



SUPPLY CHAIN IN SERVICES – AN OVERVIEW

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ABSTRACT

A well-defined supply chain is critical to any business. As the service industry grows in importance, so does the need for frameworks, performance measures and strategies for this industry. The level of efficiency and responsiveness that the manufacturing segment has seen due to the growth and study of supply chain management techniques over the last few decades must now be translated to the service industry. This paper explores the relevant literature devoted to frameworks and performance measures for this particular industry and draws comparisons to the existing models built for the goods industry and concludes with the need for future exploration in this area

KEYWORDS: Exploration, Literature, performance measures, Framework, Segment

INTRODUCTION

A critical part of any organization's endeavour to compete in today's market is the design of their supply and distribution networks. This is true not only for product companies, but also for service companies. The service economy has always been the driving force of economic growth of every developed nation. The concept of supply chain management has been applied in manufacturing sector by various researchers and the results obtained are found to be very fruitful in terms of cost optimization and increased quality level. Service operations have unique characteristics that are not found in manufacturing. In fact, similar to the production of manufacturing goods, services production involves the collaboration of several actors; the service providers, the suppliers of other services or resources needed for the design and delivery of these services and the service clients, all working together to co-produce value in complex value chains or networks. But due to certain differences in manufacturing and services, there are inherent difficulties in developing standard models for services due to the peculiarities of service exchanges which also contributed to the dearth of research in the area.

Services are considered as supply chain processes that are balanced around the capacity of the firm through the upstream sourcing processes. Various reasons why services can be viewed as a part of supply chains are coordination of processes, improved performance through process integration, and improvement of the customer interface. It is necessary to integrate, coordinate and collaborate the different service operations performed in various organizations in order to deliver the services at the highest level of customer satisfaction. This integration can be done through a service supply chain (SSC), which includes different players/organizations connected by a network of activities. A SSC can be described as a network of service provider facilities, each of which is capable to process one or more service tasks on an as needed basis. Two key characteristics of a SSC are i) the

business service is decomposable into several sequential tasks that can be processed by different service providers, and ii) the primary capacity resource is skilled labor, and there is no inventory and material flow in SSC.

All the decisions in any SSC chain can be categorized in three levels depending on the timeframe and the effect. Level-one decisions are in the area of service business planning, and they have a long term effect on the SSC. Examples of level-one decisions are dynamic sourcing, service provider selection, capacity planning, service delivery, service quality, service productivity etc. Level-two decisions are in the area of tactical planning, and they have a shorter life than level-one decisions. Examples of level-two decision are capacity planning, effectiveness in scheduling, supplier cost and pricing issues, forecasting accuracy etc. Level-three decisions are in the area of operational planning and scheduling. The effect of these decisions is short term and they are constrained by level-one and level-two decisions. Examples are staff scheduling, short term forecasting, resource allocation, the service order entry method, the customer service order path, capacity utilization, operating ratio of actual to planned working hours, etc.

Based on the current research trend in SSC management, a theoretical understanding is developed and hence an integrated conceptual framework is proposed in this paper. The proposed framework highlights the structure, decisions and operations that are carried out in a typical SSC. The proposed framework will provide an aid to service operations managers to take vital decisions in building up the service package in an efficient and cost effective manner. This will ultimately result in the timely delivery of the services to the customer and enhancing the level of customer satisfaction.

Service Industry Defined

Most visibly, the main defining characteristic between a manufacturing and service firm is that human labor is the primary component of the latter, while a physical product is that of the former. The characteristics that define each of

these then, also differ. Many authors argue the definition of these characteristics.

Fisk et al. (Fisk, Brown, & Bitner, 1996) argue that the four major defining characteristics of a service industry from a goods industry are intangibility, inseparability of production and consumption, heterogeneity and perishability. Others, such as Pride and Ferrel (Pride & Ferrel, 2003) argue that there are six main defining characteristics: the previously-mentioned four and client-based relationships and customer contact. While some may argue that goods industries also incorporate these last two, it is the service industry which relies on these

characteristics as an inherent part of their service. In addition to intangibility, heterogeneity and perishability, Baltacioglu et al. (Baltacioglu, Ada, Kaplan, & Kaplan, 2007) also argue that simultaneity is another significant piece of a service system.

Service systems can also be delineated from manufacturing systems by their processes. For example, Sengupta et al. argue that the decisions are very controlled in a goods industry with much standardization and little variation, while in a service system, the level of variation is significant due to local decisionmaking made by humans (Sengupta, Heiser, & Cook, 2006).

Table 1: Disparity between a manufacturing and services supply chain

| Area | Manufacturing systems supply chain | Service industry supply chain |
|--------------------------|------------------------------------|-------------------------------------|
| Production System | Push (sell from inventory) | Pull (initiated by customer demand) |
| Logistics System | Uniform, mass approach | Customized to customer need |
| Finished Goods Inventory | Tightly controlled | Kept at low level |
| Suppliers | Responsiveness not critical | Must be responsive |
| Customer relations | Often at a low level | Critical to overall success |

Challenges in Service Operations:

Service companies are required to effectively plan and schedule their resources to offer an efficient service to customers. This is no different in principle to Manufacturing Planning and Control (MPC) (Vollmann et al. 2005) that gave rise to MRP, ERP and the more sophisticated Supply Chain Management systems. However, the main focus in services is on people and assets rather than materials management which is at the heart of MPC.

People are the core and essence of a service business. In the context of many services, they are not even confined to a particular facility (e. g., like the factory in a manufacturing context) but are mobile, offering service across geography. Furthermore, in cases where the demand needs to be satisfied near-instantaneously (e. g., calls to emergency services); there is no inventory of finished products to protect operations whilst long waiting times are unacceptable. The enterprise needs to plan staffing so that demand is met with adequate supply for every minute of every hour of operation across several geographical areas; this represents a huge logistical exercise to plan and execute. On the financial side, the costs associated with staffing come under Operational Expenditure (or OPEX for short) and represent a large percentage of the costs associated with running a service business.

Clearly, competition is not as intense as in product industries with several service industries moving to privatisation only in recent years (e. g., telecommunications, energy and water utilities) or being under the state umbrella as with health, policing and education. Even in industries that have undergone privatisation, it is sometimes in the service “wrap” that competition is heavily emerging. The main assets such as electricity, water, rail and telecommunication networks are often owned and maintained by near-monopoly and heavily regulated players. Furthermore, several sectors are still enjoying high profit margins leaving room for the

operational inefficiencies to “fly under the radar” so to speak

Key Success Factors in Services:

Given the increasing strive for productivity and other improvements, one may reasonably ask what should a service business aim for when it comes to Key Success Factors

- **Services are intangible**
They cannot be seen, felt, tasted or touched in the same manner as tangible goods. The customer usually bases its judgment on peripheral cues and experiences.
- **Services are heterogeneous**
No two customers or employees are precisely alike. Human interaction makes defining quality a challenge and it may vary from one customer to the next.
- **Services are simultaneously produced and consumed**
Mass production is difficult. Customer satisfaction is in “real time” with the customer “observing” and “participating” in the process.
- **Services are perishable**
They cannot be saved, stored, resold or returned. More importantly, they cannot be inventoried. A service company may use inventory management (e. g., for spares) but this accounts for a very small part of the overall service operations.

Let us focus first on the last point from the list which is service perishability. Capacity management is definitely a key factor when addressing the perishable nature of services and different strategies have been proposed (Sasser 1976; Armistead and Clark 1994). Customers are sometimes highly critical on this subject (especially on public services) arguing that organisations with overcapacity and idle resources are offering long waiting times due to gross operational inefficiencies within them and across their service chains. Whichever way this is perceived externally by customers and the specific

strategies internally followed by companies, efficiently matching supply with demand is a key success factor for services and should particularly focus on the two following goals:

- Minimisation of waiting time for customers.
- Minimisation of idle time for resources.

But it is not all about minimising “hard” and measurable targets that makes the difference here. Services are human-centric and issues arising from intangibility, heterogeneity and simultaneous production and consumption also need to be taken into account too. Addressing these areas is that leads to superior efficiency and quality, and this is expressed by the further goals:

- Maximisation of performance for employees and other resources.
- Maximisation of experience for customers.

The performance of employees is not confined to productivity but extends to areas such as behaviour, quality of the work and also company culture. Similarly, customer experience is not confined to the service itself and satisfaction with it but extends to the peripheral tangible cues associated with its delivery such as facilities, websites, vehicles, equipment, personnel and everything else that affects the customer’s perception of a service provider (Shostack 1977; Bitner 1990).

Given the negative publicity over the years, and criticism on both public and private services, with regards to failing on one or more of the four objectives, one may argue that the WIPE challenge for the service industry as a whole is of equal scale to the inventory challenge faced by manufacturing. To achieve the above goals, services need to embrace technology rather than trying to remedy isolated problems from a solely marketing or management perspective. Technology and management methods need to work hand-in-hand towards a common goal to be able to help an industry as a whole. Furthermore, a Service Chain Management blueprint, similar to Supply Chain Management, would be required that represents best practice in Service Planning and Control. This blueprint, implemented through software suites from different vendors, could then be applied division after division, company after company, vertical after vertical, leading to efficiency improvements similar to those experienced from the introduction of the MRP/ERP template and associated systems in the manufacturing sector.

Specific Issues in Service Supply Chains

It is very important to understand the reasons which make service supply chain different form that of goods supply chains. Some of them are discussed below.

Customer-supplier duality

In services, the service activity is initiated by the customers. Service is an act or deed performed on the customer’s mind, body, belongings or information provided by the customer. Hence, customer acts like a supplier to the service provider who provides something to get the service done. This dual role of customer, of being supplier also, in service exchange is called as customer-supplier duality.

Our customers benefit from an already existing supplier network and the established logistic production and quality processes.

CONCLUSION

The technologies, as they will be presented in the book, were outlined with links made on their utility and relevance in the management of the present and future services and chains. Emerging customer requirements and trends can provide additional insight in this direction by highlighting developments in customer service and their likely impact on operations.

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