

PROCESS IMPROVEMENT INITIATIVES IN SUPPLY CHAINS: A STRUCTURED LITERATURE REVIEW

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ABSTRACT - Emerging interest can be observed in applying Business Process Improvement (BPI) initiatives to supply chains in various industries. Academic literature and standard industry practices indicate that emergence of such initiatives is often subject to technological advancements. This paper aims to set the context for BPI initiatives by presenting the first systematic literature review and bibliometric analysis focusing on how different organizations perceive the benefits, confront challenges, and realize critical success factors in the context of supply chain management. The present state of the literature reviewed in this paper suggests that process reengineering is the widely incorporated BPI initiative among researchers and industry practitioners. Interestingly, this method's adoption has taken place among procurement, production, warehousing, and distribution activities. The paper concludes by summarizing the key learnings from more than two decades of academic research in BPI initiatives and suggests future research avenues to expand the role of BPI initiatives in decision-making.

Keywords: Process Improvement Initiatives; Benefits; Challenges; Critical Success Factors; Supply Chains

1. INTRODUCTION

The Business Process Management (BPM) paradigm implicates a novel way of looking at organizations based on the processes they perform rather than on the functional units, departments, or divisions. BPM is the combination of Business Process Improvement (BPI) initiatives, performance management, organizational change management and technology in order to ensure the success and sustainability of process improvements, and a process excellence culture in organizations [1]. An organization needs to identify the most appropriate supply chain process improvement initiatives to reduce inefficiencies in its existing processes [2]. This paper aims to set the context for supply chain BPI initiatives by presenting the first systematic literature review and bibliometric analysis focusing on how different organizations perceive the benefits, confront challenges, and realize critical success factors in the context of supply chain management.

1.1. Research Objectives and Questions

The main objective of the present study is to explore how different organizations in the academic literature perceive benefits, confront challenges, and realize critical success factors in the context of supply chain management. The three Research Questions (RQs): (RQ1) What is the role of BPI initiatives suggested by recent research in advocating end-to-end supply chain? (RQ2) How can recent research on BPI initiative be classified in terms of the perceived benefits, challenges, and critical success factors? (RQ3) What are the suggestions for future studies? are formulated to accomplish the said objectives.

2. REVIEW METHODOLOGY

A structured literature review was conducted based on the tool-supported four-phase methodology suggested by Bandara et al. [3] using NVivo12 software. As the initial step, four search strings were developed using 17 relevant keywords, which are selected under two aspects: keywords related to supply chain and keywords related to process improvement (business process management, business process improvement, process management, process improvement, process redesign, process modeling, process innovation, process transformation, process workflow, process change, process automation, process mining, process reengineering, supply chain, logistics, lean and six sigma). ABI/INFORM, Scopus, and ProQuest databases were used to extract research papers, and 70 papers were selected as the sample for the research based on their relevance to the research scope.

3. RESULTS AND DISCUSSION

3.1. Benefits

It was observed that BPI initiatives emerged under the procurement function more focused on inter-organizational collaboration through real-time information sharing with suppliers using business-to-business E-solutions and web-based solutions. It includes cost reductions associated with lead time reductions and better internal and external relationships arisen through improved information sharing [4].

Moreover, improvement of work order planning and production-related activities through ERP system implementations facilitate cross-functional integration. The main benefits were lead time reduction and utilization of available information. Process redesign that can be done through resequencing and merging activities is another tested improvement method stated in the literature. Use of Lean Six Sigma tools, Lean information management, Total Productive Maintenance (TPM), work standardization, and Value Stream Mapping (VSM) methods also have significant importance in the literature as those methods can contribute to reduced wastages in production processes while improving efficiency [5-6].

Under the distribution process improvement initiatives, methods like distribution network redesign, adopting electronic information sharing through EDI (Electronic Data Interchange) systems, and RFID (Radio Frequency Identification) implementation have been researched by several authors. Specifically, benefits such as lead time reduction, travel distance reduction, and fuel consumption reduction are reported under distribution network redesign. Moreover, EDI and RFID implementations reported improved information sharing and reduced data entry errors. Overall, these methods give benefits not only for retailers but also for manufacturers and customers [7].

3.2. Critical Success Factors of Process Improvement Initiatives

After a thorough review of selected papers, the following factors were identified as general success factors that could be considered for any process improvement initiative: top management involvement and motivation, analyzing the existing state of the process in the pre-implementation stage, conducting a pilot project before the actual implementation, conducting a feasibility study in the pre-implementation stage, prior implementation of quality standards, make employees train and aware about a new initiative, collaboration and consideration of all parties who are involving and affecting the implementation [8].

3.3. Barriers for Process Improvement Initiatives

The following challenges were identified as general barriers that could be considered for any process improvement initiative after reviewing the existing literature: resistance to change, resource allocation issues, lack of top management commitment, lack of availability of customer data to come up with decisions, lack of training, issues related to information sharing, and organizational culture [8].

4. CONCLUSION

In conclusion, benefits pertaining to supply chain process improvement initiatives can be reflected under four categories: operational benefits, financial benefits, internal relational benefits, and external relational benefits. While supply chain process improvement initiatives are discussed in many academic research articles, most preceding work looks only at the overall benefits of the process improvements. Literature discussing the relationship of BPI initiatives and their perceived benefits to the challenges faced, and critical success factors needed are scarce. Furthermore, exploring the benefits realization practices associated with achieving target benefits of supply chain process improvement initiatives can be identified as a future research direction.

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