

**THE ROLES OF LOGISTICS SERVICE PROVIDERS  
IN SUPPLY NETWORKS:  
INSIGHTS FROM THREE THEORETICAL PERSPECTIVES**

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Work-in-progress paper

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**ABSTRACT**

Logistics service providers have traditionally been seen as support actors performing services of modest strategic significance. In this work in progress paper we use three different perspectives (industrial networks, value constellation and value configuration analyses) to highlight complementary perspectives of how such actors create value in supply networks. With help of the chosen theoretical perspectives, and a longitudinal case study briefly used for illustrative purposes, we highlight roles on firm level and supply system level of analyses.

**KEY WORDS**

Logistics service providers, supply relationships, industrial networks, value constellations, value configuration analysis.

## INTRODUCTION

Although supply relationships and the interactions between manufacturers, retailers and logistics actors appear to be of a growing concern, surprisingly few studies take the perspective of the logistics service provider. Instead, mainstream supply chain management builds on the strategies and structures that seem appropriate for manufacturers and retailers; that is, the organizations that are traditionally the supply chain's primary actors (cf. Lambert et al., 1998). Similarly, Stock and Lambert (2001) discuss logistics roles in *the organization*. Stock and Lambert actually provide a broad approach by regarding supply chain design from three perspectives: the manufacturer, the wholesaler, and the retailer. The logistics service provider remains ignored. Industrial network scholars refrain from labelling any particular supply actor either as a 'primary' or 'support' actor, acknowledging that the role of different actors and their views of the activated structures are dependent on the actors' evolving network positions. Nevertheless, product owners/manufacturers often receive the attention when analyzing supply networks also from an industrial network approach. For instance, the focal firms in Gadde et al. (2010) include IKEA, Ducati, and Volvo, but the authors do not explicitly address the logistics service provider.

Consequently, we argue that the literature has not directed sufficient attention to logistics service providers, and their view of supply management. This paper stresses insights from industrial network scholars and two frameworks from strategic management theory, in order to understand value creation from a logistics service provider viewpoint. The focus on value creation is justified by the traditional emphasis on the cost side of logistics services. For instance, in accounting systems, logistics is considered as a cost only, with no value contribution at all (Tracy, 1993). Similarly, supply chain frameworks tend to characterize logistics service providers and other intermediaries as non-value adding entities that perform routine functions in return for a portion of the margins in the supply chain (cf. Rabinovich and Knemeyer, 2006).

In particular, we use the recent work by Håkansson and Persson (2007), in order to stress interaction in terms of different forms of collaboration and economies. In addition, we use Stabell and Fjeldstad's (1998) value configuration framework, an approach that previously has been used to understand logistics service providers (Huemer 2006), and finally Normann and Ramirez (1998) and Ramirez (1999) work on value constellations.

The paper mentions a longitudinal case study which was initiated in 2000. A number of in-depth interviews with logistics service providers and other participants in supply networks have been conducted, and are in progress. The main part of this work in progress paper is however devoted to a presentation of the three frameworks. The discussion highlights insights achieved from using these different lenses regarding logistics service providers and their value creation in supply networks.

### **TLOG: A LOGISTICS SERVICE PROVIDER**

TLog is a fourth party logistics service provider (LSP) serving in fast moving consumer goods and fashion industries. LSPs include those actors typically referred to as Third-Party Logistics service provider (3PL) and Fourth-Party Logistics service provider (4PL) (CACMP, 2010). A typical 4PL owns IT systems only and it is highly information based. A 3PL is generally seeking

to fill its asset capacity of distribution centers, vehicles and freight resources. 3PLs provide operational services to clients, including warehousing, transportation and other logistics activities while the 4PL works across the whole supply chain and uses the services of 3PLs to provide end-to-end solutions for clients (Rushton and Walker, 2007). In other words, 4PLs play the role of designing, building and running comprehensive supply chain solutions for its clients.

TLog was established in Nov 2007, and it currently offers two types of services, namely, 1) the physical logistics services which include inbound transport, warehousing services and door-door B2B distribution services and 2) supply chain services covering demand and inventory management, purchase, orders, customer service and invoicing with direct cash flow to clients. It is independent in terms of ownership, i.e. no manufacturer or retailer has any ownership interests in the firm.

In the current Norwegian alcohol and beverage market, 4PLs play an indispensable role in the logistics and distribution system. The current demand market is characterized by a large number of small wine importers. These small players are either incapable to manage efficient and effective solutions by themselves or would rather concentrate on their core business. The alcohol and beverage distribution system in Norway is to a large extent composed by 4PLs, with cooperation from 3PLs and banks, and also shippers in terms of wine importers or manufacturers and the retailers, such as the Norwegian wine monopoly.

TLog uses an ICT system to integrate and coordinate the outsourced services to 3PLs, clients' clients and to arrange the payment flows in the supply network. Concerning the service providing process, TLog is responsible for arranging the cash and information flows, coordinating with clients, banks, client's clients and the 3PLs. The 3PLs are responsible for handling of the physical flow. Concerning the physical inbound transport tasks, the 3PLs will contact with manufacturers and arrange picking services from them and deliver the product from all over the world to destination warehouses. Regarding the outbound logistics, TLog receives orders from the retail stores via the integrated information system. The present supply network consists of app. 15 different supply chains.

## **THE THREE CONCEPTUAL FRAMEWORKS**

In this section, we will present the three conceptual frameworks, i.e. the HP model, value constellation analysis and value configuration analysis. Our chosen perspectives can be seen as three different lines of criticism of the value chain based approach. Porter's, (1985) well-known value chain model and the corresponding notion of value systems have profoundly influenced the perception of how supply relationships work. These models have shaped managerial thinking about such strategic issues as value creation, coordination and positioning. However, while the value chain logic is seen as representing a strong and valid analytical tool for such areas as corporate strategy, it is also believed to limit fuller understanding of how knowledge- and service-based business systems function. As will be argued, the three perspectives suggest (either implicitly or explicitly) that the traditional view creates a too competitive centred view of supply chain relationships (the HP model); a limited view of the value (sequentially added) creation process (value constellation) and a limited understanding of LSPs own business model and sequential supply systems (value configuration analysis)

## **THE HP MODEL**

The HP model (Håkansson and Persson (2007)) is based on the industrial network perspective; firms can not survive in isolation, and multidimensional interaction and cooperation is a basic feature of the business landscape. As a result, instead of avoiding interdependence, firms should focus on exploiting different forms of interdependence, for the purpose of economizing in terms of efficiency and effectiveness. In particular, the authors stress collaborative efforts between buyers and sellers in generating economic benefits. Their main argument is that firms interact in order to achieve certain kind of economies, and depending on the types of economies, there are different collaboration types and relationships to address.

Three forms of collaboration and relationship types in relation to three types of economies are identified. Scale and scope are related to the rationalization role of purchasing and supplier relationships in terms of standardized solutions or assortments of suppliers from specialized firms. Economies of integration derive from the coordination of interlinked activities in supply chains. This integration can take various forms and result in either complementary or closely complementary activities, depending on the extent of adjustments among the activities of buyer and supplier. Third, economies of innovation are related to the development role of purchasing.

According to Håkansson and Persson (2007), economies of scale and scope may be achieved through distributive collaboration. The distributive type of collaboration refers mainly to the allocation aspect of the collaborative effort. The main concern is to allocate volumes, activities and resources as efficiently as possible to reduce costs. In these efforts, the joint capabilities and experience of the interacting parties are critical to performance.

Functional collaboration will achieve economies of integration through coordination of interdependent activities. This interdependence is particularly evident in the serially linked activities such as JIT deliveries. In order to attain the benefits in terms of economies of integration, considerable joint efforts are needed. The term 'functional' refers to the coordination and adjustments of activities and functions over several company borders in a supply chain. Through the linking of functions across a supply chain, economies of integration can be attained. The linking takes various forms, such as sharing of information like forecasts, joint planning efforts, joint follow-up and evaluation of performance indicators etc.

The cooperation can also take the form of a problem solving relationship involving systemic collaboration. This form of collaboration requires mutual adjustments of activities, adaptations of resources and repositioning in the actor dimension. In problem solving relationships, there are three typical collaborative elements, which are knowledge sharing, joint performance measurements and extensive interaction. In all the three types of relationships, the closer the collaboration between the two sides, the better the opportunities for the exploitation of potential economies will be.

## **VALUE CONSTELLATION**

The basic assumption behind the value constellation approach (Normann and Ramirez 1998; Ramirez 1999) is that modern society is featured with constant social and technical innovations and these innovations can change the existing value creating logic and the system per se. There are two implications here. First, these innovations free the existing value creation system from temporal and spatial constraint, thus enabling different or more complex interactions among more

actors; second, technological advances result in dense offerings, as more options for the customer's own activity can be offered. As a result, the central role of the focal firm is to design and redesign the value creating system in response to these social and technical changes and to orchestrate activities of relevant others to co-creating value. In order to achieve this, focal firms need two key resources, namely, knowledge and relationships. Knowledge is related to the better understanding of the value creating system; such as knowledge about idea structures or business value creating models. Relationships are related to the focal firms' ability to mobilize others in creating value, where actors "*help each other and help each other to help each other*"(Normann and Ramirez 1998, p.viii)

Value constellation analysis regards the customers as active participants in the value creating systems, even the consumption process itself is part of value creation. The value of the offering, which is defined as any output of a value creation system (the product or supplier) that is an input to another (the customer), depends on how well the offering code fits the customer's own value creation system. In sum, while traditional value chain based analyses tend to imply that (i) customers destroy value, (ii) consumption is not a factor of production, and (iii) value is added, the alternative is to stress that producers and customers co-create values, consumers should be managed as production factors (assets), and that values are co-invented (Ramirez 1999).

### VALUE CONFIGURATION ANALYSIS

Stabell and Fjeldstad (1998) discuss three types of value creation models that individual firms fall into, namely the value chain model characterising those firms transforming inputs into products, the value shop model for those service firms solving customer problems and the value network model for the firms that play the role of intermediary. On an interorganizational level of analysis, these models create business value system in the shape of interlinked chains, referred shops, and layered and interconnected networks. Here we focus on the value network model.

In describing the value creation logic of those companies acting as mediators, Stabell and Fjeldstad (1998) developed the value network model. Such a firm relies on a mediating technology (Thompson, 1967) to serve clients who are willing to be interdependent. The connections can be based on various forms of information, physical product flows, or some social connections etc. Typical firms under this category are telephone companies, logistics service providers, banks, and insurance companies.

A mediating firm creates value by connecting clients. The value of these linkages build on positive network demand side externalities, which means that adding one more customer to the network directly affects the value of the services to other customers (Katz and Shapiro, 1985). The value adding potential of new clients depend on if they add synergies or not to the network. As a result, categorization and standardization is critical for the mediator to match compatible customers. Value network firms create value by executing the following primary activities:

- *Network promotion and contract management* (inviting and selecting customers to join the network).
- *Service provisioning* (establishing, maintaining and terminating links between customers and billing for value received).
- *Network infrastructure operations* (maintaining and running the infrastructure needed to provide the services).

## DISCUSSION

Table 1 summarizes the discussion.

*Table 1: Three perspectives on Logistics service providers and supply networks*

<b>Issue/ Theoretical perspective</b>	<i>HP model</i>	<i>Value constellation analysis</i>	<i>Value configuration analysis</i>
<i>Firm level (strategic leverage)</i>	Systematic resource combining and systematic networking  Reaping benefits from similarities through connections to others  Coordinating serial interdependences through joint planning  Systematic adaptations of resources and activities	Knowledge and relationships  Taking a broader view of values  Regarding customers as production factors  Understanding the customers' business model	Understanding the LSP business model  Connecting customers  Network promotion and contact management (network externalities, size and composition)  Service provisioning  Infrastructure operations
<i>Supply system level</i>	Supply networks (interdependencies between supply chains): <ul style="list-style-type: none"> <li>• Distributive</li> <li>• Functional</li> <li>• Systemic</li> </ul>	Industry setting with constant technical and social innovation	Non-sequential industry structures with layered interconnected (co-producing) networks  Upstream and downstream linkages and over-and undercurrent exchange streams  Value logic interactions

### THE HP MODEL

Firms may achieve economies by its internal efforts and its collaboration with others. The HP model has an interorganizational approach that focuses on interfaces between actors. By using the term collaboration, the HP model gives an equivalent emphasis of the role of focal firms and clients in the value generation process. Based on this model, the economies that TLog generates depends on its interdependences with other actors, for example the clients, the 3PLs etc.

The HP model is of high relevance since TLog, being a non physical asset based firm, must create value by delivering logistics services through collaboration and resource mobilization both within and beyond its own boundary. After studying the interactions between TLog and its interacted actors, we found that all three types of collaboration and the corresponding relationships existed.

First of all, TLog creates value by exploiting economies of scale and scope. They do so by accumulating volumes from several clients, thereby getting better terms for transportation and

warehousing operations. They also choose clients with basically similar needs in terms of types of products and sales channels, which lead to an efficient use of shared resources. The systems and business processes are used for several actors, which again creates economies of scale. This is also why they accept only changes requested or needed by several users. This indirect interdependence is referred to as pooled interdependence by Thompson (1967). The value creation initiatives typically concern common standards, rules and procedures, categorizing clients into segments or groups with similar needs, and the exploitation of these similarities (distributive collaboration in the supply system).

Second, TLog also creates value by means of exploiting economies of integration. They do so particularly in relation to the two business processes “purchase-to-pay” and “order-to-cash”. Here, they are coordinating the sequential activities of several actors involved in the inbound and outbound logistics processes. The role of the 4PL is to link activities such as forecasts, replenishment, warehousing operations, goods collection; payment etc. together in a coordinated manner. The 4PL is in a unique position to exploit economies of integration, linking the different actors together into one system. Here, it is the serial interdependence that is exploited, the focus of coordination concern joint planning procedures, and the form of collaboration is functional. The value creation initiatives typically concern joint planning and follow-up activities related to key performance indicators (functional collaboration in the supply system).

Finally, the 4PL is also in the position to foster economies of innovation and change. In the pre contract process, both parties are committed to come up with the optimal logistics solutions. The clients and TLog work together to specify the service portfolio, this usually involves setting up expert teams from both parties, analyzing and evaluate the clients’ whole supply chain and logistics demand etc. In the pre-contract stage, the goal of the interaction is to get the client interested to cooperate and to come up with good logistics solutions for the client. The involvement of expert group from both sides, knowing their needs, where they stand, and where they want to go, is crucial for the process. These economies are created through exploiting reciprocal interdependence and mutual adjustments among the actors. The type of collaboration is systemic, and it involves a joint problem-solving process.

## **VALUE CONSTELLATION**

The value constellation approach takes a systemic approach on the value creation process. Clients and suppliers co-produce value. By taking care of the logistics task from clients, TLog effectively releases wine importers’ relative internal resources that might otherwise be used for logistics and therefore enable them to focus more on their core competencies. For the wine importers, the value that they create by themselves will increase since their resources are utilized in more efficient ways.

As the wine importers’ way of creating value changes, the value of the offerings from TLog will change as well. By viewing the service of TLog as a support system to the clients’ value system, TLog needs to consider how their customers’ value creation activities are interdependent with its own; value creation co evolve on a supply system level of analysis. The better TLog understands its customer’s value creation system, the better equipped it is to coproduce value with them.

Since TLog is an intangible asset-based firm, it does not create offerings solely by itself. It acts like a value system designer coming up with the right logistics solutions and also as an organizer mobilizing relevant parties in the co-producing process. In order to design the offering that best



fits the clients' value system, TLog suggests different logistics service portfolios tailor made to different clients. With some clients, only physical distributions are offered, with some, only warehouses services is suggested while with others both administrative and physical logistics services are served. The right offerings derives from i) close collaboration between TLog and clients, knowing the clients' business system and their needs and also ii) the expertise and skills of the consulting team at TLog who are able to demonstrate better understanding of the clients' business, their roles and needs than the clients themselves.

## **VALUE CONFIGURATION ANALYSIS**

The value configuration framework contributes with a firm level view stressing the central role that individual firms play in value creation processes. TLog is the expert who establishes linkages between senders and receivers for the delivery of physical products.

Value configuration analysis further assists in identifying that different business models may co-exist in creating efficient supply relationships, thus creating value logic interactions (Huemer 2006). The expression describes the aggregated business logic and the individual value logics driving different supply actors. That is, while value constellations analysis stresses the importance of understanding the customers view of value creation, value configuration analysis helps to highlight unique LSP activities.

The size of the network and the composition of the network are the main value drivers for TLog. The more volume of the standard beverage product added into the network, the better deals TLog can negotiate for all wine importers. The more similarities among clients' products and service demand, the more synergies can be utilized. The distinction between traditional production economies of scale and positive demand side network externalities is one central issue in this respect.

On a supply level of analysis, TLog creates values by organizing simultaneously layered mediation activities in the supply network. Value configuration arguments suggest that it is not only the value chain logic that operates within supply relationships. In a 'pure' mediation system, different value networks form co-producing layers of mediators, with one network using a 'lower-level' network structure as a sub-network. For example electronic banking uses the internet as its medium for payment services, which itself uses the general telecom networks infrastructure, within which network operators deliver the infrastructure for telecom service providers (Fjeldstad 1999). Similarly, the information flow handled by TLog based on their integrated ICT structure, the physical logistics flow managed by the outsourced third party logistics companies, and parts of the cash flow handled by the bank that TLog cooperated with, are performed in a corresponding manner.

Thus the business value system in a pure mediation industry consists of a set of co-producing, layered and interconnected value networks, which are interdependent on each other. Supply structures where single or interlinked chains often coexist with layered network dimensions, open up additional options for strategic expansion, as the concepts of over- and under-current layers and activities offer the possibility of re-positioning in the vertical layers of supply relationships (Huemer 2006).

## CONCLUSION

By applying the HP model, value constellation and value configuration analyses, different insights are identified. The HP model focuses on interaction and multi-player relationships. It does not consider the identity of the interactive parties per se, but the attributes and characteristics of their interfaces. Value constellation analysis identifies two central roles that focal firm play in the value creating system: one as value creating system designer; the other as organiser, orchestrating the value creating activities among multiple players. Understanding TLog's role as an organiser is a main contribution from value constellation analysis. Value configuration analysis identifies different idea structures regarding value creation on a single firm level. This approach helps us to elaborate on the identity of TLog by means of explaining its own distinct value creation logic.

There are several implications worthwhile mentioning. The three perspectives suggest (either implicitly or explicitly) that the traditional view creates a too competitive centred view of supply chain relationships (the HP model); a limited view of the value (sequentially added) creation process (value constellation) and a limited understanding of LSPs own business model and sequential supply systems (value configuration analysis).

Industrial network scholars stress the importance of understanding relationships from the perspective of 'the other'. In that respect, value configuration analysis brings a coherent idea structure to the supply literature in the value network model. Placing mediation (rather than production) at the forefront obtains an alternative view of logistics service provider roles and value creation logic that suits their activities and resource views. Where industrial networks add to the understanding of interdependent supply chains, value configuration analysis provides an alternative understanding of the provider itself. Finally, the expression 'systematic networking' – that is, using existing relationships to influence other relationships appears to be fundamental for firms that rely on a mediating technology, as the value network model portrays. In developing this project further we intend to include the case in a much more profound way and to explicitly acknowledge that the different perspectives chosen do build on different epistemological and methodological bases.

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