics

Invited Session: Data-Driven Solutions to Improve Patient Care Processes

Chair(s): Alex Mills

101-1819   Operations (Management) Warp Speed, Rapid Deployment of a Hospital Analytics for Covid-19

Jonathan Helm, Associate Professor, Kelley School of Business, United States

Pengyi Shi, Assistant Professor, Purdue University, United States

Jivan Deglise-Hawkinson, Analytics, ????, Singapore

Julian Pan, CEO, ????, United States

We develop a multi-method prediction model integrating disease transmission models with a stochastic queueing network of patient flow in hospitals enhanced with adaptive tuning methods to overcome scarce data and partially-observable parameters, and adjust to time-varying dynamics. We implement our framework at IU Health, with 18 hospitals serving >1 million patients.

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101-2634   Data Mining Application for Outpatient Scheduling

Lingyu Zhao, Student, University of Massachusetts Boston, United States

Davood Golmohammadi, Associate Professor, University of Massachusetts Boston, United States

Effective patient scheduling is one of the operations management challenges for outpatient clinics. We employed Neural Networks, Linear Regression, Generalized Linear Model, and Support Vector Regression to develop the predictive models for service time. We used a large data set from a local clinic for modeling and analysis.

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101-1468   Capacity Planning For Post-discharge Follow-up

Jonathan Helm, Associate Professor, Kelley School of Business, United States

Alex Mills, Associate Professor, Baruch College, United States

Many hospitals now schedule patients for follow-up care at the time of discharge, in an effort to reduce readmissions. We show that careful capacity planning is needed to make a follow-up program effective.

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Invited Session

1572

Wednesday, 11:30 AM - 12:30 PM, Healthcare OM 1   Track: Healthcare Operations Management

Invited Session: Improving Healthcare Delivery and Operations

Chair(s): Seungyup Lee   Vikram Tiwari

101-2152   Subscriptions for Prescriptions: Implications and Execution of the "Netflix Model"

Ali Fattahi, Assistant Professor, Johns Hopkins University, United States

Maqbool Dada, Professor, Johns Hopkins University, United States

Tinglong Dai, Associate Professor, Johns Hopkins University, United States

We analyze a healthcare provider's delivery decisions for a community under a Netflix-like subscription agreement, where a government entity agrees to pay a fixed subscription fee to a pharmaceutical manufacturer for an unlimited supply of a prescription drug for a targeted population over a contract horizon.

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101-2417   Health Information Technology, Medical Capabilities, and Cardiac Mortality

Sidhartha Das, Professor, George Mason University, United States

Amitava Dutta, Professor, George Mason University, United States

Nirup Menon, Professor, George Mason University, United States

This study investigates the impact of various Healthcare Information Technologies (HIT) on cardiac mortality. We categorize medical capabilities into diagnostic and therapeutic, and HIT into internal and external types, and study the interaction effects of HIT and medical capabilities on cardiac mortality rates in hospitals.

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101-2565   Impact of Intra-system Information Transfer on Hospital Performance

Seungyup Lee, Post Doc/Researcher, Vanderbilt University, United States

Sriram Narayanan, Professor, Michigan State University, United States

Vikram Tiwari, Associate Professor, Vanderbilt University Medical Center, United States

We study how clinical information transfer among departments of a hospital affects clinical and process outcomes. We analyze a large national hospital-level Information Technology dataset, with focus on the interoperability capabilities of various clinical applications to exchange information.

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Contributed Session

1573

Wednesday, 11:30 AM - 12:30 PM, Healthcare OM 2   Track: Healthcare Operations Management 2

Contributed Session: Behavioral Modeling & Pandemic Policies

Chair(s): Aram Grigoryan

101-2358   An empirical analysis of the Behavioral Model of Health Services Use

Michael Jacezko, Student, Crieghton University, United States

Mirjeta Beqiri, Professor, Gonzaga University, United States

The Behavioral Model of Health Services Use, developed initially by Andersen (1968) has evolved over the last fifty years. The purpose of this study is to revisit and empirically test the model, utilizing data from the 2018 Center for Disease Control's (CDC) annual National Health Interview Survey (NHIS).

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101-2241   We're not winning this battle. The COVID toll for limited ICU capacity

Annamaria Gambaro, Assistant Professor, Università del Piemonte Orientale, Italy

Caterina May, Associate Professor, Università del Piemonte Orientale, Italy

Chiara Morelli, Associate Professor, Università del Piemonte Orientale, Italy

Gianluca Fusai, Professor, Cass Business School, United Kingdom

We present an Intensive Care Unit model that tries to explain the death toll due to Covid-19. Our model, exploiting Monte Carlo simulation of a SIRD model calibrated to Italian data, tries to assess the deaths due limited ICU capacity and the effect of prioritization of patients with comobordities.

101-2227   Effective, Fair and Equitable Pandemic Rationing

Aram Grigoryan, Student, Duke University Durham, United States

We study the problem of allocating COVID-19 vaccines or other scarce and heterogeneous medical resources to patients. Match-effectiveness gains from optimization are substantial. Even when there are only two types of vaccines, in equal quantities, our algorithm results in more than 33% larger aggregate match-effectiveness compared to random allocation benchmark.

Invited Session

1574 Wednesday, 11:30 AM - 12:30 PM, Humanitarian Ops & Crisis Mgmt 1   Track: Humanitarian Operations and Crisis Management

Invited Session: Making Humanitarian Operations Resilient, Coordinated, and Effective I

Chair(s): Iman Parsa

101-1337   Mechanism and policy for building supply chain resilience using system dynamics modelling

Minchul Sohn, Post Doc/Researcher, Kuehne Logistics University, Germany

Maria Besiou, Professor, Kuehne Logistics University, Germany

By applying system dynamics modelling, we investigate the ways to enhance supply chain resilience by examining how the trade-off between redundancy and flexibility can be designed into the humanitarian supply chains. In particular, we propose that building supply chain resilience concerns supply chain structure, inter-organisational network, and strategic planning

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101-1497   Overhead aversion: The role of transparency in humanitarian donation income

Iman Parsa, Student, Arizona State University, United States

Mahyar Eftekhar, Assistant Professor, Arizona State University Tempe, United States

Charles Corbett, Professor, UCLA Anderson School of Management, United States

The existing literature argues that donors to humanitarian organizations (HOs) are sensitive to overhead expenses. In this paper, we empirically investigate whether overhead aversion changes when an organization is more transparent. This empirical study is based on a dataset containing information of over 100 HOs from 2000 to 2014.

101-1763   Donations for the Refugee Crisis: In-kind Versus Cash Assistance

Telesilla Kotsi, Student, Indiana University, United States

Owen Wu, Associate Professor, Indiana University, United States

Alfonso Pedraza-Martinez, Associate Professor, Indiana University, United States

Our fieldwork in Greece during the humanitarian response to the 2017 refugee crisis motivates our analysis of tradeoffs between in-kind and cash assistance to refugees. The humanitarian organization we model maximizes the overall benefits to refugees, local businesses and residents. We examine market structures' effect on the assistance mix.

Invited Session

1576 Wednesday, 11:30 AM - 12:30 PM, Information Systems & OM 1   Track: Information Systems and Operations Management

Invited Session: Operations Management-Information Systems Interface

Chair(s): Aditya Vedantam

101-1780   Digitization Diffusion along the Supply Chain

Tianjian Zhang, Assistant Professor, City University of Hong Kong, Hong Kong

Chenqi Zhu, Assistant Professor, University of California Irvine, United States

Taha Havakhor, Assistant Professor, Temple University, United States

This paper investigates how general digital technologies versus cybersecurity practices diffuse along the supply chain. We find that suppliers learn from customers in adopting digital technologies after customer-supplier relationship initiation, whereas customers pre-select suppliers with similar cybersecurity practices. This paper highlights how the nature of technology impacts its diffusion process.

101-2601   Sellers' credit bias in online feedback

Haiyuan An, Student, Dalian University of Technology, China

Wenli Li, Professor, Dalian University of Technology, China

SHUAI ZHAO, Student, Dalian University of Technology, China

Online feedback systems default reviews that have not been scored within a specified period to positive. We analytically model and empirically investigate the nature and consequences of the distortions on sellers' credit introduced by this manipulation. Our analysis derives unbiased estimates of the distribution of sellers' credit score.

101-1520   Manufacturer Trade-ins and Peer-to-Peer Online Marketplace for Durable Goods

Aditya Vedantam, Assistant Professor, University of Buffalo, United States

Emre Demirezen, Assistant Professor, University of Florida, United States

Subodha Kumar, Professor, Temple University, United States

Under manufacturer trade-in programs, consumers return used product, which may be re-marketed to lower valuation consumers. Recently, manufacturers are encouraging consumers to sell their used product over peer-to-peer marketplaces. We contrast two manufacturer strategies: a peer-to-peer selling platform vs. a trade-in operation and show pricing, profit and environmental implications.

Invited Session

1583

Wednesday, 11:30 AM - 12:30 PM, POM in Practice   Track: POM in Practice

Invited Session: Panel: Evolving Digital Supply Networks - Beyond the SCOR model

Chair(s): Morgan Swink

101-2108   Panel: Evolving Digital Supply Networks - Beyond the SCOR model

Morgan Swink, Professor, Texas Christian University, United States

Chris Richard, Principal, Deloitte, United States

Mark Cotteleer, Research Director, Deloitte, United States

Thought leaders from practice and academia will discuss differences between traditional supply chains which operate in linear, sequential modes, and emerging dynamic, interconnected digital supply networks. We refer to these as "Digital Supply Networks (DSN)." Panelists bring both a theoretical lens and experience from multiple DSN implementations.

Invited Session

1585

Wednesday, 11:30 AM - 12:30 PM, Product Innovation & Technology Mgmt   Track: Product Innovation and Technology Management

Invited Session: Delegated New Product Development

Chair(s): Jochen Schlapp

101-2540   Accepting Defective Products and Renegotiating in Collaborative Product Development

Timofey Shalpegin, Lecturer, University of Auckland, New Zealand

Sara Vessal, Assistant Professor, Essec Business School, France

We model a two-stage collaborative development process involving a buyer and a supplier in which the buyer can accept an underperforming product after the first stage. This leads to renegotiation in the second stage of the product development. We explore the effect of the bargaining power on the development efforts.

101-2554   Sequential Decision Making in Performance Management: An Experimental Investigation

Chris Green, Student, Georgia Institute of Technology, United States

Morvarid Rahmani, Assistant Professor, Georgia Institute of Technology, United States

Karthik Ramachandran, Associate Professor, Georgia Institute of Technology, United States

How firms choose to evaluate worker performance can have profound impacts on the workforce. We model the optimal behavior of a supervisor making sequential performance evaluation decisions and conduct an experiment to determine how a participant's behavior replicates the optimal behavior based on the characteristics of the pool of workers.

101-2638   Incentives for Licensing Teams

Jochen Schlapp, Associate Professor, Frankfurt School of Finance & Management, Germany

Nektarios Oraiopoulos, Lecturer, Cambridge University, United Kingdom

We address the incentive issues that arise between a company that is looking for in-licensing opportunities and the employees that need to search and evaluate those opportunities. We develop a game-theoretic model that captures the key tradeoffs involved in this setting, and we identify the second-best contract.

Invited Session

1587

Wednesday, 11:30 AM - 12:30 PM, Retail Operations   Track: Retail Operations

Invited Session: Empirical Research in Retailing and Logistics II

Chair(s): Stanley Lim

101-1355   Multi-channel Conversion Attribution: A Machine Learning Approach

Qingchen Wang, Assistant Professor, University of Hong Kong, Hong Kong

Piet Peeperkorn, Student, University of Groningen, Netherlands

With the increasing prominence of e-commerce and online tracking, the need for accurate and robust methods to measure the value of digital marketing actions has become a great priority. This is called the "attribution" problem. This paper presents a novel machine learning approach to solve the attribution problem.

101-0403   Predicting Human Discretion to Adjust Algorithmic Prescription: A Large-Scale Field Experiment in Warehouse Operations

Jiankun Sun, Assistant Professor, Imperial College London, United Kingdom

Dennis Zhang, Assistant Professor, Washington University St Louis, United States

Haoyuan Hu, Technical Specialist, Alibaba Group, China

Jan Van Mieghem, Professor, Northwestern University, United States

Conventional optimization algorithms tend to overlook human behavioral deviations. We propose a new algorithm that predicts discretionary behavior to pro-actively adjust algorithmic prescriptions. A randomized field experiment in the packing process with Alibaba Group shows, by incorporating human behavior, our new algorithm reduces workers' deviations and improves their efficiency.

101-2821   Online Retail: M-Commerce, Sales Concentration, and Inventory Management

Nitish Jain, Assistant Professor, London Business School, United Kingdom

Tom Tan, Associate Professor, Southern Methodist University, United States

We study how the mobile channel affects sales concentration as compared with the traditional PC channel. Using transactional data of an online apparel retailer, we find that the mobile channel increases sales concentration on the most popular products, unlike the Long Tail predicts.

Contributed Session

1590	Wednesday, 11:30 AM - 12:30 PM, Service Operations Track: Service Operations
	Contributed Session: **Service system performance**
	Chair(s): Amir Rastpour

101-0507   Has digitalisation really shaped the advancement of Professional Service Firms: An Empirical Investigation

Iain Reid, Reader, Manchester Metropolitan University, United Kingdom

Murray Dalziel, Professor, University of Baltimore, United States

David Bamford, Professor, Manchester Metropolitan University, United Kingdom

Marina Papalexi, Post Doc/Researcher, Manchester Metropolitan University, United Kingdom

This paper debates the adoption of Industry 4.0 across Professional Services Firms (PSFs) in the UK and US. This empirical study focuses on structural equation reports in relation to investments and operational performance. We propose an empirical model, whilst reporting digital disruption and how industry 4.0 is making a difference.

101-1193   Evaluating Capacity Planning Methods for Loss Systems

Mohammad Delasay, Assistant Professor, Stony Brook University, United States

Armann Ingolfsson, Professor, University of Alberta, Canada

Amir Rastpour, Assistant Professor, University of Ontario Institute of Technology, Canada

We evaluate the accuracy of the stationary independent period-by-period (SIPP) and modified offered load (MOL) methods for capacity planning of loss systems with continuous random cyclic demands. Focusing on the specifications of service systems, we show that SIPP and MOL might miss the quality of service targets drastically.

Invited Session

1591	Wednesday, 11:30 AM - 12:30 PM, Social Media & Internet of Things Track: Social Media and Internet of Things
	Invited Session: **Social Media and Online Reviews**
	Chair(s): Ashish Agarwal

101-0765   Restaurant's Franchise Affiliation and Online Reputation In Restaurant Review Platform

Jong Youl Lee, Student, Simon Business School, United States

This study explores association between franchise affiliation of restaurants and their online reputation in a review platform. By inspecting restaurant reviews of pizzerias in Las Vegas, my results suggest that a restaurant's franchise affiliation is negatively associated with its online reputation.

101-2666   Angry Samaritans: Social-media based monitoring of customer dissatisfaction with advertisement messaging

Kalpit Sharma, Student, Indian Institute of Management Lucknow, India

This study investigates the customer dissatisfaction that foments in response to advertisement messaging that goes against their beliefs. I use data from tweets on advertisements and firm response to estimate and quantify this effect. I use text mining techniques such as topic modelling and text summarization to extract key themes.

101-0235   The Dynamic Effects of News and User-Generated Content on a Firm's Product Recalls

Yen-Yao Wang, Assistant Professor, Auburn University, United States

Vivek Astvansh, Assistant Professor, Indiana University Bloomington, United States

OM researchers have long investigated the variety of factors that may determine a firm's product recalls. We study how the level of negativity and the level of positivity in news and in user-generated content on social media platforms (UGC) about a firm's product defects would influence its recalls.

Contributed Session

1594	Wednesday, 11:30 AM - 12:30 PM, Supply Chain Management Track: Supply Chain Management
	Contributed Session: **Supply Chain Competence**
	Chair(s): Marta Riquelme-Medina

101-1198   Analyzing enablers of circular economy initiatives in developing economies: A plastic supply chain perspective

Chitranshu Khandelwal, Student, Indian Institute of Technology, Rookree, India

Mukesh Kumar Barua, Professor, Indian Institute of Technology Roorkee, India

This study assesses relationship among enablers of circular economy initiative in plastic supply chain in context of developing nation. A Grey-DEMATEL methodology is used to analyze the causal interactions among identified drivers. Lack of advanced technology & innovation and poor coordination among SC members are identified as prominent barriers.

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101-2552   Synchronization in a Two-supplier Assembly System: Combining a Fixed Lead-time Module with Capacitated Make-to-Order Production

Mirjam Meijer, Student, Eindhoven University of Technology, Netherlands

Willem Van Jaarsveld, Assistant Professor, Eindhoven University of Technology, Netherlands

Ton De Kok, Professor, Eindhoven University of Technology, Netherlands

In a high-tech assembly system one module is sourced from a supplier with a fixed lead-time, while another module is produced in-house in a make-to-order production system. We propose an order policy for the lead-time module to synchronize with the production system. We prove monotonicity properties and show optimality.

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101-2409   Business Ecosystem Embeddedness: Improving Supply Chain Competence through absorptive, desorptive and connective capacity

Marta Riquelme-Medina, Student, University of Granada, Spain

Mark Stevenson, Professor, Lancaster University, United Kingdom

Vanesa Barrales-Molina, Associate Professor, University of Granada, Spain

Francisco Javier Llorens-Montes, Professor, University of Granada, Spain

This article investigates how embeddedness in business ecosystems influences supply chain competence. Specifically, it considers the mediating effect of external knowledge capacities: absorptive, desorptive and connective capacity, using data from 271 European firms. Results prove a complete mediation effect, demonstrating benefits of business ecosystems other than in terms of innovation.

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Contributed Session

1597

Wednesday, 11:30 AM - 12:30 PM, Sustainable Operations 1   Track: Sustainable Operations

Contributed Session: Sustainable Supply Chain Management

Chair(s): Michelle Li

101-2624   Lean, agile, and leagile supply chains: Application of interpretive structural modelling for sustainable business performance

Matin Mohaghegh, Post Doc/Researcher, Department of Operations Management, University of Stuttgart, Germany

Andreas Größler, Professor, Department of Operations Management, University of Stuttgart, Germany

A challenge companies are facing is to find out appropriate supply chain strategies to achieve competitiveness. By considering lean, agile, and leagile supply chains, we propose a multi-level model of hierarchical relationships among critical operational practices and where to position the leagile "decoupling point" for economic, environmental, and social benefits.

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101-2426   Multi-Product Supply Chain Coordination and Information Asymmetry: Green and Non-Green Products

Gurmeet Singh, Student, Indian Institute of Management Lucknow, India

Indranil Biswas, Associate Professor, NEOMA Business School, France

A multi product supply chain with incentive compatibility and rationality constraints is analyzed. Under full information about the buyer's marginal cost, a two part tariff contract coordinates the supply chain. Value of information increase in consumer greening sensitivity. Supplier's cutoff increase with the difference in market share of the products.

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101-2542   A Multiperiod Competitive Supply Chain Framework with Environmental Policies and Investments in Sustainable Operations

Min Yu, Associate Professor, University of Portland, United States

Jose Cruz, Associate Professor, University of Connecticut, United States

Michelle Li, Assistant Professor, Babson College, United States

Amir Masoumi, Assistant Professor, Manhattan College, United States

Our model captures the dynamic changes and impacts of consumer purchasing behavior, operational costs, as well as environmental policies on firms' profitability and environmental footprint. Such policies include eco-taxes, government subsidies for pollution control, command-and-control policies, as well as hybrid approaches with different possible combinations of policy instruments.

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Wednesday, 12:45 PM - 01:45 PM

Invited Session

1604

Wednesday, 12:45 PM - 01:45 PM, Behavior in OM   Track: Behavior in Operations Management

Invited Session: Behavioral Insights for Operational System Design

Chair(s): Xiaoyang Long   Jordan Tong

101-0373   Selling to the Regretful Newsvendor

Tao Li, Associate Professor, Santa Clara University, United States

In this paper, we study the effects and implications associated with regret in a decentralized supply chain comprising one supplier, one newsvendor retailer, and a wholesale price contract that governs the transactions between them.

101-2594   Drivers' Relocation Decisions under Spatial Information-Sharing on On-Demand Service Platforms: A Behavioral Examination

Swanand Kulkarni, Student, Georgia Institute of Technology, United States

Basak Kalkanci, Associate Professor, Georgia Institute of Technology, United States

We examine how an on-demand service platform's spatial information sharing mechanism affects drivers' relocation decisions and the platform's matching efficiency. We consider three demand-supply mismatch information-sharing mechanisms and develop a three-region two-stage model incorporating the spatial aspects. Predictions were derived and were tested through laboratory experiments.

101-1584   Self goal setting of ride-hailing drivers: Theory and evidence from a field experiment

Xu Min, Student, Tsinghua University, China

Wei Chi, Associate Professor, Tsinghua University, China

Zhixi Wan, Professor, University of Hong Kong, China

Qing Ye, Associate Professor, Tsinghua University, China

We investigate the effects of self-set goal on ride-hailing drivers' performance as a non-monetary incentive, and the effects of uncertainty on self-set goal choices. In the field experiments, we find that drivers set higher goals when the uncertainty level is higher, which is consistent with our behavior models' predictions.

Contributed Session

1605	Wednesday, 12:45 PM - 01:45 PM, Covid-19 & Other Pandemics	Track: Covid-19 and Other Pandemics
	Contributed Session: Social media/ Data mining	
	Chair(s): Salil Kalghatgi	

101-2177   Social media propagation in the COVID 19 Era

Khadija Vakeel, Assistant Professor, Depaul University, United States

Saurav Chakraborty, Assistant Professor, University of Louisville, United States

Sandeep Goyal, Associate Professor, University of Louisville, United States

We investigate how and why different types of social media content propagates differently. We contend that during a crisis, such as COVID-19, users rely on linguistic characteristics, specifically the sentiment aroused by social media content, to promote certain type of information.

101-2478   Most Vulnerable Part in Operations Management During a Global Pandemic: Big Data Analytics using Tweets

J. Kiarash Sadeghi, Student, University of North Texas, United States

Hossein Mohit, Student, University of North Texas, United States

This paper explores 94672 tweets collected since March 2020 to see the consequences of the COVID-19 pandemic in the operations management. Through text mining in the collected big data set, the preliminary results show that the most vulnerable part of the operations management is the supply chains.

101-2519   Text Analytics to drive Public Policy Decision Making during the COVID-19 Pandemic

Dan Bumblauskas, Associate Professor, University of Northern Iowa, United States

Amy Igou, Assistant Professor, University of Northern Iowa, United States

Salil Kalghatgi, Account Executive, (CIF:ESG50985993), United States

Cole Wetzel, Program Assistant, University of Northern Iowa, United States

The State of Iowa conducted multiple business surveys as the COVID-19 pandemic broke out globally. The survey data has been used for decision and policymaking and a team was formed to conduct various text analysis and data mining to analyze the results to ensure the appropriate policies were enacted.

Invited Session

1606	Wednesday, 12:45 PM - 01:45 PM, Economic Models in OM	Track: Economic Models in Operations Management
	Invited Session: Interface issues in Operations and Marketing -2	
	Chair(s): Shubhranshu Singh	

101-0230   University Entrance Examination Preparation Services: The Good, The Bad and The Ugly

Weining Bao, Assistant Professor, University of Connecticut, United States

James Dearden, Professor, Lehigh University, United States

This paper investigates test-preparation firms' incentives to provide services and associated welfare implications for students. We consider test-preparation firms that offer services to students who exert efforts on traditional schoolwork and test preparation to compete for university seats.

101-0445   Consumer Uncertainty in Usage Expertise and Upgrading Credit

Jane Gu, Associate Professor, University of Connecticut, United States

Rachel Chen, Professor, University of California Davis, United States

Buyers of musical instruments or sports gear often face significant uncertainty on whether they will develop the skill to use the product. This paper examines how the uncertainty in consumer usage expertise affects the firm's product choice, upgrading credit and pricing decisions.

Invited Session

1608

Wednesday, 12:45 PM - 01:45 PM, Emerging Topics in OM   Track: Emerging Topics in Operations Management

Invited Session: Revenue Management

Chair(s): Yiwei Chen

101-0437   Dynamic Assortment Optimization with Product Retirement

Harsh Sheth, Student, Columbia University, United States
Adam Elmachtoub, Assistant Professor, Columbia University, United States
Vineet Goyal, Associate Professor, Columbia University, United States

We consider dynamic assortment optimization with the constraint that once a product is not offered, it is retired permanently. We give a near-optimal algorithm in the case where customers are homogeneous and follow the MNL choice model, and a constant factor approximation algorithm in the case where customers are heterogeneous.

101-2764   Supply Contract for Shared Economies in Emerging Markets

Neha Sharma, Student, Kellogg School of Management, United States
Milind Sohoni, Professor, Indian School of Business, India
Achal Bassamboo, Associate Professor, Northwestern University, United States
Chaithanya Bandi, Associate Professor, National University of Singapore, Singapore

To operate at scale, platforms in emerging markets often finance assets and offer revenue share supply contracts. We find the optimal contract in such settings where the platform decides on revenue share to offer and monthly fee to charge the users. We also compare this to centralized platforms.

101-2549   The participation of suppliers in digital transformation: Monetary and symbolic incentives

Weihua Liu, Professor, Tianjin Uinversity, China
Shuang Wei, Student, Tianjin University, China

In supply chains, 'Buyers' (manufacturers/retailers) lead and require their suppliers' participation in digital transformation to gain new competitive advantages. We study how the Buyer motivates suppliers to participate in digital transformation under monetary and symbolic incentives.

Contributed Session

1609

Wednesday, 12:45 PM - 01:45 PM, Empirical Research in OM   Track: Empirical Research in Operations Management

Contributed Session: Supply Chain Performance

Chair(s): SHUXIAN XIAO   Nallan Suresh

101-1343   Antecedents of Firm Performance and Role of SupplyChain Integration Tools: Supply Chain Managers Perspective

Suman Niranjan, Assistant Professor, University of North Texas, United States
Katrina Savitskie, Assistant Professor, University of West Florida, United States
Saad BaniHani, Student, University of North Texas, United States

An exploratory study is conducted to understanding the role of joint decision making, process resource collaboration, and agreement on firm performance. The mediating role of efficiency and moderating role of supply chain integration tools are studied. An empirical model is tested with data acquired from 105 experienced supply chain managers.

101-2608   Leveraging social capital to build the cumulative triple-A supply chain sand cone model

Lu Yang, Student, Zhejiang University, China
Baofeng Huo, Professor, Tianjin Uinversity, China
Jose A.D. Machuca, Retired, Universidad De Sevilla, Spain
Rafaela Alfalla-Luque, Professor, Universidad De Sevilla, Spain
Minhao Gu, Assistant Professor, Tianjin Uinversity, China

Using cumulative capability perspective and sand cone model method, this study investigates the cumulative relationships of alignment, adaptability and agility to financial performance, as well as social capital with suppliers as an important antecedent. A cumulative and sequential relationship is confirmed, supporting the sand cone model. Projects:(AEI-PID2019-105001GB-I00)-(FEDER-1381039)-(PAIDI- PY20_01209)

101-2609   The wider the arc, the better? Revisiting effects of supply chain integration on firm performance

SHUXIAN XIAO, Student, University at Buffalo, SUNY, United States
Nallan Suresh, Professor, Suny At Buffalo, United States
Michael Braunscheidel, Assistant Professor, Suny At Buffalo, United States

This empirical study analyzing data from 218 US manufacturing organizations investigates whether a wider arc of supply chain integration implies better performance. Results show that a wider arc may not necessarily improve firm performance, and a wider supplier integration, as opposed to customer integration may result in higher customer satisfaction

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Invited Session

1610

Wednesday, 12:45 PM - 01:45 PM, Finance & OM   Track: Finance and Operations Management

Invited Session: Information-Driven Operations and Risk Management 2

Chair(s): Phil (Puping) Jiang

101-2524   Data-Driven Market-Making via Model-Free Q-Learning

Yueyang Zhong, Student, Booth School of Business, United States

Amy Ward, Professor, Booth School of Business, United States

This paper studies when a market-making firm should place orders to maximize the expected net profit. To tackle curse of dimensionality and unknown transition probabilities, we use a model-free and off-policy method, Q-learning, coupled with state aggregation to develop a proposed trading strategy, which outperforms a set of benchmarks.

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101-2720   Firm's Responses to Operating Cash Flow Volatility

Shaunak Dabadghao, Assistant Professor, Technische Universiteit Eindhoven, Netherlands

Ravi Prakash Ranjan, Assistant Professor, Africa Business School, Morocco

In this paper, we explore the behaviour, actions and the performance of a firm under operating cash flow volatility. We evaluate short and long term responses of a firm to operating cash flow volatility based on their components of cash conversion cycle, size and liquidity status.

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101-2515   Cash Hedging Motivates Information Sharing

Phil (Puping) Jiang, Student, Washington University St Louis, United States

Panos Kouvelis, Professor, Washington University in St. Louis, United States

In this paper we investigate the information sharing issue in a supply chain with the presence of cash hedging decisions. We identify cash hedging as a new driving force that motivates the effective information sharing.

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Invited Session

1613

Wednesday, 12:45 PM - 01:45 PM, Healthcare OM 1   Track: Healthcare Operations Management

Invited Session: Managing Appointments in Complex Envrionments

Chair(s): Nan Liu

101-1650   Appointment Allocation to Improve Itinerary Completion in a Queueing Network

Yiqiu Liu, Student, Arizona State University, United States

Pengyi Shi, Assistant Professor, Purdue University, United States

Jonathan Helm, Associate Professor, Kelley School of Business, United States

Lei Ying, Professor, University of Michigan - Ann Arbor, United States

Mark Van Oyen, Professor, University of Michigan, United States

Patients traveling to destination medical centers for diagnosis and treatment planning need to complete their itinerary among multiple services in a target time window. Modeling the medical center as a queueing network, we leverage phase-type approximations for patient's itinerary time and optimize appointment allocation to improve the itinerary completion.

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101-1912   Discrete Convexity Results for Scheduling In-clinic and Virtual Medicine Patients in an Integrated Practice Unit

Douglas Morrice, Professor, The University of Texas at Austin, United States

Jingyao Huang, Graduate Student, The University of Texas at Austin, United States

Jonathan Bard, Professor, The University of Texas at Austin, United States

An Integrated Practice Unit (IPU) is a co-located, multi-disciplinary team of providers that delivers a full care cycle. In this paper, we develop discrete convexity results and heuristics for coordinated scheduling of both in-clinic and virtual medicine patients in an Integrated Practice Units (IPU).

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101-0110   On Scheduling Appointments in Tandem Service Systems

Nan Liu, Associate Professor, Boston College, United States

Guohua Wan, Professor, Shanghai Jiao Tong University, China

Shan Wang, Assistant Professor, Sun Yat-sen University, China

In many healthcare settings, patients receive a series of services during a single visit. Examples include infusion, orthopedic visit, and mammography testing. A key commonality is the tandem structure, where each stage involves a non-trivial random service time. We study how to manage such tandem service systems via appointment scheduling.

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Invited Session

1615

Wednesday, 12:45 PM - 01:45 PM, Humanitarian Ops & Crisis Mgmt 1   Track: Humanitarian Operations and Crisis Management

Invited Session: Making Humanitarian Operations Resilient, Coordinated, and Effective II

Chair(s): Iman Parsa

101-2398   Development-Aid Supply Chains for Economic Development and Post-Disaster Recovery

Manmohan Sodhi, Professor, City University - London, United Kingdom

James Knuckles, Post Doc/Researcher, City University - London, United Kingdom

We conceptualize supply chains that depend on funding from large donors or governments for long-term recovery following a disaster, or more generally, for the economic development. Our work is based on fieldwork of solar lantern supply chains in Haiti that were set up after the 2010 earthquake.

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101-2228   RESILIENCE CAPABILITIES IN HUMANITARIAN SUPPLY CHAINS

Rodolfo Nunes, Student, FGV, Brazil

Ana Carolina de Souza, Student, FGV, Brazil

Ana Beatriz Cotait, Student, FGV, Brazil

This research developed a multiple case study to identify the main resilience capabilities in humanitarian supply chains (HSC) involved in natural disasters in Brazil. The results confirm resilience capabilities already identified in commercial supply chains, but also reveal some specific to HSC, with an emphasis on disaster preparedness and prevention.

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101-1768   Horizontal Coordination in Disaster Relief Operations: Incentives and Mechanisms

Iman Parsa, Student, Arizona State University, United States

Mahyar Eftekhar, Assistant Professor, Arizona State University Tempe, United States

Scott Webster, Professor, Arizona State University Tempe, United States

The literature suggests that coordination between humanitarian organizations is necessary in disaster relief systems. However, lack of successful coordination among HOs remains a challenge. Focusing on health delivery in disaster situations, we study incentives and challenges to coordination and use a game theoretic model to provide insights regarding this problem.

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Invited Session

1617	Wednesday, 12:45 PM - 01:45 PM, Information Systems & OM 1	Track: Information Systems and Operations Management
	Invited Session: Game Theory and Operations Management	
	Chair(s): Yingxin Zhang	

101-2459   Order Picking Optimization with Rack-Moving Mobile Robots and Multiple Workstations

Yanling Zhuang, Student, Dalian University of Technology, China

Yun Zhou, Assistant Professor, Mcmaster University, Canada

Yufei Yuan, Professor, Mcmaster University, Canada

Xiangpei Hu, Professor, Zhejiang University, China

Elkafi Hassini, Associate Professor, Mcmaster University, Canada

We present a mixed-integer programming model for the order and rack sequencing problem and an extension model to consider rack conflicts. An adaptive large neighborhood search is proposed. The results based on real-world data show that our approach can save up to 62% in rack movements compared to the practice.

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101-2857   Cloud vs Traditional services : a game theoretic analysis

Yuan Dong, Student, Temple University, United States

Subodha Kumar, Professor, Temple University, United States

Cloud gaming market is an example that cloud technology enables companies to provide SaaS(Software as a Service) to new markets. Our research investigates how people's preference and difference change pricing decisions of both parties. Moreover, among providing subscription, pay-as-you-go, or both services, which one is optimal for cloud providers.

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101-2801   A Game-theoretic Analysis of Price-Ceiling Policy during Multi-cycle Medicine Procurement

Yingxin Zhang, Student, Dalian University of Technology, China

Shubham Gupta, Student, Temple University, United States

Subodha Kumar, Professor, Temple University, United States

Xiangpei Hu, Professor, Zhejiang University, China

Price-ceiling policy is believed to be helpful in reducing medicine procurement cost. However, this evaluation has been based on one-time procurement while underestimating manufacturers' countermoves to this price control efforts. We investigate how price-ceiling policy influences procurement outcomes when medicine manufacturers react strategically under multi-cycle procurement process.

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Contributed Session

1626	Wednesday, 12:45 PM - 01:45 PM, Product Innovation & Technology Mgmt	Track: Product Innovation and Technology Management
	Contributed Session: Innovation in Supply Chains	
	Chair(s): Debasish Mallick	

101-2645   Leveraging explorative partners in business ecosystems to innovate: the effects of absorptive and desorptive capacity

Marta Riquelme-Medina, Student, University of Granada, Spain

Marcel Bogers, Professor, Eindhoven University of Technology, Netherlands

Vanesa Barrales-Molina, Associate Professor, University of Granada, Spain

Francisco Javier Llorens-Montes, Professor, University of Granada, Spain

This article investigates whether companies can leverage explorative partners in business ecosystems to increase incremental/radical innovation; and whether this effect is greater with high absorptive/desorptive capacity. Using data from 261 firms, results show that firms can leverage the ecosystem to innovate more radically, especially by combining absorptive and desorptive capacity.

101-2190   Cost-sharing Contract Design for Retailer-dominated Joint Innovation in Competing Supply Chains

Huaqing Hu, Student, Peking University, China
Lihua Chen, Professor, Peking University, China

We construct two competitive supply chains wherein the retailer adopting different cost-sharing contracts for quality innovation. The contract aiming at maximizing supply chain profit can ensure incentive compatibility for both members and achieve a Pareto improvement. However, the contract aiming at retailer's profit maximization may lead to "Prisoner Dilemma".

101-0983   Product Modularity and Product Quality: Effects of Supplier Involvement and Mass Customization Capability.

Debasish Mallick, Professor, University of St. Thomas, United States
Roger Schroeder, Emeritus Professor, University of Minnesota, United States
Sohel Ahmad, Professor, St.Cloud State University, United States

Modular product architecture has become a popular NPD strategy for gaining competitive advantage. Yet, its impact on product quality, a critical competitive dimension, remains inconclusive. Using a cross industry survey of new product development projects, we explore how supplier involvement and mass customization capability might influence this relationship.

Invited Session

1632

Wednesday, 12:45 PM - 01:45 PM, Social Media & Internet of Things   Track: Social Media and Internet of Things

Invited Session: Social Media and Machine Learning

Chair(s): Xue Tan

101-1281   Estimating the Economic Impact of `Humanizing' Customer Service Chatbots

Scott David Schanke Schanke, Student, University of Minnesota, United States
Gordon Burtch, Assistant Professor, University of Minnesota, United States
Gautam Ray, Professor, University of Minnesota, United States

We consider the economic impacts of `humanising' autonomous customer service agents (chatbots) and do so via a field experiment. We estimate the impact on transaction conversion and price sensitivity by exposing consumers to exogenous variation of (1) price offers, (2) levels of chatbot anthropomorphism.

101-2883   Transfer Learning in Changing Data Environments: Trade-offs in Response to Changes

Jiaxu Peng, Assistant Professor, Central University of Finance And Economics, China

Our theoretical analysis shows that the effectiveness of transfer learning is influenced by the complexity of prediction model being developed, the extent of change in data patterns, and the number of timely-relevant source data being used. Our study provides insights for the application of data analytics in dynamic business.

101-0769   More Than Double Your Impact: An Empirical Study of Match Offers on Charitable Crowdfunding Platforms

Zhen Fang, Student, University of Washington, United States
Xue Tan, Assistant Professor, Kelley School of Business, United States
Shengsheng Xiao, Assistant Professor, Shandong University of Finance&Economics, China
Yong Tan, Professor, University of Washington, United States

Match offers are a widely-used strategy to promote charitable giving where leadership donors commit to match the contribution of others at a given rate. Our study sought to examine the impact of match offers in the context of donation-based crowdfunding platforms.

Contributed Session

1638

Wednesday, 12:45 PM - 01:45 PM, Sustainable Operations 1   Track: Sustainable Operations

Contributed Session: Sustainability in Healthcare

Chair(s): Claudia Figueiredo

101-1366   Understanding Drivers of Sustainability Disclosures in the Healthcare Sector

Henry Aigbedo, Associate Professor, Oakland University, United States

By their very nature, organizations in the healthcare sector are generally reluctant to share information about their activities. On the other hand, it is important to key stakeholders that sustainability activities of these organizations are disclosed. In this exploratory study, we analyze drivers for sustainability disclosures in this sector.

101-2326   Sustainability in Healthcare Operations Management: a Systematic Literature Review

Praveen Puram, Student, Indian Institute of Management Kozhikode, India
Rupesh Pati, Associate Professor, IIM kozhikode, India
Anand Gurumurthy, Associate Professor, Indian Institute of Management Kozhikode, India

The global healthcare sector contributes 4.4% of carbon emissions from operations and is inaccessible to half the world, thus impacting five SDGs (3, 7, 12, 13, 17). This study conducts a detailed review on sustainability in healthcare operations using content analysis approach, to understand current progress and suggest future directions.

101-2641   Healthcare professional training: lessons for promoting a sustainable future

Claudia Figueiredo, Student, Augusto Motta University center, Brazil

Annibal Scavarda, Associate Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil

Gláucya Daú, Student, Universidade Federal do Estado do Rio de Janeiro, Brazil

Mario Ferrer-Vásquez, Assistant Professor, Alfaisal University Saudi Arabia, Saudi Arabia

Xu xiabo, Professor, Xi 'an jiaotong-liverpool university, China

This research study is a literature review about the relationship between the health professionals training and the socio-environmental issues. It discusses the environmental and social interfaces and the health promotion. The results show that these healthcare professionals need to commitment to the orientation and the execution of the sustainable practices.

Wednesday, 02:00 PM - 03:00 PM

Contributed Session

1645 Wednesday, 02:00 PM - 03:00 PM, Behavior in OM   Track: Behavior in Operations Management

Contributed Session: Sustainable Operations and Human Behavior

Chair(s): Seong-Jong Joo

101-0636   Judgmental Forecasting for megaprojects: Structured analogies versus Delphi and Interaction Groups

Konstantia Litsiou, Senior Lecturer, Manchester Metropolitan University, United Kingdom

Yiannis Polychronakis, Senior Lecturer, Business School, United Kingdom

Stelios Sapountzis, Lecturer, Business School, United Kingdom

Kostas Nikolopoulos, Professor, Bangor University, United Kingdom

We forecast the excess in the budget and the duration, and the extent of benefits realization in Megaprojects. We focus on stakeholder perspectives (project manager, funders, public) and we do control for level of expertise: novices, semi-experts and experts. Empirical results show promising performance for Interaction Groups over Delphi.

101-2537   Sustainable work and "non-work" as a mechanism to protect workers' welfare

Alessandra Moura, Student, UNIRIO, Brazil

This article seeks to bring a new perspective to sustainable work, balancing it with life, emphasizing the role of access to culture and moments of rest, as mechanisms to protect workers' health.

101-2501   Examining Military Cargo Pilots' Eco-Friendly Intention

Ioan Gaitan, Captain, Air Force Institute of Technology, United States

Seong-Jong Joo, Professor, Air Force Institute of Technology, United States

Similar to automobiles, operators' behaviors affect the fuel efficiency of airplanes. We investigates military cargo pilots' eco-friendly intention using the theory of planned behavior. We analyze data from military cargo pilots who carried out logistics missions in two countries. We discuss theoretical and practical implications based on findings.

Contributed Session

1646 Wednesday, 02:00 PM - 03:00 PM, Covid-19 & Other Pandemics   Track: Covid-19 and Other Pandemics

Contributed Session: Impact of Covid-19/ Post pandemic

Chair(s): Alexander Spieske

101-2372   Supply Chain Evolution and Revolution to Handle Post COVID-19 Era

Godwin T, Professor, IIM Tiruchirappalli, India

A product always needs to move in a supply chain and COVID-19 has necessitated the need for a new supply chain revolution. A new framework is proposed that adapts both the new technology and COVID-19 induced restrictions, which could lead to a new revolution to sustain a supply chain.

101-2373   Reinventing Revenue Management post COVID-19 through New Avenues

Godwin T, Professor, IIM Tiruchirappalli, India

COVID-19 has reduced demand for some services, restricted the availability of certain services and introduced substitution to other services, all of which makes it difficult to implement revenue management. This study explores adaptation of revenue management practices in new services that has emerged or gained traction due to COVID-19.

101-2423   Increasing supply chain resilience after the COVID-19 pandemic: a resource dependence perspective

Alexander Spieske, Student, University Erlangen-Nuremberg, Germany

Maximilian Gebhardt, Student, Friedrich-Alexander Universitat Erlangen-Nurnberg, Germany

Matthias Kopyto, Student, University Erlangen-Nuremberg, Germany

Hendrik Birkel, Student, University Erlangen-Nuremberg, Germany

The COVID-19 pandemic sparked debate on increasing supply chain resilience. We present empirical evidence from a Delphi study on suitable measures. Based on the resource dependence theory, we developed future projections and let 94 international SCM experts evaluate them. Our findings reveal that companies will prioritize bridging over buffering strategies.

Contributed Session

1647

Wednesday, 02:00 PM - 03:00 PM, Economic Models in OM   Track: Economic Models in Operations Management

Contributed Session: Information Sharing and Artificial Intelligence

Chair(s): Lukas Holder

101-2192   Retailers' information Sharing Strategy based on Manufacturer's innovation Decision

Huaqing Hu, Student, Peking University, China

Lihua Chen, Professor, Peking University, China

We analyze the comprehensive effects of horizontal information leakage and vertical spillover of innovation on retailers' information sharing strategy. When the manufacturer is efficient in product innovation, retailers have the incentives to share demand information with the manufacturer - even at the risk of information leakage -to achieve Pareto improvements.

101-1845   Patents and Manufacturing Multi-factor Productivity

Anand Kandaswamy, Economist, NIST, United States

How do patents impact manufacturing multi-factor productivity? And does causality only run in one direction?

101-2690   Artificial intelligence in business valuation

Rudolf Grünbichler, Student, Graz University of Technology, Austria

Lukas Holder, Student, Graz University of Technology, Austria

Bernd Markus Zunk, Associate Professor, Graz University of Technology, Austria

AI has now found its way into business valuation. While the traditional calculations of valuation remain unchanged, the process of data collection will change enormously. In a systematic literature review, the current state of the field is surveyed. To this end, trends and algorithms used will be examined.

Contributed Session

1649

Wednesday, 02:00 PM - 03:00 PM, Emerging Topics in OM   Track: Emerging Topics in Operations Management

Contributed Session: Securing Supply Chain

Chair(s): Kala Viswanathan

101-0753   Customer data breaches: Implications of supply chain attacks

Christoph Schmidt, Post Doc/Researcher, Eth Zurich, Switzerland

Maximilian Klöckner, Student, ETH Zurich, Switzerland

Stephan Wagner, Professor, Swiss Federal Institute of Technology Zurich, Switzerland

Cyberattacks often target the weaker firms in the supply network to compromise sensitive data and cause substantial damage. We conduct an event study to examine the stock market reaction to consumer data breaches. Additionally, we explore factors that affect the stock market reaction and what firms can do.

101-2401   A model to evaluate cybersecurity in seaport terminals

Luca Urciuoli, Associate Professor, Royal Institute of Technology (Kth), Sweden

Rafael Diaz, Associate Professor, Old Dominion University, United States

Countries are securing the transport infrastructure from cyberthreats. These threats may range from simple DDOS attacks to more sophisticated ones using ransomwares, insiders, and hardware manipulation. Attacks against seaport infrastructure may impact on societal safety and security. In this study, we draft a framework to assess cybersecurity in port terminals.

101-2327   Do Management System Standards Indicate Superior Performance? Evidence from OHSAS 18001

Kala Viswanathan, Student, Harvard Business School, United States

We examine the OHSAS 18001 Occupational Health and Safety Management standard and find that U.S. establishments certified to the OHSAS 18001 standard tend to be safer workplaces. OHSAS 18001 attracts establishments with fewer injury and illness cases than comparable non-adopters, and certification leads to subsequent declines in such cases.

Invited Session

1650

Wednesday, 02:00 PM - 03:00 PM, Empirical Research in OM   Track: Empirical Research in Operations Management

Invited Session: Alternative business approaches or service delivery

Chair(s): Tian Chan

101-0150   The Effect of Medicaid Expansion on the Patient Flow in Emergency Department

Guihua Wang, Assistant Professor, University of Texas Dallas, United States

We study the effect of Medicaid expansion on the patient flow in Emergency Department (ED) . We find that Medicaid expansion increases ED length of stay, wait time, and boarding time.

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101-0280   The Environmental Impact of a Clothing Rental Business Model

Vishal Agrawal, Associate Professor, McDonough School of Business, United States

Ekaterina Astashkina, Assistant Professor, Ross School of Business, United States

Anna Saez De Tejada Cuenca, Assistant Professor, IESE Business School, Spain

With the rise of fast fashion, many garments are purchased to be worn only a few times. Some innovative companies rent clothes to variety-seeking consumers. The logistics related to this business model can offset its environmental benefits. We analyze this tradeoff using data from a clothes rental company.

- -

101-0361   May the best fit win? The role of job-specific fitness in online labor markets

Qingchen Wang, Assistant Professor, ????, Hong Kong

We investigate the role of worker-job fitness in online labor markets. By leveraging NLP techniques, we design a novel metric that measures how well a worker fits the requirements of a specific job. We examine how fitness affects both: if the worker wins the job, and the subsequent outcomes.

- -

101-0431   Technological experience and process innovation in pharmaceutical industry

Ivan Lugovoi, Student, Hec Paris, France

Dimitrios Andritsos, Assistant Professor, Hec Paris, France

Claire Senot, Associate Professor, Tulane University, United States

Utilizing a unique dataset of the process-patent expert evaluations of 50 generic pharmaceutical products over a 10-year period and controlling for the degree of vertical integration across firms, we explore in depth the link between focal, related and unrelated technological experience and process innovation

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Contributed Session

1653

Wednesday, 02:00 PM - 03:00 PM, Healthcare Analytics   Track: Healthcare Analytics

Contributed Session: Behavioral Healthcare Operations

Chair(s): M Gabriela Sava

101-2654   An healthcare circular economy transition managerial proposal framework

Lídia Silva, Student, Centro Federal De Educacao Technologica - Cefet, Brazil

Annibal Scavarda, Associate Professor, Federal University of the State of Rio de Janeiro - UNIRIO - Brazil, Brazil

ANA DIAS, Student, CEFET, Brazil

Fang Zhao, Professor, Edith Cowan University, Australia

Ricardo Santa, Assistant Professor, Universidad Icesi, Saudi Arabia

The ways that industries have been developing their production have had consequences for the environment. The circular economy combined with artificial intelligence can make the production more sustainable. Some of the results this union can achieve are proposing design sustainable, developing a reverse logistics infrastructure and forecasting demand.

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101-2572   Analytical Methods Comparison in a Social Media Healthcare Communication Context

Yasemin Tarakci, Student, University of North Texas, United States

Gayle Prybutok, Assistant Professor, University of North Texas, United States

Yuchen Wang, Student, University of North Texas, United States

Victor Prybutok, Professor, University of North Texas, United States

This research focuses on social media healthcare communication and how it influences user behavior. This healthcare communication data provides a managerial decision-making context. The data allows comparing different analytical methods - multiple regression, logistic regression, partial least squares, and neural networks - to provide guidelines for selecting the appropriate methodology.

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101-2196   Fostering employee participation in voluntary corporate sponsored wellness programs

M Gabriela Sava, Assistant Professor, Clemson University, United States

Bogdan Bichescu, Associate Professor, University of Tennessee Knoxville, United States

Kristin Scott, Professor, Clemson University, United States

Sara Krivacek, Student, Clemson University, United States

Organizations are increasingly turning to wellness programs to improve employee wellbeing. Using secondary data, we propose a theoretical framework based on behavioral theories to examine and understand participants' behavior. Our findings show that frequent participants have a strong intrinsic motivation to commit, while one-time participants are less health conscious

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Contributed Session

1654

Wednesday, 02:00 PM - 03:00 PM, Healthcare OM 1   Track: Healthcare Operations Management

Contributed Session: Allocation Methods & Policies

Chair(s): Yaneth Correa-Martinez

101-2187 Resource Allocation with Sigmoidal Demands: A Data-Driven Approach to Managing Mobile Healthcare Units

Andres Alban, Student, INSEAD, France

Philippe Blaettchen, Student, INSEAD, France

Harwin De Vries, Lecturer, Rotterdam School of Management, Netherlands

Luk Van Wassenhove, Professor, INSEAD, France

We study the allocation problem faced by humanitarian organizations that employ mobile healthcare units for service delivery. Word-of-mouth effects drive demand in such settings and need to be considered to sustain a long-term impact with limited resources. We provide insights into the optimal allocation and a procedure to estimate demand.

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101-2420 Red Blood Cell Inventory Allocation Policies to Reduce Outdating

Gina Dumkrieger, Post Doc/Researcher, Mayo Clinic, United States

Actively substituting age- and stock-observant allocation policies with the potential to reduce outdating under normal conditions are developed via Approximate Dynamic Programming. Policies are population specific and may be of especial benefit to small, remote facilities with limited on-hand inventory and significant time delay from resupply.

- -

101-1730 Heterogeneous Home Healthcare Routing Problem with Dynamic Patient's Demand of Simultaneously Multiple Nurses

Yaneth Correa-Martinez, Assistant Professor, Colorado State University Pueblo, United States

Sudhan Bhattarai, Student, Colorado State University Pueblo, United States

Leonardo Bedoya-Valencia, Associate Professor, Colorado State University Pueblo, United States

Most of the existing literature on home healthcare routing addresses static requests with a single nurse on visit. Our research proposes exact and heuristic methods intended to solve the dynamic case when multiple skilled nurses are required for the same patient simultaneously. The main objective is to maximize the

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Contributed Session

1656 Wednesday, 02:00 PM - 03:00 PM, Humanitarian Ops & Crisis Mgmt 1

Track: Humanitarian Operations and Crisis Management

Contributed Session: Topics in Disaster Management and Humanitarian Operations

Chair(s): Kezban Yagci Sokat

101-2760 Beyond "Panic Buying": Influencing Factors, Impacts, and Policy Measures to Mitigate Disaster-Related Buying Behaviors

Jose Holguin-Veras, Professor, Rensselaer Polytechnic Institute, United States

Trilce Encarnacion, Assistant Professor, University of Missouri St Louis, United States

Sofia Perez-Guzman, Student, Rensselaer Polytechnic Institute, United States

Victor Cantillo, Professor, Universidad del Norte, Colombia

Oriana Calderon, Student, Rensselaer Polytechnic Institute, United States

"Panic Buying" is one of the most under-studied disaster behaviors. These purchases, rarely the result of panic, respond to rational considerations based on the information that consumers have in times of crisis. This research presents comprehensive analyses on the objectives and motivating reasons behind consumer purchases in response to crisis.

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101-0359 Characterizing Material Convergence: In-Kind Donations Management Under Limited Storage and Manpower

J. Lemuel Martin, Student, Nanyang Technological University, Singapore

Fang Liu, Assistant Professor, Nanyang Technological University, Singapore

Material convergence occurs when supplies during a disaster arrive in large amounts and consist of mostly unneeded materials. We use a stochastic model to represent the relief process, identify when material convergence occurs, and propose a manpower allocation policy to mitigate its negative impact.

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101-0504 Understanding the Impact of Human Trafficking and Modern Slavery on Company Performance

Kezban Yagci Sokat Yagci Sokat, Assistant Professor, San Jose State University, United States

Nezih Altay, Professor, Depaul University, United States

Human trafficking and modern slavery is a growing concern. In this study, we investigate the impact of human trafficking and modern slavery allegations on company performance.

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Invited Session

1658 Wednesday, 02:00 PM - 03:00 PM, Information Systems & OM 1

Track: Information Systems and Operations Management

Invited Session: Design and Development of Blockchain

Chair(s): Wei Xie   Hong Wan

101-2776 A Fluid Mean-Field Model on Repeated Bitcoin Mining Competitions

Kejun Li, Student, North Carolina State University, United States

Ping Cao, Associate Professor, School of Management, China

Yunan Liu, Associate Professor, North Carolina State University, United States

Hong Wan, Associate Professor, North Carolina State University, United States

We investigate the dynamics of repeated Bitcoin mining games. Given the limited monetary budget and hashing power capacity, we consider dynamic interactions among miners and explore Nash-equilibrium for the network. With fluid and mean-field approximations, we solve for the fluid mean-field equilibrium (FMFE) and obtain the FMFE-based individual mining policy.

101-2455   Blockchain-Enabled Internet-of-Things Platform for End-to-End Industrial Hemp Supply Chain

Wei Xie, Assistant Professor, Northeastern University, United States

Industrial Hemp Supply Chain (IHSC) faces critical challenges, including high complexity, high variability, data tampering, and lack of immutable information tracking system. We develop a blockchain-enabled internet-of-things platform to support IHSC tracking, scalability, interoperability, and risk management, which can support interoperability, improve the efficiency, and ensure the safety.

Contributed Session

1679

Wednesday, 02:00 PM - 03:00 PM, Sustainable Operations 1   Track: Sustainable Operations

Contributed Session: Developments in Renewable Energy

Chair(s): Eyko Rios

101-1171   Integration of pumped hydro energy storage and wind energy generation

Harun Avci, Student, Northwestern University, United States
Ece Cigdem Karakoyun, Student, Bilkent University, Turkey
Ayse Selin Kocaman, Assistant Professor, Bilkent University, Turkey
Emre Nadar, Assistant Professor, Bilkent University, Turkey
Parinaz Toufani, Student, Bilkent University, Turkey

We study the energy generation and storage problem for a hybrid energy system that includes a wind farm and a pumped hydro energy storage facility. We model the problem as a Markov decision process under uncertainty in energy sources and price, and characterize the optimal policy structure. (TÜBİTAK Grant 118M419.)

101-1682   Value of TOU pricing in grid with significant renewable energy supply: Does it co-ordinate?

Subhasis Mishra, Student, Indian Institute of Management Calcutta, India
Balram Avittathur, Professor, Indian Institute of Management Calcutta, India
Megha Sharma, Associate Professor, Indian Institute of Management Calcutta, India

We propose an algorithms for Time of Use (ToU) retail pricing for demand-shaping and to achieve higher utilization of green intermittent power plants (RE) in a capacitated market. Our experiments and analytical models identify the conditions that favour implementation of TOU pricing and condition for power plants to be profitable.

101-2816   An analysis of renewable energies as a growing trend over the individual and business investments

Eyko Rios, Student, Centro Federal De Educacao Technologica - Cefet, Brazil
Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil
Stephen Bosman, Professor, Cape Peninsula University of Technology, South Africa
Amos Notea, Professor, Holon Istitute of Technology, Israel
Rachel Mendes, Professor, Centro Federal De Educacao Technologica - Cefet, Brazil

With an expected comeback over renewable industry in a post-pandemic period, one of the most popular sustainability trends is the fossil fuel consumption reduction. Renewables now have become a main governmental concern. The current article intends to investigate renewable energies as a growing trend over the individual and business investments.

Wednesday, 03:15 PM - 04:15 PM

Contributed Session

1688

Wednesday, 03:15 PM - 04:15 PM, Economic Models in OM   Track: Economic Models in Operations Management

Contributed Session: Emerging Topics on Platform Ecosystem

Chair(s): Shukun Liu

101-2575   Perpetual or subscription? Licensing strategy management in platform ecosystems with competing third-party vendors

Ning Wei, Student, Tianjin University, China
Junpeng Guo, Professor, Tianjin University, China

Companies of cloud computing and mobile apps have built their software platform ecosystem to serve both third-party vendors and users. We develop a game-theoretical model to analyze the license decisions of competing vendors and how platform sponsor exerts governance power to coordinate the competing vendors' licensing choices in an ecosystem.

101-1821   The Rise of Third-Party-Promotion Agent: Livestreamer versus Affiliate Marketer

Shukun Liu, Student, Dalian University of Technology, China
Jianqing Chen, Associate Professor, University of Texas at Dallas, United States
Wenli Li, Professor, Dalian University of Technology, China

In the presence of rapidly growing third-party-promotion agents, retailers face the choice of whether to cooperate with them. We develop a game-theoretic model to examine a retailer's choice considering the strategic interaction with an upstream manufacturer. We identify the conditions under which the retailer should cooperate with the agents.

Contributed Session

1690

Wednesday, 03:15 PM - 04:15 PM, Emerging Topics in OM   Track: Emerging Topics in Operations Management

Contributed Session: Industry/Sector Outlooks

Chair(s): Mika Salmi

101-2788   Renewable Energies, present and future panorama.

Cristiane Do Nascimento, Student, UNIRIO, Brazil
Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil
ANA DIAS, Student, CEFET, Brazil
Layek Abdel-Malek, Professor, New Jersey Institute of Technology   , United States
Marie -France Waxin, Professor, American University of Sharjah, United Arab Emirates

Nowadays, the demands for sustainable actions have increased face to different global problems. In Brazil, Renewable Energies have been expanding.While the need of energy had decrease, the Wind Energy demand increased. This paper aims to dismember the current and future motivations for the advancement of several renewable energy souces.

101-2488   Medical 3D printing - current applications and process chain

Mika Salmi, Post Doc/Researcher, Aalto University, Finland

Since every person in unique, 3D printing has huge potential in medical applications. However, utilization requires new skills such as medical imaging, design, 3D printing and management. This presentation will show current applications and requirements such as medical models, saw guides and implants and discuss about required process chain.

Contributed Session

1694

Wednesday, 03:15 PM - 04:15 PM, Healthcare Analytics   Track: Healthcare Analytics

Contributed Session: Learning and Optimization in Healthcare

Chair(s): Andres Alban

101-2768   An Empirical Analysis on Avoidable Medicare Payments and Medicare Payment Variations

Ai Ren, Assistant Professor, SUNY New Paltz, United States
Matthew Buddensick, Student, SUNY New Paltz, United States
Jake Varghese, Student, SUNY New Paltz, United States

We investigate the variations in inpatient Medicare payments in 2017. Our analysis shows that CC, MCC, hospital population served, poverty level, and races, have significant impact on Medicare payments. We also find significant payment variations across the states.

101-2286   Contextual Learning with Online Convex Optimization: Theory and Applications to Chronic Diseases

Esmaeil Keyvanshokooh, Student, University of Michigan - Ann Arbor, United States
Mohammad Zhalechian, Student, University of Michigan - Ann Arbor, United States
Cong Shi, Assistant Professor, Department of Industrial Enginnering, United States
Mark Van Oyen, Professor, University of Michigan, United States
Pooyan Kazemian, Student, Harvard University, United States

We develop a contextual multi-armed bandit integrated with online stochastic gradient descent for making two-dimensional nested decision-making of med and dose selections. We propose a new algorithm for it and proved a regret bound. We used a case study on type 2 diabetics for evaluating this algorithm and model.

101-2179   Value-based clinical trials: selecting recruitment rates and trial lengths in different regulatory contexts

Andres Alban, Student, INSEAD, France
Stephen Chick, Professor, INSEAD, France
Martin Forster, Lecturer, University of York, UK, United Kingdom

Health systems are placing increasing emphasis on improving the design and operation of clinical trials, with the aim of making the health technology adoption process more 'value-based'. We present a model of a value-based two-armed clinical trial in which both the recruitment rate and trial length are optimized.

Contributed Session

1695

Wednesday, 03:15 PM - 04:15 PM, Healthcare OM 1   Track: Healthcare Operations Management

Contributed Session: Patient-centered Care (1)

Chair(s): Nazli Sonmez

101-0595   Achieving the Bird's-Eye View: A Data-Driven Approach to Understanding the Patient Journeys of Back Pain

Katherine Bobroske, Student, Cambridge University, United Kingdom

Christine Larish, Director, Clinical R&D, Evolent Health, United States

Anita Cattrell, Chief Innovation Officer, Evolent Health, United States

Margret Bjarnadottir, Assistant Professor, University of Maryland, United States

Lawrence Huan, Internal Medicine Physician, Cambridge University, United States

For highly variable conditions such as back pain, the medical community lacks a comprehensive and realistic understanding of how patients receive care. We propose a methodology built on careful data modeling, sequence analysis, and ensemble clustering to extract a data-driven understanding of the patient journey using insurance claims data.

101-2772   The opportunities and learning perspectives: Realistic simulation applied for a new era of healthcare students

Annibal Scavarda, Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil

Ana Chavão Brito Lombardi de Souza, Student, Federal University of the State of Rio de Janeiro, Brazil

Gláucya Daú, Student, Universidade Federal do Estado do Rio de Janeiro, Brazil

Ellen Menezes Ayres, Professor, Federal University of the State of Rio de Janeiro, Brazil

Luiz   Machado de Sousa Júnior, Professor, Federal University of the State of Rio de Janeiro, Brazil

Realistic simulation for the healthcare professional training is an innovative practice. This research has developed a literature review, focusing on this educational innovative tool in the healthcare supply chain. It analyzes the opportunities and learning perspectives in the skills and knowledge acquisition process for a new era of healthcare students.

101-2289   Can Shared Service Delivery Increase Customer Engagement? A Study of Shared Medical Appointments

Nazli Sonmez, Student, London Business School, United Kingdom

Kamalini Ramdas, Professor, London Business School, United Kingdom

Ryan Buell, Professor, Harvard Business School, United States

Using data from an RCT with 1,000 patients at the Aravind Eye Hospital, we examined the impact of shared medical appointments (SMAs) - in which groups of patients meet with a doctor, and receive one-on-one care - on patient engagement. SMA patients exhibited higher nonverbal engagement, participated more in conversation.

Contributed Session

1697	Wednesday, 03:15 PM - 04:15 PM, Humanitarian Ops & Crisis Mgmt 1	Track: Humanitarian Operations and Crisis Management
	Contributed Session: Decision Support Topics	
	Chair(s): Miao Bai	

101-1428   Decision-making support for selecting e-mobility concepts in mountain rescue logistics

Christian Wankmüller, Post Doc/Researcher, Universitaet Klagenfurt, Austria

Maximilian Kunovjanek, Student, Universitaet Klagenfurt, Austria

Christopher Korzen, Student, Universitaet Klagenfurt, Austria

Robert Sposato, Post Doc/Researcher, Universitaet Klagenfurt, Austria

Gerald Reiner, Professor, Vienna University of Economics and Business, Austria

E-mobility concepts (e.g. e-bike) offer potentials to support logistics processes in mountain Rescue. Selecting appropriate concepts is complicated due to the situational requirements of mountain Rescue and limited financial resources of involved organizations. We provide decision-making support by identifying and assessing Evaluation criteria using Survey data and best-worst-scaling methodology.

101-1136   Visual interactive decision support system to Civil Defense location decisions

Daniel Okane, Student, Universidade de São Paulo, Brazil

Márcia Lorena Frazão, Student, Universidade de São Paulo, Brazil

Camila Yale, Student, Universidade de São Paulo, Brazil

Irineu Brito Jr, Professor, Universidade Estadual Paulista Julio De Mesquita Filho - Unesp, Brazil

Hugo Yoshizaki, Retired, Universidade de São Paulo, Brazil

A location model has been developed for the São Paulo Civil Protection and Defense Agency(CEPDEC) positioning relief supplies warehouses and needed to employ external experts. Thispaper presents a visual interactive decision support system that allows CEPDEC staff to workindependently to perform their location decisions.

101-2470   Online Monitoring with Mobile Sensors: Data-driven Pathwise Sampling Strategies

Miao Bai, Assistant Professor, University of Connecticut, United States

Xiaochen Xian, Assistant Professor, University of Florida, United States

Dongmin Li, Student, University of Florida, United States

We propose a data-driven monitoring strategy to quickly identify and localize abrupt changes with mobile sensors. We integrate statistical process control and mathematical optimization to adaptively sample from suspicious locations based on real-time data. We provide theoretical investigations and present its performance in a case study of wildfire detection.

Invited Session

1699	Wednesday, 03:15 PM - 04:15 PM, Information Systems & OM 1	Track: Information Systems and Operations Management
	Invited Session: Operations Management and E-commerce	
	Chair(s): Mei Li	

Wednesday, 03:15 PM - 04:15 PM

101-2866   Benefit of Consumer Showrooming for a Physical Retailer: A Distribution Channel Perspective

Lin Hao, Associate Professor, Fordham University Gabelli School of Bus, United States

Subodha Kumar, Professor, Temple University, United States

We show that with the supplier's endogenous pricing decisions, consumer showrooming can benefit the physical retailer in a distribution channel. The reason is that consumer showrooming prevents the supplier from expanding online consumers when she becomes more cost-efficient with online returns. We document it as the pass-through-mitigating effect.

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101-2236   The Effect of Customer Showrooming on Return Policy and Product Assortment for Multichannel Retailers

Ping Tang, Student, UT Dallas, United States

Amit Mehra, Associate Professor, University of Texas Dallas, United States

Prasenjit Mandal, Assistant Professor, Indian Institute of Management Calcutta, India

This paper develops a game-theoretic model in which multichannel retailer first decides the product assortment at the BM store, then both retailers decide the prices of products in the context of mail-in and in-store return policies. We also consider consumers' first instance and second instance showrooming behavior

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101-2865   People Don't Know What They Want until You Show It to Them. But When?

Mei Li, Associate Professor, University of Oklahoma, United States

Xi Xiong, Unknown, JD, China

Xiangyu Chang, Associate Professor, Xi'An Jiaotong University, China

Subodha Kumar, Professor, Temple University, United States

Anjana Susarla, Associate Professor, Michigan State University, United States

We propose a novel recommendation system design that factors in predicted demand timing. Using large-scale online and offline experiments, we demonstrate that this novel demand-driven approach outperforms the prevalent recency-based recommendation system, resulting in higher recommendation click value rate, higher revenue per mille, and improved customer satisfaction.

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Contributed Session

1720	Wednesday, 03:15 PM - 04:15 PM, Sustainable Operations 1 Track: Sustainable Operations
	Contributed Session: Trends in Sustainability and Circularity
	Chair(s): Deepak Srivastav

101-2560   Improving Circularity through Information Sharing - Status Quo and Road Ahead

Moritz Jäger-Roschko, Student, Kuehne Logistics University, Germany

Moritz Petersen, Professor, Kuehne Logistics University, Germany

In a systematic literature review we explore the status quo of research on Information Sharing in the Circular Economy. First, we map the current literature and identify contributing research streams. Using a qualitative content analysis we then highlight the most important topics, research results and research gaps.

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101-2258   Sustainability In E-Commerce: A Triple Bottom-Line View

Deepak Srivastav, Student, IIMK, India

Rupesh Pati, Associate Professor, IIM kozhikode, India

Anand Gurumurthy, Associate Professor, Indian Institute of Management Kozhikode, India

A systematic review is presented through content analysis using "Five W" namely Why, When, Where, Who, and What; and "Two H" namely How and How much framework, to understand the evolution of sustainable supply chain in e-commerce industry and research trend to find the potential gap for future research

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Wednesday, 04:30 PM - 05:30 PM

Contributed Session

1731	Wednesday, 04:30 PM - 05:30 PM, Emerging Topics in OM Track: Emerging Topics in Operations Management
	Contributed Session: Case Studies in OM
	Chair(s): Roula Michaelides

101-2712   A case study of a food family company with a lean lense

Tainá Bethke, Student, Unigranrio University, Brazil

ANA DIAS, Student, CEFET, Brazil

Annibal Scavarda, Associate Professor, Universidade Federal do Estado do Rio de Janeiro, Brazil

Marlien Herselman, Professor, Council for Scientific and Industrial Research (CSIR) in Pretoria, South Africa

Pedro Pereira, Professor, Unigranrio University, Brazil

This paper analyzes the sales release process by demonstrating its errors and rework impacts. Based on literature review and through analysis and observation, it points out Lean's benefits and applicability in a family company. It emphasizes the power of Lean's methodology in improving companies' performance by mitigating errors and rework.

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101-2443   Impacts of Intelligent Manufacturing on Personnel Allocation and Decision Making–a case study of Company G

Edward Fang, Associate Professor, Wuhan University, China
Zachary (Zhe) Zhang, Student, Wuhan University, China

In this case study of the company G's intelligent reconstruction, we can intelligent manufacturing can increase OEE obviously, with the decrease in first-line workers and supervisors. In addition, more importantly, we find that no significant change in span of control and management level, but significant concentration in decision-making.

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101-1717   Agile or traditional project management in ambidextrous environments ?

Martin Rost, Associate Professor, Stuttgart university, Germany
Roula Michaelides, Reader, Manchester Metropolitan University, United Kingdom
Birgit Renzl, Professor, Stuttgart University, Germany

Project managers in digitally disruptive companies increasingly adoptagile project management methods. However for exploitation, they paradoxically still use traditional methods. This research adopts a case-study approach (three cases across the UK/Germany) to study how these companies blend agile and traditional methods to meet the requirements in ambidextrous environments.

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Contributed Session

1738	Wednesday, 04:30 PM - 05:30 PM, Humanitarian Ops & Crisis Mgmt 1	Track: Humanitarian Operations and Crisis Management
	Contributed Session: Response to COVID-19 Pandemic	
	Chair(s): Duygu Pamukcu	

101-2707   Correlation between social media and panic buying during COVID-19 in Brazil

Bruno Otsuka, Student, USP, Brazil
Maria Clara Pinheiro, Student, Universidade de São Paulo, Brazil
Hugo Yoshizaki, Retired, Universidade de São Paulo, Brazil
Irineu Brito Jr, Professor, Universidade Estadual Paulista Julio De Mesquita Filho - Unesp, Brazil
Celso Hino, Post Doc/Researcher, São Paulo University, Brazil

We present a comparative analysis between actual grocery sales and data from a social network during the early period of pandemic in Brazil. Results show strong positive correlation between the number of tweets and panic buying products, as toilet paper, pasta, and soap

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101-2735   Beyond "Panic Buying": An International Investigation of Disaster-Related Buying Behaviors During the COVID-19 Pandemic

Jose Holguin-Veras, Professor, Rensselaer Polytechnic Institute, United States
Sofia Perez-Guzman, Student, Rensselaer Polytechnic Institute, United States
Abdelrahman Ismael, Student, Rensselaer Polytechnic Institute, United States
Julia Amaral, Student, Rensselaer Polytechnic Institute, United States
Trilce Encarnacion, Assistant Professor, University of Missouri St Louis, United States

The lack of appropriate demand management of the so called "Panic Buying" was a key factor behind the shortages of critical supplies during the COVID-19 pandemic. This research discusses the key findings of an international effort to elucidate the motivating reasons behind these purchases and identify potential solutions.

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101-2803   311 Non-emergency Call System Reactions to COVID-19 Pandemic

Duygu Pamukcu, Student, Virginia Tech, United States
Christopher Zobel, Professor, Virginia Tech, United States
Yue Ge, , ,

Local governments are responsible for maintaining necessary services and quickly and timely informing citizens before, during, and after an emergency. To do this, governments implement smart information and communication technologies in public services. This study examines the 311 non-emergency call system reactions in U.S. cities to reflect the COVID-19 pandemic.

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Invited Session

1740	Wednesday, 04:30 PM - 05:30 PM, Information Systems & OM 1	Track: Information Systems and Operations Management
	Invited Session: Social Networks and Performance Feedback	
	Chair(s): Siddharth Bhattacharya	

101-2527   The Role of Patient Portals in Electronic Health Records' Error Discovery and Reporting

Mohammad Rahimi, Student, Temple University, Fox School of Business, United States
Sezgin Ayabakan, Assistant Professor, Temple University, United States
Subodha Kumar, Professor, Temple University, United States
kevin mahnoey, CEO, University of Pennsylvania, United States

In this research project, we aim to understand the effectiveness of patient portals in reducing medical errors in electronic health records (EHRs), via engaging a network of patients. As such we will examine the optimal ways to incentivize patient engagement in error discovery and reporting.

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101-2771   How Network Embeddedness Affects Performance Feedback: An Empirical Investigation

Mariia Petryk, Student, University of Florida, United States

Liangfei Qiu, Associate Professor, University of Florida, United States

Michael Rivera, Associate Professor, Temple University, United States

Siddharth Bhattacharya, Student, Temple University, United States

Subodha Kumar, Professor, Temple University, United States

We analyze over 4,000 feedback instances from employees to explore the effects of two types of network embeddedness on performance rating scores: positional and structural. We find that the rater's positional embeddedness is positively associated with the rating score given and structural embeddedness is negatively associated with the rating score.

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101-2762   Seek and Ye Shall Find: An Empirical Examination of the Effects of Seeking Real-Time Feedback

Michael Rivera, Associate Professor, Temple University, United States

Jason Jiang, Assistant Professor, Temple University, United States

Subodha Kumar, Professor, Temple University, United States

Many companies are utilizing real-time feedback applications to facilitate engagement and disseminate employee performance ratings. Yet, vital dynamics beyond giving and receiving employee feedback, such as seeking and rating feedback. Therefore, in this paper, we examine: (i) seeking performance feedback; and (ii) evaluating the helpfulness of received performance feedback.

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Contributed Session

1761

Wednesday, 04:30 PM - 05:30 PM, Sustainable Operations 1   Track: Sustainable Operations

Contributed Session: Empirical Studies in Sustainability Performance

Chair(s): Yongchang Shen

101-1537   Sustainability performance: A comparative study between Vietnamese and Japanese enterprises

Minh Nguyen, Post Doc/Researcher, Yokohama National University and University of Economics Ho Chi Minh City, Japan

Anh Phan, Associate Professor, University of Economics and Business - Vietnam National University, Hanoi, Vietnam

Yoshiki Matsui, Professor, Yokohama National University, Japan

This study compares sustainability performance in Vietnamese and Japanese enterprises. Vietnamese enterprises witness greater improvement in financial performance, emission reduction, and social performance whereas Japanese ones notice higher improvement in cost reduction and resource consumption reduction. Also, inter-relationships among the triple bottom line are significantly different between the two groups.

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101-2306   Environmental Supervision〡Government Support and Green Innovation: Evidence of Chinese Listed Company

Shiyuan Li, Student, Tongji University, China

Green technology innovation is the key for enterprises to achieve sustainable development. We took Chinese Listed Companies as samples to empirically study the impact of environmental supervision on green technology innovation and its mechanism. We also tested the heterogeneity of the effect from macroscopic and microscopic perspectives.

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101-0105   Sustainable Total-factor Ecology Efficiency of Regions in China

Yongchang Shen, Student, Southeast University, China

This paper puts forward a new index—sustainable total-factor ecology efficiency by integrating the ecological footprint and human development index into the framework of total-factor energy efficiency〡and uses the meta-frontier slack-based DEA mode to measure the index of China over the period 2005-2016.

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Contributed Session

1765

Wednesday, 05:45 PM - 06:45 PM, 2- Meetings & Programs - All are Welcome

Track: All Meetings & Programs A: Open to Everyone

Contributed Session: Recognition of the program committee members and other volunteers

Chair(s): Subodha Kumar   Scott Webster

101-2922   Recognition of the program committee members and other volunteers

Scott Webster, Professor, Arizona State University Tempe, United States
Subodha Kumar, Professor, Temple University, United States

Recognition of the program committee members and other volunteers

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Contributed Session

1766

Wednesday, 05:45 PM - 06:45 PM, 3- POMS Tutorials

Track: All POMS Invited Tutorials

Contributed Session: Business Meeting of POMS Latin America and Caribbean Chapter

Chair(s): Nagesh Murthy

101-2924   Business Meeting of POMS Latin America and Caribbean Chapter

Nagesh Murthy, Professor, University of Oregon, United States

Business Meeting of POMS Latin America and Caribbean Chapter

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POMS on the Web

QR Code	Web Page/URL	QR Code
	POMS homepage http://poms.org/about/	
	POMS Membership http://poms.org/membership/	
	POMS Member sign-in/signup https://pomsmembers.org/members/	
	POMS Placement http://www.poms.org/placement/	
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POMS 31ˢᵗ Annual Conference, 2021
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- Sponsor Information Systems and Operations Management Track
- Co-sponsor Healthcare Operations Management Mini-Conference
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- Co-sponsor Emerging Scholars Program (ESCH)
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- Co-sponsor Information Systems and Operations Management (ISOM) track

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- Co-sponsor Procurement and Supplier Management (PSM) track
- Co-sponsor Healthcare Analytics (HCA) track

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- Co-sponsor Department Editors and Senior Editors Meeting
- Sponsor Revenue Management and Pricing (RMP) track

Carlson School of Management, University of Minnesota
- Co-sponsor Behavioral Operations Management (BOM) track
- Co-sponsor Healthcare Operations Management (HOM) track
- Co-sponsor of Mini-Conference on Healthcare Operations Management

Elsevier
- An exhibitor at the conference

Krannert School of Management, Purdue University
- Co-sponsor Retail Operations (RO) track
- Co-sponsor Scheduling and Logistics (SCHL) track
- Co-sponsor Mini-Conference on Humanitarian Operations and Crisis Management

McDonough School of Business, Georgetown University

Naveen Jindal School of Management, University of Texas at Dallas
- Co-sponsor Doctoral Consortium
- Sponsor Supply Chain Risk Management Track (SCR)
- Co-sponsor Behavioral Operations Management track (BOM)

Tianjin University, College of Management and Economics
- Sponsor Economic Models and Operations Management (ECOM) track
- Co-sponsor Global Supply Chain Management (GSCM) track
- Co-sponsor Procurement and Supplier Management (PSM) track

W. P. Carey Business School, Arizona State University
- Co-sponsor Emerging Topics in Operations Management (ETOM) track
- Co-sponsor Humanitarian Operations and Crisis Management (HOCM) track
- Co-sponsor Social Media Analytics and Internet of Things (SMA)

Track Sponsors

Journal of Supply Chain Management
- Sponsorship of Supply Chain Management Track

Exhibitors

ELSEVIER

PROCESSSIM LABS

POMS 2021 TRACK ABBREVIATIONS

EVNT   All Major Events

MEET   All Meetings & Programs A: Open to Everyone

MT-INV   All Meetings & Programs B: By Invitation

PTUT   All POMS Invited Tutorials

BOM   Behavior in Operations Management

PAND   Covid-19 and Other Pandemics

ECOM   Economic Models in Operations Management

EM   Elections Management

ETOM   Emerging Topics in Operations Management

EROM   Empirical Research in Operations Management

FOM   Finance and Operations Management

GSCM   Global Supply Chain Management

HCA   Healthcare Analytics

HOM   Healthcare Operations Management

HOM2   Healthcare Operations Management 2

HOCM   Humanitarian Operations and Crisis Management

HOCM2   Humanitarian Operations and Crisis Mgmt 2

ISOM   Information Systems and Operations Management

ISOM2   Information Systems and Operations Mgmt 2

INVM   Inventory Management

MANU   Manufacturing Operations

MOM	Marketing and Operations Management
OEX	Operational Excellence
PFA	POM in Food and Agriculture
PPR	POM in Practice
PSM	Procurement and Supplier Management
PITM	Product Innovation and Technology Management
PSOM	Public Sector Operations Management
RO	Retail Operations
RMP	Revenue Management and Pricing
SCHL	Scheduling and Logistics
SOP	Service Operations
SMA	Social Media and Internet of Things
SRO	Socially Responsible Operations
SPM	Sports Operations Management
SCM	Supply Chain Management
SCR	Supply Chain Risk Management
SNX	Supply Networks
SOPS	Sustainable Operations
TPOM	Teaching/Pedagogy in POM

POMS 2021 Online Conference: April 30 - May 5		
Friday, April 30, 2021		
Event	**Time**	**Zoom Room**
Doctoral Consortium (for Registered Participants)	9:00 AM to 1:00 PM	Links will be sent to Participants
College of Healthcare Operations Mgmt Mini-Conference (for Registered Participants)	11:00 AM to 2:00 PM	Links will be available on POMS Website
College of Humanitarian Operations and Crisis Mgmt Mini-Conference (for Registered Participants)	10:00 AM to 4:45 PM	Links will be available on POMS Website
College of Operational Excellence Mini-Conference (for Registered Participants)	9:00 AM to 1:00 PM	Links will be available on POMS Website
College of Product Innovation and Technology Mgmt Mini-Conference (for Registered Participants)	11:15 AM to 3:30 PM	Links will be available on POMS Website
Saturday, May 1, 2021		
Event	**Time**	**Zoom Room**
Applied Research Challenge	9:00 AM to 10:00 AM	All Meetings & Programs A: Open to Everyone
Honoring Hau Lee	10:15 AM to 12:30 PM	All Meetings & Programs A: Open to Everyone
Academic Leadership Group Meeting (By Invitation)	3:15 PM to 4:15 PM	All Meetings & Programs B: By Invitation
Stress Management: Role of Physical and Mind Exercises - Speaker: Dr. Hall Murthy	5:45 PM to 6:45 PM	All Meetings & Programs A: Open to Everyone
Sunday, May 2, 2021		
Event	**Time**	**Zoom Room**
Plenary Session: Pinar Keskinocak & Chris Tang	10:15 AM to 11:15 AM	All Meetings & Programs A: Open to Everyone
College Presidents' Meetings (By Invitation)	12:45 PM to 1:45 PM	All Meetings & Programs B: By Invitation
Social and Cultural Events	5:45 PM to 6:45 PM	All Meetings & Programs A: Open to Everyone
Monday, May 3, 2021		
Event	**Time**	**Zoom Room**
Emerging Scholars Program (for Registered Participants)	9:00 AM to 11:15 AM	All Meetings & Programs B: By Invitation
Meet the POM Editors (Open to all registered attendees)	12:45 PM to 1:45 PM	All Meetings & Programs A: Open to Everyone
POMS Business Meeting (All are welcome)	5:45 to 6:45 PM	All Meetings & Programs A: Open to Everyone

Tuesday, May 4, 2021		
Event	**Time**	**Zoom Room**
Meeting of POM Senior and Department Editors (By Invitation)	12:45 PM to 1:45 PM	All Meetings & Programs B: By Invitation
College Businees Meetings:		
Behavior in Operations Management	5:45 to 6:45 PM	Behavior in OM (BOM)
Healthcare Operations Management	5:45 to 6:45 PM	Healthcare OM (HOM)
Humanitarian Operations and Crisis Management	5:45 to 6:45 PM	Humanitarian Ops & Crisis Mgmt (HCOM)
Operational Excellence	5:45 to 6:45 PM	Operational Excellence (OEX)
Product Innovation and Technology Management	5:45 to 6:45 PM	Product Innovation & Technology Mgmt (PITM)
Service Operations	5:45 to 6:45 PM	Service Operations (SOP)
Supply Chain Management	5:45 to 6:45 PM	Supply Chain Management (SCM)
Sustainable Operations	5:45 to 6:45 PM	Sustainable Operations (SOPS)
Wednesday, May 5, 2021		
Event	**Time**	**Zoom Room**
International Meetings Organizers' Recognition	9:00 AM to 10:00 AM	All Meetings & Programs A: Open to Everyone
Recognition of the Program Committee Members and Other Volunteers	5:45 PM to 6:45 PM	All Meetings & Programs A: Open to Everyone