The Conceptual model of the Service Supply Chain: Research Based on Business Processes

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As the economy evolves from manufacturing to services, it is important to understand whether the lessons learned in the manufacturing sector can be directly extrapolated to service supply chains. The majority of existing supply chain research focuses exclusively on the manufacturing sector. This article compares the effect of traditional manufacturing sectors. The results highlight similarities and differences between the sectors—demonstrating that effective supply chain strategies in one sector may not be appropriate in the other sector. Based on the service supply chain and manufacturing supply chain compared to a service modular concept, and build a conceptual model of service supply chain.

I. INTRODUCTION

The service sector in economic development is prominent increasingly, market-oriented service industry and internationalization has brought about more and more competition pressure. Service-oriented businesses in the increasingly fierce market competition for survival and development depend largely on whether to build out a highly efficient service-oriented supply chain to accurately meet consumer demand quickly. Because many supply chain management research mainly concentrated on the manufacturing, there is needed to introduce the supply chain management model which plays an important role in the manufacturing sector. It can improve prediction ability of the consumer demand for services, high-quality, low cost, improve response to consumer demand for personalized service and to obtain sustainable competitive advantage.

II. LITERATURE REVIEW

Since Ellram made the concept of Supply Chain Services in 2004, Theorists have many different understanding and awareness about the characteristics and structure of Service supply chain. Can be roughly divided into the following three:

The first is to understand the service supply chain for the service aspect and activities which associated with the manufacturing supply chain. Based on this understanding, The author find the optimal balance between service and the lowest cost way to run the service supply chain. Waart and Kemper (2004) reported evidence for the Services Supply Chain are made in order to support after-sales of enterprises, and in the product service and materials involved in the scheme, mobile and repair of the entire process and activities. Youngdahl, Loomba (2000), Saccani, Johansson, Perona (2007) and so on, a global provider of after-sales service supply chain is studied.

The second understanding is the concept of service supply chain which is the supply chain of service industry corresponding to the counterpart of manufacturing and contrast the similarities and differences between the two points, consequently find applicable to the service industry's supply chain management way. Sengupta, Daniel, Lori (2006) used empirical research methods to supply the manufacturing supply chain business development strategies in the manufacture of the Service Department, to draw a lot of effective supply chain management model of the manufacturing sector whereas it does not apply to the conclusion of service supply chain, and finally to verify the supply chain model for the Service Department; Akkermans, Voc (2003) compared the strengthening effect in telecommunications industry and the bullwhip effect in the manufacturing supply chain, and they find the origin of the strengthening effect in the service supply chain.

The third is the understanding of supply chain services to a service supply chain integration. As customer submit service requests to the service integrator, he immediately respond to customer requests, to provide customers with system integration services program, at the same time break down the customer’s service requests to other service providers and outsource this part of the service activity. And then they constitutes a kind of supply relations, at one time the service integrator take on a variety of service elements, the integration of every aspect and total process management. Song hua, Yu Kang Kang (2008) used the case study to sum up the key elements to the success of service integrator.

In this paper, based on the above understanding, through compared the service supply chain and the manufacture supply chain, The author understand that the service provider, service integrators and the customer consists of service supply chain which is a collaborative supply chain. The service integrators have the ability to organize and coordinate service providers to provide customized services for the customers.
III. COMPARATIVE ANALYSIS OF SERVICE SUPPLY CHAIN AND MANUFACTURING SUPPLY CHAIN

The research and application of the supply chain tended to be concentrated in the manufacturing industry, it emphasized that the tangible product delivery on the supply chain, but with the ever-increasing proportion of service industries, the supply chain management research about something which beginning from manufacturing to the service supply chain, Service supply chain has become the new trend of research.

Because of service supply chain management focus on service and manufacturing supply chain management focus on physical products, so there was a clear distinction between service supply chain and manufacturing supply chain.

A. Organizational Structure

As shown in Figure 1-1, the traditional manufacturing supply chain focus on production & manufacture, and emphasize the study of physical products’ transitive relation among corporations. Its organizational structure is the raw material supplier - manufacturer - distributor - the final consumer, such as a longer channel, members can participate in their own activities which is directly linked with. And Ellram (2004) published "to understand and manage supply chain services" in the "Journal of supply chain management". It pointed out: service supply chain is information management, process management, capacity management, service performance and financial management which take place in the service industry that from the earliest supplier to the final consumer. As shown in Figure 1-2, a service supply chain's basic architecture is professional service provider - Services integrator - the final consumer, and the chain members to participate in the entire process of Service.

Service providers are those who can provide standardized, single-service types of enterprises such as transport companies and packing enterprises of such as logistics services supply chain in the above-mentioned structural model, and they have a strong ability to cooperate. And according to the service integrator’s special requirement on service capabilities and process, service providers can make appropriate adjustments.

Service integrators are core enterprise on the service supply chain, which have a highly efficient information-processing and powerful service design ability to integrate services which service providers provide to form a smooth flow of services, and to coordinate service provides to provide customized services on consumer’s demand. Through customer demand forecasting and customer relationship management service integrators can keep up with changes of customer demand so as to create and seek the value of new growth points. And service integrators can integrate the resources and capabilities of service providers, improve the integration of Service and construct service node and network to reduce the details which consumer don’t need to know through performance evaluation of service providers and supplier relationship management.

B. operation model

Manufacturing supply chain adopts the combination of pull-driven and push-driven business model. For the production of function products manufacturing supply chain match efficient supply chain, for innovative products manufacturing supply chain match quick response supply chain. Service supply chain which has characteristics of quick response supply chain adopts market-driven operations model. The management of Service supply chain emphasize integrated management model, which its core is a service provider and its fundamental aim is to improve service levels and reduce service costs by integration of advantaged resource in the service supply chain to meet user needs.

C. Performance Evaluation

The indicators of the performance of manufacturing supply chain performance can be standardized and accurately quantitatively measured, however the indicators of the
performance of service supply chain are subjective, and the standard of the indicators is inconsistent.

D. Stability

Manufacturing supply chain which is high system stability emphasis on the full co-operation based on trust. Because of the uncertainty of the final consumer and the heterogeneity of customer demand Service supply chain is lower stable than service supply chain.

Although the manufacturing supply chain is very different from service supply chain, as shown in figure 1-1&1-2, information flow is the basis of any efficient supply chain and can reduce risks and uncertainties in the supply chain. Information flow which includes sales information and flow inventory data is key point. Through Information flow members of the service supply chain can share real-time information to reduce or eliminate the information asymmetry and can know accurate Service needs of the customer.

Because service supply chain fundamentally different from manufacturing supply chain, many model which are applied to manufacturing supply chain cannot be applied to service supply chain, and business process model of service supply chain should be construct.

IV. CONSTRUCT THE CONCEPTUAL MODEL OF SERVICE SUPPLY CHAIN

A. Service Modular

Service Modular are standardized of the single-function services which provided by the supplier, each service module include: service interface, service activities, service targets and service resources. The service activity is the basic contents of the Service; and the Service goal is the function description about the standardization of which the service modules can achieve; Service resources are environmental requirements of the activity service running successfully, such as service personnel, equipment requirements, they are based on customer’s needs implementation in a closed environment, and at the same time, through standardized service interfaces it can exert open communication between the various service modules, so as to coupled implementation. Specific structure shown in Figure 1-3.

Each service module can achieve a certain function, Because Service Module provide the Service interface, The service interface can provide the docking module of the Service with other service providers, to achieve the specialization of the division of labor and cooperation coupling, so for a number of complex service demands it can regulate some service modules which can integrated to form the Service flow. Each service call flow does not limit the Service Module in a single enterprise-wide. In order to improve efficiency of the supply chain, service integrators can choose the best service modules to satisfy to personal demand of customers.

B. The conceptual model of service supply chain

As shown in figure 1-4, The main line of the Service supply chain model is the customer demand, the Service integrator can meet the consumers’ demand by means of adjust the service flow. Service Supply Chain are set up the process of being decomposition, search, filter, integration, the process of calling. Service Supply Chain initiate the demand of the consumers, and the service integrator share its information on the whole supply chain, at the same time looking for the service module the service provider offer which matches the customer’s needs, and given multiple service modules the service integrator can evaluates, links, selects the best service flow to match the consumers’ demand.

C. Case Studies

A Hong Kong Port Enterprises and the service provider which include warehouse, yard, transport, packaging and processing flow consist of a service supply chain to provide international logistics services.

The Hong Kong port’s business flow as shown in Figure 1-5: First of all, to accept the request of customers, detailed
description of the process, then according to the specific needs of customer design services, because each service flow are composed of different service modules, it has only call the service flow which has portfolio. Finally, evaluate the service, the evaluation results as one of the performance appraisal which the Hong Kong port enterprises have and to cooperate with the various service providers.

Figure 1-5 Hong Kong Port enterprises as a service integrator in the Service Supply Chain

The Hong Kong port enterprise as a service integrator, focusing on the organization and coordination of service providers, according to users' needs to design the most efficient service flow, it means the least transport costs, shorter transit time, customs clearance procedures to provide clients with customized services. It can not only improve customer's service levels, reducing business risk, but also give more beneficial to formulate Hong Kong port logistics industry and enhance the capacity of one-stop service of port enterprises.

V. CONCLUSION

The related research about manufacturing supply chain is already quite sophisticated at home and abroad, but the study of the service supply chain is just the start. The paper based on the comparison of manufacturing supply chain and service supply chain, to propose the concept of services modular, and build the conceptual model of service supply chain. How does the service integrator choose the service providers, as well as service supply chain assessment of quality of service is required further research.

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