

# **Process Orientation Measurement and Effectiveness: A Study of Canadian and US Organizations at Intra- and Inter-Organizational Levels**

*Bahar Movahedi, PhD [mbahar@connect.carleton.ca](mailto:mbahar@connect.carleton.ca)  
Carleton University*

*Kayvan Miri Lavassani, PhD  
North Carolina Central University*

*Uma Kumar, PhD  
Carleton University*

## **Abstract**

While the benefits of process orientation have been studies in various contexts, previous studies have not explored the effect of process orientation at intra- and inter-organizational levels, on organizational competitiveness. The results of this empirical study provide benchmarks for organizations to gain competitive advantage through better management of their business processes.

**Keywords:** Process Orientation, Organizational Performance, Process Management

## **Business Processes**

The importance of business processes in organizational effectiveness and efficiency was first mentioned by Levitt in 1960 (Levitt 1960, as cited in Aguilar-Saven 2004). However, it was not until the last decade that business processes started to be noticed by practitioners and researchers in organizational operations. Although the studies of business processes have been widely promoted during the past decade, “there has been lack of a guide that explains and describes the concepts involved” (Aguilar-Saven 2004). In addition, most of the studies in this area have been concerned with process orientation within organizations and only recently has the inter-organizational aspect of Business Process Orientation (BPO) attracted the attention of researchers in this area. Furthermore, none of the previous studies investigated the role of process orientation simultaneously at intra- and inter-organizational levels.

## **Business Process Orientation**

The BPO philosophy entails a large change in management of business processes (Fowler 1998). BPO provides a clear focus on value adding processes within and across organizations. An overwhelming number of studies written regarding BPO during the last two decades are in the form of success stories concerning new forms of organizations. Several examples of attention to the process view emerged during this period as high

performance, process oriented organizations (Porter 1985; Davenport 1993; Davenport and Short 1990; Hammer and Champy 1993; Byrne 1993; Imai 1986; Drucker 1988; Rummler and Brache 1990; Melan 1985). The process view of organizations promotes practices such as business process management, and business process reengineering. This “new way of thinking” or “viewing” the management of business processes has been generally described as BPO (McCormack and Johnson 2002: 11). During the 1980s, Porter (1985) introduced the concept of “interoperability” across the value chain and horizontal organization as one of the main strategic issues within firms (McCormack, 2001; Sussan and Johnson 2003). Deming (1990) developed and proposed the Deming flow diagram illustrating the horizontal connections across a firm from customer to supplier, as a process that could be measured, and improved similar to any other process. During the 1990s, Davenport and Short (1990) introduced the concept of process orientation as a key criteria for success in organizations. This concept was also introduced and promoted by Hammer (1996) who was one of the key researchers leading the reengineering craze during this decade. Hammer (1996) presented process orientation as a key ingredient of a successful reengineering effort. Hammer (1996) describes reengineering efforts as a useful strategy to overcome the shortcomings of cross-functional systems. Hammer (1996) identifies the development of a customer focused, process oriented way of thinking enabled by information technology as one of the keys to a process oriented organization. Reengineering practices were further extended outside the boundaries of the organization by paying attention to customers and suppliers.

The notion of process culture has been cited as a common theme within the literature on BPO. This notion emphasizes the strong commitment of all organizational members at individual and team levels, in paying attention to customer satisfaction (Balasubramanian and Gupta 2005; Balzarova et al. 2004). The focus on process orientation addresses the often neglected people side of organizational improvement (Sever 2007; and Biazzo 2002) and the alignment between the information system infrastructure and business processes. Moreover, a culture of team orientation, and empowerment of individuals who assist in developing and improving business processes and customer value are two of the core concepts of BPO (Biazzo 2002). The operation of jobs on the basis of process orientation will promote a process oriented authority. This type of authority will encourage the individuals and teams within the organization to shift from working on a functional basis, to working together toward common organizational goals. It is important to note that major changes in organizations, such as structural changes will require transformational or charismatic leaders. However, since implementing a process oriented paradigm in an organization deals with the management of processes, it will not require a transformational or charismatic leader; instead it can be initiated and developed through organizational dynamics (Shari and Seddon 2007; Weerakkody et al. 2003; and McCormack and Johnson 2002).

### **Research Question and Methodology**

This empirical research aims to contribute to the existing discussion of BPO by addressing the following research questions: 1. What are the key indicators and factors for measuring the benefits associated with intra and inter-organizational business process orientation? 2. What are the key indicators and factors for measuring the extent of business process orientation at intra- and inter-organizational levels? 3. Does the extent

of intra- and inter-organizational business process orientation affect the extent and type of benefits that organizations gain? and 4. Does the firm's size and the business sector affect the extent and type of benefits that an organization achieves from business process orientation?

Research methodology and design is considered as a roadmap for an empirical study, which points out the objectives of the study and the specific approaches chosen to achieve those objectives. Research methodology comprises a series of choices made by the researcher pertaining to the study such as unit of analysis, the type of research design, data collection and analysis methods. The unit of study in this study is the firm. This study is based on the data collected from a sample of medium and large firms from industry sectors located in the Canada and US.

The research design in the study follows three distinct phases. Phase one is directed toward completing a thorough literature review for collecting and validating the research variables and constructs and finalizing their operational measures based on the available literature. In order to better guide this phase of the study, five personal interviews have been conducted with managers and directors associated with the execution of the process orientation model in their organizations. The results of personal interviews enrich the research model, its variables, and constructs. In addition, the findings of this phase assist in better development of the questionnaire. The outcome of this phase is the proposed research model. In the second phase, a questionnaire was developed, that captures all the dimensions of the proposed research model. The questionnaire was designed to assess and measure the extent of inter- and intra-organizational BPO and the benefits associated with BPO in medium and large firms. The next step after designing the questionnaire is to revise it based on the experts' opinion both from the scientific and business communities to make sure of its completeness and comprehensibility. Furthermore, the questionnaire was pre-tested and refined based on the feedback received from the five interviewees. The pilot tests of the questionnaire were administrated through telephone interviews and email. The respondents to the survey were asked to indicate their agreement or disagreement with several statements on a five-point Likert scale. Previous studies conducted in this area do not provide evidence that BPO or its benefits are any different in any particular industry. Therefore, in the data collection process there is not a focus on a particular industry. The outcome of the second phase is the collected raw data. Phase three includes systematic analysis of the quantitative data in various stages. The descriptive data were analyzed in the initial stage in order to obtain a better understanding of the nature of the data. In the next stage, various statistical methods were used to explore the nature of the relationship between variables and constructs.

### **Research Sample and Data Collection**

The unit of analysis in this study is the firm, and the sample of this study includes for profit medium to large sized corporations in Canada and the United States. For US firms Hoover's database was employed. Scott's Directories was used for collecting information about the firms.

Data was collected from a sample of 3200 firms. The response rate was 14% percent. 450 responses were collected. 23 of the returned questionnaires had many missing answers and therefore they were removed from the data set. As a result 427

usable responses were available to be used in data analysis. This yields a 13.3% usable response rate. The collection of data from more than one industry may have confounding effects on the results of the study, but the benefits outweigh the disadvantages. This approach provides higher generalizability to the outcomes of the study (Vokurka and O'Leary-Kelly 2000).

The sample was randomly selected from Scott's (Scottsinfo) directory and Hoover's database. The data collection was conducted using mail and online surveys. One week after sending the survey package, reminder letters were sent to the sample population of the survey. Whenever email was used for the online data collection, the follow ups were conducted through email communication. The questionnaire was developed to measure the constructs in the model. To ensure the content validity of the questionnaire, it was pre-tested using managers of three medium and large firms. This helped us to identify any potential problems with the content and design of the questionnaire. After the pre-test the questionnaires were mailed or emailed to the respondents from the sample population. The Scottsinfo and Hoover's directories were used to obtain the basic information such as the names of the managers, their positions, firm mailing address, contact information, and number of employees.

## **Data Analysis**

Data analysis consists of five major steps: Data preparation, Identifying and validating the indicators, Building the path analysis model, Analysis of model fit, Obtaining, and interpreting the path analysis results.

Data preparation includes the activities associated with screening of data, missing value treatment, assessing the normality of variables, testing the multicollinearity of variables, and examining the structure of the data. Exploratory and factor analyses were conducted to identify the measurement models for assessing the level of process orientation at intra- and inter-organizational levels as well as the measurement model for assessing the benefits of process orientation. After constructing the measurement model, they were analyses for internal reliability as well as construct validity. For the purpose of construct validity, tests of content validity, convergent validity, divergent validity and discriminant validity were conducted. Finally structural models were constructed to investigate the role of process orientation.

## **Results and Implications**

The results and implications of this study are presented in the following sections. First the developments of the measurement models and their implications are presented. Following that, the result of the comprehensive structural analysis is discussed.

### ***Results and Implications: Measurement Models***

The findings about the measurement model of this study have important implications particularly for scholars in this area. Based on the literature review, a six-factor conceptual measurement model was proposed for assessing the level of process orientation at the intra-organizational level. After data collection, and factor analysis a four-factor model was found to be able to best measure the process orientation at intra-organizational level. The proposed conceptual model of process orientation at inter-organizational level was a 3-factor model. However the result of factor analysis

suggested that a 2-factor model can better measure process orientation at inter-organizational level. Similar approach was used for development of measurements model of benefits associated with process orientation. The conceptual model developed based on the literature review suggested a 3-factor model. However the factor analysis recommended that combining financial and operations benefits can better capture the benefits for our study.

### Results and Implications: Structural Model

The analysis of the data from the total sample population suggests that higher levels of BPO at the intra-organizational level contribute to financial and operational benefits, while BPO at the inter-organizational level has a direct effect on customer satisfaction benefits as well as an indirect effect on financial and operational benefits. The indirect effect was due to the positive effect of customer satisfaction on financial and operational benefits. Figure 1 displays the organizational benefits of process orientation at intra- and inter-organizational levels. Four other comparative structural models across manufacturing and service firms, as well as medium and large organizations were constructed and analyzed. The assessment of the fit of the models provides further evidence for the robustness of the framework of this study and the research model.

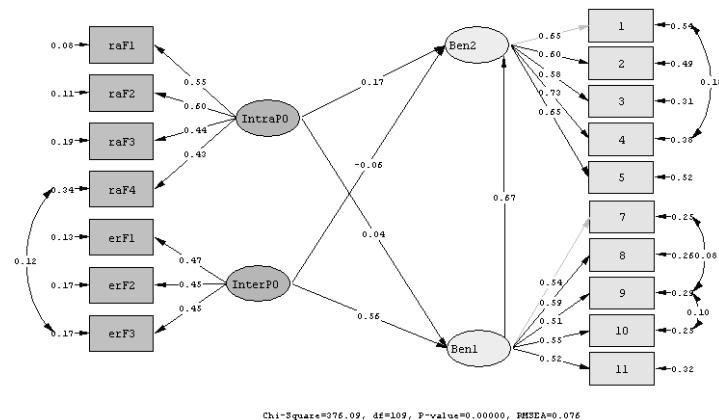


Figure 1 - Benefits of Intra- and Inter-organizational BPO: Comprehensive Model

The effect of BPO at the intra-organization level is in line with previous studies. For example, Sharma (2005) in his study of the role of ISO 9000 certification on organizational financial performance among manufacturing and financial firms provides evidence that improvement in management of “internal processes” positively affects organizational financial performance.

There have been several views about the role of processes in organizations, however these views of business processes do not replace the previous perspectives, but add new levels of analysis and operations. Once the scope of activities are at the intra-organizational level (Robinson and Malhotra 2005) a mechanistic view of activities is dominant (Melao and Pidd 2000). In this situation, according to Lindsay *et al.* (2003) the ultimate goal of the business process stakeholders is achieving higher levels of quantity, cost, quality and to some extend lead-time (the efficiency aspect of quality and lead-time is the center of attention at the intra-organizational level, while the service quality aspect

is secondary). The results of this study confirm this goal orientation at the intra-organizational level.

While a higher level of BPO at the inter-organizational level affects both aspects of benefits, it does not have direct effect on the financial and operational benefits. In their study of BPO, Faltholm and Jansson (2008) mention that a focus on business processes at the inter-organizational level could be in contrast with the intra-organizational focus. The reason can be found in the type of processes, which are the center of attention in each context. Achieving financial and operational benefits mostly requires attention to internal processes to gain high efficiency in the activities. While advocating and institutionalizing the routine processes can provide financial and operation benefits, the attention to customers and understanding their needs and wants will require reaching out to them and providing tailored products or services. Better collaboration with suppliers will also benefit customers. On one hand, better collaboration with suppliers can ensure the quality of service delivery to customers. On the other hand, through better collaboration with suppliers the organizations can gain valuable information about their competitors, as well as better ways to address their customers' needs and wants.

This result is also aligned with the literature on business process management. When the level of analysis of business processes is at the inter-organizational level, organizations require establishing more interaction with external stakeholders and creating feedback loops (Lindsay et al. 2003). This will enable the delivery of higher levels of service and consequently higher customer satisfaction.

However, it is important to note that at the inter-organizational level, methodologies are designed to achieve a business goal (Vergidis et al. 2008). Therefore, achieving customer satisfaction in for-profit organizations (which are the subject of this study) is not viewed as an ultimate organizational goal or the only organizational goal, but as a factor or a goal that also contributes to other business goals such as financial and operational benefits. Therefore, it is not surprising that customer satisfaction benefits have a positive effect on financial and operational benefits not only in the total sample population, but also in all subsamples that were analyzed. In conclusion, process orientation at the inter-organizational level only affects customer satisfaction benefits. More interestingly, BPO at the intra-organizational level does not have a significant effect on customer satisfaction level. This implies that when organizations focus on BPO in their internal processes this effort does not automatically translate to gains in customer satisfaction. Furthermore, focus on inter-organizational BPO does not directly translate to financial and operational benefits. It was discussed earlier that a for-profit rationality has contributed to the role of BPO in some instances.

## Conclusion

“Companies need to find ways of growing and building advantages rather than just eliminating disadvantages.” (Porter 1999; as cited in Ogulin 2003, p: 486) Advancements in organizational information system platforms, more rapid changes in the business environment, and new management practices have “fundamentally change[d]” the organizational management models at intra- and inter-organizational levels (Ogulin 2003, p: 493).

Improving the quality of management of business processes lies at the core of various quality management practices such as TQM and BPR. The similarities and

differences among BPO, BPR, and TQM practices were described earlier in this study, and the possible ways that BPO can contribute to organizational competitive advantage were highlighted.

In his recently published book on business process technology, Draheim (2010) describes that we have witnessed four major schools of thought in management, namely, Taylorism, human-resource orientation, mathematical school or operations research and systemic or cybernetics" (Draheim 2010, P:3). Either we view BPO as a "fifth" school of thought in management, an emerging view or perspective, or simply a terminology, "it is a fact that many successful enterprises are oriented towards business process today."(Draheim 2010, p: 3). The concept of process orientation promotes the identification of different organizational functions as well as an expanded role for various processes across organizations. This view promotes a "matrix-like structure" where recognition of key stakeholders is central to organizational activities (Draheim 2010, p: 13). This study is the first study that measures BPO with respect to different organizational stakeholders, and provides evidence for its effect on organizations based on a large scale empirical study.

After the development of measurement models for assessing the level of BPO at intra- and inter-organizational levels, as well as benefits that organizations can gain from higher levels of BOP, a large data set was collected from various organizations. The large sample size provided a unique opportunity to build robust measurement models and assess relationships across various subsamples.

A number of important contributions were presented and discussed in this study. One of the most fundamental contributions of this study is the further development of measurement models of BPO at intra- and inter-organizational levels. These measurement models contribute to the field not only by providing framework for the measurement of BPO in organizations, but also by identifying the major aspects of BPO at each level. According to the findings, BPO at the intra-organizational level has four main dimensions: process alignment and integration, process view and assessment, enterprise information system support, and customer orientation. However, at the inter-organizational level, a three-factor model can better represent the level of BPO. While two factors of BPO at the inter-organizational level are focused on different dimensions of relationships with suppliers, one factor is concerned with the customers. The three dimensions of BPO at the inter-organizational level are: process setup with suppliers, collaboration and validation of processes with suppliers, and customer orientation. A two-factor measurement model for organizational benefits was also developed. The findings show that for a sample population with significant representation from different business sectors (service and manufacturing) and various organizational sizes (medium and large), the benefits can be best categorized into two dimensions: financial and operational benefits, and customer satisfaction benefits. Another major contribution of this study is about the organizational benefits of BPO. The findings related to this contribution can be viewed from two inter-related perspectives: benefits, and BPO. Table 1 displays the findings from the perspective of benefits gained from BPO.

This table can be served as a guide for organizations that are seeking certain benefits from becoming more process oriented. For example, according to our findings, organizations that are looking to achieve higher levels of financial and operational benefits should focus on becoming more process oriented at the intra-organizational

level. This is based on the results of the comprehensive model (as displayed in the second row of the table). However, organizations should also take into account their contextual factors such as industry and organizational size. Other rows of this table provide this detailed information.

*Table 1- Role of Business Process Orientation: At Intra- and inter-organizational levels*

Model	Benefits	Financial & Operational	Customer Satisfaction		
				1	2
Comprehensive Model	IntraPO				InterPO
Industry: Service	IntraPO				InterPO
Mfg.	IntraPO(dir*&indir)	InterPO(indir**)	IntraPO		InterPO
Size: Medium		InterPO(dir&indir)			InterPO
Large	IntraPO	InterPO(indir)			InterPO

Because of the constraints in the comparative analysis of the organizations based on country, and the fact that those findings have little capability for generalization, they are not presented in Table 1. In addition, it is important to note that other contextual factors that were not taken into account in this study (e.g. specific industries, national and global economic factors, etc.) could affect the benefits. Investigation of the role of these factors could be the subject of future studies. The findings can also be viewed from the BPO perspective. Table 2 displays the findings from this perspective.

*Table 2 - Benefits of Business Process Orientation: Financial & Operational, and Customer Satisfaction*

Model	BPO	Customer Satisfaction	
		Intra-Organizational	Inter-Organizational
Comprehensive Model	F&O*		CS**
Industry: Service	F&O		CS
Mafg.	F&O (dir***&indir)		CS
Size: Medium			CS
Large	F&O		CS

\* Financial and operational benefits      \*\*\* Direct  
\*\* Customer satisfaction benefits      \*\*\*\* Indirect

Using this table, organizations can learn the benefits that they will gain through a higher level of BPO at each of the two levels of analysis in this study: intra- and inter-organizational. For example, according to the findings from the comprehensive model, organizations with a higher level of BPO at the intra-organizational level will gain financial and operational benefits. However, more in-depth analysis shows that while service, manufacturing and large organizations may gain financial and operational benefits from a higher level of BPO at the intra-organizational level, medium sized firms will not achieve this benefit. Instead, medium sized organizations are the only type of organization in this study that will gain not only indirect financial and operational benefits, but also direct financial and operational benefits from higher levels of BPO at the inter-organizational level.

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