

Exploration of supply chain management challenges in the transformation process towards Servitisation: A Narrative Review

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Abstract

The transformation of manufacturing firms towards servitisation is largely characterised as adding the service-provision to their product continuum. Most current research focuses on identifying the drivers of servitisation and its impact on the supply chain. However, this shift has various underlying issues of siloed operations that the firms need to acknowledge to enable agile and adaptable product and service package offering to their customers. Therefore, this paper uses a narrative review approach to synthesise a comprehensive and critical analysis of 28 research articles, exploring the transformation process and the issues related to the context of the application of servitisation approach and supply chain management. The findings revealed that the transition process of a manufacturing firm towards the adoption of servitisation approach presents various structural challenges related to market orientation and inter-functional coordination in supply chain management. This study will serve as a baseline for manufacturing firms and practitioners to evaluate their readiness for this transition.

Keywords: Servitisation, Supply chain management, innovation, market-orientation

Introduction

In today's context of a global dynamic market, manufacturers are considering adding service-provision within their established product consortium or outsource their non-core activities (added services) to specialist firms (Baik et al., 2019; Yang et al., 2018). This transition will help the manufacturers to focus on the core area of their businesses (providing finished products to the customer) and the other firm takes care of the added service (providing financial services, information technology management, logistics and human resource management.) (Cagliano et al., 2017; Jafari et al., 2022). Servitisation approach aid in enhancing the perceived value to the customers. While an effective alignment of the effective

supply chain is required that is responsive, well-connected, and flexible (Cagliano et al., 2017; Govindan et al., 2018; Surajit et al., 2020).

Although this increasing phenomenon of outsourcing non-core activities initiates the opportunity for new entrants in the market, but the financial benefits are also divided accordingly. Therefore, it is recommended for businesses to adapt servitisation approach within their business model as a growth prospect to improve their overall operational efficiency (Dev, et al., 2020). Service quality is a pivotal for every industry/sector. Therefore, current study will determine what hinders the process of servitization by exploring the challenges that occur during the transition phase because once you identify an issue then only, businesses will be able to rectify then by configuring changes into a business model.

Methodology

Current study adopted a comprehensive narrative literature review to analyse the supply chain challenges that occur during the transitional phase towards servitisation. To conduct robust research, the author investigated the market-orientation aspect of SCM to investigate service provision by various network-chain to understand the mechanism of customer-supplier collaboration and other related processes in a structured way. This study has been conducted in two steps:

Step 1: Question Formulation

Every business is created with the intention of attaining financial objectives. The only method to achieve the following objective is through customer satisfaction since the more attracted a consumer is to a product, the more revenue the business will generate. Thus, to serve and satisfy a consumer, SC alignment is crucial. Businesses can quickly satisfy customers by offering a shared platform with additional services by adapting a few changes to the SCM according to market-orientation. Therefore, to formulate the research questions, the author analysed the emerging themes from SCM and servitisation literature to scrutinise the common context. These can be classified as material or services outsourcing, SC alignment (forward and reverse logistics), aiming to extend the product's lifecycle and adding the service-provision. While the most interventions that were identified after a thorough analysis were discussing about providing a digital platform to flare the operations (Kristensen & Remmen, 2019), enhancing the perceived value of a product-service package (Atif et al., 2021; Yang et al., 2018), reconfiguration of business model (Atif et al., 2021) and etc. It has been noted during the selection phase that most of the servitisation literature discusses about SCM, inventory management or other value-added services that help the business in

customer/supplier interaction that eventually helps them to evaluate a strategy that aligns the SP network and to operate smoothly. After careful consideration, the author decided to formulate the following questions:

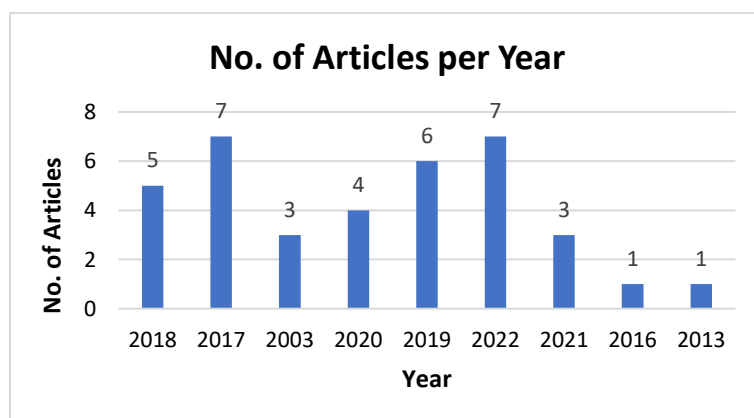
Research Question 1: How does SCM aid in servitisation?

Research Question 2: What are the challenges that could occur during the transitional phase?

Step 2: Classifying the Relevant Keywords

In the second step, the author selected the appropriate keywords that will then be searched using databases for research paper selection. The selected keywords are supply chain (SC), supply chain management (SCM), servitisation, services. Later Boolean techniques were applied to create combinations or pairing of the keywords such as: supply chain and/or servitisation, supply chain management and/or servitisation, supply chain and/or services, supply chain management and/or services. Once the combinations were finalised, the author applied the inclusive and exclusive criteria presented. Where all the papers that were written in English language were included while the papers written in any language (other than English) were excluded. The author decided to analyse research papers that were published in accredited journals after passing the double peer-review process because then only the quality of information is ensured. Only one database was used to extract/download the selected papers i.e., "Web of science". There are numerous papers that fulfil the above-mentioned criteria that's why, the time frame was set i.e., 2002-2022. This means that 28 research papers that fall under above mentioned all the criteria (the Boolean technique criteria as well as the inclusion/exclusion) were finalised for the review.

Figure 1: Number of Articles per year



Supply Chain

A supply chain is a group of partners that cooperate to change an essential input (upstream) into an important final product (downstream), all while limiting returns. where each link in the supply chain is directly responsible for providing services that boost a product's perceived value (Nandi et al., 2021; Rafi-UI-Shan et al., 2018; Yang et al., 2018). From planning to management to reverse logistics, each of these procedures provides services to satisfy the demands of the ultimate clients (Dev et al, 2020). As a result, SCM is a networked system where manufacturers use service-based interactions (like CRM: customer relationship management or SRM: supplier relationship management) to interact with one another (Bai et al., 2021; Saberi et al., 2019; Vickery et al., 2003). These interactions eventually affect the behaviour, input, and output of the production phase that comes after (Carminati et al., 2018; Hedvall et al., 2019; Lightfoot et al., 2013; Randhawa et al., 2022). A description of SCM's responsibilities at various levels that combine supply and demand management within and among businesses is provided in the table 1 below:

Table 1: Responsivities/functions of different elements of SCM

Elements of the SCM	Responsibilities/functions
Inbound-outbound logistics	This function includes transportation and logistics' services of supplies and goods into (receiving materials from the suppliers) and out (providing products to the customers) of the business (Kumar, R. and Gupta, M., 2022).
Procurement/purchasing	Acquisition and the services related to purchasing of supplied is responsibility of a procurement department (Li, X, et al., 2022).
Demand Management	It combines the capabilities of the SC according to the customer's need ((Surajit et al., 2020; Hörcher et al., 2022).
Inventory management	the monitoring of stock as it moves from producers to warehouses and then from these locations to a point of sale (Becerra, P, et al., 2022).

Servitisation

Servitization is the term for a customer proposition that includes a product and several related services. Such a notion requires the delivery of both supply chains for the delivery of tangible items and supply chains for the delivery of services. Following table (Table 2) presents the key studies utilised in current paper:

Table 2: Key Studies

Author	Topic	Journal	Main findings
(Hedvall et al., 2019)	Solutions in business networks: implications of an interorganizational perspective	Journal of Business Research	This study integrates a process view of solutions with interorganizational viewpoints. This study analysed the interdependencies, creating what the authors refer to as “networks of solutions.”
(Hullova, et al., 2019)	Independent distributors in servitization: An assessment of key internal and ecosystem-related problems.	Journal of Business Research	This study analysed the challenges within distributed supply chain towards advanced services., such as conflicts of interest, lack of managerial focus on strategy, and inadequate knowledge management.
(Alamerew & Brissaud, 2020)	Modelling reverse supply chain through system dynamics for realising the transition towards the circular economy: A case study on electric vehicle batteries	Journal of Cleaner Production	This study analysed structural processes using environmental, sociological, and economic factors from a reverse supply chain viewpoint.

The servitisation elements of SCM can be divided among two stages. The first one includes the operational services that are internal operations oriented (Ellahi, A., et al., 2022). Firms try to assemble smooth material-flow as well as information-flow to process. Basically, all these services cover the tangible features of the service. While the other one is external market-oriented that comprehends the demands of the suppliers and client via a shared platform such as, CRM: customer relationship management or SRM: supplier relationship management. These emphasise on creating a closer bonding among the SC network that help a firm to understand a customers demand and simultaneously develops a cordial relationship with the suppliers.

Findings/Discussion

This section presents the analysis of the challenges, or the barriers linked to SCM in transformation towards servitisation. The addition of service-provision is an instrument for gauging the perceived value of a product that is created in the eyes of the client. This transformation boosts the customer loyalty & market share. Due to globalisation, the market has evolved through tough competition where customers tend to pursue value through selection of appropriate goods or services package in a cost-effective manner.

The servitisation approach will undoubtedly continue to expand and change in the future, encouraging innovation at all phases of SC, competitive rates in open market by various suppliers, and evolving and ever-changing customer needs. Thus, in today's fierce market, businesses must continue to improve their product and inventory management by utilising flexible, and agile shared platform to handling and management. Therefore, business needs to allocate some resources (human and financial) to reconfigure its business model according to the changing market until financial as well as economic and social gains are practically inevitable.

Majority of SCM literature discuss about servitisation as an innovative solution with broad pertinency. The fluent material-flow as well as the information-flow has received extra attention. The undisrupted collaboration aid in connectivity (through shared platform), traceability (where product or level and quality of service requirement could be traced easily) and intelligence (smart logistics that is technology driven, efficient and cost-effective) of intra-functional coordination. Xyz pointed those businesses are still struggling to cope with changing dynamic capability and suggested to facilitate the work force by empowering them with training and development programs to enhance their intelligence and cognition level (Liu et al., 2019; Surajit et al., 2020).

Due to globalisation, the market has transformed into open markets that are technology and data driven (Liu et al., 2019). The demand and supply are determined by customer engagement and customer involvement. Therefore, the added services at different stages of SCM helps a business to assess the customers expectation and needs by engaging with them through CRM and other connected platforms (Dev, et al., 2020; Rafi-UI-Shan et al., 2018; Saberi et al., 2019). The e-market places are promoting the sustainable paradigm (circular economy, green economy, donut economy, sustainable development goal etc.) as well as it is encouraging the application and utilisation of digital platforms (Chong et al., 2016). Therefore, due to added competition in the market, the businesses are compelled to experiment with innovation to develop a cost-efficient sustainable product with enhanced functional efficacy that can be shared to digital platform (Carminati et al., 2018).

Conclusion and Future Recommendation

The findings demonstrated that a manufacturing firm's transition to the adoption of a servitization approach is accompanied by a few structural challenges related to market orientation and inter-functional coordination in supply chain management. Consequently, adding servitisation approach within the SCM help businesses to embrace innovation and to

keep up with evolving market orientation. Reconfiguration in business model could leverage a business's ability to compete and thrive in an ever-changing economic market.

It is advised that further studies should be conducted to analyse more precise results about the SC factors responsible for success or failure in transformation of servitisation from CE and Industry 4.0 lenses. Green logistics management (GLM) has touted for Implication of digital multi-sided platform (MSP) as a stable trajectory for countries, businesses, and communities to cope through disruptive times. It is vital to examine the innovative sustainability and cost-saving solutions to implement a digital platform connecting the entire green logistics system. Implication of digital applications provides a base for self-organizing system that optimise the supply chain resilience. It aids in minimising the impact of logistics activities through data-sharing and supplier-customer collaboration. The current market-shift promotes the GLM as it escalates the resource conservation by generating the undervalued waste stream. Thus, it is recommended for future researchers to investigate the main components of GLM that are procedure-based practices, evaluation-based practices, partner-based practices, and general environmental management practices from the supply chain lenses. Analysing the role of digital technologies and its ability to mitigate the technical, economic, logistic and compliance challenges faced by supply chain during development and implementation stage. Therefore, it is advised that further studies should conduct longitudinal research on servitisation with product Lifecycle with different Industry 4.0 technologies using various case studies from different industries or cross-territorial cases to have a clear perspective about their affiliation.

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