

Sessions for Monday, May 22

Monday, 08:00 AM - 09:30 AM

Invited Session

Monday, 08:00 AM - 09:30 AM, Celebration 1	Track: Retail Operations
← Invited Session: Operations in Multi-channel Retailing	
Chair(s): Wenxin Xu	

115-0242 Channel Competition with Negative Social Interactions

Xue ZHAO, Student, Hong Kong Polytechnic Univ, Hong Kong, China
Xiaomeng Guo, Associate Professor, Hong Kong Polytechnic Univ, Hong Kong, China
Guang Xiao, Associate Professor, Hong Kong Polytechnic Univ, Hong Kong, China

We consider competition between a brick-and-mortar channel and an online channel, with the former suffering from negative social network effect (NSNE). Consumers incur a stronger negative utility when the brick-and-mortar store is filled with more shoppers. We study the impacts of NSNE on two channels' pricing decisions and profit performance.

115-0319 Effect of a sustainable firm's entry on customer channel choices and existing retailers' market shares

H. Sebastian Heese, Professor, North Carolina State University, United States
Eda Kemahlioglu-Ziya, Associate Professor, North Carolina State, United States
Olga Perdikaki, Associate Professor, University of South Carolina, United States

New sustainability-marketed firms have emerged in the consumer packaged goods categories. We study how the entry of a new firm which sells an assortment of sustainable consumer goods affects the consumers' channel choices and the existing retailers' market shares in two types of product offerings -- packaged and fresh goods.

115-1048 Impact of product selection in live-streaming selling on sales

Zhendong Zuo, Student, University of South Carolina, United States
Chen Zhou, Associate Professor, University of South Carolina, United States
Yanlai Chu, Assistant Professor, Renmin University of China, China
Anindita Chakravarty, Associate Professor, University of Georgia, United States

Live-streaming selling has becoming a popular marketing strategy worldwide. However, what factors drive the success of live-streaming selling remain understudied. In this research, we focus on understanding the impact of product selection on sales performance through the lens of between-category complementarity as a critical success driver.

Invited Session

Monday, 08:00 AM - 09:30 AM, Celebration 2	Track: Behavioral Operations Management
↻ Invited Session: Human Elements in Behavioral Operations Management	
Chair(s): Maya Balakrishnan	

115-0961 Behavioral Externalities of Process Automation

Ruth Beer, Assistant Professor, Baruch College, United States
Anyan Qi, Assistant Professor, University of Texas Dallas, United States
Ignacio Rios, Assistant Professor, Jindal School of Management, United States

We study the behavioral effects of process automation on human workers interacting with automated tasks. To accomplish this, we combine a theoretical model to derive predictions and a lab experiment to test them. Our main finding is that social preferences affect the productivity of workers when tasks are automated.

115-1732 Customer and Agent Behavior in On-demand Delivery Services

Natalie Epstein, Student, HBS, United States
Santiago Gallino, Assistant Professor, The Wharton School, United States
Antonio Moreno, Associate Professor, Harvard University, United States

We study customers' behavior and decision making in the context of on-demand delivery services.

115-0818 Inclusion of Women and Older Employees in Telecom Sales Teams and Sales Performance

Bengu Ozdemir, Student, IE BUSINESS SCHOOL, Spain
Antti Tenhiala, Assistant Professor, IE BUSINESS SCHOOL, Spain
Antoaneta Momcheva, Assistant Professor, Stockholm School of Economics, Sweden
Fabrizio Salvador, Professor, IE Business School, Spain

Diversity and inclusion practices enhance a culture of fairness, but also trigger integration costs, so their effect on team performance is unclear. Using proprietary data of 260 sales teams in technology sector we show that the inclusion of more women and older employees is associated with increased team sales performance.

115-0998 Improving Human Algorithm Collaboration - Causes and Mitigation of Over- and Under-Adherence

Maya Balakrishnan, Student, Harvard Business School, United States
Kris Ferreira, Assistant Professor, Harvard University, United States

Monday, 08:00 AM - 09:30 AM

Jordan Tong, Associate Professor, University of Wisconsin-Madison, United States

We leverage controlled online experiments and analytical models of behavior to uncover a cognitive bias humans suffer from when adjusting algorithmic recommendations to account for their private information. We then use these insights to design algorithm transparency to mitigate the negative effects of this cognitive bias on forecasting performance.

Contributed Session

Monday, 08:00 AM - 09:30 AM, Celebration 3	Track: Healthcare Operations Management
3 Contributed Session: Equity in Healthcare Delivery	
Chair(s): Shubham Akshat	

115-0300 Moderator or Mediated? Patient Race's Role in the Impact of Hospital Operational Processes on Mortality

Qi Wang, Student, Xi'an Jiaotong University, China

Sarah Zheng, Assistant Professor, University of Victoria, Canada

Anita Carson, Professor, Boston University, United States

To investigate how racial disparities in patient-outcomes are driven by behavioral biases versus structural racism, we use data from over 39,000 patient visits to test the interactions between patient race, hospital operational processes, and mortality. We contribute to the behavioral operations healthcare literature and highlight the importance of racial equity.

115-0685 A Granular Approach to Optimal and Fair Patient Placement in Hospital Emergency Departments

Maureen Canellas, Assistant Professor, University of Massachusetts Chan Medical School, United States

Dessislava Pachamanova, Professor, Babson College, United States

Georgia Perakis, Professor, Massachusetts Institute of Technology, United States

Omar Skali Lami, Student, Massachusetts Institute of Technology, United States

Asterios Tsiourvas, Student, Massachusetts Institute of Technology, United States

This work, in collaboration with a large hospital system in Massachusetts, USA, tackles the patient prioritization and placement aspects of emergency department operations with the goal of improving throughput and wait times in an equitable way. We present a novel predictive-prescriptive framework and demonstrate increased fairness in patient prioritization.

115-1711 Improve Health Equity Response during Pandemic

Yueran Zhuo, Assistant Professor, Mississippi State University, United States

Bingyan Hu, Assistant Professor, Mississippi State University, United States

Huaiyang Zhong, Assistant Professor, Virginia Tech, United States

The Coronavirus (COVID-19) pandemic hit the United States tremendously with the shock heavily fallen into the underrepresented communities. We want to help the health administrators to find the optimal strategy to serve these underrepresented communities. We solve a resource allocation problem using real survey data in the southern US states.

115-2000 Continuous Scoring Model for Fair Liver Transplant Allocation

Shubham Akshat, Assistant Professor, Tepper School of Business, United States

S. Raghavan, Professor, University of Maryland, United States

The United States (U.S.) Department of Health and Human Services is interested in increasing geographical equity in access to liver transplant. We develop a novel method to design heterogeneous scoring functions for continuous scoring policy in the deceased donor liver transplantation that equalizes supply to demand ratios across transplant centers.

Invited Session

Monday, 08:00 AM - 09:30 AM, Celebration 4	Track: Healthcare Operations Management
4 Invited Session: Patient Flow in Hospitals	
Chair(s): Kellas Cameron	

115-0352 External Collaborative Coordination: Improving Efficiency in a Dedicated Observation Unit

Temidayo Adepoju, Assistant Professor, Rutgers Business School, United States

Anita Carson, Professor, Boston University, United States

Cherisse Carlo, Registered Nurse, Boston Medical Center, United States

Chris Manasseh, Professor, Boston Medical Center, United States

Observation units play an important role in hospital capacity and cost management. Our research investigates the efficiency in an observation unit driven by changes in the admission criteria of the unit.

115-1231 Does Healthcare Provider behavior drive opposition to Decision Support Technology Adoption in Hospital Environments?

Kellas Cameron, Assistant Professor, University of South Florida, United States

There is a distrust to using additional Healthcare IT by physicians. This comes from various sources, such as ineffective rollouts, lack of ease-of-use, increased administrative load, plus its relationship to medical error tracking. This study looks at why provider behavioral biases exist, and their effect on the technology adoption process.

115-1563 Deep Generative Modeling for Patient Census Prediction

Pengyi Shi, Associate Professor, Purdue University, United States

Monday, 08:00 AM - 09:30 AM

Tianchun Li, Student, Purdue University, United States

Patient census prediction is essential to hospital flow management and staffing decisions. However, challenges arise when predicting multi-day census time-series driven by correlated arrivals and discharges. We leverage state-of-art generative modeling and machine learning, integrated with patient flow dynamics, to design novel predictions and overcome these challenges.

Invited Session

Monday, 08:00 AM - 09:30 AM, Celebration 5	Track: Healthcare Analytics
5 Invited Session: Healthcare Analytics	
Chair(s): Deepa Goradia	

115-0322 Managing General and Physician Preference Medical Supplies - Impact of Consignment-Stock Inventory Policies

Claudia Rosales, Assistant Professor, University of Arkansas - Fayetteville, United States

Anand Nair, Professor, Michigan State University, United States

Sukrit Pal, Assistant Professor, Iowa State University, United States

Hospitals manage different medical supplies, like general and physician preference items. General items are numerous and inexpensive, physician-preference items are expensive and less numerous. While consignment is used to reduce costs our analysis of hospital data shows consignment is not always beneficial. We develop analytical models to explain our results.

115-0847 Gender Diversity in Public Health Supply Chains

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

Dwaipayan Roy, Assistant Professor, University of Virginia, United States

Drawing on past research showing that female decision-makers tend to prioritize issues "in ways that seem to better reflect women's preferences," we empirically evaluate the relationship between female decision-makers in governmental positions and procurement of reproductive health commodities in LMICs.

115-2118 Optimal Resource Pooling for Future Operating Room Capacity Management

Seung-Yup (Joshua) Lee, Assistant Professor, University of Alabama Birmingham, 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 OR use. A Markov decision process structure is designed that incorporates both the current availability of the OR block and expected upcoming surgery demand. We discuss the expected outcomes of the resulting policies.

115-1191 Identifying the Source of Foodborne Disease Outbreaks Using Spatial Statistic Methods

Sandra Rudeloff, Student, Kuehne Logistics University, Germany

Hanno Friedrich, Associate Professor, Kuehne Logistics University, Germany

Foodborne diseases can have a massive impact on public health. The rapid identification of the contaminated food item and its source is vital to mitigate their proliferation. We present a spatial pattern comparison approach that has the potential to accelerate the time needed to identify possible sources.

115-0072 The Role of RAS Experience on Surgical Outcome, Learning, and Forgetting in Conventional MIS

Pradeep K. Pendem, Assistant Professor, University of Oregon, United States

Sriram Narayanan, Professor, Michigan State University, United States

Vikram Tiwari, Associate Professor, Vanderbilt University Medical Center, United States

We explore the RAS experience effect on surgery duration, surgeon's learning, and forgetting in conventional MIS. We find the MIS duration has an inverted-U relationship with focal RAS experience. Next, we find low (high) focal RAS experience slows (aids) the MIS learning and decelerates (accelerates) the MIS forgetting.

Invited Session

Monday, 08:00 AM - 09:30 AM, Celebration 6	Track: POM-Finance Interface
6 Invited Session: Empirical Research in OM-Finance 1	
Chair(s): Nikolay Osadchiy	

115-0641 Supply Chain Resilience to the COVID-19 Lockdown

Yimeng Niu, Student, Shanghai Jiao Tong University, China

Vinod Singhal, Professor, Georgia Institute of Technology, United States

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

Using shipment data, this paper empirically uncovers two operational hedging behaviors among US shipments from China during 2022 Shanghai Lockdown. Shipments are either diverted to the largest nearby Ningbo Port or reallocated from the Yangtze River Delta to Pearl River Delta. Shanghai Lockdown also spatially spills over to inland suppliers.

115-0758 Portfolio Approach to Cash Flow Variability

Nikolay Osadchiy, Associate Professor, Emory University, United States

William Schmidt, Assistant Professor, Cornell University, United States

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

Monday, 08:00 AM - 09:30 AM

We propose customer portfolio management and selective trade credit as an operational hedge for reducing cash flow variability, and empirically validate this approach using a large database of customer-supplier relationships.

115-1544 Inventory Productivity and Stock Returns in Manufacturing Networks

Deepak Agrawal, Student, Emory University, United States
Nikolay Osadchiy, Associate Professor, Emory University, United States

We provide a novel, supply network-based perspective on inventory productivity and incentives for its improvement and show that the information about firm's position within the network is a valuable predictor of its inventory productivity and financial performance.

115-1985 Text-Based Measure of Supply Chain Risk Exposure

Andrew Wu, Assistant Professor, University of Michigan - Ann Arbor, United States

I develop and validate a firm-level measure of supply chain risk exposure from a novel source of unstructured data---managers' discussions of supply chain-related topics during earnings conference calls and Q&A sessions---using textual analysis techniques including seeded word embedding and bag-of-words-based content analysis.

115-1539 Fragmentation and Visibility in Supply Networks

Nikolay Osadchiy, Associate Professor, Emory University, United States
Maximiliano Udenio, Associate Professor, KU Leuven, Belgium
Vishal Gaur, Professor, Cornell University, United States

We propose a strategy for establishing visibility into a multi-tier supply network that utilizes the fragmented structure of the network. Using the history of buyer-supplier relationship data, we show that effectiveness of the strategy increases as the supply network becomes more fragmented over time.

Invited Session

Monday, 08:00 AM - 09:30 AM, Celebration 7	Track: Sustainable Operations Management
Invited Session: Supply Chain Strategies For Waste Mitigation	
Chair(s): Haoying Sun Yunke Mai	

115-0350 Battery as a Service: Flexible Electric Vehicle Battery Leasing

Lingling shi, Student, UT Dallas, United States
Bin Hu, Associate Professor, Naveen Jindal School of Management, United States

We study flexible electric vehicle battery leasing, where customers lease their long-term batteries and can temporarily up/downgrade to different capacities for peak usage. We investigate whether and when profit-maximizing flexible battery leasing reduces total customer cost and/or total battery capacity compared with simple battery leasing.

115-0432 The Beauties in Selling Ugly Produce

Zheng Han, Assistant Professor, Depaul University, United States
Bin Hu, Associate Professor, Naveen Jindal School of Management, United States
Milind Dawande, Professor, University of Texas Dallas, United States

Using a game theoretic model, we investigate whether a marketplace exists or not for a dedicated retailer selling ugly produce, and the potential interventions or policies to prevent the creation of waste.

115-1051 Competitive Mass Customization: A Sustainability Perspective

Aydin Alptekinoglu, Professor, Penn State University University Park, United States
Adem Orsdemir, Assistant Professor, University of California Riverside, United States

The fashion industry has been heavily criticized for creating huge amounts of waste due to overproduction. To address this problem, mass customization (MC) has been proposed as a remedy. We investigate whether the adoption of MC lead to a win-win in a competitive setting.

115-1223 The First-Mile Problem in the Reverse Supply Chain of E-Waste

Yunke Mai, Assistant Professor, University of Kentucky, United States
Haoying Sun, Associate Professor, University of Kentucky, United States

We study the first-mile problem in the reverse supply chain of e-waste recycling using an evolutionary game theory framework. Our analysis establishes that utilizing existing retail channels could be generally effective in incentivizing consumer recycling, but such an approach may also have ambiguous effects that regulators should be aware of.

Invited Session

Monday, 08:00 AM - 09:30 AM, Celebration 8	Track: Sustainable Operations Management
Invited Session: Environmentally sustainable operations	
Chair(s): Gokce Esenduran	

115-1452 Does the Focus on Workplace Safety Improve Environmental Performance?

In Joon Noh, Assistant Professor, Penn State University, United States
Suresh Muthulingam, Professor, Penn State University University Park, United States

Monday, 08:00 AM - 09:30 AM

A large body of work has investigated the implications of OSHA inspections from economic and safety perspectives. But hardly any research explores the impact of OSHA inspections from an environmental perspective. We seek to bridge this gap by examining whether OSHA inspections affect the toxic releases of manufacturing facilities.

115-2018 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, Associate Professor, Kenan-Flagler Business School, United States
Jayashankar Swaminathan, Professor, University of North Carolina Chapel Hill, United States
Rahul Roy, Student, Kenan-Flagler Business School, United States

For this project, we collaborated with one of the largest online solar marketplaces in the U.S. that connects potential solar panel adopters with installers. We empirically study how the review dispersion affects a seller's activity level and the number of matches in an online marketplace with active sellers.

115-2152 Quality Costs of Fuel Efficiency Improvements in the Automobile Industry

Donggyu Jeon, Student, Indiana University Bloomington, United States
George Ball, Associate Professor, Indiana University Bloomington, United States
Gil Souza, Professor, University of Tennessee Knoxville, United States


In this study, we empirically examine the impact of firms' efforts to improve the environmental performance of a vehicle (measured as MPG) on product quality (measured as the number of quality complaints reported) in the automotive industry. We provide strategic and operational managerial implications of improving sustainability on product quality.

115-0498 Delivery Terms for Voluntary Carbon Offsets

Vishal Agrawal, Associate Professor, Georgetown University, United States
Gokce Esenduran, Assistant Professor, Purdue University, United States
Safak Yucel, Assistant Professor, Georgetown University, United States

A company may purchase carbon offsets under two delivery terms: Under prompt delivery, the seller has already generated offsets. Under forward delivery, the seller has not yet invested in a project. We answer which delivery term a buyer should prefer and which one leads to a higher environmental benefit.

Invited Session

Monday, 08:00 AM - 09:30 AM, Celebration 9	Track: Supply Chain Management
 Invited Session: Informational Issues in Supply Chains	
Chair(s): Woonam Hwang	

115-0483 Partial demand information exchange between a retailer and an online platform

Eunji Lee, Student, Technische Universität München, Germany
Christopher Tang, Professor, University of California Los Angeles, United States
Stefan Minner, Professor, Technische Universität München, Germany

We investigate a seller conducting operations through her own channel and an online platform. While the seller observes her own demand through both channels, the platform has other competing sellers' demand information. We study the agents' incentive to exchange private and partial demand information and reduce forecast errors.

115-0505 Trade Credit or Wholesale Price? The Role of Information Sharing in Supply Chain Financing

Erbao Cao, Professor, Hunan university, China
Guangwen Kong, Associate Professor, Temple University, United States
Abhishek Roy, Assistant Professor, Temple University, United States
Jiamuyan Xie, Student, Hunan university, China

By extending trade credit to a capital-constrained retailer, a manufacturer can improve the financial performance of both firms. However, the existing literature assumes symmetric demand information, although in practice, the retailer often possesses private information. We examine the manufacturer's trade credit and the retailer's information-sharing decisions under such information asymmetry.

115-0616 Is Your Price Personalized? Alleviating Customer Concerns with Inventory Availability Information

Arian Afkahi, Assistant Professor, Joseph M. Katz Graduate School of Business, United States
Qian Zhang, Student, Katz Graduate School of Business, United States

Customers are concerned about personalized pricing (PP) tactics. Using a Bayesian persuasion framework, we study whether and under what conditions price can signal such PP implementation to customers. We also investigate whether disclosing inventory availability information can alleviate customer concerns and benefit the firm and customers.

115-1213 Blackwell Sufficiency of Assortments

Dorothee Honhon, Associate Professor, University of Texas Dallas, United States
Bharadwaj Kadiyala, Assistant Professor, University of Utah, United States
Canan Ulu, Associate Professor, Georgetown University, United States

Motivated by settings in which a consumer's consideration set (i.e., the subset of products considered prior to purchase) is observable, we investigate how a decision maker should offer product assortments to maximize profit while also learn about consumer preferences. We characterize the optimal assortment using the notion of (Blackwell) sufficiency.

Monday, 08:00 AM - 09:30 AM

Invited Session

10	Monday, 08:00 AM - 09:30 AM, Celebration 10	Track: Supply Chain Management
	Invited Session: Industry-inspired New supply chain models	
	Chair(s): tianhu deng	

115-1941 Blockchain Applications in Maritime Supply Chain

Ling Li, Professor, Old Dominion University, United States
Li Da Xu, Professor, Old Dominion University, United States

Blockchain is a new and disruptive technology that is useful for transforming the maritime and shipping business process. Blockchain has great potential in helping shippers, carriers, brokers, and other stakeholders in the shipping supply chain track related paperwork with tamper-resistant digital records and cargos.

115-0442 Increasing Supply Chain Resilience through Bill-of-Materials Flexibility in an Assemble-to-Order System

Tianhu Deng, Associate Professor, Tsinghua University, China
Feiyu Shao, Student, Tsinghua University, China
Jing-Sheng Song, Professor, Duke University Durham, United States
Yi Yu, Student, Tsinghua University, China

We study an Assemble-to-Order manufacturer's inventory control under component substitution. When a product cannot be assembled due to the shortage of a component, a common industrial practice is to replace the missing component with a substitute component. We aim to identify the optimal substitution policy

115-0447 Dynamic Inventory Management under Total Business Volume Commitment Contracts

Tong Wang, Associate Professor, Shanghai Jiao Tong University, China
Quan Yuan, Associate Professor, Zhejiang University, China
Sean Zhou, Professor, Chinese Univ of Hong Kong, Hong Kong, China

We study a joint inventory management problem for multiple products under a minimum total business volume commitment contract over a finite planning horizon. We characterize the structure of the optimal policy for the model with two products and also provide effective heuristics for general cases.

115-1362 Inventory and Supply Chain Management with Auto-Delivery Subscription

Shi Chen, Associate Professor, Michael G. Foster School of Business, United States
Kamran Moinzadeh, Professor, University of Washington, United States
Junfei Lei, Student, University of Washington, United States

Auto-delivery is a subscription model in supply chains, whereby a supplier delivers products to a buyer (or multiple buyers) according to the buyer's choice of a constant shipping quantity to be delivered at prescheduled dates. The buyer enjoys a discount for the auto-delivery orders and free cancellation.

Invited Session

11	Monday, 08:00 AM - 09:30 AM, Celebration 11	Track: Social Media and Web 2.0
	Invited Session: Cryptocurrency, Healthcare, and Fairness	
	Chair(s): Xiang(Shawn) Wan	

115-0612 Observational Learning in Cryptocurrency Trading

Ye Liu, Student, University of Washington, United States
Mingwen Yang, Assistant Professor, University of Washington, United States
Matthias Pelster, Professor, Paderborn University, Germany

Social media, with a wide range of individual information providers, also attracts many discussions regarding cryptocurrencies. In this paper, we investigate whether cryptocurrency adoption is influenced by information received from social media and networks, and---if so---what specific factors affect one's adoption choice of cryptocurrencies.

115-1411 Group Fairness in Online Platform's Assortment Planning

Shuzhang Cai, Student, University of Texas at Dallas, United States
Shaojie Tang, Associate Professor, The University of Texas at Dallas, United States

Recently there raises the concern about fairness regarding recommendation systems, e.g., disadvantaged items receive little exposure due to the unpopularity. We present a framework that has group fairness constraints and keeps maximizing the clickthrough rate as the platform's objective. Our approach provides a series of near-optimal solutions within polynomial time.

115-1474 Novel Pooling Strategies for Genetic Testing, with Application to Newborn Screening

Hussein El Hajj, Assistant Professor, Santa Clara University, United States
Douglas Bish, Professor, University of Alabama, United States
Ebru Bish, Professor, University of Alabama, United States

Cystic fibrosis is a life-threatening genetic disorder. Most screening processes start with a biomarker test, followed by more expensive and accurate genetic testing. To overcome the cost barriers, we explore a novel multi-panel pooling problem, that involves selection and partition of variants for screening, and selection of pool sizes.

Monday, 08:00 AM - 09:30 AM

115-1830 Relationship Between Patient Satisfaction and Physician Overprescription: Evidence from Online Reviews and CMS Claim Data

Junjie Luo, Student, School of Medicine, United States
Aishwarya Shukla, Assistant Professor, Beedie School of Business, Canada
Jie Mein Goh, Associate Professor, Beedie School of Business, Canada
Guodong "Gordon" Gao, Professor, Carey Business School, United States
Ritu Agarwal, Professor, Carey Business School, United States

Physicians with complaisant personalities might be reluctant to deny a patient's unreasonable overprescription requests for substances such as opioids. We use online physician reviews to infer the physicians' personality and use CMS claim data to detect overprescription behaviors. We study the effects of physician personality on overprescription.

Invited Session

12	Monday, 08:00 AM - 09:30 AM, Celebration 12	Track: Humanitarian Operations and Crisis Management
	Invited Session: Logistics capacity building in humanitarian operations and crisis management	
	Chair(s): Marianne Jahre	

115-0449 The Impact of Postponement and Stock Sharing Strategies on Prepositioned Relief Stocks

Lamia Gulnur Kasap-Simsek, Student, Ozyegin University, Turkey
Burcu Balcik, Associate Professor, Ozyegin University, Turkey

We evaluate effects of postponement and stock-sharing practices among humanitarian agencies that preposition supplies in a depot using a Monte-Carlo simulation model. We test our approach using historical hurricane scenarios from the Caribbean region and data from agencies. We demonstrate significant savings in fill rate, response time, and inventory utilization.

115-0976 Artificial Intelligence in the Service of Humanitarian Operations

Kiran Busch, Student, Kühne Logistics University, Germany
Olaf Steenbergen, Senior Data Analyst, International Federation of Red Cross and Red Crescent Societies, Switzerland
Maria Besiou, Professor, Kuehne Logistics University, Germany
Henrik Leopold, Associate Professor, Kühne Logistics University, Germany

In this paper, we build on a dataset from the International Federation of Red Cross and Red Crescent Societies and use machine-learning models to predict required budgets for disaster response operations. We then employ techniques from the field of explainable-artificial-intelligence to identify the factors that influence the budget appeal.

115-1912 International Humanitarian Organizations' Perspectives on Localization Efforts

Lina Frennesson, Student, Lund University, Sweden
JOAKIM KEMBRO, Associate Professor, Lund University, Sweden
Harwin De Vries, Assistant Professor, Rotterdam School of Management, Netherlands
Marianne Jahre, Professor, BI Norwegian Business School, Norway
Luk Van Wassenhove, Professor, INSEAD, France

The humanitarian sector has formulated a collective strategic intent to localize, aiming at empowering national and local actors in humanitarian aid. However, so far, humanitarian organizations have failed to turn intent into implementation. To suggest remedies, we investigate drivers and barriers for humanitarian organizations to localize their logistics preparedness capacities.

115-1212 A quantitative approach to partner selection in humanitarian-business partnerships

Ali Ghavamifar, Student, University of Tehran, Iran (Islamic Republic of)
Mohammad Moshtari, Associate Professor, Tampere University, Finland

Considering both the benefits and risks of humanitarian-business partnerships, a quantitative approach is proposed to facilitate partner selection for NGOs and businesses. The proposed method adopts Best Worst Method (a multi-criteria decision-making method) and uses interview data from ten partnerships among international NGOs and businesses.

115-1918 Hurricane Shelter Opening: Intelligent Decision Support System using DRL

Attila Hertelendy, Associate Professor, Florida International University, United States
Min Chen, Associate Professor, Florida International University, United States
Karlene Cousins, Professor, Florida International University, United States

Prior to a hurricane's arrival, a critical strategic decision that emergency managers face is when to open which shelters to host vulnerable populations. Recent advances in Artificial Intelligence (AI) such as Deep Reinforcement Learning (DRL) can be introduced to optimize shelter opening strategies during a

Invited Session

13	Monday, 08:00 AM - 09:30 AM, Celebration 13	Track: Teaching/Pedagogy in POM
	Invited Session: Tutorial: Exploring Ways to Make Your Operations Management Course More Exciting	
	Chair(s): Barry Render Jay Heizer	

115-1890 Exploring Ways to Make Your Operations Management Course More Exciting

Barry Render, Emeritus Professor, Rollins College, United States
jay heizer, Emeritus Professor, Ops Mgt, United States

Monday, 08:00 AM - 09:30 AM

Charles Munson, Professor, Washington State University Pullman, United States

This interactive tutorial session features leading OM text authors with 140 years of combined classroom experience. They will discuss teaching techniques including integrating videos, data analytics, their blog, podcasts, and software to present a more real-world course for students. Attendees will be invited to share and discuss their own approaches.

Invited Session

14	Monday, 08:00 AM - 09:30 AM, Celebration 14	Track: Service Operations
	Invited Session: Diversity, Equity, and Inclusion research in Operations Management	
	Chair(s): Kejia Hu Lu Kong	

115-1961 Managing The Personalized Order-Holding Problem in Online Retailing

Shouchang Chen, Assistant Professor, Zhejiang University, China

Yun Fong Lim, Associate Professor, Singapore Management University, Singapore

Zhenzhen Yan, Assistant Professor, Nanyang Technological University, Singapore

A significant percentage of online consumers place consecutive orders within a short duration. To reduce the total order arrangement cost, an online retailer may consolidate consecutive orders from the same consumer. We investigate how long the retailer should hold the consumer's orders before sending them to a third-party logistics provider.

115-1925 How Women Promote Greater Social Responsibility on Social Media

Xiang Li, Student, TianJin University, China

Kejia Hu, Assistant Professor, Vanderbilt University, United States

Huibin Du, Professor, Tianjin University, China

As social media has become a primary vehicle for communication, it has significant potential to enable the spread of social responsibility in response to pressing issues. We are interested in which participants in terms of gender have the highest likelihood of driving increased social responsibility via social media.

115-2153 When Harry Won't Meet Sally: Gender Disparity in Online Learning Platforms

Zhihan (Helen) Wang, Student, University of Michigan, Ann Arbor, United States

Jun Li, Associate Professor, Ross School of Business, United States

Andrew Wu, Assistant Professor, Ross School of Business, United States

Utilizing a large-scale, interaction-level dataset on Coursera, we uncover a noted gender disparity in learners' interaction with the teaching staff. Also, we show that receiving staff response in forum leads to significant improvement in course passing rate. Our results provide direct managerial implications to platform managers and course providers

115-1921 Gender and Race Differences in Online Education in the U.S

Lu Kong, Assistant Professor, University of South Florida, United States

Kejia Hu, Assistant Professor, Vanderbilt University, United States

Although most U.S. universities moved back to in-person teaching now, higher education stills shows a trend of moving online. In this paper, we explore the influence of the instructors' demographic characteristics on education quality. We find that gender and race together have a significant impact on teaching evaluations.

Invited Session

15	Monday, 08:00 AM - 09:30 AM, Celebration 15	Track: Information Systems and Operations Management
	Invited Session: Economics of IS and OM	
	Chair(s): Lin Hao	

115-1286 Contract Design for Cloud Services with Privacy and Security Concerns

Hongyan Xu, Professor, Chongqing University, China

Ying Wang, Student, Chongqing University, China

Mingrui Zhang, Student, University of Washington, United States

Protecting cloud data privacy and security is the shared responsibility of clients and cloud service providers. With data privacy and security have attracted more and more attention over the last decade, our research concentrates on the optimal contract design, including the pricing, liability and data licensing in cloud services.

115-1308 Return-Inducing Crowdfunding and Newsvendor

Shi Chen, Associate Professor, Michael G. Foster School of Business, United States

Kamran Moynzadeh, Professor, University of Washington, United States

Haonan Zhang, Student, University of Washington, United States

This paper investigates how firms advertise financial returns that affect fundraising and production under different fundraising (Keep-it-all and All-or-Nothing) and return-allocation mechanisms (debt and profit sharing). We prescribe analytical insights for the firms to holistically make fundraising and production decision that leads to optimal profit.

115-1758 Product Rankings, AI Pricing Algorithms and Collusion

Liying Qiu, Student, Carnegie Mellon University, United States

Monday, 08:00 AM - 09:30 AM

Yan Huang, Assistant Professor, Carnegie Mellon University, United States
Param Singh, Professor, Carnegie Mellon University, United States

We investigate the impact of ranking systems, a common feature of online marketplaces, on algorithmic collusion. We show experimentally and analytically that personalization or utility-based ranking will facilitate algorithmic collusion significantly. Our results show that when consumers share more data, they are worse-off even without price discrimination.

115-1780 Algorithms, Artificial Intelligence and Simple Rule-Based Pricing

Qiaochu Wang, Student, Carnegie Mellon University, United States
Yan Huang, Assistant Professor, Carnegie Mellon University, United States
Param Singh, Professor, Carnegie Mellon University, United States

Automated pricing comes in two forms - rule-based and artificial intelligence (AI) powered algorithms. Through extensive pricing experiments in a workhorse oligopoly model of repeated price competition, we show that a firm's best response to its competitor's AI powered algorithms is simple rule-based algorithm.

Invited Session

16	Monday, 08:00 AM - 09:30 AM, Coral Spring 1	Track: Emerging Topics in Operations Management
	Invited Session: Social and Environmentally Relevant Operations	
	Chair(s): Jayashankar Swaminathan Jayashankar Swaminathan	

115-0283 Optimal Investment of Farming Mechanization under Limited Budget

Ying Zhang, Assistant Professor, Clemson University, United States
Jayashankar Swaminathan, Professor, University of North Carolina Chapel Hill, United States

We study a farmer's optimal investment policy for a single crop under budget and land size constraints. Using a Cobb-Douglas function to model the crop production, we show that the optimal investment policy is a threshold-type policy where the farmer should invest up to the optimal investment threshold.

115-1700 The state of supplier diversity initiatives for large corporations

Gemma Berenguer, Assistant Professor, Universidad Carlos III de Madrid, Spain
Anna Saez De Tejada Cuenca, Assistant Professor, IESE Business School, Spain

Using data from the 2020 Global Fortune 500 companies, we study the extent to which supplier diversity practices are widespread, and whether some firm characteristics make companies more likely to have supplier diversity initiatives. The two types of initiatives are supplier diversity programs and supplier code of conduct diversity policies.

115-1706 An Optimization Approach to Global Health Financing

Iva Rashkova, Assistant Professor, Washington University, United States

Global health financing to both public and private providers has been under scrutiny in recent years. We consider the financing channels and operational levers available to a financial donor. For a fixed budget available, we optimize the donor's budget allocation decision across channels based on time-horizon and health outcomes.

Invited Session

17	Monday, 08:00 AM - 09:30 AM, Coral Spring 2	Track: Emerging Topics in Operations Management
	Invited Session: Emerging Topics in Operations Management	
	Chair(s): Sining Song	

115-0489 Cardless and Cashless Future: The Rise of Mobile Payment

Kejia Hu, Assistant Professor, Vanderbilt University, United States
Shuai Ling, Associate Professor, Tianjin University, China
Shoufeng Ma, Professor, Tianjin University, China
Sriram Venkataraman, Associate Professor, University of South Carolina, United States

This study aims to investigate, with real-world transaction data, how consumers migrate from existing channels and adopt Mobile Payment under a multichannel payment system. Our results indicate that the introduction of Mobile Payment draws consumers away from incumbent channels and that promotion magnifies this migration flow.

115-0604 Building Resilience in High Customer-Contact Services in the Post-Covid Era: A Study of Restaurants

Hongli Ye, Student, Clemson University, United States
Aleda Roth, Professor, Clemson University, United States
Ying Zhang, Assistant Professor, Clemson University, United States

Closures and limited access adversely impacted customer-facing contact services during the early phases of COVID. Using experiments, we ask: Will service operations' strategic choices to adopt CDC guidelines motivate customers' return to in-restaurant dining and what are the underlying mechanisms that contribute to various customer reactions to CDC guidelines.

115-0903 Better than Cash? Merchant Payment Services and Mobile Network Operator Performance

Sining Song, Assistant Professor, University of Tennessee Knoxville, United States
Fan Zou, Assistant Professor, Florida State University, United States

Monday, 08:00 AM - 09:30 AM

Yan Dong, Professor, University of South Carolina, United States

We examine the role of mobile merchant payment (MMP) as a unique two-sided market service in the financial growth and inclusion effect of mobile network operators (MNOs). We further identify three bundling strategies for MNOs to increase MMP value when pricing mechanisms are limited for markets with financially-derived users.

115-1470 On the Frontline: Engaging Health Workers to Improve the Last-mile Availability of Health Commodities in

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

We examine factors that affect the effectiveness of health worker training using the staggered roll-out of a public health supply chain initiative launched in Indonesia called The MyChoice Project. The initiative was launched in 2016 with the objective of mitigating the last-mile stock-outs of contraceptive methods in Indonesia.

Invited Session

18	Monday, 08:00 AM - 09:30 AM, Blue Spring 1	Track: Supply Chain Risk Management
	Invited Session: Supply Chain Risk Management: Sourcing, SC Analytics, SC Finance, and Environmental Issues	
Chair(s): Yao Zhao		

115-0073 The Effect of Supply Uncertainty on Dynamic Procurement and Pricing Strategies under Lost Sales

Qi Feng, Professor, Purdue University, United States

Lei Li, Student, Purdue University, United States

George Shanthikumar, Professor, Purdue University, United States

We consider a joint inventory-pricing control problem under lost sales and uncertain supply, an important but challenging problem because of non-concave value-to-go functions. We apply the notions of stochastic functions to analyze a class of intuitively appealing policies that leads to rich insights into this problem.

115-0216 Supply Chain Analytics: from problem solving to problem discovery

Yao Zhao, Professor, Rutgers University, United States

I will showcase descriptive and diagnostic analytics for data driven problem discovery in supply chain and risk management.

115-1050 SMEs' Equality through Trade Credit Distribution

Wenting Li, Student, Arizona State University, United States

Violet (Xinying) Chen, Assistant Professor, Stevens Institute of Technology, United States

Rui Yin, Associate Professor, Arizona State University Tempe, United States

Over 95% of companies in supply chains are small/medium-sized enterprises (SMEs) whose survival and development are crucial for stabilizing the whole chain. Prior research has studied the survival aspect. We explore SMEs' development and analyze trade credit distribution with the fair allocation of development opportunities as a primary goal.

115-1172 Carbon Disclosure & Emission Outsourcing

Yilin Shi, Student, The Chinese University of Hong Kong, China

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

Jing Wu, Associate Professor, The Chinese University of Hong Kong, Hong Kong, China

We study the effect of carbon disclosure on carbon emissions of different sources. Firms who make carbon disclosure have less own emissions, but such reduction is at the cost of increasing emissions from upstream suppliers. Mandatory environmental reporting regulations help mitigate such carbon transferring.

Invited Session

19	Monday, 08:00 AM - 09:30 AM, Blue Spring 2	Track: Empirical Research in Operations Management
	Invited Session: Empirical Research in Operations-Finance Interface	
Chair(s): Hyun Seok (Huck) Lee Youngsoo Kim		

115-0096 Nonfungible tokens: how to match supply with demand in the metaverse

Dmitrii Sumkin, Post Doc/Researcher, University of Illinois Urbana-Champaign, United States

Pavel Kireyev, Assistant Professor, INSEAD, France

Serguei Netessine, Professor, The Wharton School, United States

We study the supply design in NFT markets using transactional data from Decentraland marketplace. We build a structural model to quantify the trade-off between price and liquidity given the non-linearity in the expected gain from reselling. We find that with "token sales" policy, platform revenue may increase by 8.3%.

115-0182 The impact of financial distress on forecasting behavior in supply chains

Marco Ratusny, Student, Technical University of Munich, Germany

David Wuttke, Assistant Professor, Technische Universität München, Germany

Max Schiffer, Associate Professor, Technical University of Munich, Germany

We demonstrate econometrically that financial distress can drive more random forecasting behavior. The increased randomness, in turn, can lead to worse performance.

Monday, 08:00 AM - 09:30 AM

115-0440 The Impact of COVID-19 on Supply Chain Credit Risk

Senay Agca, Associate Professor, George Washington University, United States

John Birge, Professor, University of Chicago, United States

Ziang Wang, Assistant Professor, PolyU, Hong Kong, China

Jing Wu, Associate Professor, The Chinese University of Hong Kong, Hong Kong, China

We examine multi-regional supply chain risk by focusing on credit risk measured by CDS spreads and US-China supply chain networks. We find that local risks propagate through global supply chains to other regions. We further discuss the factors intensifying or mitigating the risk propagation.

115-1341 Buyer's Bankruptcy Risk, Sourcing Strategy, and Firm Value: Evidence from the Supplier Protection Act

Karca Aral, Assistant Professor, Syracuse University, United States

Erasmus Giambona, Professor, Syracuse University, United States

Ye Wang, Associate Professor, University of International Business and Economics, China

We study distressed buyers' sourcing strategy exploiting a quasi-natural experimental setting provided by the Supplier Protection Act. Our results suggest that right-sizing the supply base can be critical for buyers near financial distress, and implementing policies to engage and protect suppliers can be the way out of distress.

Invited Session

20	Monday, 08:00 AM - 09:30 AM, Rainbow Spring 1	Track: Empirical Research in Operations Management
	Invited Session: Healthcare and Public Policy	
	Chair(s): Mei Li	

115-0512 Firms' Engagement in Climate Change Policy: A Typology

Zhenzhen Yan, Assistant Professor, Idaho State University, United States

Sriram Narayanan, Professor, Michigan State University, United States

Tobias Schoenherr, Professor, Michigan State University, United States

We propose and validate a typology for firms' engagement strategies by performing text analysis on firms' self-disclosed information. Our findings reveal the multiplicity of public policy implications, responding to the call for more investigation on policy issues from an operations and supply chain management perspective.

115-0315 What makes product defects toxic?

Fereshteh Vahidi, Student, university of Geneva, Switzerland

Marcel Paulssen, Professor, university of Geneva, Switzerland

Ramesh Roshan Das Guru, Student, Indian Institute of Management Bodh Gaya, India

This study aims to generate insights into how characteristics of product defects (i.e., severity of the defect, hard vs. soft defect and product age when the defect occurs) trigger constructive customer reactions such as complaining and destructive customer reactions such as boycotting mediated through customer attributions of responsibility and stability.

115-1698 Empirical Investigation of the Valuation Premium Effect of Target Firms' Operations Capability in M&As

Mehdi Nezami, Assistant Professor, Bradley University, United States

Sara Rezaee Vessal, Assistant Professor, ESSEC Business School, France

Ali Shantia, Associate Professor, Toulouse Business School, France

Valuation of target firms in M&As has far-reaching implications for shareholder wealth. We investigate how a target's operations capability affects the valuation premiums it receives from the acquiring firm in an M&A. We find that target firms' operations capability positively affects their M&A valuation premiums.

115-1805 Doing Well by Doing Good or Doing Good Because of Doing Well?

Mei Li, Associate Professor, University of Oklahoma, United States

John Ni, Assistant Professor, Miami University, United States

In this study, we investigate hospitals in the United States that offer a varying extent of indigent care services. We explore the interplay between hospital profit and indigent care services. Further, we examine the effects of market competition in moderating the relationship.

Invited Session

21	Monday, 08:00 AM - 09:30 AM, Rainbow Spring 2	Track: Operational Excellence
	Invited Session: Panel: Business Process Management, Process Redesign and Improvement	
	Chair(s): Jamison Kovach	

115-1727 Panel: Business Process Management, Process Redesign and Improvement

Jamison Kovach, Professor, University of Houston, United States

Sue Conger, Emeritus Professor, University of Dallas, United States

Lawrence Fredendall, Professor, Clemson University, United States

Matthew Hu, Lecturer, University of Houston, American Samoa

Monday, 08:00 AM - 09:30 AM

While BPM encompasses many tools/methods for business process change, it would be more effective as a comprehensive discipline. During this session, expert panelists will share insights regarding how to integrate different approaches to business process change that are often used in silos to create a consolidated synthesis of modern BPM.

Invited Session

22	Monday, 08:00 AM - 09:30 AM, Barrel Spring 1	Track: POM-Marketing Interface
	Invited Session: Frontiers in Revenue Management and Assortment Optimization	
	Chair(s): Zhen Chen Heng Zhang	

115-0212 Assortment Optimization with Multi-Item Basket Purchase under the Multivariate MNL Model.

Chengyi Lyu, Student, University of Colorado Boulder, United States
Stefanus Jasin, Associate Professor, University of Michigan, United States
Sajjad Najafi, Assistant Professor, Hec Paris, France
Huanan Zhang, Assistant Professor, University of Colorado Boulder, United States

We incorporate customer's multi-item purchase behavior into the assortment optimization problem. We consider both the uncapacitated and capacitated assortment problems under the so-called Multivariate MNL model. We show the structure of the optimal assortment and develop FPTAS for several variants of (capacitated and uncapacitated) assortment problems under MVMNL.

115-0888 Assortment optimization with Bulk Returns

Sahika Sahan, Student, Washington University in St. Louis, United States
Jacob Feldman, Associate Professor, Washington University St Louis, United States

We consider a two stage customer choice model in which customers first choose a subset of the offered products to order, before trying out each ordered product and ultimately purchasing their most preferred, while returning the rest. We consider the assortment optimization problem under this nuanced picture of choice behavior.

115-0896 Multi-Objective Assortment Optimization: Profit, Risk, Customer Utility, and Beyond

Zhen Chen, Student, Arizona State University, United States
Heng Zhang, Assistant Professor, Arizona State University, United States
Hongmin Li, Professor, Arizona State University Tempe, United States
Scott Webster, Professor, Arizona State University Tempe, United States

We study assortment optimization with a linear combination of convex functions of a purchase-probability-weighted sum as the objective. Despite the nonlinearity of the problem, we show that one can recast it into a purchase-probability-weighted sum of pseudo-revenues. This reformulation allows us to design efficient algorithms to solve the multi-objective problem.

115-1913 Hybrid Model for Sequential and Simultaneous Choice with Search Cost

Ruxian Wang, Professor, Johns Hopkins University, United States

We combine the classic sequential search model with the famous simultaneous discrete choice model, and develop a unified framework to investigate the impact of search cost on the sequential and simultaneous choice behavior.

Invited Session

23	Monday, 08:00 AM - 09:30 AM, Barrel Spring 2	Track: POM-Marketing Interface
	Invited Session: Research in Service and Health with Evidence from Practice	
	Chair(s): Yuqian Xu Zhanzhi Zheng	

115-0885 The Value of Operational Transparency: Empirical Evidence from the Food Delivery Platform

Zhanzhi Zheng, Student, UNC Kenan-Flagler Business School, United States
Yuqian Xu, Assistant Professor, UNC Chapel Hill, United States
Bradley Staats, Professor, University of North Carolina Chapel Hill, United States

Operational transparency permits service providers to build trust with customers. In July 2021, Zhejiang province published a regulation that online restaurant shows real-time food preparation processes online. Using a novel data-set of restaurants we use this policy change to investigate how operational transparency impacts restaurants' business performance.

115-0900 The Value of Customer-Related Information on Service Platforms: Evidence From a Large Field Experiment

Zhiyu Zeng, Student, Tsinghua University, China
Nicholas Clyde, Student, Washington University in St. Louis, United States
Hengchen Dai, Assistant Professor, University of California Los Angeles, United States
Dennis Zhang, Associate Professor, Washington University in St. Louis, United States
Max Shen, Professor, University of California Berkeley, United States

We conducted a field experiment on a live-streaming platform by providing viewer-related information to treatment broadcasters. Our analyses demonstrate that relative to control broadcasters, treatment broadcasters expanded service capacity via increasing both show frequency and show length. Moreover, our intervention increased service enjoyment. Additional analyses shed light on the mechanisms.

115-1003 Worker Experience and Donor Heterogeneity: The Impact of Charitable Workers on Donors' Blood Donation Decisions

Wilson Lin, Assistant Professor, Santa Clara University, United States

Monday, 08:00 AM - 09:30 AM

Feng (Susan) Lu, Associate Professor, Purdue University, United States

Tianshu Sun, Associate Professor, University of Southern California, United States

How can charitable organizations' staff members be effectively positioned to donate more during their in-person interactions? Using a unique dataset at the nurse-donor interaction level, we analyze the role of nurses' experiences in driving charitable productivity and explore the downstream effects of the donation volume outcome.

115-1004 A Primal-Dual Framework for Online Guaranteed Advertisement Delivery Planning on Streaming TV Platforms

Wenjia Ba, Postdoc, Amazon.com, United States

Justin Ng, Sr. Applied Scientist, Amazon.com, United States

Yining Wang, Amazon Visiting Scholar, Amazon.com, United States

Xi Chen, Amazon Scholar, Amazon.com, United States

We consider the problem of online guaranteed ad delivery in the streaming TV setting. The platform allocates ads to impressions from sequentially arriving users, balancing the delivery and reach objectives. Our proposed method features an efficient optimal greedy method for real-time delivery, theoretical guarantees, and significant improvement in simulations.

115-1390 Value of Autonomous Last-mile Delivery: Evidence from Alibaba

Brian Han, Assistant Professor, University of Illinois at Urbana Champaign, United States

Meng Li, Associate Professor, University of Houston, United States

Yanan Zhang, Student, Shanghai Jiao Tong University, China

Using package-level data from three universities, we estimate the economic impact of autonomous vehicles on consumer behavior and operational efficiency. Using a difference-in-differences approach coupled with matching, we find that compared with self-pickup customers, adopters of autonomous last-mile delivery increased orders by 10% and decreased last-mile delivery time by 5%.

Invited Session

24	Monday, 08:00 AM - 09:30 AM, Rock Spring	Track: POM-Economics Interface
	Invited Session: Consumer-driven operations management	
	Chair(s): Yimin Wang Rui Yin	

115-0077 Strategic Inventories in Competitive Supply Chains under Bargaining

Lucy Chen, Associate Professor, National University of Singapore, Singapore

Weijia Gu, N/A, Thermo Fisher Scientific, China

Qinshen Tang, Assistant Professor, Nanyang Technological University, Singapore

Strategic inventory refers to the inventory held purely out of strategic considerations other than operational reasons. In this paper, we investigate the roles of strategic inventory in a system with two parallel supply chains under both full bargaining and partial bargaining, which differ in whether inventory is a bargaining term.

115-0085 Consumer Profiling with Inventory Rationing

Ke Mao, n.a., Deppon Express, China

Jing Liu, Assistant Professor, Zhejiang University of Finance and Economics, China

Tao Lu, Assistant Professor, University of Connecticut, United States

Ke Fu, Professor, Sun Yat-Sen University, China

We examine a selling firm's inventory decision when the firm engages in consumer profiling and targeted pricing. Consumers decide whether to hide identities; not hiding, a consumer may disclose his/her true valuation to the firm but will have access to the product earlier than others.

115-0339 Selling Professional Products with Expertise Migration Uncertainty

Jane Gu, Associate Professor, University of Connecticut, United States

Pingfan Wang, Student, University of Science and Technology of China, China

Rachel Chen, Professor, University of California Davis, United States

For professional products such as musical instruments and sports gear, a consumer's quality preference is positively associated with her expertise level. Nonetheless, the outcome of professional training is highly uncertain. This paper examines a firm's strategies to sell professional products when consumer expertise migrates with uncertainty.

115-0881 Discrete Choice Model with Habituation

Binghan Kou, Post Doc/Researcher, Arizona State University Tempe, United States

Hongmin Li, Professor, Arizona State University Tempe, United States

In this paper, we explore the optimal price for firms by incorporating the habituation-based willingness-to-pay into a customer choice model. We first investigate the single-product case and extend it to the multiple-product case. We provide the state equilibrium and explore the consumption pattern. Moreover, we simulate and estimate the parameters.

Invited Session

25	Monday, 08:00 AM - 09:30 AM, Regency Ballroom Q	Track: Revenue Management and Pricing
	Invited Session: Emerging Topics in Revenue Management	
	Chair(s): Dmitry Mitrofanov	

Monday, 08:00 AM - 09:30 AM

115-0978 Online Bipartite Matching with Advice: Tight Robustness-Consistency Tradeoffs for the Two-Stage Model

Billy Jin, Student, Cornell University, United States

Will Ma, Assistant Professor, Columbia University, United States

We study two-stage vertex-weighted bipartite matching problem with advice. We evaluate an algorithm by its robustness, which is its performance relative to that of the optimal offline matching, and its consistency, which is its performance relative to that of the advice. We characterize the tight robustness-consistency tradeoff for this problem.

115-1014 Dynamic Pricing with Menu Costs: Approximation Schemes and Applications to Grocery Retail

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

Danny Segev, Professor, Tel Aviv University, Israel

We study a multi-period, multi-product, dynamic pricing problem with price adjustment costs known as menu costs. Our first contribution consists of establishing fundamental hardness results for the dynamic pricing problem of interest. We identify grocery retail as a particular application domain whose distinguishing features allow us to develop an FPTAS.

115-1486 Boundedly Rational Choice with Symmetric Cannibalization

Yi-Chun Chen, Student, UCLA Anderson School of Management, United States

Dmitry Mitrofanov, Assistant Professor, Boston College, United States

We study a random set choice rule where the agents first preselect alternatives which satisfy agents' criteria and then randomly choose the alternative within preselected set of products. The model assumes that agents are boundedly rational and have limited cognitive abilities to precisely evaluate utilities of all the alternatives.

115-1919 Dynamic Population Tracking in Large Service Systems

Morgan Wood, Student, University of North Carolina Chapel Hill, United States

Fernando Bernstein, Professor, Duke University Durham, United States

N. Bora Keskin, Associate Professor, Duke University Durham, United States

Adam Mersereau, Professor, University of North Carolina Chapel Hill, United States

Serhan Ziya, Associate Professor, University of North Carolina Chapel Hill, United States

We develop asymptotically optimal policies to track queue lengths under different cost structures in a setting with inaccurate arrival and departure sensor data. We propose an idleness detection policy and explore the value of queue inspections. Our model is motivated by queue tracking implemented at a large airport.

Invited Session

27	Monday, 08:00 AM - 09:30 AM, Regency Ballroom P	Track: Disruptive Technologies and Operations Management
	Invited Session: Delivery Modes and Automation	
	Chair(s): Varun Gupta	

115-2074 Shipping consolidation with different delivery deadlines and modes: an analytical perspective

Varun Gupta, Associate Professor, University of North Georgia, United States

Shipping costs are a major cost to a company and many logistics service providers (e.g.; 3PL providers) promise significant savings on shipping costs to their customers. We explore how 3PL providers can utilize historical shipping data from their customers to implement shipping consolidation in real-time.

115-1473 Flexibility and automation as antidotes for employee overload? An empirical analysis in digital control rooms

Changyu Men, Student, IESEG School of Management, France

Maud Van den Broeke, Associate Professor, IESEG School of Management, France

Marijn Verschelde, Professor, IESEG School of Management, France

Workload and automation receive increasing attention in light of Industry 5.0. We examine how operators' (over)workload is influenced by their own and their peers' flexibility, and their use of automation. Our empirical analysis builds upon a purposefully constructed operational data set in a digital control room setting.

115-0499 Managing Autonomous Vehicle Technology and Service Level for Ride Sharing

Fei Qin, Associate Professor, Shippensburg University, United States

Saravanan Kuppusamy, Associate 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 stronger under a harsher market environment of the lower consumer AV evaluation than the higher one.

Contributed Session

28	Monday, 08:00 AM - 09:30 AM, Silver Spring 1	Track: Aviation and Transportation Operations
	Contributed Session: Smart Mobility and Sustainability	
	Chair(s): Amir Sadeghi	

115-0282 A Competitive Supply Chain Network Design with Dynamic Modified Stochastic p-Median Problem

Amir Sadeghi, Student, North Carolina State University, United States

Monday, 08:00 AM - 09:30 AM

Robert Handfield, Professor, North Carolina State University, United States

The DMS-p-MP problem incorporates two significant aspects that are not found in the conventional problem. Firstly, it takes into account the unpredictable and time-varying demand. Secondly, it permits the adjustment of facility locations within a specified limit on the number of modifications.

115-2024 Drone for Transportation of Medical Supplies

Abhijeet Kumar, Student, University of North Texas, United States

Vikas Sangana, Student, University of North Texas, United States

In recent years drones or UAVs are occupying more and more space in the package delivery of medicaments. The objective of this study is to review the Medical supplies last-mile distribution to find a cost-efficient solution using a combination of modes of transportation to improve medical supplies availability.

115-1414 The Impacts of Ride-hailing on Car Ownership under Individual Choice Endogeneity

Yuliu Su, Project Manager, Siemens, China

Ying Xu, Assistant Professor, Singapore University of Technology and Design, Singapore

Shih-Fen Cheng, Assistant Professor, Singapore Management University, Singapore

Costas Courcoubetis, Professor, Chinese Univ of Hong Kong (Shenzhen), China

We aim to quantitatively evaluate the impact of ride-hailing on car demand. We adopt an equilibrium choice model to study a heterogeneous population's choices on car ownership and transportation modes. We evaluate how driving costs and platform pricing schemes affect car ownership, platform profits, and environmental impacts.

Contributed Session

29	Monday, 08:00 AM - 09:30 AM, Silver Spring 2	Track: Inventory and Logistics Management
	Contributed Session: Inventory Policy Decisions - 1	
	Chair(s): Alan Pritchard	

115-0841 Inventory model for fixed-life items with trapezoidal demand under credit financing

Bhavin J. Shah, Professor, Indian Institute of Management Indore, India

Arvind Shroff, Assistant Professor, Indian Institute of Management Lucknow, India

An inventory model is proposed for fixed life items with trapezoidal demand when retailer finances its inventory investment through trade credit. Model attempts to capture implications of the rapid growth or decline in demand resulting into lower or higher credit period using time value of money.

115-1811 Is it really optimum? Traditional Inventory Policies Behavior under Competition

Camil Martinez, Professor, University of Los Andes, Colombia

Carlos Erazo, Student, University of Los Andes, Colombia

The study attempts to understand if competition impacts the effectivity of classic inventory models implementations. Does the policy behave differently under different levels of competition? A design of experiments methodology is applied to a pseudo real simulated market to explore results. Preliminary results show that competition impacts bottom line results.

115-2035 Inventory Management and Firm Performance - A Frontier-Based Approach

Jerry Burke, Professor, Dept. of Logistics and SCM, Georgia South, United States

Rahul Nilakantan, Student, Georgia Southern University, United States

The relationship between inventory and firm performance is perplexing. A lean production view sees inventory is waste to minimize. However, lost sales and cascading disruptions can result from too little inventory. We empirically examine effects of inventory resource efficiency and slack on firm financial performance, using a joint estimation approach.

115-1790 Stockout-based Substitution and Fill Rates

Alan Pritchard, Assistant Professor, Texas Tech University, United States

Heidi Celebi, Student, Georgia Southern University, United States

Kevin Sweeney, Associate Professor, Sam Houston State University, United States

Philip Evers, Associate Professor, University of Maryland, United States

Most retailers make their inventory decisions around a desired service level, so it is important to understand how customer substitution behavior can influence different measures of customer service. This study proposes a decision tree approach for predicting realized item and category fill rates.

115-0056 On the Optimality of (s,S) Policies for Managing Capacity, Inventory and Backorders

Melda Ormeci Matoglu, Assistant Professor, University of New Hampshire, United States

John Vande Vate, Professor, Georgia Institute of Technology, United States

We show that, under the assumptions that demand is the overriding source of variability and proportional changeover costs, an (s,S) policy that moves stepwise among the modes minimizes the long-run average cost. Examples illustrate that without these conditions, common assumptions about the optimal switching regions do not hold in general.

Monday, 08:00 AM - 09:30 AM

Invited Session

30	Monday, 08:00 AM - 09:30 AM, Winter Park 49	Track: Product Innovation and Technology Management
	Invited Session: Platforms and Innovations	
	Chair(s): Brian Lee	

115-0020 Artificial Intelligence, Alliances, Drug Innovation

Bowen Lou, Assistant Professor, University of Connecticut, United States

We examine how artificial intelligence (AI) influences R&D alliances. Using a rich dataset on the biopharmaceutical industry, we show that firms with greater AI resources form more R&D alliances and generate more drugs per alliance. Furthermore, we show AI is particularly useful at facilitating inter-organizational knowledge flows in alliances.

115-0021 Impact of Cryptocurrency on Open-Source Software Communities

Brian Lee, Assistant Professor, Pennsylvania State University, United States

Jingchuan Pu, Assistant Professor, University of Florida, United States

We aim to examine the connection between cryptocurrency and open-source software (OSS), both of which stem from egalitarianism. We find that the OSS community is influenced by cryptocurrency market trends due to the attention paid by participants. Our study reveals the impact of cryptocurrencies on open-source innovations.

115-0024 Game for Brainstorm: The Impact of a Badge System on Knowledge Sharing

Lei Wang, Assistant Professor, Penn State University University Park, United States

Yifan Zhang, Assistant Professor, Kennesaw State University, United States

Yi-Jen (Ian) Ho, Assistant Professor, Penn State University University Park, United States

Platforms (i.e., Stack Overflow) have adopted badges to incentivize users to contribute high-quality content. We examine the dynamic impact of the hierarchical badge system from multiple angles, including badge categories, recency, and variety. This research extends our understanding of hierarchical gamification systems and offers insights from a system design perspective.

115-0101 Cloud Adoption, Firm Performance, and Innovation: Evidence from Labor Demand

Wang Jin, Post Doc/Researcher, Stanford Digital Economy Lab, United States

Using novel measures that capture cloud talent acquisition, we show that cloud adoption enhances productivity in US public firms. Further mechanism tests reveal that this effect is most pronounced in R&D intensive industries through lowering R&D expenditure and increase future patents, providing supporting evidence that cloud technology benefits firm innovation.

Contributed Session

31	Monday, 08:00 AM - 09:30 AM, Winter Park 50	Track: Socially Responsible Operations
	Contributed Session: Operations of Non-governmental Organizations	
	Chair(s): Serina Alhaddad	

115-1664 Defining Impact: a Case Study

Ana Rosado Feger, Associate Professor, Ohio University, United States

Grant development and donor recruitment and retention often requires describing the impact of programming. Not-for-profit organizations with diverse portfolios face the challenge of measuring and reporting impact in ways that are meaningful to their donor base or granting agencies. We consider a model for measuring and reporting impact.

115-1968 Growth Barriers Across Social Enterprises in India: A Critical Appraisal

Bhavani Shankar Saripalli, Associate Professor, Indian Institute of Management Indore, India

Vinaysingh Chawan, Assistant Professor, Indian Institute of Management Indore, India

This paper analyzes growth barriers faced by social enterprises working across various sectors in India. Socio-economic conditions during inception, finding and motivating the right beneficiaries, managing finances, recruitment and retention of human resources, and marketing of products have been identified as growth barriers. Suitable solutions have been proposed.

115-1340 Sustainability of Non-Profit UGC Platforms: The Role of Content Creation and Donations

Ziqi Dong, Student, Temple University, United States

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

Subodha Kumar, Professor, Temple University, United States

Content on non-profit user-generated content (UGC) platforms, such as Wikipedia, is generally created and maintained as open-collaboration projects by UGC communities who are also users of these platforms. We formulate a game-theoretical model to discuss the financial sustainability and content generation on non-profit UGC platforms.

115-0406 Enabling Socially Responsible Operations through Developing a Prosperity Scorecard

Serina Al-Haddad, Assistant Professor, Rollins College, United States

Beatriz Canamary, Assistant Professor, Rollins College, United States

Chris Barker, Student, Rollins College, United States

Nicole Kury, Student, Rollins College, United States

Casey Recci, Student, Rollins College, United States

Monday, 08:00 AM - 09:30 AM

This research aims to support the city of Winter Park in developing a Prosperity Scorecard to create a sustainable city through socially responsible operations. It analyzed qualitative and quantitative data related to prosperity, people, and planet. The components of the developed scorecards were: economic development, diversity/equity/inclusion, sustainability/environmental, and livability/quality

Invited Session

34	Monday, 09:45 AM - 11:15 AM, Celebration 1	Track: Retail Operations
	Invited Session: Studies in Managing Retail Consumer Interactions	
	Chair(s): Yuanyuan Ding	

115-0390 Flexible Consumer Return Policies and Rising Clearance Sales in Retailing: Can This Dual Trend Co-Exist?

Mehmet Altug, Associate Professor, George Mason University, United States

We study a two-period price-setting newsvendor problem with clearance pricing. In a store-clearance setting, we show that the retailer will be better off with lenient return policy while offering a lower clearance price when the second-period valuation is above a certain threshold. The same result holds with off-price clearance channel.

115-0929 Designing and Comparing Custom Interventions to Mitigate Product Returns: A Field Experiment Utilizing Clickstream Behavior

Ragip Gurlek, Student, Emory University, United States

Diwas KC, Professor, Emory University, United States

Paolo Letizia, Associate Professor, University of Tennessee, United States

With a series of experiments, we compare the effectiveness of interventions to mitigate e-commerce product returns. We leverage heterogeneity in sequential online browsing behavior by extracting latent characteristics with deep learning algorithms. We quantify user-level causal effects to customize intervention (encouraging virtual try-on, monetary incentive, or green nudge).

115-2011 How Does E-Retailer's Product Return Policy Leniency Influences Customer Satisfaction? Evidence from Walmart Marketplace

Quang (James) Huy Duong, Lecturer, Greenwich Business School, United Kingdom

Li Zhou, Professor, Greenwich Business School, United Kingdom

Tiep Duy Nguyen, Student, Greenwich Business School, United Kingdom

Meng Meng, Senior Lecturer, University of Bath, United Kingdom

This study applies data mining approaches on 13,757 e-retailers on Walmart. The results show the most lenient product return policy across four dimensions (time, monetary, effort and scope) does not lead to higher customer satisfaction, but it is the mix of certain leniency levels across these dimensions that does so.

115-1576 Design of Curated Subscription Services in Retailing: Role of Transparency and Selection Process

Yuanyuan Ding, Student, University of Minnesota, United States

Karen Donohue, Professor, University of Minnesota, United States

Necati Ertekin, Assistant Professor, University of Minnesota, United States

Curated subscription services are gaining traction (e.g., Stitch Fix). While demand for this new business model is increasing, we observe in practice that curated-box retailers use different service designs to offer such services. In this study, we examine the performance of two service design features: collection transparency and selection process.

Invited Session

35	Monday, 09:45 AM - 11:15 AM, Celebration 2	Track: Behavioral Operations Management
	Invited Session: New Topics in Behavioral Operations Management	
	Chair(s): Arunima Chhikara	

115-1973 Variations in Relative Performance Feedback: The Impact on Worker Performance

Aykut Turkoglu, Student, Boston University, United States

Anita Carson, Professor, 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.

115-1543 Navigating the Pressures of a Call Center: A Longitudinal Study

Ahmad Ashkanani, Assistant Professor, Kuwait University, Kuwait

This study examines the relationship between different types of work stressors and their impact on the performance of call center agents. Using longitudinal data and empirical methods, we show that there is a significant interaction between work stressors, which impacts the productivity of servers as measured by their service time.

115-1984 Governing Platform Data Collection Behavior under Data Trading Context? A Tripartite Evolutionary Game Analysis

Jiayi Tao, Student, School of Economics and Management, China

Qin Zhou, Professor, Southeast University, Nanjing, China, China

By constructing a tripartite evolutionary game model consisting of the government, platform and a third-party data intermediary, this study aims to study the governance mechanism to regulate platform's behavior in data collection and its cooperation with a data intermediary through effective fines and reasonable tax policies.

115-1603 Automation or Collaboration? Comparing Machine Learning with Integrated Learning for Demand Planning

Rebekah Brau, Assistant Professor, Brigham Young University, United States

Finnegan McKinley, Student, University of Arkansas - Fayetteville, United States

John Aloysius, Professor, University of Arkansas, United States

Monday, 09:45 AM - 11:15 AM

Enno Siemsen, Professor, University of Wisconsin, United States

Our research compares integrated forecasts (human judgment and algorithms) with unsupervised machine learning. We propose a novel method of integrating the three main components of analytics: technology, people, and processes. We test the components using field data and find the novel method improves on each of the components.

Invited Session

36	Monday, 09:45 AM - 11:15 AM, Celebration 3	Track: Healthcare Operations Management
	Invited Session: Panel: Academia-Industry Collaborations in Research	
	Chair(s): Jonathan Helm Pengyi Shi	

115-2113 Panel: Academia-Industry Collaborations in Research

Jonathan Helm, Associate Professor, Kelley School of Business, United States

Pengyi Shi, Associate Professor, Purdue University, United States

This panel will focus on the experiences of academics collaborating closely with organizations in the healthcare industry. The goal is to have panelists that can discuss how they were able to engage with industry, what were some of the challenges and barriers they encountered and how they overcame them.

Invited Session

39	Monday, 09:45 AM - 11:15 AM, Celebration 6	Track: POM-Finance Interface
	Invited Session: Empirical Research in OM-Finance 2	
	Chair(s): kashish arora Kashish Arora	

115-1391 A Data-Driven Model of a Firm's Operations with Application to Cash Flow Forecasting

kashish arora, Student, Cornell University, United States

In this paper, we propose a generalizable and data-driven model of a firm's operations to disentangle this endogeneity and estimate causal impacts among variables. By estimating our model using quarterly public financial data from S&P's Compustat database for 1990-2020, we obtain several results.

115-1445 The Bullwhip Effect in Servitized Manufacturers

Yimeng Niu, Student, Shanghai Jiao Tong University, China

Shenyang JIANG, Post Doc/Researcher, Tongji University, China

Jing Wu, Associate Professor, The Chinese University of Hong Kong, Hong Kong, China

Zhibin Jiang, Professor, Shanghai Jiao Tong University, China

Through text mining on the 10-K filings of US-listed firms, we develop and validate a measure of manufacturers' business model upgradation to servitization. We provide robust empirical evidence that product-complementing services reduce demand variability and product-substituting services reduce the bullwhip effect.

115-1879 Market power and Robust Supply Chain

kashish arora, Student, Cornell University, United States

Amandeep Singh, Student, The Wharton School, United States

In this paper, we first estimate markups from publicly available compustat data. Then we use supply network data to understand the impact of supply chain metrics on companies market power.

Invited Session

40	Monday, 09:45 AM - 11:15 AM, Celebration 7	Track: Sustainable Operations Management
	Invited Session: Frontiers in Sustainable OM	
	Chair(s): Tim Kraft Vincent (Junhao) Yu	

115-0189 Outcomes of carbon targets: Design and cost implications

Christian Blanco, Assistant Professor, Ohio State University, United States

Oznur Ozdemir, Assistant Professor, Sabanci University, Turkey

Erdinc Akyildirim, Associate Professor, University of Zurich, Turkey

We use ten years of data across 1,283 firms to compare the carbon and cost outcomes of companies that set voluntary carbon targets to those that do not. We provide recommendations on designing carbon targets to increase the likelihood of success.

115-0577 The Effects of CSR Performance and Price on Consumer Purchase Decisions: A Moderated Mediation Analysis

Vincent (Junhao) Yu, Post Doc/Researcher, North Carolina State University, United States

Tim Kraft, Associate Professor, 2801 Founders Dr, United States

Robert Handfield, Professor, North Carolina State University, United States

Rejaul Hasan, ?, Amazon.com, United States

Marguerite Moore, Professor, North Carolina State University, United States

Monday, 09:45 AM - 11:15 AM

We use a controlled experiment in an online purchase context to examine how consumers' willingness to buy is influenced by a retailer's disclosure of a manufacturer's CSR performance. We show that disclosing CSR performance is more challenging (and potentially riskier) with consumers who typically pay a higher price.

115-0598 Media Exposure and Supply Chain Labor Transparency in the Fashion Industry: The Role of Board

Veronica Villena, Associate Professor, Arizona State University, United States

Li Cheng, Assistant Professor, Michigan State University, United States

Understanding of factors driving supply chain transparency, particularly on labor and human rights, is nascent. We recognize media shaming as one such factor, and show that media controversies involving the firm can prompt its supply chain labor transparency, which is further shaped by the diversity and freshness of the board.

115-1064 How Does Flexibility Affect Environmental Performance? Empirical Evidence from the Power Generation Industry

David Drake, Assistant Professor, University of Colorado Boulder, United States

Suresh Muthulingam, Associate Professor, Penn State University University Park, United States

Several CO2 abatement paths alter the flexibility burden placed on the conventional power generation grid. However, the environmental consequences of this flexibility are unexplored. In this study, we examine the environmental impact of flexibility in US power generation, distinguishing between the environmental effects of possessing flexibility and exercising flexibility.

Invited Session

41	Monday, 09:45 AM - 11:15 AM, Celebration 8	Track: Sustainable Operations Management
	Invited Session: Empirical studies in sustainable operations	
	Chair(s): Wayne Fu	

115-0202 Fueling or dousing the flames - Environmental Accidents and Selective Disclosure

Rick Hardcopf, Assistant Professor, Utah State University, United States

Suvrat Dhanorkar, Associate Professor, Penn State University State College, United States

Sarv Devaraj, Professor, University of Notre Dame, United States

Environmental accidents not only damage the natural environment but harm offending firms. Fines and clean-up costs can be expensive and reputational losses cause market devaluation. While firms have limited control over direct costs, reputational losses may be minimized by adjusting stakeholder messaging. This study investigates the messaging adjustments firms make.

115-0254 Good neighbor or good environmentalist? Characteristics of firm-level responses to water stress

Dustin Cole, Assistant Professor, Auburn University, United States

Sriram Narayanan, Professor, Michigan State University, United States

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

We examine the characteristics of firms which have and have not responded to localized water stress by reducing their toxic water emissions. We find firms with a strong track of environmental sustainability have not generally responded to local water stress, while those with a track record of community engagement have.

115-0611 Shareholder Value Effects of Electric Vehicle Announcements

Brian Jacobs, Professor, Pepperdine University, United States

Vinod Singhal, Professor, Georgia Institute of Technology, United States

We study announcements of plans to establish or expand electric vehicle (EV) production in the global automotive industry. We estimate the stock market reaction to both traditional automakers and pure-play EV-makers, as well as EV battery makers, to ascertain whether the market reacts differently to these segments.

115-1322 Customer base environmental disclosure and supplier greenhouse gas emissions

Sining Song, Assistant Professor, University of Tennessee Knoxville, United States

Jie Lian, Student, University of South Carolina, United States

Keith Skowronski, Assistant Professor, University of South Carolina, United States

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

Customers signal commitment to address the challenges of climate change. The signal is credible and effective when it is behind real changes in the carbon performance of the supply chain. This research investigates whether customer base environmental disclosure affects suppliers' greenhouse gas emissions.

Contributed Session

42	Monday, 09:45 AM - 11:15 AM, Celebration 9	Track: Supply Chain Management
	Contributed Session: Pricing and Contract	
	Chair(s): Joyaditya Laik	

115-2062 Dynamic pricing and inspection policies for technology adoption

Benny Mantin, Professor, University of Luxembourg, Luxembourg

Weichun Chen, Assistant Professor, Hainan University, China

Monday, 09:45 AM - 11:15 AM

We study mandated adoption of technologies such that, after some grace period, governments inspect users for compliance. The inspection policy, which may follow either a compliance-based or a violation-based scheme, carries implications on inter-temporal adoption rates, pricing employed by the technology supplier, and interactions between the agents.

115-0720 Impact of a Wholesale Price Contract with penalty on Delivery Failure in a Crowdfunding Campaign.

Joyaditya Laik, Assistant Professor, Bucknell University, United States
Nabita Penmetsa, Assistant Professor, University of Utah, United States

We study the risk of delivery failure in a "successful" crowdfunding campaign through a wholesale price contract in which a supplier offers a wholesale price and a premium to the entrepreneur to not produce. We find a more informative crowdfunding signal can increase a backer's risk of delivery failure.

115-1712 Cost-sharing and revenue-sharing contracts for quality improvement in a supply chain with product recall

Amirhossein Jafarzadeh Ghazi, Student, University of Ontario Institute of Technology, Canada
Salma Karray, Professor, Ontario Tech University, Canada
Nader Azad, Associate Professor, Ontario Tech University, Canada

Quality-related product recalls can be arduous incidents for the entire supply chain. Considering the rising cost of quality, the manufacturer and the retailer may adopt collaborative quality improvement strategies to enhance the supply chain performance. We investigate whether cost- or revenue-sharing contracts can benefit a supply chain with product recall.

115-0814 Forward Contracts, Inventory, and Supply Chain Efficiency

Ayush Gupta, Student, Indian Institute of Management Ahmedabad, India
Benny Mantin, Professor, University of Luxembourg, Luxembourg
Sachin Jayaswal, Professor, Indian Institute of Management Ahmedabad, India

The study finds that forward contracting eliminates the buyer's strategic inventory, relieves double marginalization, and benefits all the players. However, though the buyer never carries inventory if the seller offers a forward contract, the buyer's inventory option almost always hampers the benefit of forward contracting and hurts all the players.

Invited Session

43	Monday, 09:45 AM - 11:15 AM, Celebration 10	Track: Supply Chain Management
	Invited Session: Emerging Topics in Supply Chains	
	Chair(s): Xiajun Pan Zhechao Yang	

115-1181 Retail Category Management with Slotting Fees

Yasin Alan, Associate Professor, Vanderbilt University, United States
Mumin Kurtulus, Associate Professor, Vanderbilt University, United States
Alper Nakkas, Assistant Professor, University of Texas Arlington, United States

Slotting fees are lump-sum payments manufacturers make to retailers to secure slots for their products in retailers' assortments. We study the role of slotting fees in a retailer's category management decisions and strategic interactions with national brand manufacturers.

115-1354 Probabilistic Selling for Vertically Differentiated Products in a Supply Chain

Zhechao Yang, Student, University of Florida, United States
Xiajun Pan, Associate Professor, University of Florida, United States

We study probabilistic selling for vertically differentiated products in a supply chain. The supplier or retailer can create a probabilistic product (PP). Capturing consumers' gambling behavior when purchasing the PP, we discover that both the supplier and retailer may prefer the supplier to create the PP.

115-1505 Counterfeiting and Competition on an Online Platform

Ganquan Huang, Student, University of Science and Technology of China, China
Tingliang Huang, Professor, University of Tennessee, Knoxville, United States
Yugang Yu, Professor, University of Science and Technology of China, China

Unethical retailers may sell counterfeit products on a platform. We analyze the incentives for the platform to implement blockchain technology to combat counterfeiting. Price competition among ethical and unethical retailers is considered.

115-1346 Markdown Pricing with Taste Projection of Strategic Consumers

Shengshuo Xu, Student, Ustc, China
Quan Zheng, Associate Professor, University of Science and Technology of China, China

This paper explores the role of taste projection (TP) in markdown pricing with limited capacity. We show that markdown pricing arises although it is never optimal in the rational benchmark. Further, the firm's profit is non-monotonic in capacity and increasing in the degree of TP.

Invited Session

44	Monday, 09:45 AM - 11:15 AM, Celebration 11	Track: Social Media and Web 2.0
	Invited Session: Social Media and Online Markets	
	Chair(s): Jingchuan Pu	

Monday, 09:45 AM - 11:15 AM

115-1094 Understanding Removal Effects in Multi-Touch Attribution

Jun Tao, Data Scientist, Adobe Inc., United States
Qian Chen, Assistant Professor, Penn State University University Park, United States
Lingzhou Xue, Associate Professor, Penn State University University Park, United States
Jim Snyder, -, Adobe Inc., United States
Amirhossein Meisami, -, Adobe Inc., United States

We develop a novel graph-based model for attribution in the multi-channel setting using customer-level path-to-purchase data. Based on the learned graph describing the full relational structure of touches and conversion, we further propose graphical attribution methods that assign proper conversion credit to each type of touchpoint and the corresponding channel

115-1821 Time Series Demand Forecasting with Amazon and Twitter Data

Alex Rudniy, Associate Professor, Drew University, United States

This work describes promising results of the consumer goods demand forecasting. Historical sales data for products sold on Amazon are paired with the corpus of relevant Tweets appeared on Twitter. Data processing and feature engineering are applied to construct a dataset. Multivariate time series analysis is used for forecasting demand.

115-2022 Tie Strength, Network Closure, and Crowdfunding Performance

Ta-Wei (Daniel) Kao, Assistant Professor, University of Michigan - Dearborn, United States
Li Zhang, Student, Michigan State University, United States
Benjamin Shao, Professor, Arizona State University, United States
Thomas Choi, Professor, Arizona State University Tempe, United States

Treating internal tie strength as a multidimensional construct involving relationship intensity and preference similarity between a focal fundraiser and peers, our study explores how tie strength interacts with network closure (i.e., interconnections among peer fundraisers) to determine crowdfunding performance, thereby offering insightful implications for fundraisers to nurture successful projects.

115-0142 Impact of Owner's Business Page Claiming on Customer Evaluation

Jong Youl Lee, Student, University of Rochester, United States
Mikhail Lysyakov, Assistant Professor, University of Rochester, United States
Huaxia Rui, Professor, University of Rochester, United States

More and more customers expect to communicate with local businesses on digital platforms. Platforms associated with local businesses have encouraged business owners to claim their business pages to connect to customers. We examine the impact of owners' business page claiming on customer evaluation using a staggered difference-in-differences design.

115-1166 Responsible IS by Design: A Psychology-Informed Social Connection Recommender System for Mental Health

SIYUAN LIU, Assistant Professor, Penn State University, United States

we propose a Psychology-informed social connection Recommendation framework (PRec) to promote mental health. Offline experiment results on real-world data sets from seven social platforms in both US and China demonstrate a significant performance gain (in recommendation quality and user satisfaction) of METIS over a variety of state-of-the-art baselines.

Invited Session

45	Monday, 09:45 AM - 11:15 AM, Celebration 12	Track: Humanitarian Operations and Crisis Management
	Invited Session: Empirical Research for Humanitarian Operations	
	Chair(s): Eunae Yoo	

115-1157 Humanitarian organizations in the digital sphere: How type of funding predicts inter-organizational cross-references on Twitter

Lea Ruesch, Assistant Professor, IE BUSINESS SCHOOL, Spain
Maria Besiou, Professor, Kuehne Logistics University, Germany
Niels Van Quaquebeke, Professor, Kuehne Logistics University, Germany

Given social media's utility in information diffusion among stakeholders in humanitarian operations, our study investigates the extent to which humanitarian organizations (HOs) cross-reference their information on Twitter. Empirically analyzing dyads among 84 HOs, we find institutionally and privately funded HOs to more actively cross-reference information from the same funding group.

115-1569 Budget allocation in the nonprofit sector: an empirical investigation

Iman Parsa, Post Doc/Researcher, INSEAD, France
Mahyar Eftekhari, Associate Professor, Arizona State University Tempe, United States

Nonprofits are commonly evaluated by financial metrics that highly depend on their budget allocation policies. Using financial data of a large set of nonprofits, we empirically investigate the short- and long-term effects of budget allocation policies on nonprofits' income and social impact.

115-1273 Resilience and Humanitarian Supply Chain

Iana Shaheen, Assistant Professor, University of Arkansas - Fayetteville, United States
Arash Azadegan, Professor, Rutgers University, United States

Humanitarian supply chains face diverse and unique impediments that in preparing for and responding to significant disasters. While much has been written about commercial resilience strategies, few consider resiliency within a humanitarian network. This research explains how different types of supply chain resilience affect efficiency, effectiveness, and equity.

115-0392 Tweet in Unison? Examining Content Coordination and Social Media Engagement during Disasters

Monday, 09:45 AM - 11:15 AM

Changseung (Chang) Yoo, Assistant Professor, McGill University, Canada
Eunae Yoo, Assistant Professor, Indiana University Bloomington, United States
Lu (Lucy) Yan, Associate Professor, Indiana University Bloomington, United States
Alfonso Pedraza, Professor, Indiana University, United States

Disaster relief organizations (DROs) often post social media content via multiple accounts on the same platform. Accounts represent distinct entities (e.g., national headquarters, local branch). Using Twitter data collected in partnership with the Canadian Red Cross, we examine how DROs should coordinate content creation across their accounts to increase engagement.

Contributed Session

46	Monday, 09:45 AM - 11:15 AM, Celebration 13	Track: Teaching/Pedagogy in POM
	Contributed Session: Tutorial: Teaching Operations Management and Analytics (I)	
	Chair(s): Ardavan Asef-Vaziri	

115-0048 New Disaster Recovery Multiplayer Online Game

F. Robert Jacobs, Emeritus Professor, Indiana University Bloomington, United States

Professor Jacobs will discuss a new multiplayer exercise designed to provide practice in managing an inventory of medicine during a large-scale public health emergency. The players act as the inventory manager at a facility that receives, stores, stages and allocates inventory to multiple points where medical product is dispensed.

115-1695 Performing Basic-to-Advanced Statistical Analyses in a "No Code" Interactive Environment

Kevin Potcner, Statistical Scientist, JMP Statistical Discovery, United States

Ross Metusalem, Statistical Scientist, JMP Statistical Discovery, United States

Analyzing data has moved away from "choose a technique to address a specific hypothesis" to "explore data in myriad ways to extract insights". This exploratory approach can be cumbersome for students in a coding environment. A statistical scientist from JMP will demonstrate an interactive "no code" approach to data exploration.

Invited Session

47	Monday, 09:45 AM - 11:15 AM, Celebration 14	Track: Service Operations
	Invited Session: Behavioral Operations Management in Service Industry	
	Chair(s): Meng Li Na Zhang	

115-0430 Simultaneous versus Sequential Bargaining in Multiple Sourcing: Theory and Experiment

Haokun Du, Student, The University of Texas at Dallas, United States

Bin Hu, Associate Professor, Naveen Jindal School of Management, United States

Elena Katok, Professor, University of Texas Dallas, United States

Multiple sourcing (MP) can reduce sourcing cost. We consider unstructured bargaining and two sourcing mechanisms, simultaneous and sequential MP. Theory predicts a de facto sole sourcing in sequential MP and equal quantity division in simultaneous MP. We test our theory in controlled lab experiments and discuss their implications.

115-0923 Sharing Economy Platforms with Reference-Dependent Gig Workers

Na Zhang, Student, University of Florida, United States

Anand Paul, Professor, University of Florida, United States

Liangfei Qiu, Associate Professor, University of Florida, United States

The sharing economy and gig workers have become a major feature in modern economies. The empirical literature shows that gig workers have reference-dependent, loss-averse preference toward wage. To fill the gap between prior theoretical work, we initiate a theoretical study of gig worker's reference-dependent, loss-averse preference in sharing economy platforms.

115-1329 Sell Now or Later? Regret with Price Volatility

Jingjing Weng, Student, Temple University, United States

Yiwei Chen, Assistant Professor, Temple University, United States

Meng Li, Associate Professor, University of Houston, United States

It is paramount for a firm to determine when to sell and how many quantities to sell. In this paper, we employ dynamic programming to investigate a regret minimization firm's problem of allocating a fixed capacity in a dynamic multi-period setting with price volatility.

Invited Session

48	Monday, 09:45 AM - 11:15 AM, Celebration 15	Track: Information Systems and Operations Management
	Invited Session: Platform Strategy and Mechanism Design	
	Chair(s): Yi Gao	

115-0733 A Truthful and Efficient Mechanism for Multi-slot Ad Scheduling with Budget Constraints

Zihong Huang, Student, Carlson School of Management, United States

De Liu, Associate Professor, University of Minnesota, United States

Monday, 09:45 AM - 11:15 AM

Budget constraints are a central feature of real-world keyword auctions. We propose an efficient and truthful mechanism for allocating multiple heterogeneous slots among advertisers with private value and budgets. We present the algorithms for our scheduling approach and discuss broad implications of our results for mechanism, episode level ad scheduling.

115-0924 The Fairy's Magic for Pinocchio's Nose: The Return Policy for Review Manipulation

Xiangjing (Olivia) Chen, Student, Arizona State University, United States
Yi-Jen (Ian) Ho, Assistant Professor, Penn State University University Park, United States
Shengjun Mao, Assistant Professor, The University of Hong Kong, Hong Kong, China

Review manipulation (RM) is pervasive on online platforms. We craft a game-theoretic model to explore platform incentives in inhibiting RM via return policies. We identify a return-manipulation paradox that a platform is more willing to choose the policy that encourages RM. We propose an autonomous scheme to resolve the paradox.

115-1601 The Efficacy of Need-based Attentional Interventions in Educational Crowdfunding

Amin Sabzehzar, Student, Arizona State University, United States
Gordon Burtch, Associate Professor, Boston University, United States
Kevin Hong, Professor, University of Miami, United States
Raghu Santanam, Professor, Arizona State University Tempe, United States

We explore the consequences of attentional interventions from the platform to support disadvantaged student groups. Leveraging data from DonorsChoose.org, we first report evidence that fundraisers benefiting lower-income and minority students receive systematically lesser funding. Subsequently, we examine the causal effect of 'equity-focus' project label.

Invited Session

49	Monday, 09:45 AM - 11:15 AM, Coral Spring 1	Track: Emerging Topics in Operations Management
	Invited Session: Topics in Autonomous Vehicles, Crowdfunding, and Employee Wellbeing	
	Chair(s): Nagarajan Sethuraman	

115-0835 Designing Reward Structure for Crowdfunding Campaigns

Param Pal Singh Chhabra, Assistant Professor, University of Alberta, Canada
Manpreet Hora, Associate Professor, Georgia Institute of Technology, United States
Karthik Ramachandran, Professor, Georgia Institute of Technology, United States

Rewards are crucial for the success of a campaign in reward-based crowdfunding. In this study, we empirically investigate the association between reward structure design and the campaign's performance, and we make recommendations for creators.

115-0493 The Operational and Organizational Impacts of Burnout and Joy in Healthcare

Alison Murphy, Student, University of Minnesota, United States
Rachna Shah, Associate Professor, University of Minnesota, United States

The negative impacts of burnout are well known, and the healthcare industry has begun to focus on increasing joy rather than just minimizing burnout. We develop a measure of joy from work, test it with a field study, and show the impact on operational and organizational outcomes.

115-1251 Models of Autonomous Vehicles in Operations Management

Amin Abbasi Pooya, Student, University of Kansas, United States
Nagarajan Sethuraman, Assistant Professor, University of Kansas, United States
Suman Mallik, Associate Professor, University of Kansas, United States

We present research on modeling operations management issues in autonomous vehicle market. Monopoly environment was modeled using optimization, while market dynamics in competition were analyzed using game theoretical models. Using these models enables us to characterize the equilibrium, analyze its properties, and provide useful results and insights.

Invited Session

50	Monday, 09:45 AM - 11:15 AM, Coral Spring 2	Track: Emerging Topics in Operations Management
	Invited Session: Innovative Operations for Fairness, Transparency and Efficiency	
	Chair(s): Hailong Cui Jingxuan Geng	

115-0093 Human in the Loop Automation: Ride-Hailing With Remote (Tele-) Drivers

Saif Benjaafar, Professor, University of Minnesota, United States
Zicheng Wang, Post Doc/Researcher, University of Minnesota, United States
Xiaotang Yang, Student, University of Minnesota, United States

We examine the impact of tele-driving on the efficiency of ride-hailing (and other on-demand transportation-enabled services). Among our findings, we show that having fewer (tele) drivers than vehicles can surprisingly improve performance (mitigating the wild goose chase phenomenon) or stabilize an otherwise unstable system.

115-0097 Budget disclosure in crowdfunding: information asymmetry and cost transparency

Guangzhi Shang, Associate 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

Monday, 09:45 AM - 11:15 AM

We study how the drastic transparency of disclosing a creator's cost structure in developing a crowdfunding project affects the funding performance.

- 115-0927 An Empirical Analysis of Delay Sensitivity of Customers and Driver Routing Behavior in Grocery Delivery
Hailong Cui, Assistant Professor, University of Minnesota, United States
Na Li, Student, Beijing Institute of Technology, China
Guo Li, Professor, Beijing Institute of Technology, China
Guangwen Kong, Assistant Professor, Temple University, United States

We empirically study the impact of delay sensitivity of customers who order grocery via app and the impact of delivery drivers' routing behaviors on delivery performance. We collect unique panel data sets and use econometric methods to research the implications the online grocer's operational drivers.

- 115-1666 The Impact of the Opportunity Zone Program on Residential Real Estate
Ron Bekkerman, Manager, Cherre, United States
Maxime Cohen, Professor, McGill University, Canada
Xiaoyan Liu, Assistant Professor, Santa Clara University, United States
John Maiden, Manager, Cherre, United States
Dmitry Mitrofanov, Assistant Professor, Boston College, United States

Opportunity zones (OZs) are designated census tracts in which real estate investments can gain tax benefits. We investigate and optimize the OZ selection process, and examine the impact of OZs by exploiting two datasets. Our paper underscores the importance of incorporating fairness in OZ designation to achieve a desirable outcome.

Invited Session

51	Monday, 09:45 AM - 11:15 AM, Blue Spring 1	Track: Supply Chain Risk Management
	Invited Session: Supply Chain Risk and Disruptions Management	
	Chair(s): Mili Mehrotra	

- 115-0760 Operational Disruptions, Firm Risk, and Control Systems
William Schmidt, Assistant Professor, Cornell University, United States
Ananth Raman, Professor, Harvard University, United States

We examine whether implementing and credibly attesting to having effective internal control systems will meaningfully influence the impact of operational disruptions on the firm's risk and market valuation.

- 115-0980 The Role of Real-Time Event Monitoring in Dynamic Response to Disruptions
Shailesh Divey, Post Doc/Researcher, University of Alabama Tuscaloosa, United States
Mert Hakan Hekimoglu, Assistant Professor, Rensselaer Polytechnic Institute, United States
T. Ravichandran, Professor, Rensselaer Polytechnic Institute, United States

This paper investigates a risk-averse firm's investment strategy in real-time event-monitoring technologies coupled with dynamic disruption response decisions. We model a two-stage stochastic program to study this problem where the risk aversion is modeled in the form of a Value-at-Risk (VaR) constraint.

- 115-1365 Supply Chain Resilience in the Face of Production Disruptions
Junfei Lei, Student, University of Washington, United States
Shi Chen, Associate Professor, Michael G. Foster School of Business, United States
Kamran Moynzadeh, Professor, University of Washington, United States

We study a supply chain with one retailer and two suppliers. The two suppliers locate at the two end-points of the Hotelling line, and the pandemic can spread along the line and, thus, induces supply disruption. This paper investigates how safety stock, multi-sourcing, and coordination can improve supply chain Resilience.

- 115-1296 Configuring the future supply chain: A path to flexibility and resilience
Yogendra Singh, Student, University of Exeter, United Kingdom
Okechukwu Okorie, Lecturer, University of Exeter, United Kingdom
Ramesh Subramoniam, Associate Professor, University of Texas Dallas, United States
David Widdifield, Associate Professor, University of Texas at Dallas, United States
Harpreet Singh, Assistant Professor, University of Texas at Dallas, United States

Using a survey and case study based methodology, we find that digitization reduces the impact of supply chain risks; particularly supply, demand, and information risks. This study provides a reference for managerial decision-making to identify and prioritize digital technologies, their applications, factors involved in their implementation, and future business models.

Invited Session

52	Monday, 09:45 AM - 11:15 AM, Blue Spring 2	Track: Empirical Research in Operations Management
	Invited Session: Panel: DEI in Operations Management	
	Chair(s): Kaitlin Wowak Veronica Villena	

Monday, 09:45 AM - 11:15 AM

115-2114 Panel: DEI in Operations Management

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

Veronica Villena, Associate Professor, Arizona State University, United States

This session is centered on Diversity, Equity, and Inclusion (DEI). The session will begin with a panel consisting of leaders who have forwarding DEI initiatives within OM. They will share their experiences and high-level insights on DEI trends and opportunities followed by small group discussions.

Invited Session

54	Monday, 09:45 AM - 11:15 AM, Rainbow Spring 2	Track: Operational Excellence
	Invited Session: Operational Excellence in addressing social challenges	
	Chair(s): Yingru Han	

115-1540 The Opioid Crisis Explained Through the Unanticipated Prescription Opioid Policy Outcomes

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 unabated. This study exposes that restricting the supply of prescription opioids increases adverse outcomes, such as opioid-related hospitalizations and overdose deaths. This unexpected result suggests the need for different policy interventions to change the current trajectory of opioid abuse. New processes, strategies, and tactics are discussed.

115-0119 Improving Drinking Water Access and Equity in Rural 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, Professor, Indiana University, United States

Millions of people lack access to clean drinking water in Sub-Saharan Africa. Building new water projects (e.g., handpumps) helps non-governmental organizations improve access to water in this region. Following our field research in Tigray, Ethiopia, we use optimization to study where to build new water projects in Sub-Saharan Africa.

115-0650 Enhance Fundraising Productivity through Strategic Staffing and Revenue Diversification Strategies

Yingru Han, Student, University of South Carolina, United States

Luv Sharma, Associate Professor, University of South Carolina, United States

Pelin Pekgun, Associate Professor, University of South Carolina, United States

In this study, we intend to study how various revenue diversification strategies and staffing decisions affect fundraising productivity in non-profit organizations. We use panel data from 116 food banks affiliated with Feeding America.

115-1861 Mission vs. Profit: The Interplay Between Social Service Agencies and Private Service Providers

Gulten Busra Karkili, Student, University of Massachusetts Amherst, United States

Senay Solak, Professor, University of Massachusetts Amherst, United States

Subsidy welfare programs typically involve interactions between mission-oriented service agencies and profit-oriented providers. In this paper, we identify funding-based mechanisms for service agencies to incentivize program participation and capacity allocation by private service providers. A provider's decision process is impacted by demand uncertainty, risk factors, and participation decisions of competitors.

Invited Session

55	Monday, 09:45 AM - 11:15 AM, Barrel Spring 1	Track: POM-Marketing Interface
	Invited Session: Frontiers of Applied Game Theory	
	Chair(s): Shubhranshu Singh	

115-0290 Forgetful Consumers and Consumption Tracking

Ying Bao, Assistant Professor, University of Illinois at Urbana Champaign, United States

Peter Landry, Associate Professor, University of Toronto, Canada

Mengze Shi, Professor, Hong Kong University of Science and Technology, Hong Kong, China

We study the market consequences of advances in consumption tracking technologies using a two-period consumption model. We find the availability of consumption tracking often helps consumers at the expense of the firm. Sometimes, it might compel a firm to impose a penalty fee that would not otherwise be viable.

115-0563 When Does a Brand-Influencer Matching AI Backfire?

Jessie Liu, Assistant Professor, Johns Hopkins University, United States

Yi Liu, Assistant Professor, University of Wisconsin-Madison, United States

We consider a social media platform that offers a matching service to match marketers with influencers through Artificial Intelligence (AI) technology. We find that, even if the implementation cost is negligible, it is not always in a platform's best interest to adopt such AI technology or to perfect its AI.

115-1291 Educational Inequality and Reservation Policy in Developing Markets

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

Monday, 09:45 AM - 11:15 AM

This paper investigates educational inequality that arises from low-income students' lack of monetary resources that higher-income students invest in education. We study implications of a reservation policy that aims to reduce inequality by reserving some college seats for students of the disadvantaged group.

Invited Session

56	Monday, 09:45 AM - 11:15 AM, Barrel Spring 2	Track: POM-Marketing Interface
	Invited Session: The Impact of Business Strategies and Government Restrictions	
	Chair(s): Junghee Lee	

115-0204 Does Greater Visibility Benefit Minority Businesses? Evidence from an Online Restaurant Review Platform

Yoonseock Son, Assistant Professor, University of Notre Dame, United States

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

Corey Angst, Associate Professor, University of Notre Dame, United States

We investigate whether and how the number of reviews and reviewer ratings changed for restaurants in New York City after identifying themselves as black-owned. We find that the number of reviews increases, but the average rating decreases. We investigate how various contextual factors and reviewer characteristics impact this relationship.

115-0570 The Impact of Mobile App Upgrades across App Versions

Seoungwoo Lee, Assistant Professor, A.B. Freeman School of Business, United States

Jie Zhang, Professor, University of Maryland - College Park, United States

Michel Wedel, Professor, University of Maryland - College Park, United States

Mobile app developers frequently release upgrades to improve the appeal of an app and user experience and engagement. This study investigates the impact of app upgrades on new users' demand for the app and in-app revenues from existing users, across the free and paid app versions.

115-0860 The Impact of Loosening Firearm Usage Restrictions on Firearm Sales and Public Health-Related Outcomes

Jessica Kim, Assistant Professor, Bocconi University, Italy

Empirical evidence on the impact of firearm usage restrictions on firearm sales is scarce but needed to inform policy. 17 states and DC have loosened firearm usage restrictions between 2010 and 2017. This research estimates the average policy effects on firearm sales and multiple public health-related outcomes.

115-0966 Omnichannel Fulfillment in Grocery Retail

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 examine how the retailer can leverage data to customize locally available fulfillment options while scaling its operations. We find the causal effect of delivery introduction and build and estimate a structural model to estimate the revenue increase from additionally offering delivery.

Invited Session

57	Monday, 09:45 AM - 11:15 AM, Rock Spring	Track: POM-Economics Interface
	Invited Session: Online Platform and E-Business	
	Chair(s): Lina Wang	

115-0243 Retailers and Delivery Platforms: Complements or Substitutes?

Kevin Park, Assistant Professor, University of Dayton, South Korea

Xiaodan Pan, Assistant Professor, Concordia University, Canada

Martin Dresner, Professor, University of Maryland, United States

We analyze how delivery platform partnerships impact retailer and delivery platform sales. We find that delivery platform partnerships have a positive effect on both retailer and delivery platform sales. However, these positive impacts depend on whether the two partners are vertically integrated.

115-0958 The Value of Delivery Platforms on Cross-channel Grocery Retailing

Lina Wang, Assistant Professor, The Pennsylvania State University, United States

Elliot Rabinovich, Professor, Arizona State University Tempe, United States

This study empirically investigates how the adoption of delivery platforms as an additional channel affects brick-and-mortar retailers' store performance based on transaction data from regional retail chains. More importantly, we evaluate how this effect varies depending on local competition and households' preferences.

115-0977 Implementing Algorithmic Recommendations in Retail Operations

Javier Amaya Silva, Student, University of Oxford, United Kingdom

Matthias Holweg, Professor, Oxford University, United Kingdom

In this paper, we examine whether algorithmic technologies can realise improvements when the efficacy of an algorithm is dependent on the level of adherence to its recommendations. We study this problem in the context of inventory record inaccuracy, seeking to minimise mismatches between physical and recorded stock levels.

Monday, 09:45 AM - 11:15 AM

115-1832 Integrating Inventory and Fulfillment Capabilities: The Effects of Omnichannel Distribution

Alan Pritchard, Assistant Professor, Texas Tech University, United States
Xinyi (Kate) Ren, Assistant Professor, Ohio State University, United States
Rafay Ishfaq, Professor, Auburn University, United States
Philip Evers, Associate Professor, University of Maryland, United States

This study examines an omnichannel fulfillment strategy involving fulfilling online orders from brick-and-mortar stores and online fulfillment centers. Using simulation modeling based on a proprietary dataset collected from a north American retailer, we investigate how store managers' decisions to accept or reject an online order affect the overall operational efficiency.

Invited Session

58	Monday, 09:45 AM - 11:15 AM, Regency Ballroom Q	Track: Revenue Management and Pricing
	Invited Session: Recent Advances on Revenue Management with Choice Models	
	Chair(s): Ruxian Wang	

115-0317 Optimizing Risk-Balancing Return under Discrete Choice Models

Hongmin Li, Professor, Arizona State University Tempe, United States
Scott Webster, Professor, Arizona State University Tempe, United States

We examine a firm's pricing decision when managing a broad product line with the goal of optimally balancing the expected return on product investment with the revenue or profit risk associated with uncertain customer choices. We characterize the effects of risk considerations on optimal price decisions.

115-1314 Joint Product Design and Dynamic Assortment Optimization: Integrating Strategic and Tactical Revenue Management

Mengxin Wang, Student, University of California Berkeley, United States
Paat Rusmevichientong, Professor, University of Southern California, United States
Heng Zhang, Assistant Professor, Arizona State University, United States
Max Shen, Professor, University of California Berkeley, United States

We examine a setting where the strategic decision is to choose product designs and the tactical decision involves the dynamic assortment optimization. Applications of our formulation abound. To determine the product design, we reformulate the choice-based deterministic linear program, solve its continuous relaxation, and round the resulting solution.

115-1787 Assortment Design with Fairness Constraint

wentao Lu, Post Doc/Researcher, Carey Business School, United States
Ozge Sahin, Associate Professor, Johns Hopkins University, United States
Ruxian Wang, Professor, Johns Hopkins University, United States

We consider the assortment optimization problem for the platform when there is a fairness constraint. We show that the optimal solution has nice structure and is easy to implement.

Invited Session

60	Monday, 09:45 AM - 11:15 AM, Regency Ballroom P	Track: Disruptive Technologies and Operations Management
	Invited Session: Emerging Technology in Information Systems and Operations Management	
	Chair(s): Dandan Qiao	

115-1962 Optimal Pricing of Trial and Long-term Digital content subscriptions: A Dynamic Structural Model

Ding Li, Assistant Professor, Nanjing University, China
Khim Yong Goh, Associate Professor, National University of Singapore, Singapore

In digital content subscription businesses, firms often provide consumers with freemium (i.e., free and premium) subscription plans that vary by short- and long-term durations (e.g., weekly, monthly, yearly). We develop a structural model to estimate the optimal discount to the per-period price of long-term plans and the trial subscriptions.

115-1964 Does Telehealth Reduce Rural-Urban Care-Access Disparities? Evidence from COVID-19 Telehealth Expansion

Shujing Sun, Assistant Professor, University of Texas at Dallas, United States
Guihua Wang, Assistant Professor, University of Texas Dallas, United States

We investigate the effect of telehealth expansion policy on rural-urban healthcare-access disparities. Leveraging a difference-in-differences design, we find an enlarged disparity in rural-urban healthcare access (i.e., total patient visits) due to telehealth expansion. We also analyze from the supply and demand sides to uncover the mechanisms driving the disparity gap.

115-2009 Technological Threat in Blockchain-Based Platforms

Ping Fan Ke, Assistant Professor, Singapore Management University, Singapore

Blockchain-based platforms are getting popular in business operations. Applications like supply chain management, resource allocation, and auctions are implemented by businesses using Blockchain. However, research in the technological threat in this area is limited. In this presentation, I will discuss the threats in blockchain-based platform like block stuffing.

Monday, 09:45 AM - 11:15 AM

Contributed Session

61	Monday, 09:45 AM - 11:15 AM, Silver Spring 1	Track: Aviation and Transportation Operations
	Contributed Session: Transportation Logistics and Safety	
	Chair(s): Paulo Gomes	

115-1352 Impact of Indirect Costs on Routing Decisions in Hinterland Intermodal Networks

Elham Jelodari Mamaghani, Assistant Professor, Catholic University of Lyon (ESDES), France
Yann Bouchery, Associate Professor, Kedge Business School, France

Hinterland movements of maritime containers are often subject to demurrage, detention and storage fees beyond transportation costs. We aim at assessing the impact of these indirect costs on the shippers' routing decisions. These costs, generally ignored in the existing literature, have some specific structures that require to extend existing formulations.

115-0840 Analysis of Two-stage Screening Procedure at Airport Security Checkpoint

Young Chun, Professor, E. J. Ourso College of Business, United States

Under the two-stage screening procedure in manufacturing industry, all units are inspected at the first stage. Any units that fail at the first stage are subject to complete inspection at the second stage. We apply the same screening procedure to airport security check points and analyze its effectiveness.

115-1076 A Proximal Policy Optimisation Approach to solve a large scale ambulance dispatch problem

Yimo Yan, Student, The University of Hong Kong, Hong Kong, China
Linhui Fu, Student, Duke University, United States

Yong-Hong Kuo, Assistant Professor, The University of Hong Kong, Hong Kong, China

We tailored a heterogeneous self-attention approximator, trained with PPO, to instantly match the optimum ambulances with patients, and meanwhile balance the number of ambulances in different dispatch centres as new requests emerge. Our results show that the proposed method can well outperform classic methods.

Contributed Session

62	Monday, 09:45 AM - 11:15 AM, Silver Spring 2	Track: Inventory and Logistics Management
	Contributed Session: Inventory Policy Decisions - 2	
	Chair(s): Dean Chatfield	

115-1459 Learning to Order for Inventory Systems with Lost Sales and Uncertain Supplies

Boxiao (Beryl) Chen, Associate Professor, University of Illinois at Chicago, United States
Jiashuo Jiang, Assistant Professor, Hong Kong University of Science and Technology, China
Jiawei Zhang, Professor, New York University, United States
Zhengyuan Zhou, Assistant Professor, New York University, United States

We consider a stochastic lost-sales inventory control system with a lead time L over a planning horizon T . Supply is uncertain, and is a random function of the order quantity. We develop a new learning policy achieving a $O(L+\sqrt{T})$ regret bound, improving existing results in the literature.

115-0508 Asymptotic Optimality of Semi-Open-Loop Policies in Markov Decision Processes with Large Lead Times

Xingyu Bai, Student, University of Illinois Urbana-Champaign, United States
Xin Chen, Professor, University of Illinois at Urbana Champaign, United States
Menglong Li, Assistant Professor, ?, China

Alexander Stolyar, Professor, University of Illinois Urbana-Champaign, United States

We consider a Markov decision process (MDP) with two controls: one control taking effect immediately and the other control whose effect is delayed by a positive lead time. The purpose of this paper is to establish asymptotic optimality of semi-open-loop policies as the lead time increases.

115-1104 Distributionally Robust Shipment Consolidation

Eojin Han, Assistant Professor, Southern Methodist University, United States
Sila Cetinkaya, Professor, Southern Methodist University, United States

We study the problem of consolidating shipments to minimize worst-case transportation cost under distributional ambiguity. We show that under mean and mean-absolute deviation constraints, distributionally robust optimal consolidation cycle can be efficiently computed with analytical solutions in special cases. Numerical results demonstrate promising performance of the proposed approach.

115-2031 Optimizing Inventory Availability Disclosures for Brick-and-Mortar Stores

Phan Thuy Dung Nguyen, Student, Kedge Business School, France
Kai Hoberg, Professor, Kuehne Logistics University, Germany
Walid Klibi, Professor, Kedge Business School, France

Customers often use retailer websites to check product inventory availability before visiting stores. We propose a method for calculating customers' optimal to-go-to-store inventory threshold given inventory inaccuracy, and empirically test how customer behavior varies around the optimal strategy. Retailers can use the insights to optimize inventory display to maximize profits.

115-0824 Robust spare parts inventory management.

Monday, 09:45 AM - 11:15 AM

Zhao Kang, Student, Eindhoven University of Technology, Netherlands
Ahmadreza Marandi, Assistant Professor, Eindhoven University of Technology, Netherlands
Rob Basten, Associate Professor, Eindhoven University of Technology, Netherlands

We present a robust optimization approach in spare parts inventory with demand uncertainties. We develop a more time-efficient algorithm capable of finding solutions in case of a large number of items in the model. We conduct extensive experiments to compare the performance of our model with the conventional one.

Invited Session

63	Monday, 09:45 AM - 11:15 AM, Winter Park 49	Track: Product Innovation and Technology Management
	Invited Session: Emerging Trends in Innovation	
	Chair(s): Gulru Ozkan-Seely	

115-1466 I think we should see other people: Exploring biotech-pharma partnership terminations following successful drug launches

Pierre Gautreau, Student, York University, Canada
Moren Levesque, Professor, York University, Canada
Annapoornima Subramanian, Associate Professor, National University of Singapore, Singapore
Vareska Van De Vrande, Professor, Erasmus University Rotterdam, Netherlands

Using a comprehensive database of new drug development projects, we investigate whether successful drug launches within an established pharmaceutical firm's portfolio influence the likelihood of the big pharma sustaining its partnerships with biotech start-ups. We also consider whether this influence is moderated by drug types or drug development phases.

115-1697 Adapting To Unknown Unknowns: Shepherding Radical Innovations To Market

Gulru Ozkan-Seely, Associate Professor, University of Washington Bothell, United States
Surya Pathak, Professor, University of Washington Bothell, United States
Mohan Tatikonda, Professor, Indiana University, United States

We investigate adaptive mechanisms employed for novel innovation projects involving high uncertainty and ambiguity. Data is collected from sixteen NPD projects from one organization, and an analytical model is developed to capture adaptation strategies and outcomes. We show that adaptive range widely, from taking no action to modifying ultimate goals.

115-1979 How modification creates innovation that leads to a new product

Mir MD Ashfaque Sumon, Student, University of South-Eastern Norway, Norway

In this contemporary world, customers always expect new products as well as updates on existing products. This continuous change in customers' demand can be satisfied by modifications to create innovation. This article delineates how modifications create value in the technology with a conception.

115-2026 Maximizing Equipment Profitability Through Investments in Employee Effort and Design of Condition-Based Maintenance Policies

Mateus do Rego Ferreira Lima, Student, The Ohio State University, United States
Nathan Craig, Assistant Professor, Ohio State University, United States
Elliot Bendoly, Professor, Ohio State University, United States

We demonstrate an analytical approach to the implementation of the Internet of Things (IoT) for the design of condition-based maintenance policies. We model equipment deterioration and employee effort while considering its effect on equipment profitability. Finally, we provide managerial insights with a computational experiment based on our model.

Invited Session

64	Monday, 09:45 AM - 11:15 AM, Winter Park 50	Track: Socially Responsible Operations
	Invited Session: Data-driven Social Impact Operations	
	Chair(s): Somya Singhvi	

115-0848 Eliminating Forced Labor and Coercion in the Labor Supply Chain

Felix Papier, Professor, ESSEC Business School, France
Christopher Tang, Professor, University of California Los Angeles, United States
Javaiz Mohamed Parappathodi, Student, ESSEC Business School, France

Motivated by the prevalence of labor contractors, we develop a game-theoretic model between a buyer and (several) contractor(s) that we calibrate with H2A visa data. We analyze conditions under which the buyer outsources labor recruitment and contractors employ forced labor. We derive a coercion-free supply chain contract.

115-0863 Choosing the right outcome under distribution shifts

Kirk Bansak, Assistant Professor, University of California Berkeley, United States
Elisabeth Paulson, Assistant Professor, Harvard Business School, United States
Dominik Rothenhaeusler, Assistant Professor, Stanford University, United States

Data-driven assignment of refugees to geographic localities has received increasing attention in recent years. In considering and implementing assignment algorithms, policymakers must choose their specific metric of success. This work considers the problem of choosing the "right" outcome to target in the presence of distribution shifts.

Monday, 09:45 AM - 11:15 AM

115-0867 In-Store Inventory Rotation and Expiration Food Waste: Evidence from a large European Food Retailer

Nitish Jain, Assistant Professor, London Business School, United Kingdom

Ashish Kabra, Assistant Professor, university of maryland, United States

Varun Karamshetty, Assistant Professor, National University of Singapore, Singapore

In-store inventory rotation -- from a retailer's storeroom to its shelves -- is a widely acknowledged driver of expiration food waste (EW). We propose a novel methodology for computing the upper and lower bounds of inventory rotation-led waste, using a commonly recorded quadruple of variables -- {closing-stock, sales, delivered-quantity, EW}.

115-1946 Increasing Charity Donations: A Bandit Learning Approach

Divya Singhvi, Assistant Professor, New York University, United States

Somya Singhvi, Assistant Professor, University of Southern California, United States

In this work, we analyze the problem of increasing charity donations on online platforms with unknown donor preferences and develop a rate-optimal bandit learning algorithm to solve this problem.

Monday, 01:45 PM - 03:15 PM

Invited Session

67	Monday, 01:45 PM - 03:15 PM, Celebration 1	Track: Retail Operations
	Invited Session: Inventory and Assortment Management	
	Chair(s): Stanley Lim	

115-0580 Inventory Risk and Sales Effort Decisions: Implications for Incentive Design

Sreekumar Bhaskaran, Associate Professor, Southern Methodist University, United States
Canan Savaskan, Associate Professor, Southern Methodist University, United States
Tom Tan, Associate Professor, Southern Methodist University, United States

In this paper, we study the impact of inventory risk allocation on the sales effort decisions of such independent agents. We also test and validate the key theoretical predictions using a novel dataset of cookie sales from a large local council of the Girl Scout organization.

115-0765 Taming Uncertainties of Returns: A Smart Pricing Policy combined with a Simple Inventory Policy

Alys Liang, Student, University of Michigan - Ann Arbor, United States
Stefanus Jasin, Associate Professor, University of Michigan, United States
Joline Uichanco, Associate Professor, University of Michigan, United States

Returns have cost retailers hundreds of billions of dollars in the US. We show that uncertainties in both demands and returns can be effectively managed by an easy-to-implement heuristic that combines an adaptive pricing policy with a simple replenishment policy. Our results can be extended to various business scenarios.

115-0883 Online Product Display Optimization

Alara Tascioglu, Student, Koc University, Turkey
Gurhan Kok, Professor, Koc University, Turkey
Selcuk Karabati, Professor, Koc University, Turkey

We develop an extended MNL maximizing expected profit margin per consumer by optimizing product ranking/positioning and location size in an online store's first page where locations are formed by "combining" the smallest ones. Our numerical study shows 34.7% increase in expected profit margin per customer by introducing "combined locations".

115-0919 Inventory Reservation and Allocation for Multi-Item Orders with Uncertain Supply Lead Times and Demand Patterns

Jinjia HUANG, Post Doc/Researcher, IORA, National University of Singapore, Singapore
Stanley Lim, Assistant Professor, Michigan State University, United States
Chung-Piaw Teo, Professor, National University of Singapore, Singapore

We develop an efficient inventory reservation and allocation policy to fulfill multi-item orders in a warehouse. We account for correlated demand patterns and forecast order-level supply lead times by using machine learning techniques. We demonstrate the efficacy of the proposed approach using transaction and supply data from a furniture retailer.

Invited Session

68	Monday, 01:45 PM - 03:15 PM, Celebration 2	Track: Behavioral Operations Management
	Invited Session: Behavioral Operations Management in Service Industry	
	Chair(s): Raymond Lei Fan	

115-0573 Nudging Green but Slow Shipping Choices in Online Retail

Yeonjoo Lee, Student, University of Minnesota, United States
Karen Donohue, Professor, University of Minnesota, United States

While fast delivery helps retailers to stay competitive, it often leads to worse environmental outcomes. We study how to nudge online retail customers to voluntarily choose slower but greener delivery. Through a series of experiments, we test what types of information are most effective in which context and why.

115-0596 Financial Effects of Health Information Exchange and Health Information Organization on Healthcare Operations

C. Christopher Lee, Professor, Central Connecticut State University, United States
Young Sik Cho, Associate Professor, Jackson State University, United States
Ruoqing Zhang, Assistant Professor, Central Connecticut State University, United States
Yong-Taek Min, Assistant Professor, Florida Gulf Coast University, United States

This paper explored how the Health Information Exchange (HIE) and Health Information Organization (HIO) contributed to the hospital financials. This study hypothesized HIE/HIO-participating hospitals would achieve better financial position than non-participants or the industry average. This research performed a financial statement analysis on the 2020 AHA datasets.

115-1631 Can food producers rely on their employee drivers for on-time deliveries?

Feng Cheng, Assistant Professor, Towson University, United States
Chaodong Han, Professor, Towson University, United States
Stella Tomasi, Professor, Towson University, United States

Monday, 01:45 PM - 03:15 PM

Employee drivers are preferred for on-time delivery performance. But hardly any research explores whether the use of employee drivers associates with superior delivery performance despite the non-driving service costs involved in shipments. Our paper investigates the tradeoff between delivery delays and service efficiency with different employee modes of drivers.

115-0309 Cost-quality tradeoff in nurse staffing: an exploration of USA hospitals facing market competition

Xiaosong (David) Peng, Professor, Lehigh University, United States
Yuan Ye, Assistant Professor, California State University Sacramento, United States
Raymond Lei Fan, Assistant Professor, Grand Valley State University, United States
Xin Ding, Assistant Professor, Rutgers Business School, United States
Aravind Chandrasekaran, Professor, Ohio State University, United States

The study identifies three ranges of nurse staffing in which hospitals will likely experience simultaneous improvements, a tradeoff or simultaneous decline of care quality and operating costs when investing in more nursing capacity. Hospitals should adjust nurse staffing levels to the right directions to achieve better care.

Invited Session

69	Monday, 01:45 PM - 03:15 PM, Celebration 3	Track: Healthcare Operations Management
	Invited Session: Empirical Assessments of Health Systems	
	Chair(s): David Rea	

115-0379 The Value of Health Information Technology Interoperability: Evidence from Interhospital Transfer of Heart Attack Patients

Yao Li, Assistant Professor, Southern University of Sci and Tech, China
Lauren Lu, Professor, Dartmouth College, United States
Feng (Susan) Lu, Associate Professor, Purdue University, United States
Jian Chen, Professor, Tsinghua University, China

This study empirically assesses the value of HIT interoperability in the interhospital transfer process of heart attack patients. We show that HIT interoperability shortens the throughput time of interhospital transfer, but has little effect in reducing duplicate testings.

115-0783 The Effect of Pharmacies on Health Equity

Umit Celik, Student, UNC Kenan-Flagler Business School, United States
Bradley Staats, Professor, University of North Carolina Chapel Hill, United States

We develop measures for Health Equity in pharmacies. After calculating overall benchmarks, we compare pharmacies to the benchmark and suggest better operations strategies to contribute to Health Equity. We use causal inference and machine learning in econometrics analysis.

115-1241 Effect of Hospital Utilization on Interhospital Transfer Decisions

Han Ye, Associate Professor, Lehigh University, United States
David Rea, Assistant Professor, Lehigh University, United States
Raymond Lei Fan, Assistant Professor, Grand Valley State University, United States
Xiaosong (David) Peng, Professor, Lehigh University, United States

With a large data set containing all ED and inpatient encounters from the state of Florida, we provide empirical evidence for the effects of ED utilization, inpatient ward utilization, insurance status, and other factors on inter-hospital transfer decisions.

115-0651 The effects of specialist visits on health outcomes, an investigation of irregularly sampled time series

Benjamin Williams, Assistant Professor, Department of Business Information & Analytics, United States

We investigate a highly dimensional, time series panel to study the impact that visiting a specialist doctor has on eGFR. The dataset consists of irregularly sampled patient visits, making usual inference difficult. We leverage a quasi-experimental design and propensity score matching to employ a difference-in-difference model to examine this effect.

Contributed Session

70	Monday, 01:45 PM - 03:15 PM, Celebration 4	Track: Healthcare Operations Management
	Contributed Session: Inventory Management and Supply Chain for Healthcare	
	Chair(s): Aaron Ratcliffe	

115-1740 IT Vendor Sourcing Strategies: Impacts of Vendor Turnover & Concentration on Hospital Performance

Aaron Ratcliffe, Assistant Professor, Appalachian State University, United States
Joonghee Lee, Assistant Professor, Appalachian State University, United States
Trent Spaulding, Associate Professor, Appalachian State University, United States

Too many hospital IT vendors burdens employees with increased training and redundancy; whereas fewer improves integration but increases vendor bargaining power and decreases hospital agility and digital innovativeness. We investigate the impact of vendor consolidation and turnover on quality, patient experience, and financial performance using US hospital data from 2012-2018.

115-2033 Rationing Scarce Healthcare Capacity: A Study of the Ventilator Allocation Guidelines During the Covid-19 Pandemic

David Anderson, Assistant Professor, Villanova University, United States
Tolga Aydinliyim, Associate Professor, Zicklin School of Business, United States
Margret Bjarnadottir, Assistant Professor, University of Maryland, United States

Monday, 01:45 PM - 03:15 PM

Eren Cil, Associate Professor, University of Oregon, United States

Michaela Anderson, Assistant Professor, Medical School, United States

Using NYS as an example, we study the existing approaches to allocate scarce ventilator capacity and propose alternatives. We show that, by taking into account both mortality risk and resource use duration, triage teams can improve expected survival rates as well as allocate capacity more equitably across different racial demographics.

115-0336 Systematic Literature Review of Inventory Sharing in Healthcare Supply Chains

Ilias Vlachos, Professor, Excelcia Business School, France

Panniphat Atcha, Student, Cranfield University, United Kingdom

This study conducts a systematic literature review of inventory sharing in healthcare supply chains. Descriptive and thematic analyses (geographical, stakeholder, incident analysis etc) uncovered benefits (shortage reduction, cost minimisation, wastage mitigation) and barriers (IT infrastructure, social systems, cost, supply chain operations). Future research opportunities include leaning the supply chains.

Invited Session

71	Monday, 01:45 PM - 03:15 PM, Celebration 5	Track: Healthcare Analytics
	Invited Session: Data Analytics for Social Goods	
	Chair(s): Pengyi Shi Xiaoquan Gao	

115-0744 A Novel Spatio-Temporal Model for Improving Public Health Surveillance: An Application to Opioid-Related Overdose Deaths

Che-Yi Liao, Student, Georgia Institute of Technology, United States

Gian-Gabriel Garcia, Assistant Professor, Georgia Institute of Technology, United States

Kamran Paynabar, Assistant Professor, Georgia Institute of Technology, United States

Mohammad Jalali, Assistant Professor, Harvard University, United States

We develop a Spatio-Temporal Mutually Exciting Point Process with Dynamic network (STEMMED) to provide accurate forecasts of local OOD trends and highlight complex interactions between OODs across communities and drug types. Moreover, STEMMED enhances synergies between local and federal government entities, which is critical to designing impactful policy interventions.

115-1187 Breaking the Vicious Cycle of Reincarceration with Incarceration Diversion Optimization

Xiaoquan Gao, Student, Purdue University, United States

Pengyi Shi, Associate Professor, Purdue University, United States

Nan Kong, Associate Professor, Purdue University, United States

We study incarceration-diversion decision problem to reduce jail overcrowding. To balance tradeoffs among congestion, reoffending, and violation, we build a large-scale MDP model and prove the optimality of monotone policy and convexity of value functions, implicating the optimality of nontrivial randomized policy. We leverage a two-timescale approach for algorithmic solutions.

115-1202 The Impact of Senior Living Facilities on Healthcare Utilization and Outcomes

Minje Park, Post Doc/Researcher, Columbia University, United States

Carri Chan, Professor, Columbia University, United States

Ann Bartel, Professor, Columbia University, United States

Fanyin Zheng, Assistant Professor, Columbia University, United States

Recently, the number of senior living facilities - housing arrangements designed exclusively for older adults - is rapidly growing in the United States to serve the growing population of older adults. This research studies the impact of senior living facilities on healthcare utilization and health outcomes of Medicare enrollees.

115-1637 Personalized Community-based Approach to Diabetes Care in Lower Middle Income Countries

Katherine Adams, Student, University of Wisconsin-Madison, United States

Justin Boutilier, Assistant Professor, University of Wisconsin-Madison, United States

Yonatan Mintz, Assistant Professor, University of Wisconsin-Madison, United States

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

Diabetes detection and management is critical in lower-middle-income countries. One proposed solution is using Community Health Worker (CHW) programs to provide affordable and culturally tailored interventions. We propose an optimization framework to personalize CHW visits to maximize glycemic control at a community-level.

Invited Session

72	Monday, 01:45 PM - 03:15 PM, Celebration 6	Track: POM-Finance Interface
	Invited Session: Supply Chain Finance	
	Chair(s): Qi Wu Sridhar Seshadri	

115-0832 Mitigating Shortage Risk in the Newsvendor via Procurement Options Contracts

Ran Ji, Assistant Professor, George Mason University, United States

Bardia Kamrad, Professor, Georgetown University, United States

Sandeep Dahiya, Associate Professor, Georgetown University, United States

Monday, 01:45 PM - 03:15 PM

We extend the newsvendor model in a contingent claims context by introducing an option contract given a required service level constraint and capacity 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.

115-0229 Using IoT to Mitigate Supply Chain Disruptions

Mili Mehrotra, Associate Professor, University of Illinois, United States
William Schmidt, Assistant Professor, Cornell University, United States

IoT can provide companies with an early warning system to more accurately assess the duration of a disruption. We quantify the disruption mitigation benefits of early and accurate disruption duration information using the supply chain and production data from a multinational division of a Fortune 100 manufacturing firm.

115-0905 Effects of Financial Constraints on Financing Choices and Operational Decisions

Anqi Wu, Assistant Professor, Florida International University, United States
Qi Wu, Assistant Professor, Case Western Reserve University, United States
Sridhar Seshadri, Professor, University of Illinois Urbana-Champaign, United States

This study considers multiple financial and operational factors in a supply chain. It empirically investigates 1) the causal impacts of financial constraints on inventory decisions of firms, 2) the impact heterogeneity across different firms and time periods, and 3) the mechanisms through which these heterogeneous impacts manifest.

Contributed Session

74	Monday, 01:45 PM - 03:15 PM, Celebration 8	Track: Sustainable Operations Management
	Contributed Session: Closed Loop Supply Chain Management (I)	
	Chair(s): Ebenezer Adaku	

115-0828 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.

115-0798 Approximation Algorithms for Lost-sales Inventory Systems with Remanufacturing

Xiting Gong, Associate Professor, The Chinese University of Hong Kong, China
Suting Liu, Student, The Chinese University of Hong Kong, China

We develop the first approximation algorithms for two classes of lost-sales inventory systems with remanufacturing. We develop a modified-dual-balancing policy for pure remanufacturing systems and a dual-balancing policy for hybrid manufacturing/remanufacturing systems. Both policies admit worst-case performance guarantee of two under associated demand processes and mild conditions on system parameters.

115-0169 Choosing the Right Remanufactured Product Assortment: An Empirically Grounded Analytical Investigation

Mengyun Zhang, Student, Texas A&M University, United States
Neil Geismar, Professor, Texas A&M University College Station, United States
James Abbey, Associate Professor, Texas A&M University College Station, United States
Huseyn Abdulla, Student, Texas A&M University College Station, United States

Although remanufactured products are traditionally defined to have the same quality as new products, many sellers (e.g., Amazon, Back Market, Dell Outlet) currently offer remanufactured electronic products with cosmetic imperfections. Why do vendors offer remanufactured products differently? How should vendors optimally offer remanufactured products?

115-1526 The effect of institutional pressures on environmental performances

Alice Madonna, Student, University of Bergamo, Italy
Albachiara Boffelli, Assistant Professor, Università Degli Studi Di Bergamo, Italy
Matteo Kalchschmidt, Professor, Università Degli Studi Di Bergamo, Italy

This study uses the institutional theory to analyze how pressures from investors and customers are effective in influencing organizations' environmental performance. The objective is to show how the different combination of pressures influences the performances, using data from the Carbon Disclosure Project.

115-1737 Reverse Logistics: An Anatomical Perspective

Ebenezer Adaku, Associate Professor, GIMPA, Ghana
Raphael Aryee, Student, Ghana Institute of Management and Public Administration (GIMPA), Ghana

The need to integrate sustainable practices such as reverse logistics (RL) in business operations cannot be over emphasised. However, a broad framework that articulates all the aspects of RL is not readily available in the extant literature. This study seeks to address this gap in RL research.

Monday, 01:45 PM - 03:15 PM

Invited Session

75	Monday, 01:45 PM - 03:15 PM, Celebration 9	Track: Supply Chain Management
	Invited Session: OM with New Technologies	
	Chair(s): Yao Cui	

115-0466 An Economic Model of "Fulfilled By Amazon" (FBA)

Garud Iyengar, Professor, Columbia University, United States
Yuanzhe Ma, Student, Columbia University, United States
Thomas Rivera, Assistant Professor, Mcgill University, Canada
Fahad Saleh, Associate Professor, Wake Forest University, United States
Jay Sethuraman, Professor, Columbia University, United States

We provide an economic model of an e-commerce retail platform (e.g., Amazon) that offers a fulfillment service (e.g., "Fulfilled By Amazon") to merchants that sell on its platform. Our main result is that the platform extracts all welfare whenever low service quality merchants possess sufficiently high product quality.

115-1046 Contract Tokenization in the Renewable Energy Market

Rowena Gan, Assistant Professor, Southern Methodist University, United States
Rong Li, Associate Professor, Syracuse University, United States

Endorsed by the blockchain technology, contracts can be digitally recorded and stored in crypto tokens, which is referred to as being tokenized. Using the renewable energy market as a backdrop, we study the impact of contract tokenization on different parties in the industry based on their respective incentives.

115-1574 3D Printing Rental Package Design

Brian Tomlin, Professor, Dartmouth College, United States
Yue Zhang, Assistant Professor, Penn State University University Park, United States

We study the design of rental packages for 3D printers. The optimal rental packages are obtained analytically with insights revealed on 3D printing technical service offering.

115-1915 Quality and Welfare Implications of Product Traceability in Supply Chain

Lijian Lu, Assistant Professor, Hong Kong University of Science and Technology, China
Ruxian Wang, Professor, Johns Hopkins University, United States
Xinyi Zhou, Student, Hong Kong University of Science and Technology, China

Motivated by the recent trend of increasing transparency and traceability in the food and pharmaceutical industries, we investigate the impacts of traceability on a supply chain in which a buyer (e.g., a procurement agent or retailer) sources a product from multiple competing suppliers.

Invited Session

76	Monday, 01:45 PM - 03:15 PM, Celebration 10	Track: Supply Chain Management
	Invited Session: Food and Agriculture Supply Chains	
	Chair(s): Nicholas Petruzzi Karthik Murali	

115-0560 Waste Reduction of Perishable Products through Markdowns at Expiry Dates

Arnoud den Boer, Associate Professor, University of Amsterdam, Netherlands
Hermanus Jansen, Assistant Professor, University College Roosevelt, Netherlands
Jinglong Zhao, Assistant Professor, Boston University, United States

We study whether giving discounts for perishable products on their expiry dates can simultaneously reduce waste and increase profit. Our results imply that sellers of perishable products can use simple pricing rules to simultaneously reduce waste and increase profit.

115-0702 Optimal Pricing Policies for Precision Agriculture Technologies

Heng Chen, Assistant Professor, University of Nebraska Lincoln, United States
Ying Zhang, Assistant Professor, Clemson University, United States

Agricultural technology providers have used outcome-based pricing to promote the application of precision agriculture. We explore the implications of outcome-based pricing on the adoption rate of precision agriculture and the benefits to farmers and technology providers. We build a two-period game model that incorporates providers' learning through experience.

115-1764 Reducing waste in foodservice

Ekaterina Astashkina, Assistant Professor, Ross School of Business, United States
Izak Duenyas, Professor, University of Michigan - Ann Arbor, United States
Yuwen Hu, Student, University of Michigan - Ann Arbor, United States
Feng Tian, Assistant Professor, University of Hong Kong, Hong Kong, China

Food waste is a global environmental problem that spans multiple industries, including foodservice. We build a stylized model of a food provider that faces a consumer with uncertain demand. We identify the most effective strategies that reduce post-consumer food waste.

115-1107 Strategic sell-by dates and their implications for retail-level food waste

Monday, 01:45 PM - 03:15 PM

Karthik Murali, Assistant Professor, Oregon State University, United States
Nicholas Petruzzi, Professor, University of Wisconsin-Madison, United States
Aditya Vedantam, Assistant Professor, University of Buffalo, United States

Grocery stores in the U.S. throw away 16 billion tons of food each year due to expiration. In this study, we develop a game-theoretic model to examine the strategic motivations behind a manufacturer's choice of sell-by dates and the corresponding implications for food waste at the retail level.

Invited Session

77	Monday, 01:45 PM - 03:15 PM, Celebration 11	Track: Social Media and Web 2.0
	Invited Session: Social Media and Emerging Technologies	
	Chair(s): Fujie Jin	

115-1305 Empowering or Entrenching in Governance of Decentralized Autonomous Organization: Examining Pre-voting Discussion in On-Chain Voting

Jing Tian, Assistant Professor, Pennsylvania State University, United States

We focus on evaluating how individual participants in Decentralized Autonomous Organizations (DAOs) exert their influences on the on-chain voting of governance proposals. We examine how the use of off-chain pre-voting online discussion of governance proposals influences the outcomes of on-chain voting.

115-1312 Cloud Cost Optimization: Model, Bounds, and Asymptotics

Zihao Qu, Student, The University of Texas at Dallas, United States
Milind Dawande, Professor, University of Texas Dallas, United States
Ganesh Janakiraman, Professor, University of Texas Dallas, United States

Motivated by the rapid growth of the Cloud Cost Management and Optimization (CCMO) industry to support the exploding cloud-computing market, we study an infinite-horizon, stochastic optimization problem from the viewpoint of a firm that employs cloud resources to process incoming orders (or jobs) over time.

115-1370 The Competition in Online Reputation: a Mean Field Game Approach

Mingwen Yang, Assistant Professor, University of Washington, United States

Online reputation is critical for the success of a business. Sellers make efforts to improve their online reputation to attract more future customers. We model the sellers' competition in product ratings using a mean field game model and verify the model using real world data.

115-1392 Can Sports Knowledge Sharing Promote Group Sports Behavior? -- A communication visibility empirical study

Lei Wang, Post Doc/Researcher, Shandong University, Chile
Jianghua Zhang, Professor, Shandong University, China
Tuojuan Li, Associate Professor, Shandong University, China

This paper offers a theory of sports communication visibility based on an empirical study of the implementation of a sport-related online social networking site in college. Group sport behavior were promoted by sports knowledge sharing innovation through the mediating effect of the visibility of sports information dissemination.

115-1297 Store Assortment 2.0: A Comprehensive Retail Analytics Framework to Identify Non-Digital Products

Ping Tang, Student, UT Dallas, United States
Rajiv Garg, Assistant Professor, Emory University, United States
Anuj Kumar, Associate Professor, University of Florida, United States
Amit Mehra, Professor, University of Texas Dallas, United States

In this paper we present a framework to use review data to extract (non)digital features and predict product placement based on description text - something that is created with new product launch.

Invited Session

78	Monday, 01:45 PM - 03:15 PM, Celebration 12	Track: Humanitarian Operations and Crisis Management
	Invited Session: Managing Donations in Humanitarian Operations	
	Chair(s): Gloria Urrea	

115-0774 To Earmark or to Non-Earmark? The Role of Control, Transparency and Warm-Glow

Ozalp Ozer, Professor, University of Texas Dallas, United States
Gloria Urrea, Assistant Professor, University of Colorado Boulder, United States
Sebastian Villa, Assistant Professor, University of New Mexico, United States

Empirical evidence of how earmarking influences donors is scarce. Using three online experiments, we investigate how, when and why earmarking affects three donors' decisions as well as three mechanisms potentially driving the earmarking effect (i.e., control, operational transparency, warm-glow). Our findings provide clear insights to design fundraising campaigns more effectively.

115-0873 Competing with Cause Marketing: Transactional vs. Non-Transactional Campaigns

Arian Aflaki, Assistant Professor, Joseph M. Katz Graduate School of Busine, United States
Esther Gal-Or, Professor, University of Pittsburgh, United States
Mike Gordon, Assistant Professor, Virginia Polytechnic Institute And State University, United States

Monday, 01:45 PM - 03:15 PM

Jennifer Shang, Professor, University of Pittsburgh, United States

In Cause Marketing (CM), firms donate to a cause to attract prosocial customers. We study how competition on various types of CM impacts donations and firms. We find that competition and customer interest in contributions to the cause can backfire and reduce the total donations and hurt firms.

115-1183 The Influence of Market Uncertainty on Donation Decisions

Gordon Burtch, Associate Professor, Boston University, United States

Gloria Urrea, Assistant Professor, University of Colorado Boulder, United States

Sebastian Villa, Assistant Professor, University of New Mexico, United States

Eunae Yoo, Assistant Professor, Indiana University Bloomington, United States

Market uncertainty may impact the valuation and, therefore, the donation of certain assets (e.g., stock, cryptocurrency). Using data from a Bitcoin crowdfunding platform, we show empirically that donors' decisions are affected by market uncertainty. We then conduct an experimental study to uncover the underlying mechanisms.

115-1262 Cause Marketing as a Strategic Tool for Firms & an Opportunity for NGOs

Vinit Tipnis, Student, Kelley School of Business, United States

Sebastian Villa, Assistant Professor, University of New Mexico, United States

Fei Gao, Assistant Professor, Indiana University Bloomington, United States

Alfonso Pedraza, Professor, Indiana University, United States

In cause marketing campaigns, firms donate a percentage of their sales revenue to partnering non-governmental organizations as a strategy to increase sales. We investigate how and when earmarked (i.e., restricted) and flexible (i.e., unrestricted) donations affect consumers' purchase intent. Our study provides clear recommendations both to firms and NGOs.

Contributed Session

79	Monday, 01:45 PM - 03:15 PM, Celebration 13	Track: Teaching/Pedagogy in POM
	Contributed Session: Tutorial: Teaching Operations Management and Analytics (II)	
	Chair(s): Ardavan Asef-Vaziri	

115-0417 Teaching Analytics without Coding

Yao Zhao, Professor, Rutgers University, United States

Many students like analytics, but few like coding. This workshop shares teaching plans and modules on teaching analytics to general audience without coding. The awarding winning cases and analysis tools focus on problem discovery and solving skills in business intelligence and supply chain management.

115-0687 Building the Teaching Material of the Operations Management Course Around a Web-Based Simulation Game

Ardavan Asef-Vaziri, Professor, California State University Northridge, United States

We explain how to teach the core concepts of an operations management course, including descriptive statistics, time-series analysis, regression and association, visualization, process flow analysis, capacity planning, waiting line analysis, continuous and periodic ordering, newsvendor problem, and re-ordering points around the virtual environment of a web-based simulation game.

Invited Session

80	Monday, 01:45 PM - 03:15 PM, Celebration 14	Track: Service Operations
	Invited Session: Innovative Methods in Service Operations	
	Chair(s): Sriram Venkataraman	

115-0281 How Do Producers Fare with Fair Trade?

Ying Zhang, Assistant Professor, Clemson University, United States

Yen-Ting Lin, Associate Professor, University of San Diego, United States

Adem Orsdemir, Assistant Professor, University of California Riverside, United States

In this paper, we examine the impact of fair trade certificate on a fair trade retailer's decisions, profitability and participating producers' welfare. We also examine a retailer's choice between fair trade and direct trade, which is another common socially responsible sourcing strategy.

115-1396 Up to speed: the influence of timing and synergy on knowledge transfer

Peter Carrera, Student, Ohio State University, United States

Kenneth Boyer, Professor, Ohio State University, United States

Aravind Chandrasekaran, Professor, Ohio State University, United States

Research shows that performance feedback allows organizations to learn better. This study explores the effects of performance feedback timing and synergy on learning. We use data from the hospitality industry to investigate these relationships.

115-1032 Determining When to Have a Vacation

Fariborz Partovi, Professor, Drexel University, United States

This article has presented an analytical model for eliminating poor dates for vacation and three models for ranking and selecting the best timing to vacation in a resort. The models are all minimizing the subjective nature of the decision-making process.

Monday, 01:45 PM - 03:15 PM

Invited Session

81	Monday, 01:45 PM - 03:15 PM, Celebration 15	Track: Information Systems and Operations Management
	Invited Session: AI and Platform	
	Chair(s): Si Xie	

115-0845 Managing social interactions on two-sided live-streaming platforms - A focus on streamer decisions.

Pearl Yu, Student, New York University, United States
Runshan Fu, Assistant Professor, New York University, United States
Anindya Ghose, Professor, New York University, United States

Streamer-viewer interaction is considered the key to live-streaming. Previous literature has focused on viewer engagement incentives. We propose a single-agent dynamic structural model with HMM to investigate how viewer engagement intensity affects streamer decisions. We find that streamers can experience burnout from managing interactions, offering guidance to double-sided platform management.

115-0926 What is the role of digital value-added service in the sharing economy?

Daozhi Zhao, Professor, Tianjin University, China
Xinyue Tan, Student, Tianjin University, China

Many manufacturers are beginning to provide products with digital value-added service. When manufacturers consider whether to provide digital value-added service, they face the challenge of the sharing economy. We examine the impact of digital value-added service on the manufacturer's profit, sharing platform's profit, and consumer surplus.

115-1548 Impacts of AI on Reviews & Outcomes

Rachit Kamdar, Student, Robert H. Smith School of Business, United States
Siva Viswanathan, Professor, University of Maryland, United States

We study the use of an textual AI system on an online review platform and find a significant bias in the adoption of the AI system, subsequently, we find that the usage of AI impacts the reviews by making them shorter and less helpful but make them more diverse.

115-1045 The Role of Virtual Livestreamer in Livestreaming Shopping using AI

Si Xie, Student, The University of Texas at Dallas, United States
Amit Mehra, Professor, University of Texas Dallas, United States
Siddhartha Sharma, Assistant Professor, Indiana University Bloomington, United States

A livestream is essentially a virtual showroom where viewers watch livestreamers present a series of products in real time. Some platforms have begun introducing Virtual Livestreamers using AI to livestream shopping sessions to generate more sales, attract more traffic and grab more viewers' attention. We analyze the mechanism driving these

Invited Session

82	Monday, 01:45 PM - 03:15 PM, Coral Spring 1	Track: Emerging Topics in Operations Management
	Invited Session: Operational Innovation	
	Chair(s): Morvarid Rahmani	

115-0105 Hybrid Entrepreneurship: An Operational Analysis

Zeya Wang, Student, Georgia Institute of Technology, United States
Morvarid Rahmani, Associate Professor, Georgia Institute of Technology, United States
Karthik Ramachandran, Professor, Georgia Institute of Technology, United States

We investigate the debate between fully committed entrepreneurship and a hybrid approach in which the entrepreneur retains a stable "day job". A model-based investigation of the trade-offs reveals conditions under which the hybrid approach is optimal, and when it is optimal to make a full commitment.

115-0341 Tragedy of the Commons? Impact of the Prosumers in the Energy System

Ming Hu, Professor, University of Toronto, Canada
Junghye Lee, Assistant Professor, University of Notre Dame, United States
Yinliang (Ricky) Tan, Associate Professor, University of Houston, United States
Lai Wei, Assistant Professor, Shanghai Jiaotong University, China

More people produce renewable energy and rely less on the grid, becoming prosumers. We show that while more prosumers reduce the total energy generation cost, they may increase the demand volatility of the grid, leading to a higher electricity price. We analyze how to share the benefits and costs fairly.

115-0494 Co-creation in New Product Development: Collaborating with a Shared Supplier

Abhishek Roy, Assistant Professor, Temple University, United States

In many industries, core component suppliers are shared by competing manufacturers, who may benefit from co-creating new products jointly with their shared suppliers. We analytically investigate the strategic trade-offs that arise when competing buyers decide to co-create a common core component with the shared supplier.

115-1645 Navigating pre-competitive collaborations: an extended supply network perspective

Tomás Harrington, Associate Professor, University of East Anglia, United Kingdom

Monday, 01:45 PM - 03:15 PM

Nitin Joglekar, Associate Professor, Questrom School of Business, United States

Jagjit Srari, Professor, University of Cambridge, United Kingdom

We examine innovation outcomes within the pharmaceutical sector, specifically at the intersection of new manufacturing process technologies and digital supply chain transformations. Our longitudinal study over 10 years charts interventions involving a portfolio of projects to explore how pre-competitive collaborations are leveraging multiple stakeholders and enabling effective pathways to implementation.

Invited Session

83	Monday, 01:45 PM - 03:15 PM, Coral Spring 2	Track: Emerging Topics in Operations Management
	Invited Session: Advanced Models in Customer Analytics and Retail Operations	
	Chair(s): Guang Li Ying Cao	

115-0672 Effect of the Seller's Delay in Response on an Online Marketplace Bargaining

Guihua Wang, Assistant Professor, University of Texas Dallas, United States

Wen Zhang, Assistant Professor, Baylor University, United States

Using a unique data set from eBay's best-offer platform and an instrumental variable approach, we find that in online marketplace bargaining, the seller's delay in response in a short period could increase the buyer's concession, but waiting too long to respond could backfire.

115-0979 Pricing and Returns in the Era of Big Tech: Implications of Information Asymmetry Reversal

Kiarash Hassani, Student, Queen's University, Canada

Murray Lei, Assistant Professor, Queen's University, Canada

Anton Ovchinnikov, Professor, Queens University, Canada

We present a model to optimize the return policy of a monopolistic seller, who may have better information about consumers' tastes than the customers themselves. We analyze how return policy, tech-enabled superior information, and return hassles affect the firm's profit and consumer surplus. The results show that Pareto-improving situations exist.

115-1657 Natural Language Processing for Understanding Customer Voices in OM

Cecilia Ying, Student, Queen's University, Canada

Stephen Thomas, Senior Lecturer, Queen's University, Canada

Tesfamariam Abuhay, Post Doc/Researcher, Queen's University, Canada

The ability to identify customer characteristics and measure customer satisfaction affects product development, process design, inventory forecasting and management. Here, we introduce Conversation Analytics (CA), a method which combines embeddings from large language models, such as GPT3, with unsupervised machine learning for extracting insights from customer conversation logs.

115-1085 Selling and Renting Mechatronics (Digitally Controlled Physical Goods)

Xianfeng Meng, Student, Queen's University, Canada

Guang Li, Assistant Professor, Queen's University, Canada

Anton Ovchinnikov, Professor, Queens University, Canada

Recent technological advances allow physical goods firms to create products with identical hardware that are digitally controlled to allow for differentiation. We present a stylized model to explore when physical goods firms should adopt digitally-enabled product differentiation instead of the traditional product line design with high- and low-end product.

Contributed Session

84	Monday, 01:45 PM - 03:15 PM, Blue Spring 1	Track: Supply Chain Risk Management
	Contributed Session: Managing Supply Chain Risk	
	Chair(s): Matthew Vepraskas	

115-1584 Supply chain risk in construction sector: Does it present opportunities?

Huy Truong Quang, Lecturer, School of Business & Management (SBM), RMIT International University, Vietnam

Duong Thi Binh An, Lecturer, Faculty of Business, FPT University, Ho Chi Minh City, Vietnam, Vietnam

Duy Tan Nguyen, Student, HEC Montréal, Canada

Our work draws on contingency theory and dynamic capability view and leverages data from a large-scale survey in Vietnam's construction industry. Unlike other supply chain risks (internal and man-made), natural risks decrease the negative risk impact on firm performance, indicating that risks present not only threats but also opportunities.

115-1735 Can Counterfeit Prevention Work? A Systems Approach to Building Counterfeit Avoidance Programs

Matthew Vepraskas, Student, The George Washington University, United States

Consumer behavior following the COVID-19 pandemic grew demand for finished technology, increasing counterfeit technology entering the supply chain. Building on prior research, a novel systems dynamics model is introduced, characteristics are established, and guidelines are drafted to mitigate the movement and purchase risks of counterfeit technology by a small business.

115-1279 Sustainability risks in global supply chains: A conceptual framework

Abhijeet Ghadge, Associate Professor, Cranfield University, United Kingdom

Monday, 01:45 PM - 03:15 PM

Sustainability risk is growing area due to increasing pressure from consumers and governments. However, there is lack of a generalised theory and mitigation strategy for sustainability risk in supply chains. This study aims to provide insights and framework into the identification, assessment and mitigation of sustainability risks within global supply chains.

115-0626 Cash hoarding as a way to mitigate against disaster risk: the case of multinationals

Andres Ramirez, Associate Professor, Bryant University, United States

Nezih Altay, Professor, Depaul University, United States

One of the main functions of cash is to serve as insurance against operational glitches. The level of cash held is affected by the perceived risk levels. Natural disasters such as earthquakes create uncertainty for the firm. International exposure and diversification of MNCs should reduce their exposure to disaster risk.

Invited Session

85	Monday, 01:45 PM - 03:15 PM, Blue Spring 2	Track: Empirical Research in Operations Management
	Invited Session: Operation Research in Healthcare	
	Chair(s): Kejia Hu Wang Ting	

115-1135 Air Pollution and Doctors' Work Performance: Evidence from Extubation Failure in the Intensive Care Unit

Yongjian Zhu, Student, University of Science and Technology of China, China

Jingui Xie, Associate Professor, Technical University of Munich, Germany

Yugang Yu, Professor, University of Science and Technology of China, China

Zhichao Zheng, Associate Professor, Singapore Management University, Singapore

Oon Cheong Ooi, Cardiothoracic Surgeon, National University Hospital, Singapore

When examining the impacts of air pollution on the healthcare system, most studies focus on the increased demand due to air pollution-related health deterioration, taking a demand-side perspective. We extend the literature from a supply-side perspective by studying how air pollution can affect doctors' behavior and work performance.

115-1347 Simultaneous Imputation and Prediction with High-dimensional Data (SIP-HD): A Deep Learning Model for Disease Diagnosis

Zhenzhen Jia, Student, Fudan University, China

Jianqiang Hu, Professor, Fudan University, China

Kejia Hu, Assistant Professor, Vanderbilt University, United States

Qingchen Wang, Assistant Professor, University of Hong Kong, China

To achieve decent diagnostic performance when advanced medical test results are missing, our research proposes a deep learning model, SIP-HD, that simultaneously performs imputation and prediction with high-dimensional data.

115-1671 A hierarchical assignment model to allocation and scheduling courses in universities with remote work

Eduyn López, Assistant Professor, Universidad Distrital Francisco José de, Colombia

Feizar Rueda-Velasco, Associate Professor, Universidad Distrital Francisco José de, Colombia

We address a problem of allocation and scheduling courses to rooms at universities making use of a hierarchical assignment model and a mathematical programming model. It is proposed to achieve the highest possible occupation in the time slots, balancing the number of courses and some days in remote work.

115-1545 Optimizing Initial Screening for Colorectal Cancer Detection with Adherence Behavior

Yini Gao, Assistant Professor, Singapore Management University, Singapore

Yan He, Post Doc/Researcher, Singapore Management University, Singapore

Ruijie Zhang, Student, Singapore Management University, Singapore

Zhichao Zheng, Associate Professor, Singapore Management University, Singapore

We study the initial test design for early colorectal cancer detection to balance the trade-off between screening effectiveness and efficiency, considering individuals adherence behavior. We find that increasing the cutoff to the level that maximizes expected follow-ups by CRC patients can detect 104.53% more CRC incidences and prevent 80.05% colonoscopies.

115-0634 The Role of Standardized Configuration in Healthcare: An Empirical Study on Joint Surgery

Wang Ting, Student, University of Science and Technology of China, China

Xin Ding, Assistant Professor, Rutgers Business School, United States

Kejia Hu, Assistant Professor, Vanderbilt University, United States

Yun Fong Lim, Associate Professor, Singapore Management University, Singapore

Vikram Tiwari, Associate Professor, Vanderbilt University Medical Center, United States

This paper empirically explores how the standardized configuration of surgical consumables affects the clinical performance, administrative performance, and financial performance of surgery. Our findings suggest that surgical standardization promotes quality patient care at a cost-effective price and facilitates the implementation of bundle payments effectively.

Invited Session

86	Monday, 01:45 PM - 03:15 PM, Rainbow Spring 1	Track: Empirical Research in Operations Management
	Invited Session: Empirical Research in Retailing and Platform	
	Chair(s): Chloe Glaeser	

Monday, 01:45 PM - 03:15 PM

115-1483 The Impact of the AI Technology on Gig Economy Workers and Phantom Stockouts

Dmitry Mitrofanov, Assistant Professor, Boston College, United States

Serguei Netessine, Professor, The Wharton School, United States

Gig economy led to unprecedented explosion of person-to-person task outsourcing: driving, food pickup and shopping is often done by someone other than consumer. To understand trade-offs in using technology to help gig workers, we conduct field experiments on a grocery shopping platform which uses AI-enabled guidance system to help shoppers.

115-0884 Two-Level Order Picking

Vitaly Brazhkin, Assistant Professor, University of West Florida, United States

In this pilot study of the vertical dimension of picking in warehouses the efficiency of the two common lift truck routing policies, traversal and return, is compared in a two-tier order picking setup using simulation. The traversal policy is found superior to the return policy for most order picking densities.

115-1834 Cross-Channel Marketing on E-commerce Marketplaces: Impact and Strategic Budget Allocation

Qiyuan Deng, Assistant Professor, Chinese Univ of Hong Kong (Shenzhen), China

Kejia Hu, Assistant Professor, Vanderbilt University, United States

Yun Fong Lim, Associate Professor, Singapore Management University, Singapore

Using data from a world-leading seller on a popular e-commerce marketplace, we empirically verify and quantify the impact of cross-channel marketing on boosting the seller's revenue. Incorporating the empirical estimations into an optimization model, we propose a framework to allocate a seller's marketing budget across channels to maximize profit.

115-2125 Improving Human Decision-Making with Machine Learning

Park Sinchaisri, Assistant Professor, University of California Berkeley, United States

Focusing on sequential decision-making, we design a machine learning framework that can extract "best practices" from trace data and convey its insights to humans in the form of interpretable "tips". We evaluate our approach through a series of randomized controlled experiments, offering insights into the design of human-AI interfaces.

Invited Session

87	Monday, 01:45 PM - 03:15 PM, Rainbow Spring 2	Track: Operational Excellence
	Invited Session: Operational Excellence in Healthcare	
	Chair(s): Yingchao Lan	

115-0307 Enabling Frontline Employee Innovation in Hospitals - Evidence from Multiple case studies

Felix Mosner, Student, University of Cologne, Germany

Aravind Chandrasekaran, Professor, Ohio State University, United States

Fabian Sting, Professor, University of Cologne, Germany

With the occurrence of COVID-19, heightened workloads have amplified the difficulty of implementing structured innovation processes in healthcare industry once more. By turning an eye to middle managers, we conducted multiple case studies in maximum care hospitals and shed more light on their role in fostering frontline innovation performance.

115-0564 Decision Making in Healthcare

Deepa Goradia, Assistant Professor, Georgia State University, United States

Aravind Chandrasekaran, Professor, Ohio State University, United States

In this study, we explore the relationship between decision making approach and patient outcomes.

115-1057 How CMS Incentive Payments Influence Future HIT Adoption, Operational Risk and Performance in Hospitals

Rajib Dutta, Student, University of Arkansas, United States

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

Randy Bradley, Lecturer, University of Tennessee, United States

The Federal Government substantially incentivizes hospitals' use of certified health information technology (HIT). While HIT ought to improve operations, security of increasing amounts of patient data is a growing concern. We investigate how HIT incentives drive hospitals' future IT adoption and HIT's impact on data breaches and operational performance scores.

Invited Session

88	Monday, 01:45 PM - 03:15 PM, Barrel Spring 1	Track: POM-Marketing Interface
	Invited Session: Social Network and Platform in BOM	
	Chair(s): Haitao (Tony) Cui Yi Zhu	

115-0865 Understanding Customers' Expectations in Network Product Adoption: A Behavioral Investigation

Yifan Dou, Assistant Professor, Fudan University, China

Ang Gao, Associate Professor, Beijing Institute of Technology, China

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

Yuanyuan Zhou, Assistant Professor, Beijing Foreign Studies University, China

Monday, 01:45 PM - 03:15 PM

This paper studies how customers form their expectations under network effects. Lab experiments suggest that the behavioral expectation deviates from the standard fulfilled expectation equilibrium, exhibiting a "rotation-to-middle" effect. We attribute this behavioral irregularity to cognitive hierarchy and anchoring-and-adjustment. We calibrate the magnitude of the behavioral tendencies through structural model estimation.

115-1691 The Blessing and Pitfall of Behavior-based Pricing under Privacy Regulation

Yunhyoung Kim, Student, Carlson School of Management, United States
Tony Haitao Cui, Professor, University of Minnesota, United States
Yi Zhu, Associate Professor, University of Minnesota, United States

We study the impact of privacy protection regulations on behavior-based pricing. Under the regulations, consumers can opt-out privacy consents to protect their data, and firms cannot track those consumers' purchase histories. We find the regulation improves consumer surplus if the risk of privacy breach is low, but deteriorates otherwise.

115-1926 Ad Blocker: A Blessing in Disguise

Jingyan Li, Student, University of Science and Technology of China, China
Quan Zheng, Associate Professor, University of Science and Technology of China, China
Shichang Li, Student, University of Science and Technology of China, China
Jie Wu, Professor, University of Science and Technology of China, China

In this paper, we study the effects of ad blocker. Using a simple model with an advertiser, a content platform and a unit of consumers, we show that the presence of ad blocker may increase the ad quality and lead to the win-win-win outcome for the three parties.

115-0683 Prominent Platform and Simultaneous Search

Mao Yuan, Assistant Professor, Wuhan University, China
Yi Zhu, Associate Professor, University of Minnesota, United States

Consumers deflect limited attention to the prominent platform when they collect product information. This research examines how asymmetric attention on platforms alters retailers' price competition. Surprisingly, we find the prominent platform with more attention may have a lower profit than the non-prominent platform, because asymmetric attention can intensify retail competition.

Invited Session

88	Monday, 01:45 PM - 03:15 PM, Barrel Spring 2	Track: POM-Marketing Interface
	Invited Session: Retail Operations and Analytics	
	Chair(s): Lauren Lu Yiwei Wang	

115-0768 Learning Newsvendor Problems with Intertemporal Dependence and Moderate Non-stationarities

Meng Qi, Assistant Professor, Cornell University, United States
Max Shen, Professor, University of California Berkeley, United States
Zeyu Zheng, Assistant Professor, University of California Berkeley, United States

While machine learning tools have observed increasing use in data-driven inventory management problems, most of existing work assumes independent and identically distributed data. Our work adopts comparatively more realistic assumptions and develops performance guarantees for learning data-driven contextual newsvendor problems.

115-1095 The Value of Logistic Flexibility in E-commerce

Bing Bai, Student, Washington University in St. Louis, United States
Tat Chan, Professor, Washington University in St. Louis, United States
Dennis Zhang, Associate Professor, Washington University in St. Louis, United States
Fuqiang Zhang, Professor, Washington University St Louis, United States

In recent years, many online retailers start to explore improving other aspects of shipping experience rather than improving shipping speed to attract customers. We use the introduction of local pick-up stations by Alibaba to study the impact of improving logistic flexibility on online retailing.

115-1377 Gender Bias in Job Assignment? Evidence from Retail Frontline Managers

Ruoran Chen, Assistant Professor, Southwest Jiaotong University, China
Feng (Susan) Lu, Associate Professor, Purdue University, United States
Lauren Lu, Professor, Dartmouth College, United States
Simin Huang, Professor, Tsinghua University, China

While anecdotes suggest that workplace gender disparities widely exist, the current literature on this topic has not provided sufficient causal evidence. We empirically study the effect of gender on the job assignment of frontline managers in a large sportswear retail chain using personnel, sales, and operational data.

115-1475 The Value of Curated Box: Evidence from an Online Omnichannel Fashion Retailer

Yiwei Wang, Assistant Professor, Zhejiang University, China
Lauren Lu, Professor, Dartmouth College, United States

Curated box retailing is to send retailer-selected products to customers at regular intervals with the option to purchase or return. We implemented curated box retailing through a longitudinal field test, and then used difference-in-differences method to examine the causal effect of curated box retailing on omnichannel consumer behavior.

Monday, 01:45 PM - 03:15 PM

Invited Session

90	Monday, 01:45 PM - 03:15 PM, Rock Spring	Track: POM-Economics Interface
	Invited Session: Connected supply chains	
	Chair(s): Abhishek Ghosh	

115-1303 Blockchain Adoption Incentives in Supply Chains

Pnina Feldman, Associate Professor, Questrom Business School, Boston Unvers, United States

Yuze Li, Student, Boston University, United States

Gerry Tsoukalas, Associate Professor, Boston University, United States

Due to its transparent and immutable nature, blockchain technology is commonly perceived to enable creditability of product certification, and thus, improve product quality. Using a stylized model, we demonstrate that, counterintuitively, blockchain implementation may reduce manufacturers' compliance efforts and product quality.

115-2029 Stochastic Relay Network Design: Resilience To Supply Shocks

Himani Ananthula, Student, Kellogg School of Management, United States

Milind Sohoni, Professor, Indian School of Business, India

Achal Bassamboo, Professor, Northwestern University, United States

A relay point is a physical location in the transportation network where shipments can be relayed. We study the optimal relay network design problem robust to labor(drivers/supply) shocks under queuing framework. We discuss managerial insights into designing relay networks and provide estimates on value loss due to daily-level supply uncertainties.

115-0140 The Strategic Role of Logistics Insurance in a Three-Party Supply Chain

Bangdong Zhi, Lecturer, University of Bristol, United Kingdom

Yilei Liu, Assistant Professor, Institute of Chinese Financial Studies of SWUFE, China

Xiaojun Wang, Professor, University of Bristol, United Kingdom

Logistics insurance has been widely used to hedge the risk in the international trading. However, its strategic role in two trading models, i.e., CIF and FOB, has not been fully examined. We apply the game theoretical model to systematically examine its impact on supply chain participants' decisions and performance.

Contributed Session

91	Monday, 01:45 PM - 03:15 PM, Regency Ballroom Q	Track: Revenue Management and Pricing
	Contributed Session: Retail Management and Assortment Planning	
	Chair(s): Ismail Kirci Amirhossein Jafarzadeh Ghazi	

115-0653 Strawberry Or Vanilla This Week? How To Optimize Tailored Assortments For Variety-Seeking/Avoiding Consumers

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

Ismail Kirci, Assistant Professor, UIUC-Gies College Of Business, United States

Sumit Kunnumkal, Assistant Professor, Indian School of Business, India

Sridhar Seshadri, Professor, University of Illinois Urbana-Champaign, United States

We consider the problem of a retailer personalizing an assortment to a consumer who is variety-seeking or variety-avoiding, that is, less or more likely to make a repeat purchase. We characterize the structure of the optimal assortment in single and multi-period settings.

115-1522 The Impact of Risk-Awareness on Assortment Planning

Wenjie Huang, Assistant Professor, University of Hong Kong, Hong Kong, China

Junjie Lei, Student, University of Hong Kong, Hong Kong, China

Foundamental questions: Static and dynamic single-leg assortment planning problems, under multinomial logit model from the perspective of risk-aware decision makers, are studied. We derive efficient computational schemes and structure properties. Higher Level of risk-aversion implies larger assortment for both problems. Numerical experiments are conducted to validate the theoretical findings.

115-1374 Return or Not? Joint Pricing and Refund Optimization for Omni-channel Retailing

Shouchang Chen, Assistant Professor, Zhejiang University, China

Yun Fong Lim, Associate Professor, Singapore Management University, Singapore

Yimeng Sun, Post Doc/Researcher, Nanyang Technological University, Singapore

Zhenzhen Yan, Assistant Professor, Nanyang Technological University, Singapore

We study a return problem of a retailer selling multiple substitutable products through an online channel and a physical store. We characterize a consumer's sequential decisions on buying and returning a product using a generalized MLC model, based on which we provide a data-driven model for pricing and refund.

115-1201 Price and quality competition while envisioning a quality-related product recall

Amirhossein Jafarzadeh Ghazi, Student, University of Ontario Institute of Technology, Canada

Salma Karray, Professor, Ontario Tech University, Canada

Nader Azad, Associate Professor, Ontario Tech University, Canada

Monday, 01:45 PM - 03:15 PM

Many product recalls are caused by quality-related failures. In such recalls, effects may not only be limited to the firm selling the product but also extend to competing firms in the category. Developing a two-stage Nash game, we analyze quality and pricing strategies for competing firms facing a severe recall.

115-0748 Retail Product Return Management under Increased Supply Chain Expenses

Ali Shirzadeh Chaleshtari, Lecturer, Isenberg School of Management, Operations and Information Systems Department, United States
Ehsan Elahi, Associate Professor, University of Massachusetts Boston, United States

We present an inclusive analytical model capable of capturing the impacts of significant factors affecting the retail customers' behavior and using this framework, we illustrate the impact of increased supply chain expenses on customers' behavior, as well as the optimal price and refund strategies of retailers.

Contributed Session

93	Monday, 01:45 PM - 03:15 PM, Regency Ballroom P	Track: Disruptive Technologies and Operations Management
	Contributed Session: Blockchains and Digital Twins	
	Chair(s): Hing Kai Chan	

115-2017 Blockchain-enabled authentication platform for protecting intellectual property rights for digital assets

Hing Kai Chan, Professor, University of Nottingham Ningbo China, China
Tiantian Zhang, Associate Professor, University of Nottingham Ningbo China, China

Disruptive technology has grown rapidly in the last decade, but intellectual property (IP) infringement in the digital era also posed concerns. A blockchain-enabled platform solution is proposed to protect IP rights for digital assets and promote standardization of the process. The platform allows encryption, authentication, and transaction services.

115-0533 Blockchain technology for global supply chain: A guide for academics and supply chain leaders

Rita Difrancesco, Assistant Professor, Spain, Spain
Purushottam Meena, Associate Professor, College of Charleston, United States
Gopal Kumar, Associate Professor, iim raipur, India

This paper builds a theoretical framework for blockchain-enhanced supply chain performance based on qualitative research using case studies analysis and secondary data. The framework provides how blockchain improves supply chain performance and presents the major drawbacks and barriers to blockchain implementation, which help evaluate its net benefits.

115-0941 How does Blockchain-Enabled Governance Configuration Enhance Operations Management Credibility?

Hua Song, Professor, Renmin University of China, China
Wenyi Liu, Student, Renmin University of China, China
kangkang yu, Associate Professor, renmin university of china, China

Blockchain was recognized as a new governance mechanism in the operations management. Based on governance theory, we adopt the multiple case method to explore when and why the blockchain governance can improve operations credibility. We also try to find the substitutive and complementary effect between it and traditional governance mechanism.

115-0143 Digital twins for supply chain management: Functionalities, benefits and barriers

Christoph Schmidt, Post Doc/Researcher, Eth Zurich, Switzerland
Maximilian Klöckner, Post Doc/Researcher, ETH Zurich, Switzerland
Stephan Wagner, Professor, ETH Zurich, Switzerland
Sara Calcagni, Manager, Eth Zurich, Switzerland

Digital twins are a virtual data-based representation of real-world entities and processes. Conducting qualitative interviews and a Delphi study, we identify the challenges and benefits of adopting digital twins in global complex and dynamic supply networks. Benefits relate to operational efficiency, risk management and supply chain visibility.

Invited Session

95	Monday, 01:45 PM - 03:15 PM, Silver Spring 2	Track: Inventory and Logistics Management
	Invited Session: Logistics Management	
	Chair(s): Ibrahim Capar Ali Dogru	

115-1817 Improving Inbound Logistics Performance at Sawmills via a Timber Truck Notification Algorithm

Ali Dogru, Assistant Professor, University of Southern Mississippi, United States
Chao Meng, Assistant Professor, University of Southern Mississippi, United States

Queue times at sawmills are critical information for timber suppliers to make loading and scheduling decisions. We propose a simulation-based prediction model to estimate the current and future queuing times at sawmills. The proposed approach considers material handling activities at sawmills and timber trucks dispatched to destinations.

115-0949 Joint Inventory and Pricing Optimization for Resale Firms

Emily Griffin, Assistant Professor, Babson College, United States
Burcu Keskin, Professor, University of Alabama Tuscaloosa, United States

Monday, 01:45 PM - 03:15 PM

Recent growth in e-commerce and sustainability has fueled demand for resale. Resale firms source used goods, where supply is uncertain and item quality varies, from consumers online. We model this unique context as a joint inventory and pricing problem. We investigate various policies under price and quality dependent demand.

115-0231 Logistics postponement to balance transportation, holding and service costs.

Ryan Tramp, Student, University of Alabama, United States

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

In this paper, we explore the trade-off between order postponement and order tardiness under different costs, capacities, and orientations in a capacitated time space network using a modified service network design formulation. A simple heuristic is proposed to help reduce computational complexity.

115-0008 Integrating Value Stream Mapping and Control Theory: A New Dynamic Supply Chain Model

Yogendra Singh, Student, University of Exeter, United Kingdom

Stephen Disney, Professor, University of Exeter, United Kingdom

Using value stream maps, we find there are three lead times in a single supply chain echelon: the customer, supplier, and production lead time. There are two replenishment policies; one determines production quantities, the other orders raw material. Our parsimonious model captures the dynamics of both make-to-stock and make-to-order systems.

Invited Session

96	Monday, 01:45 PM - 03:15 PM, Winter Park 49	Track: Product Innovation and Technology Management
	Invited Session: External Sources of Innovation	
	Chair(s): Annapoornima Subramanian Vareska Van De Vrande	

115-0252 Absolute vs. Relative Search: Evidence from Performance Feedback on Organizational Innovative Search

Wei Yu, Assistant Professor, NUS, Singapore

Rob Nason, Associate Professor, Mcgill University, Canada

Yang Ye, Associate Professor, Southwestern University of Finance & Economics, China

Performance feedback literature connects organization-wide performance feedback to a single search area, but research recognizes that search is not conducted in isolation. We distinguish between absolute and relative perspectives of search, theorizing that performance feedback has contradictory effects on each. We test hypotheses using internal R&D and external technological transactions.

115-0305 Spend it wisely: Market and non-market strategies in the development of new drugs

Vareska Van De Vrande, Professor, Erasmus University Rotterdam, Netherlands

Annapoornima Subramanian, Associate Professor, National University of Singapore, Singapore

Moren Levesque, Professor, York University, Canada

Patricia Klopff, Assistant Professor, Rotterdam School of Management, Netherlands

Scholarly work suggests that signals sent through controversial non-market strategies like lobbying complement the signals sent through market strategies like building intellectual capital. We theoretically explain and empirically show that biopharmaceutical firms may challenge this view. Our results from a sample of 287 firms show the two strategies as substitutes.

115-0398 Public-Private and Private-Private Collaboration as Pathways for Socially Beneficial Innovation

Birgul Arslan, Assistant Professor, Erasmus University Rotterdam, Netherlands

Gurneeta Vasudeva, Associate Professor, University of Minnesota, United States

Elizabeth Hirsch, Associate Professor, University of Minnesota, United States

We examine the performance of public-private relative to private-private collaboration for innovation tasks addressing the global healthcare grand challenge of antimicrobial resistance. Collaboration risk, stemming from misaligned incentives and coordination problems, impairs the performance of public-private relative to private-private innovation tasks. This effect diminishes for projects with high technological uncertainty.

115-0438 Like whiskey: Does CVC unit performance get better with age?

Vareska Van De Vrande, Professor, Erasmus University Rotterdam, Netherlands

Annapoornima Subramanian, Associate Professor, National University of Singapore, Singapore

Moren Levesque, Professor, York University, Canada

In examining if young CVC units are subject to liability of newness, our formal decision theoretical model identifies CVC unit age to have a u-shaped relationship with its performance and CVC experience to amplify this relationship. Empirical analysis using CVC units founded between 2000 and 2014 confirms the hypothesized relationships.

Invited Session

97	Monday, 01:45 PM - 03:15 PM, Winter Park 50	Track: Socially Responsible Operations
	Invited Session: Examining New Societal Problems	
	Chair(s): Shivam Gupta Goutham Takasi	

115-0084 When Should an OEM Service the Use of a Capital Intensive Product?

Yinshi (Agnes) Gao, Student, Penn State University University Park, United States

Saurabh Bansal, Associate Professor, Penn State University University Park, United States

Monday, 01:45 PM - 03:15 PM

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

The study focuses on a servicing firm that can provide leasing and purchasing options to multiple customer segments in a heterogenous market. We identify various market and product related factors that determine whether the firm should sell the product or servitize it.

115-0206 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

In this manuscript we report on the adaptation of several operations management tools to the judicial system, and their role in alleviating court congestion. The analysis and the intervention were based on Theory of Constraints. A before-after econometric analysis was executed to evaluate the effect of these operational changes.

115-2149 Allocation of Funds in Bilevel Subsidy Welfare Programs

Wei Wei, Student, University of Massachusetts Amherst, United States

Priyank Arora, Assistant Professor, University of South Carolina, United States

Senay Solak, Professor, University of Massachusetts Amherst, United States

We study allocation of available and expected additional funds by a funding agency among various service agencies within bilevel, one-to-many, and service-focused subsidy welfare programs. We compare the resulting social impact when funding agency has versus has no equity consideration while aiming to generate a greater overall social impact.

115-0091 Not-for-Profit Operations: Incentivizing Effort by Restricting Resource Access

Goutham Takasi, Student, University of Texas at Dallas, United States

Milind Dawande, Professor, University of Texas Dallas, United States

Ganesh Janakiraman, Professor, University of Texas Dallas, United States

Harish Guda, Assistant Professor, Arizona State University, United States

We consider a not-for-profit setting where the principal (a not-for-profit organization) endows with two resources: high and base quality. We show that under some conditions, regardless of budget constraints restricting access to high-quality resources incentivizes the beneficiaries to increase their effort.

Monday, 04:30 PM - 06:00 PM

Invited Session

100	Monday, 04:30 PM - 06:00 PM, Celebration 1	Track: Retail Operations
	Invited Session: Issues in platform retailing	
	Chair(s): Aditya Jain	

115-0857 Pricing and Stocking Planning: Official vs. Third-Party Channels

Ning Ma, Student, Arizona State University, United States

Yimin Wang, Associate Professor, Arizona State University Tempe, United States

Rui Yin, Associate Professor, Arizona State University Tempe, United States

Many manufacturers operate official websites as well as contract with a third-party marketplace like Amazon. We study how such manufacturers should make production, allocation, and price decisions. We propose two production and allocation strategies and two pricing strategies to catch heterogeneous consumers, endogenous demands, and asymmetric competition.

115-1753 Pricing and Inventory Management When Consumers' Emotions Run High

Ozalp Ozer, Professor, University of Texas Dallas, United States

Arun Kumar Rout, Student, UT Dallas, United States

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

We investigate the impact of consumers' anticipated disappointment-elation and regret-rejoice on demand of products with uncertain consumers' valuation. We show that consumers' disappointment and regret aversion decrease product demand. We also show that firms' optimal pricing and quantity for such products decrease as consumers' aversion to disappointment and regret increase.

115-0725 Omni-Channel Fulfillment Models

Bahriye Cesaret, Assistant Professor, Ozyegin University, Turkey

Armagam Bayram, Assistant Professor, University of Michigan-Dearborn, United States

We consider two omni-channel implementations: ship-from-store and home-delivery, by considering customer switching behavior across the channels. Ship-from-store allows retailers to fulfill online orders from stores and FCs. Home-delivery allows customers to receive orders placed in store at home. We build a dynamic programming framework to investigate fulfillment decisions.

115-0330 The Role of Product Quality in Marketplaces

Leela Nageswaran, Assistant Professor, University of Washington, United States

Aditya Jain, Associate Professor, Baruch College, United States

Haresh Gurnani, Professor, Wake Forest University, United States

We study which mode of operation - marketplace, wholesale, or a combination - will prevail when the product quality is uncertain. In contrast to marketplace's dominance when quality is certain, we show that there may be a separating equilibrium wherein only a low-quality product is offered via marketplace.

Invited Session

101	Monday, 04:30 PM - 06:00 PM, Celebration 2	Track: Behavioral Operations Management
	Invited Session: Implications of Behavioral Studies	
	Chair(s): Lei Hua	

115-1538 Does Customer Digitalization Benefit Supply Partners? A Theoretical and Empirical Investigation

Lei Hua, Assistant Professor, University of Texas At Tyler, United States

Hui Liang, Assistant Professor, University of Texas At Tyler, United States

Xinyuan Shao, Student, University of Minnesota, United States

This paper studies the impact of customer digitalization on supply partners' financial performance using both game-theoretic and empirical analyses. We find that suppliers can benefit from customer digitalization if customer digitalization does not heavily undermine suppliers' bargaining power. Overall, our paper offers fruitful managerial implications for supply chain digitalization.

115-0325 Information Seeking Behavior in Procurement Processes

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

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

We strive to investigate the information seeking biases in Supplier Selection problem. We designed a set of experiments to model participant's capability of recognizing relevant information and optimizing the value of it in the presence of irrelevant information

115-0170 Behavioral Issues in Sustainable Supply Chain Management—A Systematic Literature Review

Anna Land, Assistant Professor, Boise State University, United States

Rüdiger Hahn, Professor, Heinrich-Heine-University Düsseldorf, Germany

Regina Hahn, Professor, Hochschule Niederrhein, Germany

Thomas Gattiker, Professor, Boise State University, United States

Individual behavior is often considered a key enabler of SSCM. Understanding behavior at the micro-level of organizations will ultimately enable SSCM to better design and improve processes and performance at the macro-level. We conduct a systematic literature review to understand factors considered by the SSCM literature analyzing behavioral issues.

Monday, 04:30 PM - 06:00 PM

115-1073 Mechanism Design for Right-to-sell Contract under Retailer Competition: Theory and Experiment

Lei Hua, Assistant Professor, University of Texas At Tyler, United States

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

Yan Wu, Associate Professor, San Jose State University, United States

This paper studies a sales problem with one supplier and multiple potential retailers who hold private information on their own inventory holding cost and compete for the right of contracting with the supplier. We theoretically and experimentally investigate multiple proposed mechanisms and uncover fruitful academic and managerial insights.

Contributed Session

102	Monday, 04:30 PM - 06:00 PM, Celebration 3	Track: Healthcare Operations Management
	Contributed Session: Healthcare Operations for COVID-19	
	Chair(s): Eyyub Kibis	

115-1063 Evaluating the Patient Access Block and Waiting Time during Omicron Surge in Hong Kong

Qihao WU, Student, The University of Hong Kong, Hong Kong, China

Yong-Hong Kuo, Assistant Professor, The University of Hong Kong, Hong Kong, China

Because of the patient surge during pandemic, severe cases of hospital access block from emergency departments to inpatient wards were reported. This situation led to healthcare operations challenges, such as long waiting times and overcrowding. We conducted time-series predictions to identify the importance of medical occupancy and admitting elderly patients.

115-0982 The Impact of Public "Word-of-Mouth" on the Prescription Practice during the COVID-19 Pandemic

Lakshminarayana Nittala, Assistant Professor, University of Dayton, United States

Sezgin Ayabakan, Assistant Professor, Temple University, United States

Subodha Kumar, Professor, Temple University, United States

Dileep Unnikrishnan, Technical Lead, Data Science and Analytics, Cloudphysician, India

Dileep Raman, Co-Founder and Chief of Health Care, Cloudphysician, India

In this work, we show that, in the context of a healthcare disaster, presence of uncertainty regarding effective therapeutic treatments can lead to the propagation of social media word-of-mouth narratives that can be detrimental to decision making by physicians. Implications for healthcare disaster management and practitioners in general are discussed.

115-1822 Hospital utilizations during Covid 19 pandemic: An efficiency problem

Eyyub Kibis, Assistant Professor, Montclair State University, United States

Musa Caglar, Professor, Tulane University, United States

Serhat Simsek, Assistant Professor, Montclair State University, United States

Subodha Kumar, Professor, Temple University, United States

Due to the failure of government policies or unsuccessful implementation of preventative measures, Covid 19 outbreak was uncontrollable in the initial phases. This created a significant burden on the healthcare system of the nation. We came up with an optimization model to provide efficient hospital utilization for outbreak control.

Contributed Session

103	Monday, 04:30 PM - 06:00 PM, Celebration 4	Track: Healthcare Operations Management
	Contributed Session: Hospital Operations Management	
	Chair(s): Surya Pathak	

115-1383 Hospital-physician Integration and Cardiac Surgery Outcomes: A U-shaped Relationship?

Hui Jia, Assistant Professor, University of La Verne, United States

Haileab Hilafu, Associate Professor, University of Tennessee Knoxville, United States

Bogdan Bichescu, Associate Professor, University of Tennessee Knoxville, United States

This study adopts an activity-based measure of hospital and physician integration (ABI) to investigate the association between integration and healthcare outcomes. We utilize patient-visit level information to test hypotheses that posit a U-shaped association between ABI and patient mortality risk, readmission risk and length of stay for CABG patients.

115-0948 Effect of tele-interviews on medical residency recruiting process

Edeial Pinker, Professor, Yale University, United States

Abraham Seidmann, Professor, Boston University, United States

Vera Tilson, Associate Professor, University of Rochester, United States

During and post-COVID many US medical residency programs turned to virtual interviews, decreasing the cost of the interviewing process for applicants. This digitization resulted in a significant increase in unfilled residency positions. We create a queueing model of the recruiting process to explain this unexpected outcome.

115-1694 Do You Have A Minute? Interrupting Nurses at Workplace and The Implications on Performance

Sophie Leroy, Professor, University of Washington Bothell, United States

Surya Pathak, Professor, University of Washington: Bothell, United States

Monday, 04:30 PM - 06:00 PM

One of the key challenges faced by nurses is the “interruption” during normal operation. Interruptions alter process flows leading to stressful work environment and productivity loss. We investigate the impact of six different classes of interruptions within hospital settings on both individual and organizational level performance.

Invited Session

104	Monday, 04:30 PM - 06:00 PM, Celebration 5	Track: Healthcare Analytics
	Invited Session: Empirical Modelling and Analytics in Enhancing the Delivery of Healthcare	
	Chair(s): Saeede eftekhari	

115-0181 Care for the Mind Amid Chronic Diseases: An Interpretable AI Approach Using IoT

Jiaheng Xie, Assistant Professor, University of Delaware, United States
Xiaohang Zhao, Assistant Professor, Shanghai University of Economics and Finance, China
Xiang Liu, Student, University of Delaware, United States
Xiao Fang, Professor, University of Delaware, United States

Health sensing for chronic disease management creates immense benefits for social welfare. Existing health sensing studies primarily focus on the prediction of physical chronic diseases. Depression, a widespread complication of chronic diseases, is however understudied. We draw on the medical literature to support depression prediction using motion sensor data.

115-0213 Battling Therapeutic Inertia in Diabetes Management: Empirical Evidence from Patient Portal

Seokjun Youn, Assistant Professor, University of Arizona, United States
Yeongin Kim, Assistant Professor, Virginia Commonwealth University, United States
Kyung Sung Jung, Associate Professor, University of Florida, United States
Young Kwark, Assistant Professor, University of Florida, United States
Dong-Gil Ko, Associate Professor, University of Cincinnati, United States

Therapeutic inertia, a failure to intensify or start therapy on time, is a major barrier to effective type 2 diabetes care. We find strong evidence that a patient portal reduces therapeutic inertia using generalized difference-in-differences. We go into mechanism studies and discuss implications for realizing the patient portal's potential benefits.

115-1551 Improving efficiency and effectiveness in rehabilitation services

Rajesh Srivastava, Professor, Florida Gulf Coast University, United States
Elias Kirche, Associate Professor, Florida Gulf Coast University, United States
Yong-Taek Min, Assistant Professor, Florida Gulf Coast University, United States

We examine the factors and conditions that affect patient outcomes in rehabilitation services at acute care facilities to predict patient discharge destinations and length of stay. We analyze electronic health records with patient individual characteristics and mobility measures to improve allocation of staff and resources with data mining approach.

115-1294 Health Information Exchanges and Continuity of Care

Saeede eftekhari, Assistant Professor, Tulane University, United States
Ram Ramesh, Professor, State University of New York, United States

After a patient is referred to a specialist by a Primary Care Physician (PCP), it is critical to maintain the continuity of care by returning patients to PCPs. In this research, we show that Health Information Exchanges (HIEs) have the potential to speed up the return of patients.

Invited Session

105	Monday, 04:30 PM - 06:00 PM, Celebration 6	Track: POM-Finance Interface
	Invited Session: Retail Applications in OM-Finance Interface	
	Chair(s): Aadhaar Chaturvedi	

115-1351 Adverse Selection and Information Signals in Peer-to-peer Lending Markets

Peng-Chu Chen, Assistant Professor, The University of Hong Kong, Hong Kong, China
Ran Tao, Student, The University of Hong Kong, Hong Kong, China

We study credit risk in a peer-to-peer lending market where operators require different types of information from borrowers to mitigate the effects of adverse selection. We show that soft information increases loan matching and credit risk; while hard information reduces both. Requiring both types of information can strike a balance.

115-0743 The Value of Co-branded Credit Cards in Online Retailing: Empirical Evidence from HKTVmall

Huijun Chen, Student, Hong Kong University of Science and Technology, Hong Kong, China
Kristiaan Helsen, Associate Professor, Hong Kong University of Science and Technology, Hong Kong, China
Haoyu Liu, Assistant Professor, City University of Macau, Macao, China

How do co-branded credit cards affect consumer behavior in online retailing? We investigate this problem by leveraging a quasi-experiment involving the issue of a co-branded credit card by Citibank and HKTVmall. We perform difference-in-differences analysis with matching. We show that the co-branded credit card increases consumers' ordering frequency and size

115-2100 Disclosure of Private Label Producers: Impact on Retail Operations and Consumer Welfare

Alexander Maslov, Post Doc/Researcher, Vanderbilt University, United States

Monday, 04:30 PM - 06:00 PM

The paper studies the disclosure effect of private label producers on retail operations and consumer welfare. I show that conditional on whether the disclosure impacts the perceived quality of the private label itself, the same-category national label or both labels, there may be gains or losses for all supply-chain parties.

Invited Session

106	Monday, 04:30 PM - 06:00 PM, Celebration 7	Track: Sustainable Operations Management
	Invited Session: Emerging Topics in Sustainable Operations	
	Chair(s): Ioannis Bellos Hang Ren	

115-0199 The Role of Dealer Demonstration in the Adoption of Electric Vehicles

Hang Ren, Assistant Professor, George Mason University, United States
Ioannis Bellos, Associate Professor, George Mason University, United States
Vishal Agrawal, Associate Professor, Georgetown 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.

115-0214 Economic and Environmental Implications of Ridehailing and the Vehicle Age Limit Requirements

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

We study an important decision for ridehailing platforms, namely, imposing a vehicle age limit. The limit influences not only the price and service quality of ridehailing, but also its competition with the primary and secondary car sales markets. We explore both the economic and environmental implications of this decision.

115-0991 Circular economy of EV batteries: Economic and environmental impacts of repurposing

Lingling shi, Post Doc/Researcher, Southern Methodist University, United States
Metin Cakanyildirim, Professor, University of Texas Dallas, United States
Sila Cetinkaya, Professor, Southern Methodist University, United States

The fast growth of electric vehicle (EV) market and the increased energy storage market stimulate the demand for batteries and in turn the critical minerals, which face high supply uncertainty. We investigate the economic and environmental impacts of repurposing spent EV batteries for energy storage in addition to recycling.

115-1856 Optimal Design of Extended Producer Responsibility Regulation for Emerging Industries

guiyun feng, Assistant Professor, Singapore Management University, Singapore
Natalie (Ximin) Huang, Assistant Professor, University of Minnesota, United States
Yangfang (Helen) Zhou, Associate Professor, Singapore Management University, Singapore
Bin Li, Assistant Professor, Wuhan University, China

We study the optimal timing decision of EPR regulation, which is an important lever especially for emerging industries (e.g., EVs). In those cases, delaying the regulation may allow the industries to advance further along the learning curve. Our study provides useful insight on the optimal design of EPR regulation.

Contributed Session

107	Monday, 04:30 PM - 06:00 PM, Celebration 8	Track: Sustainable Operations Management
	Contributed Session: Closed Loop Supply Chain Management (II)	
	Chair(s): Hamed Farrokhiasl	

115-1960 Crisis of Plastic: Business Implications from Data Analytics

Nesreen El-Rayes, Student, New Jersey Inst of Technology, United States
Aichih Chang, Assistant Professor, New Jersey Institute of Technology, United States
Jim (Junmin) Shi, Associate Professor, New Jersey Inst of Technology, United States

This study sheds light on the prevailing plastic crisis with insights derived from the analysis of plastic consumption by applying machine learning and visualizations on real-world data through three lenses: (1) a global-level view, (2) State level view in the United States, and (3) industry-level view in the United States.

115-1606 Study and analysis of circular economy practices in Morocco: Evidence from Agro-industry

Tarik Zouadi, Associate Professor, International University of Rabat, Morocco
Zakaria El Hatham, Student, International University of Rabat, Morocco
Raja Sreedharan, Senior Lecturer, CARDIFF METROPOLITAN UNIVERSITY, United Kingdom

As the world has become more conscious of sustainable business operations, industries are pushing to adopt circular economy practices to enhance their supply chains. This work addresses the Moroccan Agro-industry to analyze how olives are recycled and how secondary raw materials are extracted to make fuel and cosmetic products.

115-1594 Post disaster climate change perceptions in SW Florida

Monday, 04:30 PM - 06:00 PM

Hulya Yazici, Professor, Florida Gulf Coast University, United States

Climate change is getting acceptance by larger communities. Disaster experience plays a role in the perceptions of climate change (Li, Cao and Shi, 2022). This study reports the results of climate change perceptions of college students after Hurricane Ian. Results are compared to Yale Climate Opinion Map 2021 findings.

115-1902 A new approach to deal with construction and demolition waste

Hamed Farrokhiasl, Student, University of Wisconsin - Milwaukee, United States

Xiaohang Yue, Associate Professor, University of Wisconsin - Milwaukee, United States

This research presents a bi-objective multi-period location routing model for construction and demolition waste management. We aim to integrate a multi-attribute decision-making tools with the optimization mathematical model to specify the suitable location of integrated recycling/disposal facilities considering various disposal technologies like landfill, burning, and composting.

Invited Session

108	Monday, 04:30 PM - 06:00 PM, Celebration 9	Track: Supply Chain Management
	Invited Session: Recent Advances in Supply Chain Management	
	Chair(s): Zhichao Feng	

115-0152 Fast Rates for Contextual Linear Optimization

Yichun Hu, Student, Cornell University, United States

Xiaoje Mao, Assistant Professor, Tsinghua University, China

Nathan Kallus, Assistant Professor, Cornell University, United States

We study a linear optimization problem where coefficients are uncertain and need to be estimated from contextual/covariates information. We theoretically analyze a standard estimate-then-optimize approach and recent new approaches that integrates estimation and optimization. Our analyses reveal when the simpler estimate-then-optimize approach can outperform the sophisticated integrated approaches.

115-0477 Multi-product Dynamic Upgrades

Justin Goodson, Associate Professor, Saint Louis University, 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.

115-0525 Asymptotic optimality of projected inventory level policies for perishable inventory system with positive lead times

Jinzhi Bu, Assistant Professor, The Hong Kong Polytechnic University, Hong Kong, China

Xiting Gong, Associate Professor, The Chinese University of Hong Kong, China

Huanyu Yin, Student, The Chinese University of Hong Kong, Hong Kong, China

We consider a periodic-review perishable inventory systems with positive lead times, where we propose a new class of projected inventory level (PIL) policies. Among others, we prove the best PIL policy is asymptotically optimal with large penalty costs under a class of demand distributions. Our numerical study demonstrates its effectiveness.

115-0543 M/M/s On Demand: Queues with On-Demand and Reserved Servers

Zhichao Feng, Assistant Professor, Hong Kong Polytechnic Univ, Hong Kong, China

Milind Dawande, Professor, University of Texas Dallas, United States

Ganesh Janakiraman, Professor, University of Texas Dallas, United States

Anyan Qi, Assistant Professor, University of Texas Dallas, United States

We analyze a queueing system that employs both "reserved" and "on-demand" servers - the number of reserved servers is decided at the beginning of the time-horizon while that of on-demand servers is decided dynamically. The objective is to minimize the long-run average cost incurred in hiring servers and in waiting.

115-0854 UCB-Type Learning Algorithms with Kaplan-Meier Estimator for Lost-Sales Inventory Model with Lead Times

Chengyi Lyu, Student, University of Colorado Boulder, United States

Huanan Zhang, Assistant Professor, University of Colorado Boulder, United States

Linwei Xin, Associate Professor, University of Chicago, United States

In this paper, we consider a classic periodic-review lost-sales inventory system with lead times. We develop an Upper Confidence Boulder (UCB)-type learning framework and show it can be applied to the learning of not only the optimal base-stock policy, but also the optimal base-stock policy.

Invited Session

109	Monday, 04:30 PM - 06:00 PM, Celebration 10	Track: Supply Chain Management
	Invited Session: Recent Advances on Data-Driven Methods for Supply Chain Management	
	Chair(s): Meng Qi	

115-0219 AI vs. Human Buyers: A Study of Alibaba's Inventory Replenishment System

Jiaxi Liu, xxx, Alibaba Group, China

Shuyi Lin, xxx, Alibaba Group, China

Linwei Xin, Associate Professor, University of Chicago, United States

Monday, 04:30 PM - 06:00 PM

Yidong Zhang, xxx, Alibaba Group, China

Alibaba has been exploring a new algorithmic replenishment system. The algorithms combine state-of-the-art deep-reinforcement-learning techniques with the framework of fictitious play. We present evidence algorithms outperform human-buyers. We have also observed panic buying from human-buyers during lockdowns in China amid the pandemic, whereas panic buying can be mitigated under algorithms.

115-0448 Network Revenue Management with ℓ_1 -Nonparametric Demand Learning: \sqrt{T} -regret and Polynomial Dimension Dependency

Sentao Miao, Assistant Professor, McGill University, Canada

Yining Wang, Assistant Professor, University of Florida, United States

This paper studies the classic price-based network revenue management (NRM) problem with non-parametric demand learning. We propose a robust ellipsoid method adapted to the NRM setting in a non-trivial manner, and this algorithm achieves the desired low regret, which has been an open problem.

Invited Session

110	Monday, 04:30 PM - 06:00 PM, Celebration 11	Track: Social Media and Web 2.0
	Invited Session: Social Media and UGC	
	Chair(s): Qili Wang	

115-0126 Cryptocurrency Market Reaction to Twitter Sentiment: An Event Study

Tong Shen, Student, University of Connecticut, United States

Whether the pattern of how social media affects the stock market applies to the cryptocurrency market is still unclear. In this paper, we study the cryptocurrency market reaction to celebrities' tweets over one year using the event study methodology.

115-0150 How Ad-Sponsored Strategy Affects Content Creation: Empirical Evidence from a Web Novel Platform

Kaiyu Zhang, Student, University of Connecticut, United States

Qili Wang, Student, University of Florida, United States

Liangfei Qiu, Associate Professor, University of Florida, United States

The web novel economy has been taking a pay-per-view model for business. However, some web novel platforms introduced ad-sponsored models to attract readers by providing free content. Our study leverages a policy change to empirically investigate the impact of adopting ad-sponsored strategies on writers' content creation.

115-0179 Designing a Personalized Recommender Framework Towards Better Content Creation Strategy

Hong Zhang, Student, University of Texas Dallas, United States

Hongchang Wang, Assistant Professor, University of Texas at Dallas, United States

Amit Mehra, Professor, University of Texas Dallas, United States

Eric Zheng, Professor, University of Texas Dallas, United States

We aim to develop a personalized recommender system to assist content creators to adopt better creation strategies with improved sales and user engagement. We show the algorithm's effectiveness by conducting extensive empirical experiments in the context of non-fungible token (NFT) markets.

115-0265 Stimulating Intrinsic Motivation of Human Annotators for AI Fairness

Yizhi Liu, Student, University of Maryland - College Park, United States

Siva Viswanathan, Professor, University of Maryland, United States

Human annotators are one pillar of the rapid growth of artificial intelligence (AI) but also a source of racial bias. We conducted field experiments to examine the effectiveness of financial incentives, moral suasion, learner autonomy, and their interactions on reducing the racial bias of human annotators and AI models.

Invited Session

111	Monday, 04:30 PM - 06:00 PM, Celebration 12	Track: Humanitarian Operations and Crisis Management
	Invited Session: Behavioral Elements and Humanitarian Operations Management	
	Chair(s): Mahyar Eftekhari	

115-0114 Workforce Configuration in Charity Setting

Mahyar Eftekhari, Associate Professor, Arizona State University Tempe, United States

Joline Uichanco, Associate Professor, University of Michigan, United States

Chao Wu, Student, Arizona State University, United States

We study a problem of workforce management in charity settings, and develop an optimization model to enhance the volunteer group configuration under a random volunteer turnout. Our model incorporates the heterogeneity of volunteers, balances understaffing and overstaffing costs, and explicitly connects individuals' time and monetary donation.

115-1490 Pushing the Limits: changing organizational structures in IFRC's humanitarian response operations.

Lauren Bateman, Student, George Washington University, United States

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

Monday, 04:30 PM - 06:00 PM

International humanitarian response uses a modular sectoral structure to organize operations in most types of disasters. We are now seeing that, in certain novel disasters, that structure is being changed. Using case studies, this work seeks to understand when the traditional structure may need to be changed, and why.

115-1621 Crowdfunding nonprofits: the focused charity evaluators' model

Gemma Berenguer, Assistant Professor, Universidad Carlos III de Madrid, Spain

Dashi Singham, Associate Professor, Naval Postgraduate School, United States

We study the nonprofit crowdfunding market from the perspective of a crowdfunding platform that recommends a small number of nonprofit organizations (NPOs). We study the optimal menu of NPOs that the platform should recommend while taking into account the donors' preferences and the platform's objective to maximize total utility.

115-0371 Does Volunteering Crowd Out Donations? Evidence from Online Experiments

Mahyar Eftekhari, Associate Professor, Arizona State University Tempe, United States

Chao Wu, Student, Arizona State University, United States

Charities are cautioned against providing volunteer opportunities to potential donors because volunteers are considered as unreliable source of labor supply, and volunteering is assumed to crowd out monetary donation. In this study, we examine the causal relationship between individuals' volunteering and their subsequent donation decisions through two sets of experiments.

Contributed Session

112	Monday, 04:30 PM - 06:00 PM, Celebration 13	Track: Teaching/Pedagogy in POM
	Contributed Session: Workshop: Emergency! The ED Operations Simulation Game	
	Chair(s): Craig Froehle	

115-0017 Emergency! The ED Operations Simulation Game

Craig Froehle, Professor, University of Cincinnati, United States

This session is a hands-on demonstration of Emergency!, a cooperative, educational simulation game based on an actual Emergency Department. It helps students understand operations concepts like how variability influences service performance, flexibility's role in managing service capacity, and the value of shifting capacity in response to changes in demand.

Invited Session

113	Monday, 04:30 PM - 06:00 PM, Celebration 14	Track: Service Operations
	Invited Session: Designing and operating on-demand service platforms	
	Chair(s): Felix Papier	

115-0436 The Impact of Automation on Workers when Workers are Strategic: The Case of Ride-hailing

Saif Benjaafar, Professor, University of Minnesota, United States

Zicheng Wang, Post Doc/Researcher, University of Minnesota, United States

Xiaotang Yang, Student, University of Minnesota, United States

We study the impact of automation on worker welfare when workers are strategic. We ground our analysis in the setting of a ride-hailing service that operates a mixed fleet with human drivers and autonomous vehicles. We show that the introduction of automation can improve both efficiency and worker welfare.

115-0569 Electric Vehicle Capacity Planning

Francisco Castro, Assistant Professor, Anderson School of Management, United States

We consider a platform that operates a fleet of electric vehicles. We analyze the number of vehicles and charging stations required to serve all the demand. Fewer chargers imply a larger fleet, however, under optimal dispatch, the platform uses charging vehicles to effectively reduce an otherwise too-large fleet.

115-0851 Market Thickness in Online Food Delivery Platforms: The Impact of Food Processing Times

Yanlu Zhao, Assistant Professor, Durham University, United Kingdom

Felix Papier, Professor, ESSEC Business School, France

Chung-Piaw Teo, Professor, National University of Singapore, Singapore

We study matching drivers with orders in online food delivery platforms and develop algorithms that use uncertain food processing times to 'delay' the matching. We derive structural properties and use a real dataset to show that our policy leads to 43% less costs and 27% less idling at restaurants.

115-0427 Online Retailing with Authentication: Honesty, Distinguishability and Misauthentication

Baolong Liu, Assistant Professor, ShanghaiTech University, China

Yanlu Zhao, Assistant Professor, Durham University, United Kingdom

We investigate platforms that first authenticate sellers' products and fulfill orders if the products are authentic. Authentication helps consumers avoid counterfeits, but it's costly, time-consuming, and possibly inaccurate. We develop Bayesian queueing models to characterize seller-authenticator collaborative decisions considering consumers' distinguishability and conclude authentication might hurt consumers with threshold manners.

Monday, 04:30 PM - 06:00 PM

Invited Session

114	Monday, 04:30 PM - 06:00 PM, Celebration 15	Track: Information Systems and Operations Management
	Invited Session: Social Platforms	
	Chair(s): Aslan Lotfi	

115-0241 Measuring the Influence of Multichannel Digital Advertising: A Fractional Calculus-Based Approach

Aslan Lotfi, Assistant Professor, University of Richmond, United States
Xinxue Qu, Assistant Professor, University of Notre Dame, United States
Zhengrui Jiang, Professor, Nanjing University, China

We introduce a new adstock model in which we use fractional calculus to account for adstock decline that occurs due to memory decay over time. Our results show that the new model more effectively determines the influence of advertising exposures through different digital channels than does a widely-used benchmark model.

115-1639 Content Co-Production and the Influence on Follower Growth

Xinxue Qu, Assistant Professor, University of Notre Dame, United States
Sophie Zhai, Assistant Professor, University of Oklahoma, United States

This study investigates an important phenomenon of social media content development - co-production among social influencers. Building on the literature on social media strategy and team collaboration, we examine whether co-production content can benefit team members regarding follower growth and which influencer(s) can benefit the most.

115-1228 How do firms design and leverage Twitter activities to improve operational performance?

Ana Castillo, Assistant Professor, University of Granada, Spain
Laura Ruiz, Assistant Professor, NEOMA Business School, France
Jose Benitez, Professor, Edhec Business School, Spain
Ashish Jha, Associate Professor, Trinity College Dublin, Ireland

Using a sample of 225 companies and secondary data, this research investigates whether the customers' social media behavior affects the firm's initiatives on social media and the impact of firms' social media initiatives on firms' operational performance. We focus on Twitter activities. Preliminary results support our theory.

115-1660 Hosting and Promoting Extremism: Identifying White Nationalist Mobilizations on Social Media Platforms

Jonathan Gomez Martinez, Student, Emory University, United States
Ramnath Chellappa, Associate Professor, Emory University, United States

Domestic extremism is a growing threat in the United States and social media platforms are credited with promoting related content. In this work, we identify online trends which precede white nationalist mobilizations. We compare user interactions on Twitter and Parler as well as consider interactions between the platforms.

Invited Session

115	Monday, 04:30 PM - 06:00 PM, Coral Spring 1	Track: Emerging Topics in Operations Management
	Invited Session: Sustainability Across Firms and Industry Boundaries	
	Chair(s): Dwaipayyan Roy	

115-0083 Competitive Sustainable Agricultural Supply Chain Network Model with Environmental and Social Sustainability Considerations

Deniz Besik, Assistant Professor, University of Richmond, United States
Sara Saberi, Assistant Professor, Worcester Polytechnic Institute, United States
Pritha Dutta, Assistant Professor, Pace university, United States
Rodrigo Mercado Fernandez, Assistant Professor, Tecnologico De Monterrey, Mexico

This paper presents a competitive, multiperiod and multicriteria agricultural supply chain network model that captures all three aspects of sustainability: financial, environmental, and social, which is the Triple Bottom Line. The agri-food firms compete for farmland and labor as well as to sell their agricultural products at demand markets.

115-0194 Hiding Behind Complexity: Supply Chain, Oversight, Race, and the Opioid Crisis

Iman Attari, Student, Indiana University Bloomington, United States
Jonathan Helm, Associate Professor, Kelley School of Business, United States
Jorge Mejia, Associate Professor, Indiana University, United States

In this study, we show that complexity of prescription opioid supply chains allowed mass quantities of opioids to escape detection by the DEA. Further, we find new evidence showing the greater impact of complexity on dispensing in non-white communities that are usually excluded from government's response to the opioid crisis.

115-0922 The Impact of Food Delivery Platforms on Small-Business Restaurants: Implications for Commission Rates and Legislations

Hailong Cui, Assistant Professor, University of Minnesota, United States
Rui Niu, Software Engineer, Amazon.com, United States
Xin Tong, Assistant Professor, University of Southern California, United States

Monday, 04:30 PM - 06:00 PM

We empirically study the impact of online food delivery platforms on small-business restaurants in California. We collect unique panel data sets and use econometric and machine learning methods to research the implications of platform's commission rates and listing menus of restaurants without explicit contracts.

115-0065 Decision Reversal Among Small and Medium Sustainable Suppliers: A Behavioral Investigation

Shalique Sidhikh, Assistant Professor, Indian Institute of Management, Bangalor, India
Sidhartha Padhi, Professor, Indian Institute of Management Kozhikode, India
Nagesh Murthy, Professor, University of Oregon, United States

In this study, we address a hitherto unexplored but serious issue of decision reversals among small and medium-sized sustainable suppliers in the lower tiers of the supply chain. We test the effect of myopic loss aversion and reference thinking using vignette-based experiments among sustainable food suppliers in South India.

Contributed Session

116	Monday, 04:30 PM - 06:00 PM, Coral Spring 2	Track: Emerging Topics in Operations Management
	Contributed Session: Platforms	
	Chair(s): Siyu Du	

115-0237 Capacity Sharing for Ride-Sourcing Platforms under Competition

Xiaonan Li, Student, Tongji University, China
Xiangyong Li, Professor, Tongji University, China

Motivated by concern for different stakeholders' welfare under capacity sharing strategies, we examine platform competition in a ride-sourcing market context where platforms play a Cournot competition. For each considered capacity settings, we examine the implications of the constrained capacity and capacity sharing on platforms, passengers, drivers, and society.

115-1160 The Optimal Content Provision Strategy for a Streaming Platform: Pure Agency, Self-production or Collaboration

Jie Wu, Professor, School of Management, China
Siyu Du, Student, University of Science and Technology of China, China
Xiang Ji, Associate Professor, University of Science and Technology of China, China
Mingjun Li, Post Doc/Researcher, University of Science and Technology of China, China

This research analyzes the optimal content provision strategy for a streaming platform. Our results indicate that as the effectiveness of the third-party (the platform) increases, it increasingly prefers the pure agency (self-production) strategy. When collaboration effectiveness increases, collaboration becomes the optimal strategy for the platform.

115-2042 Delivering parcels through smart mobile lockers under market expansion and competition

Si Liu, Student, McMaster University, Canada
Jiaao Zhang, Student, Macau University of Science and Technology, Macao, China

We study a new delivery technology and aim to maximize its revenue, which can be forecasted through a discrete customer choice model. We model the service point locating the problem of the system, which involves two stakeholders, a leader, the bus operator, and a follower, a start-up third-party platform.

115-2140 Artificial Intelligence Application in times of crisis: a real-world case study of an emerging country

Guilherme Vidal, Student, Pontificia Universidade Católica do Rio de Janeiro - PUC-Rio, Brazil

This study proposes a novel data-driven MRO inventory management, combining time series clustering and artificial neural networks with genetic algorithms techniques. A mixed-method approach, with a real case study in an emerging economy, illustrates how Artificial Intelligence can contribute to OSCM resilience in times of crisis.

Contributed Session

117	Monday, 04:30 PM - 06:00 PM, Blue Spring 1	Track: Supply Chain Risk Management
	Contributed Session: SC Disruptions	
	Chair(s): Laharish Guntuka	

115-1330 Disruption and Rerouting in Supply Chain Networks

John Birge, Professor, University of Chicago, United States
Agostino Capponi, Associate Professor, Columbia University, United States
Peng-Chu Chen, Assistant Professor, The University of Hong Kong, Hong Kong, China

We study systemic risk in a supply chain network where firms can be hit by cost or demand shocks that propagate through the network. We show that, as long as firms have large initial equity buffers, network fragility is low if both buyer diversification and supplier diversification are low.

115-0946 How does digital technology establish smart risk management system of supply chain finance?

Wenyi Liu, Student, Renmin University of China, China

We explore how the structured credit based on the supply chain operation can be integrated with the digital credit based on the operator portrait in supply chain finance to form intelligent credit, and conclude the processes including scene formation, asset penetration, fine management, early warning, information governance and digital reputation.

Monday, 04:30 PM - 06:00 PM

115-0220 Supply Disruption in Multi-Tier Supply Chains: Competition and Network Configuration

Hongfan Chen, Assistant Professor, Chinese Univ of Hong Kong, Hong Kong, China

Sean Zhou, Professor, Chinese Univ of Hong Kong, Hong Kong, China

Yixin ZHU, Student, Chinese University of Hong Kong, Hong Kong, China

We consider a three-tier supply chain network with two firms in each tier. One firm in the network is susceptible to disruption risk. We examine how the impact of disruption on the performance of both centralized and decentralized supply chains differs when the disruption/missing link occurs at different positions.

115-0301 SUPPLY CHAIN PLASTICITY POST DISRUPTIONS? WHAT IS IT AND WHY DOES(?) IT MATTER?

Laharish Guntuka, Assistant Professor, Rochester Institute of Technology, United States

Ellie Falcone, Assistant Professor, Oklahoma State University, United States

Steven Carnovale, Assistant Professor, Rochester Institute of Technology, United States

This study pursues two broad research questions, does supply chain plasticity exist? If so, why does it matter? First, we explored to what degree do a firm engage in plasticity after a disruption, captured as the change of firm structural holes, network centrality, and clustering. Second, we determined plasticity's implication.

Invited Session

118	Monday, 04:30 PM - 06:00 PM, Blue Spring 2	Track: Empirical Research in Operations Management
	Invited Session: Empirical Research on Retail Operations	
	Chair(s): Stanley Lim Jinjia HUANG	

115-0875 Local Fulfillment in E-Commerce: Structural Estimation of Fulfilling Demand Sensitive to Delivery Speed

Dayton Steele, Professor, University of Minnesota, United States

Saravanan Kesavan, Professor, University of North Carolina Chapel Hill, United States

Fulfilling orders in e-commerce through front distributions centers (DCs) closer to the customer improves delivery speed to drive increased sales but at increased inventory costs. In the context of JD.com, we build and estimate a structural model that captures this tradeoff.

115-1934 The Resilience of Digital Goods: Evidence from Online Reading Consumption

Jin Liu, Student, University of Science and Technology of China, China

Lizheng Wang, Post Doc/Researcher, University of Science and Technology of China, China

Yongjun Li, Associate Professor, University of Science and Technology of China, China

Junhong Chu, Professor, University of Hong Kong, Hong Kong, China

This study provides interesting empirical evidence on economic resilience of digital goods. Using a combination of COVID-19 epidemiological and consumer-level consumption data, we found that digital goods resilience was associated with a per capita increase of 17.98 Chinese yuan (CNY) in consumption. Furthermore, we uncover some of the underlying mechanisms.

115-1283 Marketplace Expansion through Marquee Seller Adoption: Externalities and Quality Implications

Wenchang Zhang, Assistant Professor, Kelley School of Business, United States

Wedad Elmaghraby, Professor, Robert H. Smith School of Business, United States

Ashish Kabra, Assistant Professor, university of maryland, United States

In the race to establish themselves, many early-stage online marketplaces choose to accelerate their growth by adding marquee (established brand name) sellers. We study the implications of marquee seller entry on smaller, unbranded sellers in a marketplace when marquee sellers can vary across the quality of information/service they provide.

115-0917 Economic and Operational Implications of Third-Party Delivery Platforms

Jinjia HUANG, Post Doc/Researcher, IORA, National University of Singapore, Singapore

Stanley Lim, Assistant Professor, Michigan State University, United States

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

We examine store- and department-level changes in the sales and inventory performance of a traditionally offline grocery chain from the entry of a third-party delivery platform. Leveraging a natural experiment design, our results suggest heterogeneous effects across departments over several metrics after platform's entry. We explore implications on inventory management.

Invited Session

119	Monday, 04:30 PM - 06:00 PM, Rainbow Spring 1	Track: Empirical Research in Operations Management
	Invited Session: Empirical Research in Emerging Topics of Logistics and Operations Management	
	Chair(s): Sukrit Pal	

115-0411 Patient Outcomes as Influenced by Clinical Focus and the Timing of Healthcare Decisions

Aman Goswami, Student, Rutgers Business School, United States

Xin Ding, Assistant Professor, Rutgers Business School, United States

David Dreyfus, Assistant Professor, Rutgers Business School, United States

Monday, 04:30 PM - 06:00 PM

Leveraging patient-level data from Nationwide Inpatient Sample, our research examines how clinical focus and time to procedure influence patient outcomes like length of stay. Our results validate critical hypotheses linking patient outcomes to both the timing of healthcare decisions and the degree of specialization at different levels within a hospital.

115-0619 Location and Environmental Biases of Procurement Professionals in Sourcing Decisions

Dustin Cole, Assistant Professor, Auburn University, United States
Sriram Narayanan, Professor, Michigan State University, United States
Tobias Schoenherr, Professor, Michigan State University, United States
Charles Corbett, Professor, UCLA Anderson School of Management, United States

This research uses a vignette experiment administered to procurement professional to examine how competing environmental and supplier location decisions are balanced in sourcing decisions. We find a preference for local suppliers with lower carbon emissions to the point where a supplier with a better overall environmental profile will be ignored.

115-1562 Evaluating hospital operations and patient access in response to Certificate of Need application outcomes

Jonathan Phares, Assistant Professor, Iowa State University, United States

Certificate of Need (CON) should drive hospital utilization by ensuring hospital capacity is located where it is needed most. We analyze publicly available data to evaluate hospital utilization, competition, and patient access in markets following approvals and denials of CON applications.

115-1608 Assessing Crowdsourced Delivery Drivers' Intent to Continue Working with Your App

Michael Dwyer, Student, Iowa State University, United States
Robert Overstreet, Assistant Professor, Iowa State University, United States
William Rose, Assistant Professor, Iowa State University, United States

Companies interested in alternative last-mile logistics solutions often employ crowdsourcing. This research will examine delivery drivers' perceptions of crowdsourcing applications' electronic monitoring and algorithmic management. Drivers may alleviate cognitive dissonance related to monitoring and management practices through negative word-of-mouth, which may affect their intent to continue working with an application.

Invited Session

120	Monday, 04:30 PM - 06:00 PM, Rainbow Spring 2	Track: Operational Excellence
	Invited Session: Panel: New Textbooks in Production and Operations Management	
	Chair(s): Torbjørn Netland	

115-2063 Panel: New Textbooks in Production and Operations Management

Nada Sanders, Professor, Northeastern University, United States
F. Robert Jacobs, Emeritus Professor, Indiana University Bloomington, United States
Jay Heizer, Emeritus Professor, Ops Mgt, United States
Torbjørn Netland, Assistant Professor, ETH Zurich, Switzerland

Authors discuss their latest textbooks in production, operations, and supply chain management: Sander & Reid "Operations Management: An Integrated Approach;" Jacobs & Chase "Operations and Supply Chain Management;" Heizer & Render "Operations Management: Sustainability and Supply Chain Management;" Baudin & Netland "Introduction to Manufacturing: An Industrial Engineering and Management Perspective."

Invited Session

121	Monday, 04:30 PM - 06:00 PM, Barrel Spring 1	Track: POM-Marketing Interface
	Invited Session: Online Platform Strategies	
	Chair(s): Baojun Jiang Jiaru Bai	

115-0068 Can Third-Party Sellers Benefit from a Platform's Entry to the Market?

Yiting Deng, Assistant Professor, University College London, United Kingdom
Christopher Tang, Professor, University of California Los Angeles, United States
Wei Wang, Associate Professor, University of International Business And Economics, China
Steve Yoo, Associate Professor, University College London, United Kingdom

It is a common belief that an e-commerce platform's market entry will be detrimental to third-party sellers selling similar products on the platform. Our empirical analysis shows the opposite. We develop a duopoly model that incorporates the changing competitive dynamic after platform entry to explain this unexpected exploratory result.

115-0161 Advertising Format and Content Provision on Revenue-Sharing Content Platforms

Baojun Jiang, Professor, Washington University St Louis, United States
Lin Tian, Associate Professor, Fudan University, China
Yuansheng Wei, Assistant Professor, Sun Yat-Sen University, China

This paper studies user content creation under different advertising formats on content platforms. We show that an increase in creator substitutability can increase the profits of the platform and the content creators and improve the consumer surplus.

115-1281 Mobile App Push Strategies on Customer Engagement

Jiaru Bai, Assistant Professor, Stony Brook University, United States
Qiang Gao, Assistant Professor, City University of New York, United States

Monday, 04:30 PM - 06:00 PM

Zhuping Liu, Assistant Professor, Baruch College, United States

Building on consumer behavioral theories, we hypothesize that mobile app push strategies should be based on consumers' spatial and temporal information. Leveraging unique large-scale consumer data on companies' push promotions and customers' responses from a mobile coupon platform, we calibrate a hidden Markov model to test and verify our conjectures.

115-1358 Is Kindness the Magical Spell? The Role of Information and Reciprocity in Revenue-sharing Crowdfunding

Guangwen Kong, Associate Professor, Temple University, United States

Behrooz Pourghannad, Assistant Professor, University of Oregon, United States

Laurens Debo, Professor, Dartmouth College, United States

We consider an entrepreneur funding his project from investors through a revenue-sharing crowdfunding campaign and provide guidelines for platforms and entrepreneurs on how to leverage the social network in a crowdfunding campaign.

Invited Session

122	Monday, 04:30 PM - 06:00 PM, Barrel Spring 2	Track: POM-Marketing Interface
	Invited Session: Consumer Behavior and Firm Decisions	
	Chair(s): Lifei Sheng Lai Wei	

115-0314 Managing the Opioid Crisis: Supply Chain Response to Anomalous Buyer Behavior

Annie Shi, Student, Washington University in St. Louis, United States

Seethu Seetharaman, Professor, Washington University in St. Louis, United States

Michael Wall, Lecturer, Washington University in St. Louis, United States

Anthony Sardella, Lecturer, Washington University in St. Louis, United States

Chenthuran Abeyakaran, Student, Washington University in St. Louis, United States

In this study, we provide a supply-chain perspective to manage the ongoing opioid crisis. Using the ARCOS database, we employ a novel anomaly detection algorithm to detect suspicious buyer activity. Our anomaly detection algorithm, replying upon only 5 variables, yields a precision of 100% and a sensitivity of 46%.

115-1090 Does Racial Diversity increase Advertising Effectiveness: Evidence from the Mortgage Market

Donggwan Kim, Student, Washington University in St. Louis, United States

Zhenling Jiang, Assistant Professor, University of Pennsylvania, United States

Raphael Thomadsen, Professor, Washington University in St. Louis, United States

We study the impact of racial diversity in advertising on consumer choices in the mortgage refinance market. Using deep learning and causal ML algorithms, we find that diverse representation significantly increases ad effectiveness, and such an increase is driven by both White and minority consumers. We conclude with managerial implications.

115-1726 Loot Box Design and Implications for Profits and Welfare

Jin Miao, Student, The University of Texas at Dallas, United States

Sanjay Jain, Professor, University of Texas at Dallas, United States

We study the optimal design of loot boxes and its impact on profits and social welfare. We find that loot boxes enable firms to earn higher profits due to better price discrimination and market expansion. Contrary to common wisdom, loot boxes can improve consumer and social welfare.

115-1759 Recommender (Eco)system

Lei Huang, Student, Massachusetts Institute of Technology, United States

Juanjuan Zhang, Professor, Massachusetts Institute of Technology, United States

We develop a recommender system that incentivizes content creation to enhance long-term user utility. The algorithm balances how easy it is to motivate a creator with demand (e.g., user views) and how valuable a creator is to users. We demonstrate both theoretically and empirically the efficacy of our algorithm.

Invited Session

123	Monday, 04:30 PM - 06:00 PM, Rock Spring	Track: POM-Economics Interface
	Invited Session: Non-medical interventions in healthcare policies	
	Chair(s): Jingxuan Geng	

115-1188 No Panic in Pandemic: The Impact of Individual Choice on Public Health Policies

Miao Bai, Assistant Professor, University of Connecticut, United States

Ying Cui, Assistant Professor, University of Minnesota, United States

Guangwen Kong, Associate Professor, Temple University, United States

Zhenhuan Zhang, Student, University of Minnesota, United States

We study the strategic planning of public health policies (lockdown, social distancing, and vaccination) to contain a pandemic by considering individual response. We derive insightful structural properties and discuss their implications on the timing and stringency of public health policy implementation to balance their resulting economic loss and disease burden.

115-1293 Advice provision in the pandemic: the impact of information granularity on social protection

Yang Zhang, Assistant Professor, Brunel University, United Kingdom

Monday, 04:30 PM - 06:00 PM

Guangwen Kong, Associate Professor, Temple University, United States

Jingjing Weng, Student, Temple University, United States

We examine how the granularity of information provided by the social planner affects the efforts of people in pandemic protection. We illustrate how the optimal information provision strategy shifts from decomposed statistics for each age group to aggregate statistics over all age groups when the epidemic becomes increasingly transmissible.

115-1553 Favorable Risk Selection in Medicare Advantage: The Effect of Allowing Non-Medical Services

Woonam Hwang, Assistant Professor, University of Utah, United States

Jonas Jonasson, Assistant Professor, Massachusetts Institute of Technology, United States

Heikki Peura, Assistant Professor, Imperial College London, United Kingdom

The US CHRONIC Care Act allows Medicare Advantage plan providers to offer an expanded range of non-medical supplementary services, with the goal that this integration will improve health outcomes. We develop a game-theoretical model to study the impact of this policy change on decisions and outcomes.

Invited Session

124	Monday, 04:30 PM - 06:00 PM, Regency Ballroom Q	Track: Revenue Management and Pricing
	Invited Session: Operations in Online Platforms	
	Chair(s): Harish Guda Yuqi Yang	

115-0548 Should Gig Platforms Decentralize Dispute Resolution?

Wee Kiat Lee, Student, Cornell University, United States

Yao Cui, Assistant Professor, Cornell University, United States

Emerging platforms are proposing to resolve disputes on the platform with a tribunal system, where the dispute resolution is relegated to individual users through a voting mechanism. We study how such decentralized dispute system can achieve fairness, and examine whether this system is more profitable than the traditional centralized dispute.

115-0668 Combined Pricing and Inventory Control for Perishable Products

Zichun Liu, Student, McGill University, Canada

Sentao Miao, Assistant Professor, McGill University, Canada

Wei Qi, Associate Professor, Tsinghua University Department of IE, China

We address the simultaneous determination of pricing and inventory control for perishable products to maximize profit. The optimal policy is computationally intractable due to the curse of dimensionality. We show our approximate policy is asymptotically optimal under several parameter regimes.

115-1610 Competitive Pricing in the Presence of Manipulable Information in Online Platforms

Harish Guda, Assistant Professor, Arizona State University, United States

Yuqi Yang, Student, Arizona State University, United States

Hongmin Li, Professor, Arizona State University Tempe, United States

Sellers on online platforms often misrepresent the quality of their goods/services, e.g., by manipulating customer opinions. We analyze an oligopoly where sellers, heterogeneous in their true quality, jointly choose their prices and the extent of manipulation. Manipulation benefits higher quality firms and hurts lower quality firms.

115-1916 The Impact of Waiting Time on Consumer Choice Behavior

Ruxian Wang, Professor, Johns Hopkins University, United States

Chenxu Ke, Assistant Professor, Nanjing University, China

Zifeng Zhao, Assistant Professor, University of Notre Dame, United States

After customers make a choice among multiple products or services, they sometimes have to wait for a while before receiving their purchased item due to the firm's limited capacity to process orders. We incorporate the anticipated wait into customers' choice behavior, and study the associated operations problems.

Invited Session

126	Monday, 04:30 PM - 06:00 PM, Regency Ballroom P	Track: Disruptive Technologies and Operations Management
	Invited Session: FinTech and Crowdfunding	
	Chair(s): Murat Tunç	

115-2086 Governing Decentralized Autonomous Organizations: The Promises and Perils of Decentralized Voting

Daniel Obermeier, Post Doc/Researcher, New York University, United States

Raveesh Mayya, Student, New York University, United States

Decentralized autonomous organizations (DAO) offer a new paradigm for organization design based on the principles of transparency, inclusion, and democracy. Instead of hierarchical decision-making, DAOs are governed by community-based voting. We use voting data from 613 DAOs to study how features of the voting system impact DAOs' performance.

115-0906 Reward-Based Crowdfunding vs. Initial Coin Offerings

Yi Yang, Professor, Zhejiang University, China

Monday, 04:30 PM - 06:00 PM

Junming Hu, Student, Zhejiang University, China
Weili Xue, Professor, Southeast University, China

Some new financing techniques emerge as additional financing options for entrepreneurs that ordinarily faced difficulties in accessing traditional financing techniques. We build a stylized model to investigate how the product characteristics affect the entrepreneur's financing choice between crowdfunding and ICO, the two most popular strategies among the new techniques.

Invited Session

127	Monday, 04:30 PM - 06:00 PM, Silver Spring 1	Track: Data Science and Analytics
	Invited Session: Data Science and Analytics for Supply Chains	
	Chair(s): Shivam Gupta Jyotishka Ray	

115-0082 Designing a Profitable Recommender Systems Under Limited Inventory

Jyotishka Ray, Assistant Professor, Miami University, United States

We design a profit maximizing recommender system by considering the past similarity based purchase probability of the customers and the backorder compensation policy by the e-retailer while making recommendation. A fast converging and efficient algorithm is developed that does not require any optimization. Model is validated using a real-world dataset.

115-0098 Avoiding Fields on Fire: Information Dissemination Policies for Environmentally Safe Crop-Residue Management

Mehdi Farahani, Assistant Professor, University of Miami, United States

Milind Dawande, Professor, University of Texas Dallas, United States

Ganesh Janakiraman, Professor, University of Texas Dallas, United States

Shouqiang Wang, Associate Professor, University of Texas Dallas, United States

Agricultural open burning, i.e., the practice of burning crop residue to prepare land for sowing a new crop, is a significant contributor to long-term climate change. We study how governments in developing countries can use effective information-disclosure policies to minimize agricultural open burning.

115-0404 Data-driven optimization for the economic design of adaptive quality control

Zhaoguang Xu, Associate Professor, Dalian University of Technology, China

Stefan Minner, Professor, Technische Universität München, Germany

Donghao Zhu, Student, Technische Universität München, Germany

Using mixed-integer linear programming and analytical approaches, we show the value of data when optimal chart parameters are learned as functions of features. Manufacturers can generate better quality control policies when costs for sampling, monitoring, process adjustments as well as false alarms and undetected failures are incorporated.

115-1141 The Waste Management Supply Chain: A Decision Framework

Prashant Chintapalli, Assistant Professor, Ivey Business School, Canada

Asoo Vakharia, Professor, University of Florida, United States

What are the roles of waste-generators, waste-managing-firms (WMF), and governments in handling the waste generated in an efficient manner? We examine the decisions of WMF and the impact of waste-generator and governments' actions on these decisions. We examine how governments should choose to exert their efforts to better handle waste.

Invited Session

128	Monday, 04:30 PM - 06:00 PM, Silver Spring 2	Track: Inventory and Logistics Management
	Invited Session: Editor's Panel on traditional vs emerging topics and methodologies in Inventory and Logistics Mana	
	Chair(s): Arunachalam Narayanan Sandra Transchel	

115-2139 Panel: Editor's panel on the traditional vs emerging topics/methodologies in Inventory and Logistics Management

Arunachalam Narayanan, Associate Professor, University of North Texas, United States

A special editor's panel on the traditional vs emerging topics/methodologies in Inventory and Logistics Management in leading logistics and transportation journals

Invited Session

129	Monday, 04:30 PM - 06:00 PM, Winter Park 49	Track: Product Innovation and Technology Management
	Invited Session: Innovation, Data Sharing, and Information Design	
	Chair(s): Soudipta Chakraborty	

115-0289 When does data sharing promote innovation?

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.

Monday, 04:30 PM - 06:00 PM

115-0807 Information Design of a Delegated Search

Yangge xiao, Student, NUS Business School, Singapore
Zhenyu Hu, Associate Professor, National University of Singapore, Singapore
Shouqiang Wang, Associate Professor, University of Texas Dallas, United States

We consider a delegated search problem where the agent pays the search cost and decides when to terminate the search but only the principal can evaluate the search outcome. We obtain a complete analytical characterization of the principal's optimal policy as a sequence of decreasing acceptance standards.

115-1149 Persuading Skeptics and Fans in the Presence of Additional Information

Tamer Boyaci, Professor, ESMT Berlin, Germany
Soudipta Chakraborty, Assistant Professor, University of Kansas, United States
Huseyin Gurkan, Assistant Professor, ESMT Berlin, Germany

Motivated by the practice of firms selectively soliciting reviews from experts, we study the information design problem of a demand-maximizing firm launching a product of unknown quality to a polarized market consisting of customers who have heterogeneous prior beliefs about quality and can acquire additional information from outside sources.

115-1399 Impact of Women in the Invention Team on Product Development Outcomes

Nagarajan Sethuraman, Assistant Professor, University of Kansas, United States
Deepak Jena, Assistant Professor, Indian School of Business, India
Rachna Shah, Professor, University of Minnesota, United States
Shashi Kant Kumawat, Student, Indian School of Business, India

Does having additional women participate in research and product development teams result in more successful products downstream? We examine this question in the context of the pharmaceutical industry which has suffered from historically low women participation in the patent invention teams, leading US congress to act.

Invited Session

130	Monday, 04:30 PM - 06:00 PM, Winter Park 50	Track: Socially Responsible Operations
	Invited Session: Incentives and Dynamics in Socially Responsible Operations	
	Chair(s): Han Zhang	

115-0026 Inventory-Responsive Donor Management Policy: A Tandem Queueing Network Model

Taozeng Zhu, Assistant Professor, Dongbei University of Finance & Economics, China
Nicholas Yeo, Assistant Professor, Xi'an jiaotong-liverpool university, China
Yini Gao, Assistant Professor, Singapore Management University, Singapore
Gar Goei Loke, Assistant Professor, Erasmus University, Netherlands

In the blood donor management problem, the blood bank incentivizes donors to donate, given blood inventory levels. We propose an optimization model to design donor incentivization schemes that account for the blood inventory dynamics and the donor's donation process. By adopting the Pipeline Queue paradigm, a tractable convex is formulated.

115-0039 A Dynamic Mechanism for Achieving Sustainable Quality Supply

Tracy Lewis, Professor, Duke University Durham, United States
Fang Liu, Associate Professor, University of Chinese Academy of Sciences, China
Jing-Sheng Song, Professor, Duke University Durham, United States

We consider a supply chain where a retailer relies on an economically-weaker supplier to supply a key material. The production process must comply with socially and environmentally responsible standards over time. We study the long term contracts that drive the suppliers to voluntarily comply to the standards.

115-0129 Green E-commerce: Environmental Impact of Fast Delivery

Chenshan Hu, Student, Washington University in St. Louis, United States
Xiaoyang Long, Assistant Professor, University of Wisconsin Madison, United States
Jiankun Sun, Assistant Professor, Imperial College London, United Kingdom
Dennis Zhang, Associate Professor, Washington University in St. Louis, United States

In this paper, we empirically investigate how an increase in delivery speed influences consumer purchasing behavior and evaluate how this further leads to environmental issues. Then, we develop a model to explain our empirical results and accordingly, propose delivery pricing policies to achieve both environmental benefits and decent company revenue.

115-0234 Greenwashing under competition

Soraya Fatehi, Assistant Professor, University of Texas at Dallas, United States
Anyan Qi, Assistant Professor, University of Texas Dallas, United States
Liqun Wei, Assistant Professor, Central South University, China
Jianxiong Zhang, Professor, Tianjin University, China

We build a game-theoretic model in which a socially responsible firm with inherent CSR preference engages in price competition with a profit-maximizing firm that may greenwash. Customers are socially minded but have limited information about the firm's types. We derive the equilibrium of the game.