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## Critical Success Factors for Horizontal Logistics Collaboration

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# Critical Success Factors for Horizontal Logistics Collaboration

Lisbeth Broede Jepsen

## Abstract

Research in transport and logistics has primarily focused on vertical collaboration (e.g. customer-supplier collaboration), whereas horizontal collaboration between e.g. competitors, has received only limited attention (Vanovermeire et al., 2013). Literature on collaboration has emphasized motivations, opportunities, antecedents and outcome (Cruijssen et al., 2007), but researcher have paid far less attention to the developmental processes of horizontal collaboration, i.e. the process through which collaborations are initiated, formed, and operated (Das et al., 2002). Furthermore, an investigation of critical success factors such as shippers' willingness and motives, their challenges, the selection of partners and the role of the network broker in regard to the initiation and creation of horizontal collaboration have been largely neglected in previous logistic research.

The purpose of this case study is therefore to bridge these gaps and investigate the critical success factors during the early development stages of a horizontal logistic collaboration. The research question guiding this paper is:

RQ1: What can be learned about critical success factors during the early development stages of a horizontal logistic collaboration?

This study contributes to theory generation suggesting a five-stage process for horizontal collaboration underlining the critical success factors during this process. Especially, the role of the network broker has been found essential for the successful creation of a horizontal collaboration.

This study is an example of real-life collaboration between producers, which have resulted in the development of new green transport corridor. Therefore, this case

provides valuable new learning about the process of creating a horizontal logistic collaboration.

**Keywords:** horizontal logistic collaboration, critical success factors, five-stages process, network broker

## 1. Introduction

Collaboration need to be considered in the context of where in the value chain it occurs. For many years, researchers investigated strategic partnerships and alliances and inter-organizational collaborations. The logistic literature has primarily focused on vertical collaboration, which is companies from different levels of the supply chain working together e.g. to optimize their logistic activities. Horizontal collaboration in transport and logistics, which e.g. involves collaboration between competitors, has received only limited attention (Vanovermeire et al., 2013).

Horizontal logistics collaboration is very important for transport and logistics for two reasons. First, by participating in horizontal collaboration, the companies are more likely to become more cost efficient and service effective (Crujssen et al., 2007). Second, by making the operations more efficient (e.g. consolidation of flows) they will lead to more sustainable transportation and have a positive environmental impact (Audy et al., 2010).

Substantial research has been carried out on development process of collaboration. However, with a few exceptions, researchers have paid far less attention to the development processes of horizontal logistic collaboration and its critical success factors. Furthermore, little is known about the role of a neutral network broker during this process (Cannatelli et al., 2012).

In this study, I suggest that a network broker should follow some steps to correctly initiate and build a logistic horizontal collaboration. In particular, it involves; 1) an in-depth knowledge of the companies (e.g. challenges and motives); 2) a

selection of the right partners (fit or match), and 3) an understanding of how to initiate the development of horizontal collaboration.

## **2. Successful horizontal logistics collaboration**

### **2.1 Critical success factors**

A horizontal collaboration should be established only if the company is willing to invest time and effort (Audy et al., 2010). The company's willingness to collaborate refers to the degree to which the company wants to collaborate with another company (even perhaps a direct competitor) about transport or logistic solutions that will benefit their businesses. Achieving a successful horizontal collaboration between companies is a challenging exercise. First of all, it is very relevant to identify critical success factors that strengthen the shipper's willingness towards horizontal logistic collaborate.

Research has suggested that internal motives such as monetary rewards and future earnings, reputation of partner companies (Jepsen et al., 2011), but also external motives such as regulation, customers, and competitors (Hall, 2001) are the driven forces for companies to participate in collaborations.

Horizontal collaboration might involve two or more competing companies with different backgrounds, cultures and view of the future. Trust is therefore a critical element for effective horizontal collaboration (Cannatelli et al., 2012). Trust amongst partners will avoid potential conflicts among partners and prevent opportunism. Researchers argue that the most preferred partners are usually also the most trusted partners (Li et al., 2008). In other words, trust can be achieved if the preferred partners are selected for the horizontal logistic collaboration.

The selecting of partners has also been found to matters a great deal in with respect to successfully horizontal collaboration (Benford, 1993). Research has shown that it is important to check the match or fit between two companies willing to initiate horizontal collaboration. Therefore, the concept of fit has received attention. This concept is defined as the fit between strategy, the wider

environment, and/or agreed aim or project goals (external) and the fit between organizational structure, individuals within or across-borders of the companies (internal fit).

Liu et al. (2006) also study inter-organizational collaboration and the importance of correctly choosing the partner, based on its internal fit between companies regarding skills and management philosophy, etc. Personal commitment and involvement of individuals (including supply chain managers and management) have a positive impact on collaboration projects (Hanna et al., 2000). Being clear on why each party is entering collaborative projects and setting up individuals and teams up for success is absolutely key (Hammant, 2011). Personal relations inside and across company borders have been found to influence the performance of collaborations (Hammant, 2011). Individual may gain personal benefit such enhanced social relations, enhanced reputation, privileged access to social relations, and so on. In other words, the internal fit between individuals of the different companies and consequently other people related elements are essential to success (Kirkels et al., 2010).

Furthermore, Rosas et al. (2011) suggest that a competency assessment process links to two types of competency hard competencies and soft competencies. Hard competencies refers to the ability of an organization to perform activities or tasks aimed at achieving a specified number of outcomes, while soft competencies refers to a general aptitude to perform a behavior such as the ability to exchange knowledge. These competencies should both be considered when selecting the right partner.

## **2.2 The initiation and creation of horizontal collaboration**

The creation of inter-organizational collaborations follows similar steps. Gonzalez (2001) suggests establishing partnerships based on a five-step process. First, the strategy for collaboration is determined, such as the specific needs for the company, the collaboration objectives, etc. Second, the partners are selected. Third, the legal framework of the relationship is established. Forth, the collaboration has then to be managed properly, based on many inter-

organizational meetings and mechanisms to settle conflicts. The fifth stage involves evaluating the failure or the success of the relationship. Das et al. (2002) suggest a three-stage model which includes a formation, operation, and outcome stage. During the formation stage the strategy is formulated, partners are identified, deals negotiated, and the collaboration is set up. In the operation stage the companies start the collaboration and implement the agreement. In the outcome stage results are obtained and evaluated. Mejías-Sacaluga et al. (2003) propose a four-stage implementation model based on the evolution of the relationship: friendly negotiations, cooperation, coordination, and then collaboration.

The creation and development of a horizontal collaboration is difficult. The manager of such collaboration must be able to look across company boundaries and be able to deal with the complexity that this entails. Each party needs to protect its own interests. What information to share, which truths to acknowledge and how much to commit are complex decisions that can be made easier by the engagement of an independent network broker, especially in the early stages of a relationship (Cannatelli et al., 2010). A number of researchers have discussed and analyzed the role of a broker and knowledge institutions have been found to function as a neutral and trustworthy partner to profit organizations (Winch et al., 2007). Researchers have pointed out that direct and stable social relationships between neutral trustee (network broker) and potential partners are important, so that the network broker will have more knowledge of individual motivations and be more effective in defining a rewarding goal (Taylor et al., 1993).

### **3. Method**

The research performed here is a longitudinal case study with an exploratory purpose. The empirical case study was triggered through the Interreg IVB project: Connecting Food Port Regions – Between and Beyond (Food Port) ([www.food-port.eu](http://www.food-port.eu)) that aims to improve the efficiency, effectiveness and sustainability of the food supply chains within the North Sea Region.

As part of Food Port project, knowledge organizations (e.g. universities) from the different North Sea Regions undertook interviews with food producers (shippers) to obtain insights into shippers freight flows. The objectives were to identify green transport corridors and to create new partnerships for collaboration in food and logistics realize collaboration opportunities.

The field case analysis carried out focuses on successful development of a horizontal collaboration between four food producing companies in Denmark. Getting internal access to a proven successful initiative is consistent with the purpose of theoretical sampling, which focuses on cases with “rare” qualities and whose dynamics may be easily detected, allowing processes that can exist in other contexts to emerge sharply (Eisenhardt, 1989). Hence, I could access information providing answers to the research question. To lead an in-depth case study makes it possible to explore causal links that are too complex to be analysed, for example, through a survey (Yin, 1994; Eisenhardt, 1989). Indeed, adopting a longitudinal perspective is consistent with the research objective - to explore the dynamics where horizontal collaboration is created. Again, longitudinal perspective is also a key tool to advance new insights in the logistic field.

The study is based on in-depth semi-structured interviews with logistic or supply chain managers of 22 food producing companies, direct observations were made by the author during two workshops, workshops which were followed up by 4 additional in-depth interviews, and 3 small telephone interviews. Data collection is an on-going process. It started in November 2011 and the latest interview was in June 2014.

## 4. Results

The case study provides evidence for the success criteria for a successful horizontal logistic collaboration. Furthermore, the case study suggests four main stages in the development process of horizontal collaboration. The five stages are presented in figure 1 and analyzed in the following sections. Extracts from the interviews are reported to provide an understanding of the critical success factors in each stage of the process.

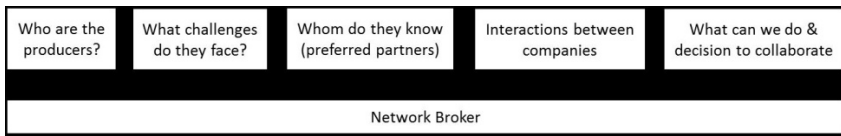


Fig. 1: The development process of horizontal logistics collaboration

### 4.1 The willingness and openness of the producers

The first stage occurs in response to a broad business opportunity (the creation of a horizontal collaboration) identified through Food Port by the author (in this case the network broker). At this stage 22 interviews with different Danish food producers (shippers) were undertaken in order to identify who they are.

It shows that several producers from the Danish Food industry are willing and open towards horizontal collaboration. Especially, the producers from the bread, meat, dairy, and vegetables industries are highly willing and open towards horizontal collaboration.

The findings also show that the interviewed companies have no or only limited experience with horizontal collaboration. But as long as the partners are open and willing to invest in the collaboration, the producers are very optimistic about collaboration: "We have no prior experience with this kind of collaboration. But as long as people come up with something then we are convinced that it (horizontal collaboration) will work". Another company agrees: "We have no problems in cooperation vertical or horizontal around practical problems". The supply chain manager continues: "We are very open and we have always been"



and "What I have seen many times is that people see ghosts. We feel most comfortable with saying things as they are. We do not hide anything". A third company argues that successful collaboration requires: "Openness and a willingness to contribute with something. We have tried this within our own group and it's really really hard. You can't just sit and listen you must offer something".

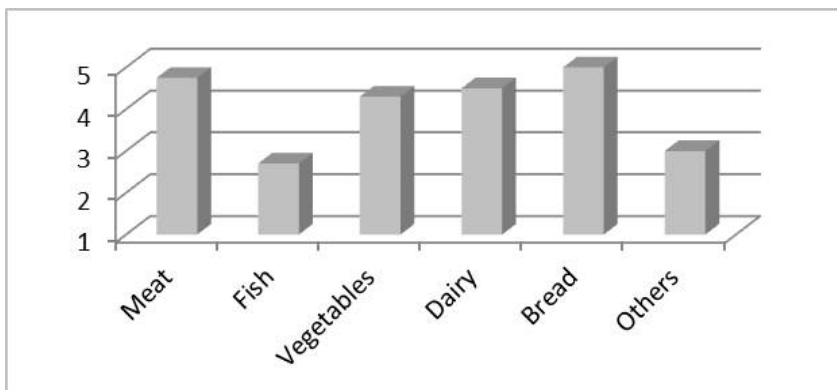


Fig. 2: The willingness to horizontal collaboration

## 4.2 What challenges do they face

First, the producers were asked about their internal and external motives for horizontal collaboration. Second, they were asked to identify several challenges and therefore opportunities for horizontal collaboration.

The findings show that internal motives for participating in horizontal collaboration are transactional, operational, and repetitive such as costs reductions. Some of the interviewed producers are not able to fill up the trucks due to because of weight limitations. One company states "We need to address specific challenges related to the transport of heavy goods". In other words, if this shipper could consolidate freight it would be possible to reduce costs. Improvements in customer service level (speed e.g. timely delivery, damage avoidance), and delivery of special freight are also pointed to as some of the main motives for horizontal collaboration. Other motives are also identified from

the interviews regarding the participation in horizontal collaboration. As stated by one of the producers: “The argument for participating in this kind of collaboration was that this would give us the opportunity to sit at the table with the aim to really develop a new setup. It was not the environmental part that was the driving force behind it. It was a combination of monetary benefit and competition – but also to be involved and set an agenda for future transport possibilities”. In other words, the participation in horizontal collaboration can help producers to establish their reputation and improve the company’s status.

The external motives identified from the interviews are the requirements of the customers, due to shorter product life cycle or the demand for new packing which may require new transportations mode. As pointed out by one of the companies: “Our customers put more and more pressure on the transport-related setup, because the shelf life is so extremely important for the large retailers”. The customers set the agenda: “They dictate the market” and the case companies agree that the requirements of the customers are driving many of the collaboration initiatives.

From the interviews we learn that external competitors also act as a driver for supply chain projects. As one company states: “If we want to maintain our role in the market then we cannot offer a poorer set-up then our largest competitor”. In other words, the conditions set by the competitor are a necessary condition.

Furthermore, the pressure to reduce environmental impact is also identified in this study as drivers for the producers to participate in horizontal collaboration. One of the supply chain managers points out: “With the economic pressures that have been on us over the last 2 years, the environment has not been a priority. The company has only benefited from the gains that were given for free from environmental initiatives. But the environment is becoming more and more of priority in our system. It gets a more and more important, and it will also be something I will be measured on in future”. In other words, environmental factors such as regulations encourage firms and their employees to participate in horizontal collaboration in order to reduce environmental impact.

The findings show that especially problems and inefficiencies in regard to the food producers' transportation to one specific country (such as high ship rates, vehicle-restrictions in Germany, branding etc.) are considered a big challenge for many of interviewed food producers.

Having identified the motives and challenges of different food producers, the next step for the network broker was to identify a common goal for a horizontal collaboration. In other words, a realistic and beneficial business case (pilot project) for horizontal collaboration needed to be created. The network broker chose the creation of a horizontal collaboration between food producers regarding their shipments to this specific country as a business case. The main focus was on carbon footprint and on logistic collaboration, not on creating a customs transport corridor.

### **4.3 Whom do they know (preferred partners)**

Once the specific business opportunity was identified, the producers who were the most willing and open towards exploring collaborate opportunities regarding food transportations to this specific country were identified from the data.

New interviews with producers from the meet, bread, and vegetable industry were undertaken, and the companies were ask to name the potential partners with whom a collaboration could be valuable.

The companies first mentioned the names of someone they knew, liked and trusted. In other words, companies pointed at partners with whom they had prior experience through e.g. previous interactions in another context. Some of the interviewed companies knew each other from prior collaboration experience, but only a few of the companies had experience with each other from horizontal collaboration in regard to transportation. Secondly, they mentioned companies about whom they had some but limited knowledge.

The supply chain or logistic managers from the different companies also knew each other as former colleagues and from Network Groups: "We can talk together. The supply chain manager at our competitor is one of my colleagues"

and "We participate in the same Network Group". In other words, personal relations are of great importance when selecting partners for collaboration.

The interviewed producers had no problems in regard to horizontal collaboration with their competitors. One company is even willing to take into account the benefits of all the collaborating companies: "We really do not care if we need to collaborate with one of our main competitors. We have no preferences if it can benefit all".

Through the interviews the companies more or less choose each other. One of the selection criteria for the potential partners was the requirements for food transportation (e.g. refrigerated trucks): "We just have some requirements. It's fresh food, so it's restricted what types of food that you can mix with it. So it gives some limitations".

The producers are emphasizing the importance of the match between partners. One producer stated: "It's important that you find someone with whom you have some synergy. I think it is important that we look alike. It is not important that we look like each other all along, but we must have similar challenges. If I had to collaborate with a company that makes screws and nails, I would not be able to relate to that company. It must be the same lead time products". In other words: "Producers of products that have the similar short shelf life challenges and just-in-time requirements".

After the interviews, the network broker selected the producers who were perceived as the best match in terms of external fit (food requirements etc.) and internal fit (personal relations).

#### **4.4 Interactions between companies**

The next step was to explore of new collaboration opportunities between the selected producers. In other words, the producers were invited and accepted to participate in a workshop. In other words, the network broker initiated interaction between the producers. At this stage the network broker participated in the practical problem solving and closely observed the process.

No concrete goals were identified before the workshop. The overall goal for the workshop was to identify business opportunities for the creation of a horizontal collaboration between the selected food producers regarding their shipments to this specific country. The main focus was on logistic and on carbon footprint.

At the workshop the companies discussed different experienced challenges and possibilities in regard to this specific market. But they also discussed the strengths and weakness of their companies. Even though the individual producers identified different challenges and interests, the producers were open towards identifying and exploiting win-win situations and thus opportunity for each partner. One of the companies was straightforward: "This is our world and how we adapt. How does it fit into your business and how does what fit into ours". All of the companies agreed that if they would join this pilot project, the main goal was to optimize collectively.

From the workshop different suggestions were made e.g. the product flows of the producers could be consolidated and shipped through the existing port-to-port links or road-to-road links. The third option was to create a new green food port corridor between Denmark and this specific country; A new intermodal connection consisting of rail transport, short-sea shipping and road.

It was decided that the network broker together with colleagues should undertake a feasibility study in order to reveal the most sustainable logistic solution for the food producers. Therefore a comparison of existing and potential food port scenarios, which included calculations on economic efficiency and carbon footprint, was undertaken.

Before moving forward with the collaboration, it was decided that all partners signed a non-disclosure agreement and a date for a new workshop was set. Soon after the workshop the network broker developed a non-disclosure agreement, which was distributed and signed by the partners.

#### **4.5 What can we do and decision to collaborate**

At the next workshop (which took place at one of the participating companies), the network broker presented the results from the feasibility study. The aim of

this workshop was to make a decision to co-create the new business opportunity and make a commitment.

The companies all agreed to continue with a horizontal collaboration and from the feasibility study a common goal was chosen to pursue. A Letter of Intent was distributed and signed.

From new interviews with the individual producers, they all emphasized the requirements to quality and food. Each of them is certified according to some standards and break-down procedures which must be followed. Otherwise the companies will get a note and then will have to be re-certified.

So before the start-up of operation, there still need to be a formal negotiation and contract. But none of the producers consider this as a constraint for start-up of the collaboration.

The decision to collaborate does not strictly focuses on a cost-reduction perspective. The findings show that there also exist several other benefits (e.g. CO2 reduction and influence) than cost-reduction to perform horizontal collaboration in transport and logistics. However, cost-reduction is by far the most important of the potential benefits.

## **5. Discussion**

The results show that it is important to gain in-depth knowledge about the producers (who they are), their openness and willingness towards collaboration, their motives and challenges. Today's demanding customers expect their goods to be delivered to the right place, at the right time, in the right amount, in perfect condition, and all at the lowest price. Therefore, participating producers mostly utilizes road transportation. However, the problems and inefficiencies in today's road transportation make it necessary to look for alternatives in regarding these transportations. They have similar motives and challenges regarding transportation to this specific country. In other words, I argue that their willingness and openness towards for horizontal collaboration is positively influenced by the attractiveness of the business in terms of reduction of costs and higher customer

service. This finding is supported by the findings of Cruijssen et al. (2007). However, this study also reveals that motives such as reputation and being involved in the creation of new business models such as "setting a new agenda for future transportations.

Even though, the companies have not had prior experience with each other in terms of horizontal logistic collaboration, some of them have collaborated in other business areas. This finding suggests that prior collaboration experience has a positive influence on the successful creation of a horizontal collaboration. Strong personal relations by being former colleagues and part of the same Network Group is also found as important. In other words, companies that have a deep understanding of the skills and capabilities, products, business objectives and organizational culture of their potential collaboration partners would be more willing to collaborate openly and intensely. This finding is supported by Li et al. (2008) who argue that prior partners that have had previous interactions are more likely to understand each other's know how, operating routines, and managerial practices (Li et al., 2008). The finding from case study also suggest that participants will contribute more if they believe that their contributions are important to the performance of the entire collaboration are identifiable and if they like and trust the group they are working with.

Disadvantage by this self-selection process among old colleagues and former partner can prevent companies from looking beyond their own existing pools of social relationships and missing out on opportunities (Ellis, 2000). The findings however suggest that the involvement of a neutral network broker can avoid this by locating partners who possess several synergies but would not otherwise have been connected.

The findings suggest that continuous interaction over time is positive related to higher willingness to collaborate. But it takes time and resources to establish, maintain and develop business relationships between companies (Anderson et al., 2000). This case shows that a network broker such as knowledge organizations can be effective in terms of convincing partners to join a horizontal collaboration, enhance interaction and creating informal agreement or contracts

(Non-Disclosure-Agreement and Letter of Intent), which all contributes to a successful creation of a horizontal logistic collaboration.

## **6. Conclusion**

The lessons learned from this case study are multi-faceted. First, the case is a successful example of how a horizontal logistic collaboration between Danish food producers (some of them even competing within the same industry in international markets) can be supported by a network broker in the creation and early development stages of a horizontal collaboration. The willingness and openness of producers, common motivations and challenges, the right combination of partners and interaction with strong executive support by a network broker are key success factors for this result.

Second, contradictive to existing research (e.g. Das et al., 2002), the case shows that the collaboration starts with (1) Identification of open and willing partners, (2) Common challenges and motives, followed by a (3) selection of partners, (4) Interaction, (5) Task definition and decision to collaborate.

Third, in order for the collaboration to move from one development stage to the next, the findings suggest the following success criteria: (1) the members possess a high degree of openness and willingness to collaborate, (2) must be each other's preferred partner, and (3) see the win-win opportunity for all.

Fourth, the results suggest that the network broker through the expertise and knowledge role gain respect from the companies to initiate, participate and contribute to the collaboration, and that involvement of an independent network broker results in the relational agreements and commitment for the horizontal collaboration.



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