# VERTICAL COLLABORATION AND AN IMPROVED ECONOMIC EFFICIENCY

Author: Alexandra van der Linden
Program: International Food Business
Date and Place of Publication : Dronten, The Netherlands, 13th of August 2018
Thesis Coach: Patrick Burgerss

# “HOW CAN ECONOMIC EFFICIENCY BE INCREASED THROUGH VERTICAL COLLABORATION WITH LOGISTICAL PARTIES IN THE POULTRY PROCESSING INDUSTRY IN THE NETHERLANDS?”

Alexandra van der Linden

Date and Place of publication: Dronten, The Netherlands, 13th of August 2018

# Preface

This research report is my thesis for the completion of my Bachelor program, International Food Business, at Aeres Univeristy of Applied Scienes, Dronten, The Netherlands. This research project has focused on vertical collaboration between poultry processing companies and logistic parties. With this research I wanted to find out how the economic efficiency of both companies can be improved by collaborating.

I finished my thesis today and I hope you will enjoy reading it. I worked with enthusiasm, dedication and pleasure on this project and I have learned through the entire process. I hope that this thesis project can be of any value to the assigner and other companies active in the poultry industry.

I would like to express my gratitude to everyone that has contributed academically and practically a support to this thesis. Therefore I would like to thank firstly my supervisor and coach Koen Nijhuis. He always supported me and gave me much trust. I am very grateful for the opportunity given to me to be part of this project in such a large international organization.

Furthermore, I would like to thank my project supervisors from Aeres University of Applied Sciences, Dronten, Franzi Stockheim and Patrick Burgerss, for being of great help throughout the entire process and their beneficial comments and time devoted to this project.

Finally, I would like to thank my fellow students for being supportive and helpful over the past four years. It was not always easy but with their support and encouragements I have made it happen.

Please note, that extra information is added and improvements have been made to chapter 1 and 2.

Alexandra van der Linden Dronten, 13th of August 2018.

"None of us is as smart as all of us"

~ Ken Blanchard

# Table of Contents

# Summary

The growing interest of consumers and the constant pressure from customers to meet the demand, has increased the need to search for a strategy that creates the ability to stay competitive while being profitable and meeting the changing demands. Poultry processing companies need the ability to react quickly to market changes and consumer behaviour. This requires a well-developed infrastructure and logistical planning. The strong logistics sector offers great opportunities to create this advantage and support the Dutch poultry processes. In this research project a research was executed on how a vertical collaboration could positively contribute to an increased economic efficiency for Dutch poultry processing companies. For this research project the following research question was used *"How can the Economic Efficiency be Increased through Vertical Collaboration with Logistical Parties in the Poultry Processing Industry in the Netherlands?'*

The aim of this research is to indicate how vertical collaboration with logistical parties can increase the economic efficiency. To create an answer to this main research question the following sub-questions have been developed:

- What strategic models can be used to define the level of collaboration*?*
- What trends are there in relation to economic efficiency?
- How can value stream mapping contribute to an improved economic efficiency?
- What are the advantages of a decentralized as well as a centralized distribution system (supply chain)?

In order understand the industries, consumer behaviour, logistics opportunities and trends a literature study has been conducted. The literature study has indicated that the type of relationship influences the positive effect on both the market performance and economic efficiency of the company. Therefore, eight interviews are held with professionals active in the poultry processing industry and logistics industry to get a more practical perspective and opinion of experts. Finally, the tool value stream mapping is used to show how poultry processing companies can optimize the internal flow and contribute to a better overall performance.

The results of this research have shown that vertical collaboration is an effective way to achieve more efficient workflows and overall business growth. By integrating various business activities, a better control and coordination can take places on the business activities. By better managing and controlling activities the flexibility and capacity can be increased, while at the same time inputs can be reduced and costs can be decreased. This can only be achieved when it has been defined what the requirements and conditions are of the vertical collaboration. A shared mission, vision and goal have to be developed. Emphasized by the respondents is that the collaboration should be based on good communication, coordination, openness, trust and information sharing.

# 1. Introduction

Transport and mobility plays a fundamental role in today's world economy and for many years the logistics industry has been experiencing a strong increase in growth rates (European Commission's Mobility and Transport, 2018). The fast globalization of the economy has started to impose new and stronger requirements for the logistics industry. Important trends for this industry include increasing levels of competition and increased customer expectation, increasing costs of road network usages, the information/communication technology developments, and the management of environmental practices (Cruijsen and Verweij, 2006). These trends and the strong increase of growth rates have given considerable attention to the developments in the logistics industry (Handayati, Simatupang, and Perdana, 2015). The Netherlands is relatively small in terms of size ,but plays a significant role in the European economy. The logistics industry is an important contributor to the Dutch economy with a Gross Domestic Product of 770.85 Billion US dollars in 2016 (Trading Economics, 2018; Ellis, 2011). The Dutch logistic industry is one of the most stable and substantial sectors in Europe (Ellis, 2011). The well-developed infrastructure and its geographical location positively influence the business economy. As a result, many logistical providers and related value-added services, are established in the Netherlands.

Besides that the Netherlands is one of the leading logistics experts, is the Netherlands also one of the largest exporters of agricultural products and food of the world (Rijksoverheid, 2018). The food processing industryIs an important industrial sector for the Netherlands and has become more and more concentrated. An argued result of the increased competition is that food processor and manufacturers, as poultry processing industry, see their margin decrease (Akkerman, 2007). Also, the poultry processing company have recognized a major shift of consumer behaviour, an increased concern and interest of consumers about the wider non-economic aspects such as food safety, environmental impact and animal welfare (van den Hurk, 2018). Consumer behaviour and preferences are changing rapidly since the beginning of 2016 and cause an increased need for improving efficiency in all operations (Akkerman, 2007).

Moreover, the trend that the population in the Netherlands is increasingly eating poultry and shifting away from pork and beef, makes this the industry even more important (Rabobank,2017).

**Table 1 Total Meat Consumption (CBS, 2016) in KG/per person**

| *Meat Type* | *2012* | *2013* | *2014* | *2015* |
|---|---|---|---|---|
| ***Pork*** | 38,8 | 37,9 | 37,3 | 36,6 |
| ***Poultry*** | 22 | 22,2 | 22,3 | 22,3 |
| ***Beef*** | 14,9 | 14,5 | 14,2 | 13,9 |
| ***Calf*** | 1,3 | 1,3 | 1,3 | 1,3 |
| ***Sheep/Goat*** | 1,1 | 1,1 | 1,2 | 1,2 |
| ***Horse*** | 0,1 | 0,1 | 0,1 | 0,1 |
| **Total Meat consumption** | **78,2** | **77,2** | **76,3** | **75,4** |

The market campaign of "Wakker Dier" has, by raising awareness for the fast-growing chicken, changed the perception of consumers towards more animal-friendly grown poultry. It is important for Dutch grocery stores to replace their standard (fast-growing) poultry for free range and slow growing species (Rabobank, 2017). This significant change has a major impact on the poultry industry because farmers have to change their housing facilities and feed for the new and different types of species (Interview Jellema, Herman,15.03.2018). Consumers in the Netherlands have a strong preference for breast and wing meat and consume 22 kilograms of poultry meat per year (Dutch Poultry Centre, 2017). This accounts

for almost 30% of the total meat consumption, in table 1 an overview is given of the total average meat consumption in kilogram per person from 2012-2015.

Another important factor, with major impact on the industry, is the avian influenza (HPAI) virus. This virus limits countries to transport and process poultry coming from a region were the virus is active. Moreover, countries are limited in exporting when an outbreak has taken place, for example, South Africa is a big export market for the poultry industry of the Netherlands. Exporting to South Africa can only take place after a period of six months of avian influenza free (Rabobank, 2017).

The poultry industry is known for its tight margins and short lead-times to keep products fresh, which means that a well-coordinated logistic system has to be put in place. In many industries, such as the food processing and flower industry, logistical costs are a significant portion of the total costs and businesses have to reorganize their processes in order to be able to react quickly and cost efficient to the fast-changing market conditions (Meizer et al., 2011).
Based on the given information, transport and logistical activities are developing from a necessary, but low priority function, to an important aspect of the business which can support companies to obtain a competitive advantage and an improved business performance (Li et al., 2004). Stated is that food processing companies are joining with external logistics companies in order to make their supply chain as efficient as possible and in order to remain competitive (Cao & Zhang, 2013).

## Trends and Developments

Food is not just food- according to Gunert (2003), it has always been a matter of individual preferences and a matter of a complex network that is influenced by culture. Consumers in developed countries have become less predictable and are looking for freshly prepared foods wherever they are (Gunert, 2003). Consumers are looking for products that have shorter shelf-lives because, they want to have fresh, healthy and convenient products. The changing behaviour and interest of consumers are creating a real opportunity and challenge for logistics providers to adapt and innovate (Cascone, et al., 2015). Managing these needs in the right way is of growing importance because, it can be an opportunity for food processors (Cascone, et al., 2015). With regard to these trends in the logistics and the food sector it is important that companies stay alert and develop the ability to react quickly to changes and innovate in order to create the ability to meet customer demands (Rabobank, 2017). The developments and trends in the economy are creating the need for improvement in logistical capacity and effectiveness (Cruijssen, 2012). This increases the need for understanding each other's processes and working closely together along the chain, in order to enhance the profitability (Xu, 2014). Already some researchers have shown their interest in this topic for example, the research of Stock and Lambert (2001), concluded that profitability could be achieved by saving costs on logistics aspect instead of increasing sales volumes. Significant cost savings could be achieved by outsourcing the non-core activities and to increase flexibility and capacity, what can be seen as a strategic consideration (Canete, 2005; Jafaar and Rafiq, 2005; Kemp, 2004; Stock and Lambert, 2001). According to Christopher (1998), logistics management can provide a competitive advantage and reduce logistical costs.

To summarize, many companies are aware of the increasing concentration in modern logistical industry and they know that they have to optimize and add value to their activities in order to stay profitable. One of the most prominent factors that influence the sector is that businesses cannot transfer increased operating costs to their customers. The unbalanced and highly competitive market is characterized by low-profit margins and strong price competition (Cruijsen and Verweij,

2006). Supply chains have to expand and have become less predictable. This makes it more difficult for the parties involved to fully fulfill the requirements of the customers (Cruijssen, 2006).

In order to get a better understanding of each of the logistic-related terms, the following paragraphs will describe what logistic parties, vertical collaboration, economic efficiency and value stream mapping are.

## Logistic Parties

Carriers or transport operators carry out the transport from one point to another. Common services provided by carriers and transport operators are inbound and outbound transportation, door to door services, contract delivery and document handling/transportation administration (Hartz and Alfredsson, 2003). These typical services provided by the carriers and transport operators are classified as basic services with low levels of customization. The basic scope of carriers and transport operators is performing physical transport.

As the name suggests, in third-party logistics a third party is involved. An overview of how such a relationship looks like can be seen in figure 1. The first party is the shipper or supplier of the goods that have to be transported. The second party involved is the buyer, which is the destination of the transported goods.

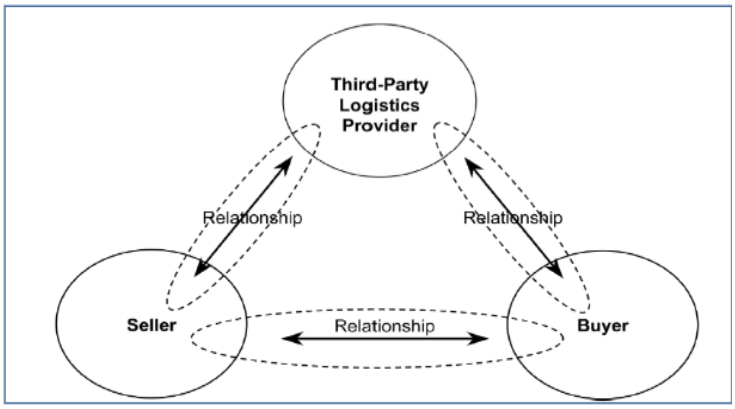



**Figure 1 Triadic relationship ( Bask,2001)**

The "third party" is the external company that performs the logistics service that traditionally has been performed in the organization itself (Lieb, 1992; Hartz and Alfredsson, 2003). Mostly these types of relationships are limited and occurring between the seller and third-party logistics provider (TPL) or buyer and TPL (Bask, 2001). Terms such as Logistics outsourcing, third party logistics and contract logistics have been used to describe the logistics activities that previously were performed in-house but have been recently more outsourced (Bask, 2001). Typical TPL providers have value adding services such as warehousing and inventory management, transport and re-engineering the supply chain (Andersson, 1997). TPL providers can be characterized by the extent to which the logistics services are outsourced and to which knowledge level the provider performance activities (Hertz and Alfredsson, 2003).

For this thesis, the definition given by Bask, (2001) is used to define TPL. Bask (2001)(*p.474)* describes third party logistics as: *"Relationships between interfaces in the supply chains and third-party logistics providers, where logistics services are offered, from basic to customized ones, in a shorter or longer term relationship, with the aim of effectiveness and efficiency".* The demand for TPL services has increased due to the fast globalization of the economy (Forum, 2010). The changing and more demanding expectation of customers requires innovation and differentiation. TPL's and food processing companies are required to develop the ability to react quickly to market changes and customer demands (Goffin, Lemke, & Szwejczewski, 2006). Food processing companies have to redesign their activities and they have to focus on core activities in order to be able to meet customer demands. Therefore food processing companies have decided to subcontract any activities that they

have less knowledge about and focus on their core activity (Miechels, 2011; Hertz and Alferdsson, 2003). Because of the expertise of TPL providers it is possible to gain in productivity, reduce costs and be more reliable (Razzaque and Sheng, 1998). These reasons justify why the TPL industry have expanded and are of main importance to the poultry processing industry. The logistic purpose in the poultry processing industry faces strategic changes and requires significant adaptation (Cascone, et al., 2015). The changing preferences and behaviour of the consumer has its impact on the food logistic network. The ability to offer in a fast, accurate and customized way is asking for new and adaptive logistic networks. This ability to fulfill these needs can be seen as a key strategic differentiator for poultry processing companies that want to remain competitive (Cascone, et al., 2015).

## Competitive capabilities

Organizations have experienced a period of great change in relation to the market and operations. In the current market consumers are not limited anymore in their consumption and purchasing options. The engagement of technology with other industries have highlighted the demand accessibility to food for the consumer. Customers have become more demanding and the levels of competition are intensified. According to Makadok (2001), the ability to react to these changes is dependent on the capabilities of an organization, also called the competitive capabilities. The effective deployment of resources strongly influences firm's performance and the competitive advantage a firm can create (Goffin, Lemke, and Szwejczewski, 2006). Treacy and Wiersema (1993) have emphasized the importance by segmenting the different aspects of different strategies; Operational Excellence, Customer Intimacy, and Product leadership. The term operational excellence describes a specific strategy. The objective of a company is delivering products and services at competitive prices with minimal inconvenience (Treacy and Wiersma, 1993). Companies that pursue operational excellence are seeking ways to minimize overhead cost, eliminate intermediate production steps, and optimize production process across the functional and organizational characteristics.

Because of the above-mentioned forces, many companies have responded with different approaches to improve quality management. Quality is often used to identify or signify excellence of a product. To define quality in management terms it is necessary to define the needs and expectation of your customers and work towards operational excellence. Other theoretical models have shown that Supply Chain Management (SCM) leads to improvement in quality, availability, speed, flexibility and cost performance. Supply chain flexibility is considered the key solution to the rising uncertainty and competitiveness (Merschmann and Thinemann, 2011). Different theoretical perspectives have contributed to the understanding of identifying uncertainty in demand patterns (Lee, 2002, Lo and Power, 2010). Collaborations are a widely discussed topic in supply chain management and can be used as a tool to integrate different parties and as a dynamic capability (Barratt, 2004, Holweg, Disney, Holmström, and Småros, 2005 and Fawcett, Watson, and Magnan, 2012). According to these researchers, the trend of collaboration is caused by the increasing competition and the development of new technologies. Different parties in the supply chain collaborate in order to improve performance. Another value derived from collaboration between parties in the chain is a higher satisfaction of the customer because it is possible to solve problems faster and improve services which leads to a win-win situation (McAfee, 1999). Accordingly to, Fawcett et al. (2008) the goal of collaborations is to have parties work cooperatively to devise and implement better approaches to solving problems and delivering the value customers expect. Several researchers have shown that collaboration between logistics service providers and shippers have advantages in terms of cost and service levels (Cruijsen,

2006; Groothedde, 2005). Nevertheless, organizational barriers between these facilities exist and information flows can be restricted (Visser, 2017). The majority of the collaborations stay focused on operational activities and outsourced activities (Selviaridis and Spring, 2007). This prevents the potential benefits of collaborations from being fully achieved according to Hau Lee (2013).

Integration and collaboration are different in meaning but are often used interchangeably. Collaboration is defined as "The situation of two or more people working together to create or achieve the same thing for a common purpose or benefit; joint action" (Cambridge Dictionary, 2018). Collaborations occur in various intensities and have its impacts on the extent of interactions, interdependencies, and responsibilities. Studies conducted by Mentzer et al. (2000) and Golicic (2003) have shown that collaboration entails much more than cooperation, especially in terms of sharing information, risk, knowledge, and profit. Next to these key factors, the level of required closeness is also important. Because this research will focus on collaboration and avoid confusion, the types of relationships that will be discussed further in this research will be summarized by the term collaboration.

Now that collaboration in the supply chain is explained and how this can have an effect on the parties involved in the supply chain, it is equally important to define the type of collaboration chosen for this research. Collaborations occur in various intensities and have varies impacts, therefore is chosen for vertical collaboration in this research. Vertical collaboration has two perspectives that influence the internal benefits: costs and effects on competitive posture (Barrat, 2004). The internal benefit positively affects the strategy and its profitability. Moreover, it strengthens the ability to be more responsive to changes in market needs. Vertical collaboration creates improved forecasting methods that give a better understanding of demand changes and related costs. Market volatility is increasingly evident in global economies and furthermore, product life cycles in the food processing industry are shortening. Supply chain structures are getting more complex and difficult to manage, which makes it an important topic to study and research (Mckinsey, 2011).

## Vertical Collaboration

Collaboration is defined as two or more companies sharing the responsibility of exchanging common planning, management, execution, and performance measurement information (Anthony, 2000).

According to the business definition in the business dictionary:" Vertical collaboration can be seen as a strategy were a company expands its business operations into different steps. Because of the greater capacity, it is possible to decrease transportation expenses and turnaround time which leads to an improved efficiency and a reduction in costs "(Economist, 2009).

Each member contributes equity capital and shares in the control of operational operations. Benefits of vertical collaboration stem from an increased capacity to control inputs (costs, quality, and delivery) (Mckinsey, 2011). That being said, the implementation of collaboration between partners in the supply chain is hard to apply. Various studies have emphasized the existing barriers, special conditions and requirements needed for an effective collaboration (Baratt, 2004, Sabath and Fontanella, 2002). The literature showed that for short life-cycle products, such as food, collaboration is needed (Simpatupang and Sridharan, 2002). Vertical collaboration has also become more important because it allows both parties to manage and customize their production according to market needs that are changing and becoming less predictable. Moreover, it is argued that vertical collaboration has created the opportunity to lower price for both parties involved (Cao and Zhang, 2013).

## Economic Efficiency

Besides the increasing and more specified customer demand, the cost and efficiency of transport is another important aspect of the industries. Cost and efficiency of transportation services have become more important to all players in the supply chain (Flynn and Koufteros, 2016). When talking about efficiency, it can be explained in various ways (Perroni, Costa, Lima, and Silva, 2016). Therefore the definition of economic efficiency that will be used for this research is as follows. Cambridge Dictionary defines economic efficiency as: ''A state where every resource is allocated optimally so that inefficiency and waste are minimized" (Cambridge Dictionary, 2018). Economic efficiency is the aspect that identifies the combination of input factors that minimize the cost of the producing output. Economic efficiency is the equated effectiveness of resource allocation through the mix of appropriate input factors and a key index of economic development (Encyclopedia, 1979).

Economic efficiency can be divided into two components: technical efficiency and allocative efficiency (Perroni, Costa, Lima, and Silva, 2016). Technical efficiency can be defined as: *"consistently producing larger quantities of output with the same quantities of measurable input*" (Pan, Yotopoulos and Lawrence, 1973). A firm's ability to maximize profits can be defined as allocative efficient. Profit maximization implies equalization of the value of the marginal product (Pan, Yotopoulos and Lawrence, 1973). As increased economic efficiency can only be achieved by reducing waste and optimally allocated resources. The basis of new structures and processes determine the successfulness of a collaboration. Many other approaches have failed because of the limited focus and missing incorporation of partners (Meizer, Leitner, Prochazaka, and Sihn, 2011). The importance of a clear strategic goal and the business vision is emphasized by Lambert et al. (1999).
Difficulties that hinder the logistics system to be efficient are defined by the transportation tariffs, inefficient transport processes, and the problems that interface between logistics planning and production planning (Leitner, Meizer, Prochazka and Sihn, 2011). TPL providers generally struggle with the optimization of under-capacity, small transportation carries, and less-than-full truckloads. Another inefficiency of many small logistic providers is flexibility, as additional trips have to be made in order to fulfill needs (Intrieri, 2016).

## Value Stream Mapping

The tool value stream mapping (VSM) is a strong tool in combining materials and information flows out of processing steps in the supply chain with other important data. Due to its easiness of adaptation, it has expanded too many industries (Romero and Arce, 2017). During the process, the tool aims at identifying three different types of activities: non-value adding, necessary but non-value adding and value-adding activities. Furthermore, there are seven types of waste recognized; overproduction, waiting, transport, inappropriate processing, unnecessary inventory, unnecessary motion, and defects (Hines, Rich, and Esain, 1999). This method displays the combination of products and the total quantity that is responsible for the non-value added costs (Braglia, Carmignani, and Zammori, 2006). The viewpoint from value stream mapping has a broad perspective and takes the three flows into consideration instead of focusing only on the individual process (Fawaz and Jayant, 2007).

## Collaborative relationships

In the light of the literature mentioned above, on the increasing need for efficiency in the market volatility and innovation, a study within this area is required. The collaborative relationship between the logistics industry and the poultry processing companies might have a positive effect on the

economic efficiency of both parties involved and their competitive position. Thus, it is stated that the collaborative relationship between poultry processing companies and logistics partners allows for a better allocation of resources where waste and obsoletes can be minimized and economic efficiency can be increased.

The constant pressure of customers to meet demands and the need to stay competitive, all while being profitable, has increased the motivation to search for a strategy that integrates various business activities, in order to fully fulfill customer demands, but with lower costs and an improved control over quality and inputs. Such collaborations will help improve performances and reduce costs, in which value will be created by accommodating and satisfying needs and deliver according to the requirements but in a cost-effective manner (Stank et al., 2003; Christopher, 1993). Responsiveness and flexibility are key issues to maintain customer satisfaction in the poultry processing industry (Lambert and Cooper, 2000). Customers ask for more product variety and high frequent deliveries with short lead times that forces fast production in small batches. Demand uncertainty has increased due to a growing product variety and competition (Gunasekaren et al., 2008). The continuously changing environment has its influences on logistical activities and makes it very important to choose the appropriate type of strategical relationship. Building up a vertical collaboration requires the commitment of time and financial resources to have an effect on the economic efficiency of the parties involved (Gunert, 2003). Emphasized is the importance of coordinating activities among parties and the communication between parties (Stank & Traichal P, 1998). Good coordination and communication among the different parties allow the firms to enhance the ability to respond quickly to changes in a cost-effective manner. Sub-optimization and short-term fixes at the individual level are not sufficient to have an impact on the performance and are cost-increasing (Stank and Traichal, 1998).
By combining, operational excellence, economic efficiency, and vertical collaboration parties can manage and change their operations to the needs of the customers but with an increased efficiency and optimization of all processes involved. However, it is important to define the requirements and conditions of how to create an effective collaboration.

The literature review has contribute to closing the research gap in understanding the difference between levels of collaboration and the decisions that have to be taken. The approach to bundle all relevant transportation information creates possibilities to bundle transport within the cooperating network. The coordination between logistics and production promises high potential, but in order to be successful, a large effort of coordination and dynamic planning within the network is needed (Meizer, Leitner, Prochazaka, and Sihn, 2011).

Drawing on literature, today's supply chains is an integrative, value-adding process of planning, and controlling of materials and information between the supplier and the end user. In order to increase customer satisfaction, a reduction of costs and improved services is very important (Cooper, Lamber, and Pagh, 1999). As success lies in customer’s response, it is necessary to achieve customer satisfaction by having effective and efficient supply chains. This can be achieved through collaboration among partners in the supply chain (Ramanathen, 2014). This information describes the need for a research that focusses on vertical collaboration and the effect on the economic efficiency of the parties involved.

This paper will determine the design and the operation of the optimal collaboration in logistical activities in the poultry industry.
The main objectives of this research can be split up into the following objectives:

- The method of how economic efficiency can be increased.
- The degree of impact of vertical collaboration on economic efficiency.
- The strategy that can be implemented to increase economic efficiency.

This research focusses on vertical collaboration between logistics parties and poultry processing companies. The purpose of this thesis research is to investigate the importance of vertical collaboration to enhance effectiveness and performance of logistic activities.

A strategy illustrates the way that leads to a realization of a vision. In this case, the vision is to increase economic efficiency for both parties. The information in this report is important to companies operating in the poultry processing industry and the related logistical parties e.g. third-party logistics companies or carriers, as they need to know how they can improve their economic efficiency in the food processing industry.

The main research question: "*How can economic efficiency be increased through vertical collaboration with logistical parties in the poultry processing industry in the Netherlands?*" will generate a clear answer for the poultry processing industry and the logistics industry on how collaboration can increase their economic efficiency. The research question will have both the opinion of poultry processing companies and logistic parties combined with a literature study.
In order to answer the main research question the following sub-questions need to be answered:

- What models can be used to define the level of collaboration*?*
- What trends are there in relation to economic efficiency?
- How can value stream mapping contribute to an improved economic efficiency?
- What are the advantages of a decentralized as well as a centralized distribution system (supply chain)?

This information sums up the principal objective of this research and its contribution to the literature. Since vertical collaboration may have a positive effect on both the market performance and economic efficiency depending on the type of vertical relationship.
This research will limit the focus on vertical collaboration between logistical parties in the poultry processing industry in the Netherlands. Current publications have not quantified the impact of possible improvement of economic efficiency between a vertical collaboration of logistical parties with the food processing industry. This research focuses on the logistic parties and the poultry processing industry in the Netherlands and does not take any other party into consideration. The research will provide a strategy on how economic efficiency can be increased based on the information gathered from the tool value stream mapping and the ten professionals that will be interviewed.

After analyzing the literature, it became clear that the food processing industry and the logistics industry are reacting in several ways to the changes in the market. The previous studies have concluded, in order to stay profitable and have a competitive advantage something in the supply chain has to change. The hypothesis for this research is that by the usage of vertical collaboration the parties involved are able to reduce their transportation costs and optimize their processes what will help to maintain their market share and increase service levels with relatively low logistics costs. The efficiency of both parties will increase because of a better process flow.

# 2. Research Design and Methodology

This section will describe the actions to be taken to investigate the given research problem. It will be explained how the research will be conducted and what methods will be used.

## Method and Analysis

In order to create a clear description of the research and the steps that have to be taken, the working model "the central research question" is demonstrated. Figure 2 shows the relation between the research question and the research method.

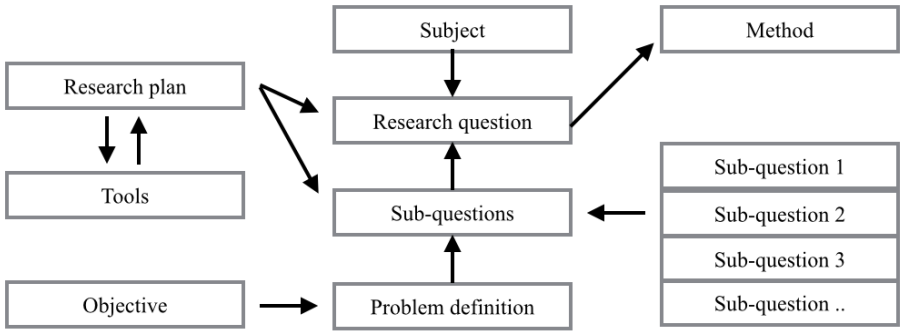



**Figure 2 The central research question (Plooij,2008)**

## Type of Research

This research will consist of secondary research and a qualitative exploratory research. During the secondary research, a literature study was conducted, consisting of existing studies and literature. For this desk research various resources were used: journals, magazines, and articles. The keywords used were economic efficiency, logistics, supply chain management, and collaborations. The research engines used to find the data have been: Google Scholar, Google Books, ScienceDirect, Springer and Emerald Insight. The secondary research has established a study of literature and has contributed to compare the results generated by the interviews.

A qualitative exploratory research is a semi-structured research method and based on small sample sizes. The reason for choosing this method was because it intends to provide answers to underlying issues. Qualitative research involves the collecting, analyzing and interpreting data using a semi-structured interview. The qualitative research method has helped in gaining more knowledge and verifying information with the available literature studies. The combination of the two research methods has provided a complete set of information. This has created the opportunity to examine whether the literature study provides the same information as found in the data generated by this research.

The literature used has shown that the economic developments have increased the need for new innovative ways for logistic parties and the poultry processing industry in order to create competitive advantage and cost structures. Based on this information the problem definition was used to create questions that are researched with a literature study. This thesis study is focused on the key factors: vertical collaboration, economic efficiency, logistic parties, and poultry processing companies. The study showed that there is much information available on the individual key factors, but the overall correlation between the key factors has not been studied yet. Moreover, the relationships between the key factors have not been compared for poultry processing companies and logistic parties. To verify literature, and draw conclusions, the in-depth interviews are held with professionals from various expertise areas.

Next to the literature study and the in-depth interviews, value stream mapping is used to make the correlation between activities and their efficiency. Value stream mapping is a tool to analyze and identify all sequences of activities that create a product in a visual representation. With this tool, the value assigned to every activity is analyzed. The objective of value stream mapping is to continuously improve business processes (Hines, Rich, and Esain, 1999). This is done with a description of the processes and flows of information and materials represented in an overview. The process provides the opportunity to identify points of improvement in the total process. This tool will help eliminating all non-value added activities and improve business processes in a strategic method aimed at identifying the operations or employee skills that could be improved, in order to encourage smoother procedures, more efficient workflows, and overall business growth.

The methods used to create an answer to the sub-questions were desk-research, semi-structured interviews with professionals and the tool value stream mapping. The questions used during the interviews with the professionals can be found in Appendix 2. Per sub-question a list of keywords is given, these keywords have helped to find important and useful information to answer the sub-questions. These keywords are also the link to the sub-question. The interview questions are linked by the keywords found in the literature to code the answers from the responds and link them to the sub-questions that are presented below.

The respondents that have participated in this research are between 35 and 65 years old. Most of them have a great amount of experience in their field of expertise and have been working in various positions in their career, which gives them a better understanding of all the processes. In table 2, seen below, an overview is given with information about the respondents.

**Table 2 Details Interviewees**

| ***Respondents*** | **Job Title** | **Sector** | **Years of Experience** |
|---|---|---|---|
| ***1.*** | Plant Manager | Poultry Processing | + 25 Years |
| ***2.*** | Logistics Employee | Poultry Processing | 10- 25 Years |
| ***3.*** | Logistics – Industry | Poultry Processing | 10-25 Years |
| ***4.*** | Logistics Manager (Head office) | Poultry Processing | + 25 Years |
| ***5.*** | Logistics Manager (Head office) | Logistics | 10-25 Years |
| ***6.*** | Director | Logistics | + 25 Years |
| ***7.*** | Logistics Planner- Industry and Retail | Poultry Processing | + 25 Years |
| ***8.*** | Supply Chain Manager | Poultry Industry | + 25 Years |

The sample size that was intended to interview counted ten professionals, employed at International organizations in the poultry processing industry as well as the logistics and transportation industry. Unfortunately, due to unforeseen activities, only N=8 were being held. More information can be found in chapter 4.2 Limitations of this research. The interviews were scheduled for the period from the 30th of April until the 18th of May 2018.

The structure, as described above, is used to create an answer to all the sub-questions given below. For every sub-questions sources and keywords were defined and described.

***Sub-question 1: What models can be used to define the level of collaboration?***

The first sub-question: "what models can be used to define the level of collaboration?" Is a theoretical question were an interviewee would not be able to give an answer. Although the information will support building a successful collaboration. Therefore, the interview question focusses on asking respondents if they would collaborate with a third party and if they would share operations. This is a closed question. But if the answer was yes the semi-structured method allowed for further questioning about what elements are important and immediately came to mind when thinking about collaboration. Next to that, the literature review also emphasized that collaboration is not possible when operational barriers exist. In order to connect the respondents and the theoretical models that are seen as possible, their perception on collaboration and processes was asked. The starting question have you considered collaboration? Was a closed question. The structure of the interview focused on getting the respondent to provide a more detailed and in-depth answer based on their own perception, without steering towards emphasizing barriers or benefits through the question. These answers were used to identify strategic models that capture the points of collaboration that were seen as most important. The strategic models that take all these aspects into consideration are the relationship model from Bowersox et al. (1989) explained on page 26 and relationship types established by Lambert, et al. (1999).

The sources that are used to support answer the first sub-question are documents published by : Lambert et al. (1999); Osterwalder and Pigneur, 2010; Oakland, 2014; Treacy and Wiersma, 1993; (Cruijssen F., 2006); (Meizer, Leitner, Prochazaka, and Sihn, 2011) (Hines, Rich, and Esain, 1999).

The following keywords will be used: strategic models, levels of collaboration, operations management, supply chain management, business model, operational excellence and value stream mapping.

***Sub-question 2: What trends are there in relation to economic efficiency?***

The second sub-question focusses on the trends in relation to an improved economic efficiency. Based on the findings in the literature study the questions asked to the respondents focused on factors that indicate an optimization and what factors negatively influence optimization. The question that refers to what factors influence the level of complexity was asked to identify aspects that have a negative influence on the competitiveness of a company. By asking industry experts what they consider key factors, it becomes possible to compare the industry perspective to the trends discussed in literature. The poultry processing industry is a fast-changing market and has special circumstances. This made it interesting to see if the experts coincide with literature. Moreover, the detailed and more practical information gave a broader perspective to the literature and a better understanding.

The sources that are used to support answer the second sub-question are documents published by: Grazia Speranza, 2018; Gligor, Esmark, and Holcomb, 2014; Prajogo and Olhanger, 2012.

The following keywords will be used: operations research, operations management, logistics integration, agility, economic efficiency, value stream mapping, optimization, performance measurement and efficiency.

***Sub-question 3: How can value stream mapping contribute to an increased economic efficiency?***

The literature review indicated the need for a competitive advantage and new business structure. Therefore the research focusses on vertical collaboration, but the literature mentioned also the internal benefits of a vertical collaboration on cost posture and profitability

To see if processes can be better aligned and improved by value stream mapping to even increase the economic efficiency more than only a vertical collaboration would be able to the tool was implicated at a world-leading poultry processing facility. Next to this implication, the respondents were asked if they use Key Performance Indicators (KPI) and were these KPI's are based on. These questions are asked to see if processing steps are monitored and what is done with this information.

The sources that are used to support answer the third sub-question are documents published by; Gligor, Esmark, and Holcomb, 2014; Prajogo and Olhanger, 2012.

The following keywords are used: value stream mapping, optimization and cost activity analysis, digitalization and information technology .

***Sub-question 4: What are the advantages and disadvantages of a decentralized as well as centralized distribution system?***

The interview question "how would you describe your current supply chain structure? "is related to the fourth sub-question "what are the advantages of a decentralized as well as a centralized distribution system (supply chain)?". Because by first defining what kind of structure is present it was possible to ask the respondent what kind of advantage or disadvantage they experience from having a certain structure.

The sources that are used to support answer the fourth sub-question are documents published by: Nihar and Marianthi, 2013; Simpatupang and Sridharan, 2002; Cao and Zhang, 2013; Qrunfleh and Tarafdar, 2013.

The following keywords are used: centralized and decentralized distribution systems, operational management and supply chain management.

**RESPONDENTS**

To find the required information to answer the research question, a clear and specific description was given to the participants of this study. All respondents were contacted personally before the interviews by email or telephone. In case of positive response, an appointment was made with the participant for the in-depth interview. During the interviews, a predetermined list of questions was used to structure the interview, but there was room for more topics. The predetermined questions can be found in Appendix 1. The aim was to interview in total ten professionals in order to represent all different parties involved various specialisms will be asked to contribute to this research.

**VALIDITY**

Validity refers to the ability to measure accuracy. This research tries to establish a high correlation between empirical evidence and the findings. These findings are then compared to theoretical models and if the measures conceive, this research can be seen as valid.

# 3. Results

In this chapter, the results of the intensive literature review in combination with the interviews and the tool value stream mapping are presented. During the literature study, important aspects such as how to define the level of collaboration and how to increase efficiency were discovered.

The respondents answered questions that are related to the objectives related to the sub-questions. Extra information was gathered in relation to the semi-structured interview method. The interviews are presented in full in Appendix 4. The main findings of the sub-questions are being presented in this chapter.

From the literature review a four keywords were mentioned. These keywords can be divided into four categories. Collaboration, Information Technology, Supply chain structure and efficiency. These keywords introduced in chapter 3, are used to link the quotes from the interviews to the various sub question as can be seen in the overview in table 3. The total datasheet that could be established can be found in appendix 3. This datasheet is also in order of keywords as shown in table 3. This way of representing the results creates a clear and strucutered overview.

**Table 3 Interview question overview**

| Sub-Question | | Keyword | Interview Question |
|---|---|---|---|
| **1.** | **What models can be used to define the level of collaboration?** | Collaboration | Have you considered to collaborate with stakeholders in the chain? Or would you be willing to share operations? |
| **2.** | **What trends are there in relation to economic efficiency?** | Optimization / Efficiency | What do you describe as optimization?<br>What are, accordingly to you, key factors for optimization in the de supply chain?<br>According to you, what are factors that influence the level of complexity in the supply chain? |
| **3.** | **How can value stream mapping contribute to an improved economic efficiency?** | Information Technology / Digitalization | How does your company react to the developments in information technology?<br>What do you do with the data that is generated in the company?<br>What is your capacity for sharing this data?<br>Are you using KPI's?<br>If yes, on what kind of factors are the KPI's based? |
| **4.** | **What are the advantages of a decentralized as well as a centralized distribution system (supply chain)?** | Supply Chain Structure (SCS) | How would you describe your current supply chain structure?<br>Have you ever considered changing the structure of the supply chain?<br>What are, according to you, key factors for optimization in the supply chain? |

Sub-question 1: What models can be used to define the level of collaboration?

The level of collaboration can vary in relation to type of collaboration, intensity and level of impact. The scope of this research is on vertical collaboration within the supply chain. Vertical collaboration creates improved forecasting methods that give a better understanding of demand changes and related costs.

When conducting research on how to increase the economic efficiency through vertical collaboration, the literature has indicated the importance of establishing the right requirements and agreements But what are the requirements and agreements that have to be made in order to build up an effective collaboration?

Therefore, the first sub-question will research what kind of factors influences these requirements and creates an answer to the question what kind of level of collaboration can be used to increase the economic efficiency of a poultry processing company. The various types of strategical business relationships differ in commitment and integration, this is needed because the design of the collaboration has to be in line with the firm's strategy and vision in order to have a successful collaboration.

As explained in chapter 3, the respondents were asked if they would collaborate with a third party and if they would share operations? Based on the semi-structured interview method, a positive response to individual interview question stimulated further questioning. Respondents were then asked what important aspects immediately came to mind when thinking about collaboration. These two questions have identified key factors that are needed to build up a business relationship and should be debated while discussing a potential collaboration. Furthermore, it was possible to find two relationship models that take these key factors into account. Before these models will be introduced in chapter four on page 27 the results of the interviews are shown.

In relation to first and second interview question, five respondents answered positive. These interviewees then elaborated on those responses. The positive responses are presented in table 4 further detail in relation to the responses follows the table.

**Table 4 Positive responses to collaboration**

| Quote | Keyword | Dimension | Quote |
|---|---|---|---|
| ***Q3*** | Collaboration | Willingness & Foreseen benefits | *"If processes simplify and improve I absolutely would consider collaboration."* |
| ***Q4*** | Collaboration | Willingness | *"I would gladly devote more time to go deeper into this topic to research more aspects around this topic."* |
| **Q5** | Collaboration | Foreseen benefits | *"If processes can be optimized and costs can be decreased I believe that collaboration is a great investment."* |
| **Q7** | Collaboration | Foreseen benefits | *"But with a clear and common goal is collaboration a good solution to fulfill and react to each other needs."* |
| **Q6** | Collaboration | Awareness | *"Collaboration is a hot topic, and it is often discussed. In practice, it seems more difficult than thought to* |

| | | | |
|---|---|---|---|
| | | | *align processes in a way that optimization can be achieved."* |
| **Q8** | Collaboration | Awareness | *"If an organization has the means and will is a collaboration something to seriously think about."* |

In relation to the given answers, respondent three and four illustrate a willingness to collaborate, as can be seen in Q3 and Q4. These respondents answered positive to the question if they would like to collaborate with a third party. Two respondents mentioned the foreseen benefits to collaboration, realizing that if collaboration is used correctly, the ability to lower cost, increase efficiency, and increase responsiveness between entities is present. Respondent four highlighted the importance of simplifying the business processes when collaborating. According to respondent four, it is not only about the overall optimization but also about the simplicity of business activities. Such as an collaborative transport management system that makes suggestions to combine truck loads.
In relation to quotation seven, respondent seven highlighted that there are a certain level of costs such as time and management change related to higher levels of collaboration. Respondent six stated in Q6 collaboration is more difficult then what literature suggest. Respondent six explains that the difficulties are found when trying to align the different business processes in a way that an optimization in a business activity can take place. According to respondents three, four and six, it is not only about building up a strategical collaboration, but also about how it is supported and maintained. Herewith the respondents show awareness about maintaining a strategical relationship what is indicated by the literature as an forgotten aspect.

Respondent five elaborated on this with the Q54: *"In the past a similar type of relationship was introduced, but the logistics service provider offered many value added services where costs were higher. Also the organization did not pay enough attention and support to this relationship. Based on the related costs and developed friction the board decided to end this relationship".*
As indicated in the literature review, organizational barriers can exist between partners. The barriers that can exist influence and restrict the flow of information between the partners and make it more difficult to implement an effective strategical relationship. When costs related to collaboration outweigh the foreseen benefits managers can decide to end a collaboration. Respondent five indicated that this relationship was focused on an operational level, where the literature also emphasizes the importance of adapting and changing the organizational structure. Respondent five also mentioned foreseen difficulties in relation to of the complicated stream of information in the supply chain. Q39 *"There is so much data and information available in the supply chain what makes it a very interesting topic, but because of the many stakeholders and complexity, something very difficult to achieve".*
These two quotes highlight the difficulties of having parties work in a cooperative manner to devise and implement better approaches to have higher efficiency in the supply chain.

Moreover, when having defined what the reasoning is to collaborate it is equally important to know where a collaboration should be build on. Therefore, the respondents were asked what kind of key factors are needed to build collaboration.

Their answers have highlighted the importance of having an effective communication and a shared vision. Trust is also a key factor in what was found in the responses of the interviewees, below the quotes from the interviews are given.

*Q9-"Trust is a very important component. Furthermore, because we are working with fresh products with high fluctuations in demand communication between stakeholders in the chain is key."*

*Q10-"Openness and trustworthiness have to be in alignment".*

*Q11-"Sharing best practices and communicating is important, building up data and analyzing this gives information that is key".*

*Q12-"Stepping down of sub-optimization and finding a way to cooperate and trust each other with an open culture."*

*Q13-"A two-way communication structure with trust is indispensable. Having a shared goal and determine the duration of the collaboration are also aspects that are important to discuss."*

Good communication is a two-way information sharing process, where communication can contribute to improving the processes and finally increase the economic efficiency. The approach of bundling relevant information such as transportation information creates the opportunity to better coordinate logistical movements. As mentioned by respondent seven in Q12, short term improvements and sub optimization do not have enough effect on performances and increases cost instead of lowering costs. The goal is to find a way that is responsive but in a cost efficient manner.

**Figure 3 Collaboration Factors**

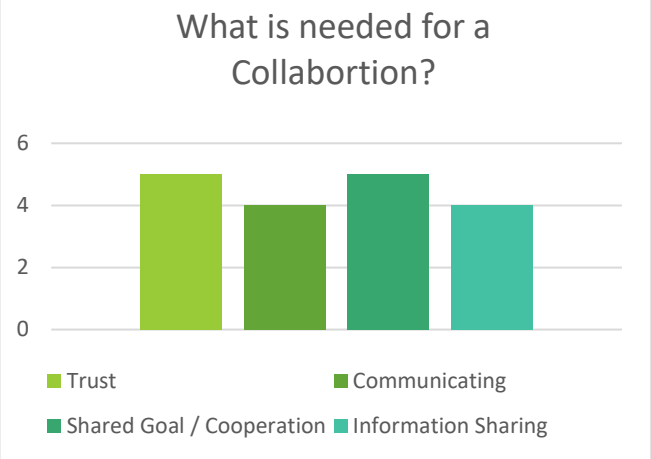



Figure 3 presents how many interviewees mentioned one of the key factors. Respondents highlighted that trust and communication are important when it comes to developing collaboration between supply chain entities. According to the respondents trust is needed in order to open up and share valuable and important information about business activities. Vertical collaboration is about combining business processes in order to increase the overall efficiency. In this process the goal is to have a shared responsibility and a transparent stream of information. In order to be able to have a good and detailed stream of information, communication is key according to the respondents. Without having the trust to be open the chance of good communication is very small. These aspects are followed by shared goals and information sharing, which were found at the same frequency amongst responses.

Respondent three stated: *"do we have a common goal and interest that would contribute to the current performances?"* This question highlights the combination of a shared goal and the contribution to each other process. This was also mentioned by respondent eight*, "in order to be successful the combination of contributing to each other processes and having an open dialogue is key".* These answers show the relation between the four most used key words. According to the respondents without trust it is not possible to communicate and share the required information. Without the sharing of information and good communicating it is not possible to work towards a shared goal and improve performances.

*Sub-question 2: What trends are there in relation to economic efficiency?*

Economic efficiency is the aspect that identifies the combination of input factors that minimize the cost of the production output. Economic efficiency is the equated effectiveness of resource allocation through the mix of appropriate input factors. This sub-question focuses on trends that can be found in relation to economic efficiency. One of the important aspects that came to light while researching trend in relation to economic efficiency was the flow of information and digitalization. The food processing industry has to adapt towards new structures and consumer preferences (Cascone et al., 2015). Consider the example of the tools that are established over time that allows to interact with customers flawlessly. E-commerce tools allow for online purchases, were time and costs for transactions can be eliminated. Digitalization allows for an improved profit margin because the deployment of data across all processes allow a better allocation of resources and fewer production costs.

The highly competitive food industry is influenced by trends and requires innovations, digitalization being one of them. Trends around IT (Information Technology) are not new, but at this time the trend of digitalization is devloping at a rapid rate and can be seen as a competitive capability (Gillior, 2018). New skills, structures, and business practices are enabled by the digitalization. For example, big data, artificial intelligence an 3D printing. All these trends in digitalization can be used to optimize business processes and address many pain points in traditional ways of producing. The food industry in particular has unique challenges. For example, seasonal products and strong fluctuating of demands. In the food industry key performance indicators include speed, convenience, timeliness and quality (Rogers, 2003). Therefore, when using IT correctly, companies within the food industry are able to take full advantage and benefit from this trend. For this to work, adaptation of current structures of business processes is required (Gillior, 2018). This is also mentioned by respondent five, this respondent indicates two very imporant aspects, the first aspect being responsiveness that is costly and the second aspects beeing comunicative because according to respondents five, costs can be eliminated by better communicating : Q51-*"As organization we have to react hourly to changing demand, this influences strongly how we can react most of the time the actions are very costly. But was it possible to overcome or prevent this costs by better coordinating and communicating between the various departments."*
Also respondent four indicates that the high fluctuations requires responsiveness, transparency and good communication between various departments : *Q42-"Because of high fluctuations in demand and the need of delivering your customer a quick action has to be taken. These actions are expensive, by having more insight and real-time information these costs can be decreased or even eliminated."*

As shown in sub-question 1, the interviewees mentioned numerous times the key words information sharing and communication. These key words are important to combine, because by sharing information and having a good communication makes it possible to work with real-time information about inventory levels, delivery status, planning, and scheduling, which is needed for a good collaboration.

Answering the interview question: "What trends are there in relation to economic efficiency?" Respondents indicated that having the right and sufficient data digitally available, it will enable the business to better monitor processes and improve performances. Poultry processing companies are

paying more attention to the trend digitalization of information and the development of systems, according to the respondents. This will be disccused further in sub-question 3.

In table 5 an overview is given with the responses from the interviewees. As can be seen in the table, the respondents are strongly in agreement that data and accessibility of data are important in the poultry processing industry. These responses highlight in various ways that transparency into processes help by improving and streamlining the processes. Transparency is of high importance to the poultry industry because of the short product life cycle (freshness) and fluctuations in demand. Having insight to business activities and the accessibility to data and information about all business activities supports the decision-making process and creates the opportunity to react responsive and efficiently (Interview Tonny van der Heijden, 23.05.2018). By adapting current IT and systems it is possible to better monitor processes and indicated bottle necks in business activities such as order picking. Having this data available, makes it possible to redesign activates and increases efficiency (Interview Koen Nijhuis, 31.05.2018). To achieve a more efficient operations strategy, a total tranformation of processes and activities inside the organization have to take place in order to be able to meet and adapt to current as well as future needs and challenges (Slack and Lewis, 2008).

**Table 5 Quotations sub question two**

| Quote | Keyword | Dimension | Quote |
|---|---|---|---|
| **Q31** | Digitalization | Transparency | *"By the digitalization of information is it possible to react quickly when things are changing and do you have the opportunity to have all activities transparent and perform to your best ability."* |
| **Q32** | Optimization | Transparency | *"By combining and aligning logistic movements optimization can be realized. A Good logistic system is needed in order to be competitive. Thus by lowering costs and logistic movements the overall results will be improved."* |
| **Q35** | Information Technology | Importance | *"data is very important to monitor performances".* |
| **Q37** | Information technology | Transparency | "Systems have to be implemented and data should be used to work and monitor processes." |
| **Q38** | Information Technology | Importance | *Right now we are working on a project to digitalize even more and make all data digital available. "* |
| **Q18** | Optimization | Transparency | *Everything depends on delivery time. Having the transparency and the insight how when and where products have to be delivered processes and times can be better aligned."* |
| **Q14** | Information technology | Transparency | *"Digitalization of the organization is a key aspect to get more insight into logistics costs and load factors."* |

As mentioned above, the combination of having data available and sharing this data effectively can lead to business process improvement as respondent seven indicates in the interview: *"By monitoring and evaluating logistic costs and planning, it is possible to manage logistic activities in a more efficient way. Communication and transparency are key in this process."*

Not only is digitalization and the use of IT an ongoing trend which allows business to handle for example big data, the trend contributes also to the application of IT systems. The trend contributes to an overal increased technical effeciency as explained on page 6. Greater and better IT capabilities

contribute to an improved flow of information and a better coordinating of activities in the supply chain. This enables a shorter response time and a reduction of uncertainty in the decision making process (Flynn et al., 2016). IT allows a company to increase the volume and complexity of information that has to be communicated to the different parties involved (Interview Theo Coenen, 28.05.2018).

Also facilitates IT the ability to align schedules and forecasts between suppliers and firms (Prajogo and Olhanger, 2012). This is also mentioned by respondent three and six:

> Q43-*"By having your information real-time insight the coordination and planning can be done in a more efficient manner".*
>
> Q18-*" Everything depends on delivery time. Having the transparency and the insight how when and where products have to be delivered processes and times can be better aligned."*

Besides the trend of digitalization that has its effect on the economic efficiency, there is also the trend of developing competitive strategies. This trend is based on the Economic of Scale and the highly competitive industry (Gillior, 2018). The bigger retail traders are setting their own requirements and increases the need for responsive and lean supply chains (Bunte et al., 2009). The systematic approach "Least Cost Formulation" (LCT) focuses on doing more with fewer resources and eliminating waste and non-value added activities, what leads to further improvements and an increased economic efficiency. By using LCT companies are able to optimize operating margins by the increase in revenues and the reductions in costs (Jackson, 2012). The interviewees also agree that if a poultry processing company wants to stay competitive, attention has to be paid to process optimization. Respondents four describes: "O*ptimization should always lead to cost reduction, but the therefore you need data and insight to all business processes. By analyzing and monitoring these processes and performances it is possible to eliminate activities that are non-value adding or costly and unnecessary. This is a very long and intensive process but do you want to operate and have a competitive position should this be listed high on the priority list".*

A business that wants to compete and have a competitive advantage have to consider the following elements according to (Jackson, 2012):

- Analysis- the ability of quickly analyzing complex and variable data to make a decision
- Automation- an increase in the clear and consistent data stream
- R&D agility – direct access to internal supply chain information and to be more responsive
- Manufacturing efficiency- minimize manufacturing costs
- Supplier visibility – real-time picture of stock levels and transport planning and prices
- Distribution- capabilities to properly optimize distribution and warehouse efficiency.

These elements underline the importance of having direct accesses to data and insight into business operations. Real-time data, optimization, efficiency and information are the keywords used by literature to achieve a higher economic efficiency and a better resource allocation.

To test if these keywords are also the important to the interviewees the table below is established based on the answers given by the interviewees when answering questions about trends, these answers can be found in appendix 3 Coding of interviews.

In Figure 4, an overview is given about how often the respondents have used one of the keywords. The keyword "real time data" was mentioned most often at a frequency of six. Real time data was closely

associated with the key word “IT capabilities”, this key word was stated three times. The usage of the keywords reflects to the quotations from the respondents were they indicated that real time data is very important within the industry but found difficulties with the volume of data and different systems.

The key words communication, optimization and efficiency, and monitor performances are mentioned at the same frequency, in most cases within the same sentence. The respondents show the relation between the different aspects that are needed in order to be able to achieve optimization and efficiency in business processes.

The interviewees mentioned the least frequent information itself, only one of the respondents indicated that it is important to pay more attention to what kind (specific) information is shared between the various parties involved.

Figure 4 indicates that real-time data, monitoring of performances and communication is of highest priority to the respondents and show a relation to the earlier given results.

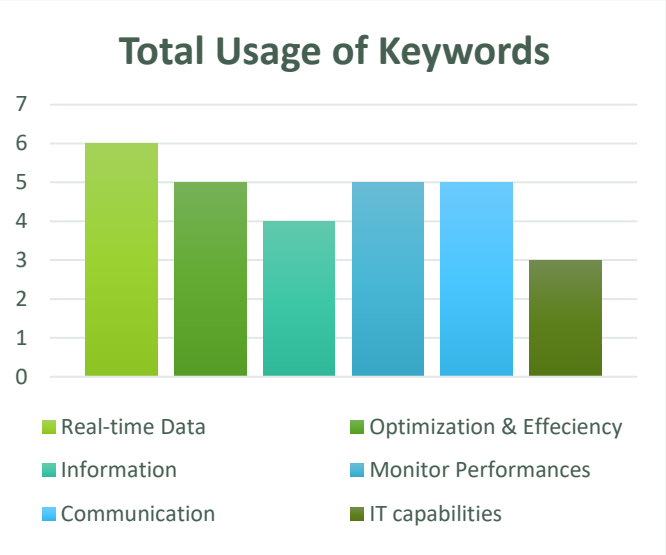



**Figure 4 Keyword used by interviewees**

Although, respondents also indicated that it can be found difficult to find the right data to analyze, as can be seen in the answers given by respondent two and seven.

> *Q36- “Data that is generated in the organization is not processed and analyzed. Information gathered from various processes and operations are not analyzed because in the organization we are working with so many different programs that it is very difficult and a lot of work to find the right data to compare. But I believe that the information and data created is very important and explaining what is happening and stand in relation to each other in the various business processes.”*
>
> *Q37-“As organization are we not completely up to date. Systems have to be implemented and data should be used to work and monitor processes. Right now we are spending a lot of time to collect and process data. By implementing a system more time can be spent to analyze the data.”*

These two qoutes indicate the importance adapting business structures in order to be able to follow the trend digitalization. The real benefit of information sharing among supply chain partners lies in its effective and efficient use of data (Lee, So, and Tang, 2000; Raghunathan, 2001). No innovation promises everlasting competitive advantages. Any success lies in how technology, resources and creating value is linked to the roots of any process (Kumar, 2012). This is also found in the responses of the interviewees. As shown in the table 6, are interviewees two, four, five and six aware of how the linkage between the different processes and communication contributes to an overall improved performance.

Table 6 Quotations Trend Digitalization

| Quote | Keyword | | Respondent |
|---|---|---|---|
| **Q48** | Foreseen benefits | *"If the data is more connected to each other I'm convinced that it is possible to react better to the changing circumstances in the market and link various performances and costs".* | R2 |
| **Q53** | Monitor Performances | *"I have experienced that data and performance measurements are very important, if something goes wrong I don't have historical data that allows me to see if this has happened before or how well a logistics provider is performing. I absolute would like to have a system that creates this data for me so that I can frequently check performances."* | R5 |
| **Q55** | Performance optimization | *"By using technology such as barcode scanning and digital communication tools connections can be made between different departments and support optimization.'* | R4 |
| **Q57** | Foreseen benefits | *"I'm working right now on a project where I try to implement a logistics management system and connect this to our enterprise resource planning systems. I hope to create a clear and more detailed overview of all the processes and create the possibility of reacting in an efficient and responsive way."* | R6 |

These quotes indicated the importance of having the linkage between data and good communication between the various departments that then will lead to improved performances and support optimization. As indicated by the respondents the communication between various departments is an important aspect when trying to be effective and responsive in all business activities.

Sub-question 3: How can value stream mapping contribute to an increased economic efficiency?

The third sub-question focusses on improving the internal flow in a way that the company can be more efficient, flexible and competitive in their entire process. This information will contribute to answering the main research question: “how can the economic efficiency be increased by vertical collaboration between poultry processing companies and logistics experts.” To be able to answer this sub-question various article’s and personal interviews have been used.

The poultry processing industry is strongly influenced by specific circumstances as seasonality of products and fluctuating demand, which make the processes more complicated. The sector is known for small profit margins, limited product life cycles (freshness) and short delivery times (Akkerman, 2007). According to McNamara, the increasing competition and changing behaviour of consumers in the food industry are causing that companies have to focus on more efficiency in their processes (McNamara, 2016). In order to be successful, a poultry processing company needs to have the ability to respond quickly to market changes and be able to adjust processes while looking for shorter lead times and more flexible processes (ZahirAbbas and Shahrukh, 2001). This has increased the need for systems and technology that can cope with flexibility and efficiency.
Respondent four explains that: “*It’s all about lowering costs, when it is possible to eliminate empty kilometres or eliminate work processes that are duplicated you optimize the chain and increase the capacity of the company.”*
In order to be able to optimize the chain a requirement is to analyze the processes and activities within that chain. Value stream mapping (VSM) is a technique that analyses the current internal state of the value chain and provides the processor with information how it is possible to be more competitive, efficient and flexible in the entire processes (Oliveira and Fernandes, 2017). Because VSM focusses not only on the individual process but takes the material and information flow into consideration, is this technique very accurate and supports the identification of so-called nonvalue-adding activities (ZahirAbbas and Shahrukh, 2001; Romero,2011). Furthermore, the visual representation of the process is supporting and optimizing the entire stream (Interview Nijhuis, Koen, 31.05.2018).

Respondent five indicates that business activities have to be standardized and show continuous improvement over time. The unknown factor is only what kind of adaptations have to be made in order to reach higher efficiencies and lower costs. The tool VSM focusses on eliminating waste and reducing waiting times. This tool can be used as a support to allocate resources better and minimize inefficiencies and waste (Oliveira and Fernandes, 2017). As defined earlier in chapter 1 economic efficiency is ’A state where every resource is allocated optimally so that inefficiency and waste are minimized (Dictionairy, 2018). A reduction of waste and a better allocation of resources means also a decreased number of logistics movements and an increase of economic efficiency (Interview van der Heijden, Tonny, 23.05.2018). By establishing a clear and visual representation of the pain points and waste in the production processes, it is possible to streamline the process and eliminate or decrease the waste. This tool provides insight into the processes and makes it possible to better manage and monitor the needed logistic activities and resources (Interview Franssen, Steven 24.05.2018).

In order to increase the economic efficiency of a poultry processing company, it is required to allocate resources optimal so that inefficiencies and waste are minimized. First a theoretical value stream map is shown in figure 5. This map shows the two main flows, information and material.
The current state map is an analysis of the large quantity product family. After choosing the product family the material flow will be mapped out, using the VSM icons. A list of the icons with explanation is added in Appendix 5. The processes will be tracked from the last stage of the operation to the raw material storage.

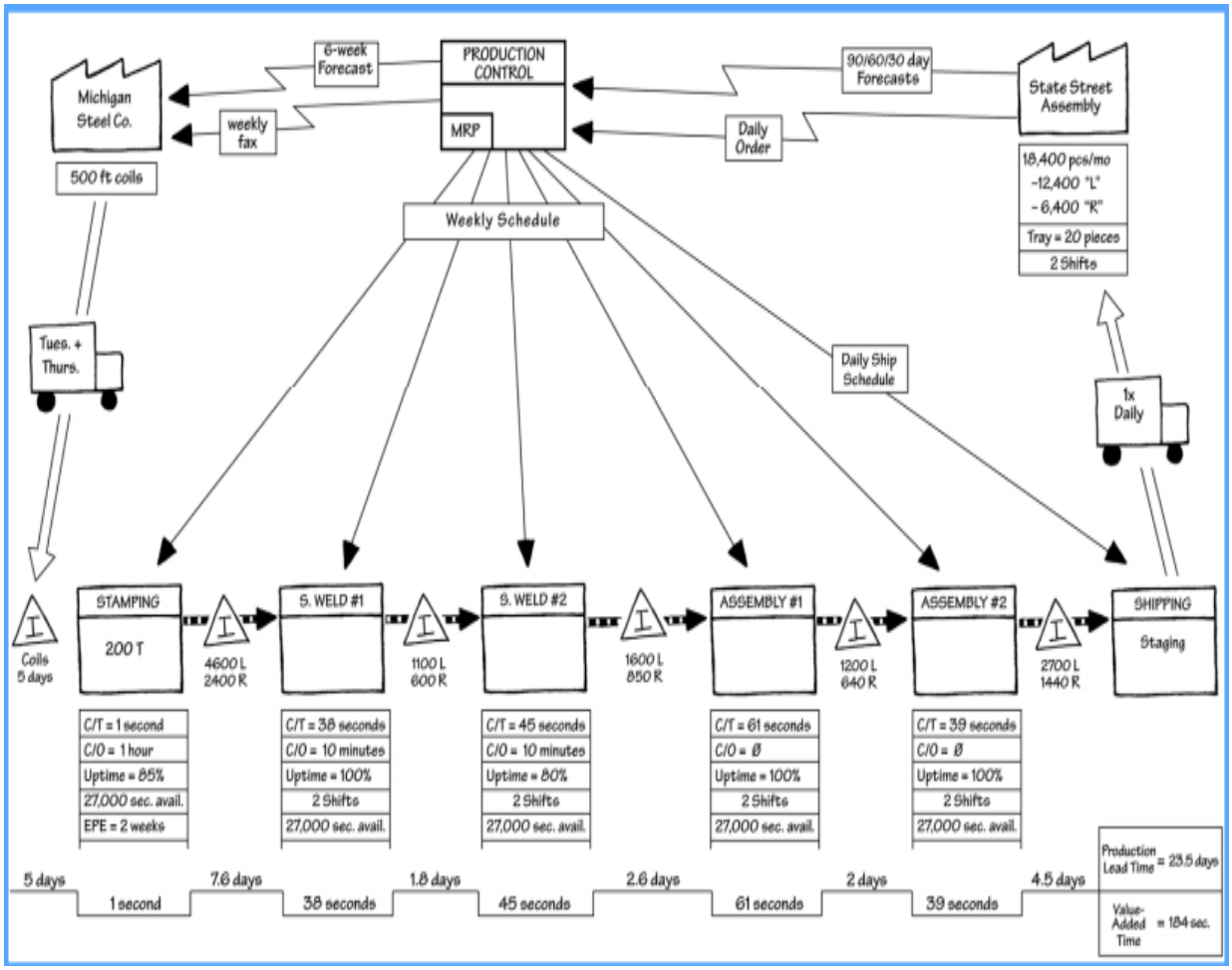



**Figure 5 Theoretical Value Stream Map Example**

All relevant information and amount of inventory are recorded per operation stage, also the information flow is incorporated in the map. The next step after mapping the material and information flow, is adding the lead timeline below the map that shows the processing time for each operation and the transfer delays between the operations.

To verify literature with the practical side, the tool value stream mapping is executed at a world-leading poultry processing facility that has 21 plants over Europe and processes 9 million chickens per week (Plukon, 2018). In the diagram below, figure 6, a representation is given of the process of how one of the poultry products is processed in one of the plants. As shown in figure 6 the VSM starts with the Planning and Control. From there four arrows show to either forecast production plan, picking production, production and shipping. The input of the information needed to do the planning comes from the customers and the daily forecasts. Because of the vendor managed inventory system, a very detailed forecast and up to date information can be used to produce the new orders. After production

the products are shipped right away to a distribution centre where all products are sorted and stored. In this case, the product produced can be stored for six days at the distribution centre before it will be delivered to a store. The information flow coming back from the distribution centre is crucial because dependent on the stock levels and the forecasts production has to be increased or may be decreased.

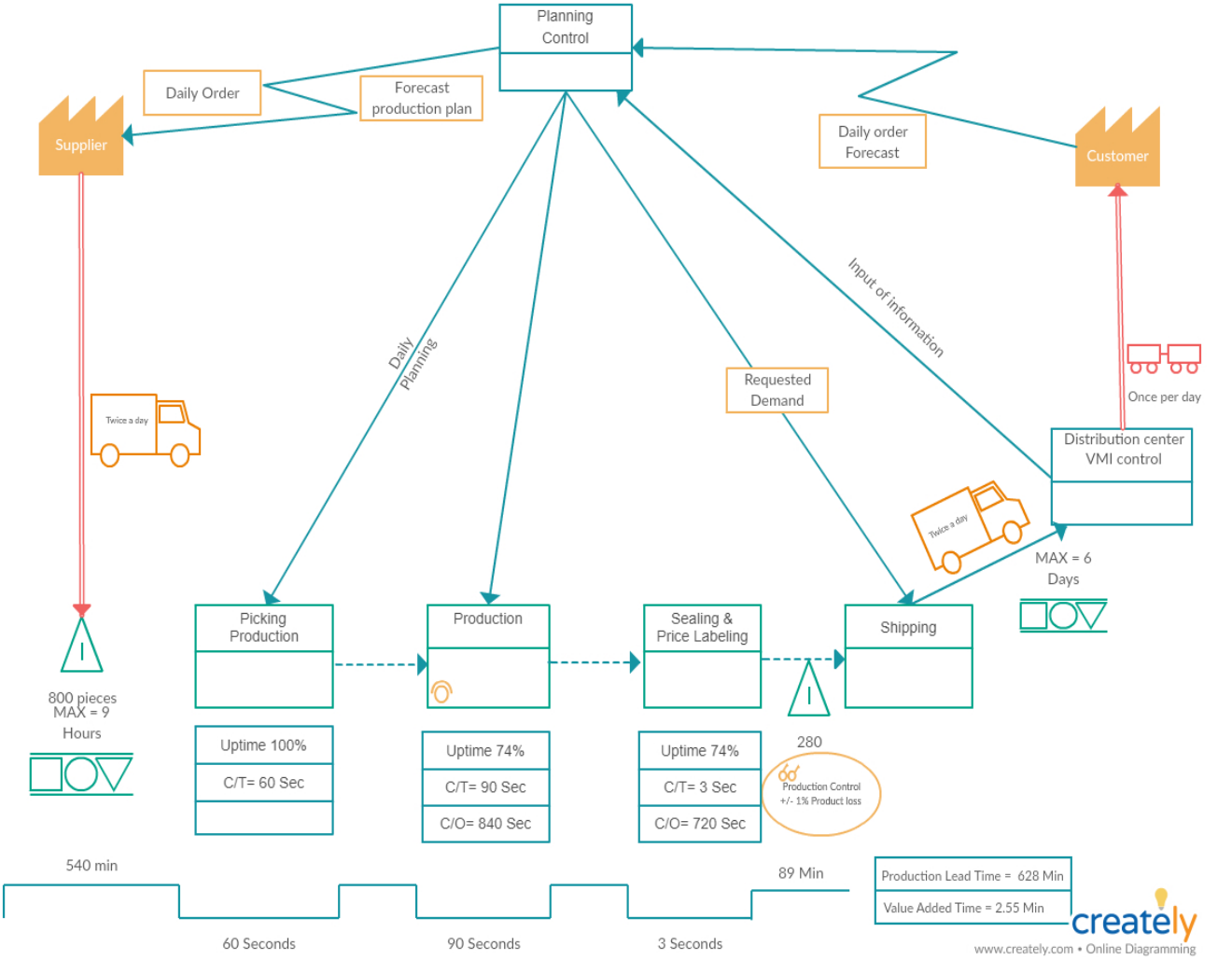



**Figure 6 Value Stream Map Poultry Processing Company**

To achieve the best result, VSM should be applied per individual processes. This map gives a greater understanding of how things currently operate in one of the plants located in The Netherlands. This map is the foundation for the future state map. After designing the current state map, it is possible to learn and to evaluate the current flow and adapt/redesign the current processes in a more efficient way. Redesigning the process in a more efficient way can be done by creating flow and balance in the whole production flow. Changing business activities and processes is a very intensive and long processes but is absolute necessary according to respondent four. This respondent adds, value stream mapping is focused on the identification of waste and bottlenecks that can help to reduce cost by redesigning the process in a more efficient way. The representation of processes and their inefficiencies make it a helpful tool that can support a poultry processing company to improve their operations and the overall performance (Interview Nijhuis, Koen, 31.05.2018).

Sub-question 4: What are the advantages and disadvantages of a decentralized as well as centralized distribution system?

In a supply chain, the decision-making processes can be performed in a centralized and a decentralized way. Central structures refer to the central authority responsible for the decision making process. A centralized structure aims to optimize performance and to minimize costs (Xiuhui and Qinan, 2007). Were a decentralized supply chain structure has the opportunity to act independently to optimize their individual behaviour. As both approaches have advantages and disadvantages, the coordination of a decentralized supply chain systems is more difficult to manage because of the decentralization of the activities (Nihar and Marianthi, 2013). To have successful collaboration between poultry processing companies and a logistic party it is of great importance to align processes and work towards a shared mission. When collaboration stays focused at the operational level and organizational barriers exist, it negatively influences the potential benefits of a collaboration. The structure and the controllable connection are there for important to research. In order to get more information about this topic, literature and interviews are used to clarify the advantages and disadvantages of certain distribution structures. A firm has to choose and define the supply chain structure that supports the goals and objectives of the firm according to respondent four:

> Q27- *"Because of growth and external factors is the chain decentralized. Because you analyze the current state I believe optimization is always possible. So also in centralizing some activities. Important is to see what characteristics and needs we as an organisation need and adapt based on these factors our structure."*

The performance of the different approaches strongly depends on the environment and particular decisions that have to be made (Saharidis and Kouikoglou, 2009). The key advantages of a centralized decision making are the elimination of duplication of activities and economics of scale (Choi and Hong, 2002). The advantage of a decentralized structure is the decision-making process that has the capability of responding to local changes. Optimal control, good planning, scheduling, and control policy, are beneficial to the whole supply chain. Generally spoken each individual company is optimizing its own individual behaviour to its best extent but with a coordinated policy the maximum profit can be much higher than an individual plant would be able to achieve (Saharidis, 2011).

From the respondents, the majority answered that their current state of the supply chain can be characterized as a decentralized structure, as shown in figure 7. From the eight respondents, one respondent answered that they are operating in a centralized manner. Respondent eight answered that they are operating in a mix of both structures. The other six respondents indicated that they are operating in a decentralized way. The mix structure is counted as centralized and decentralized in the figure. Therefore, the total count is nine instead of eight.

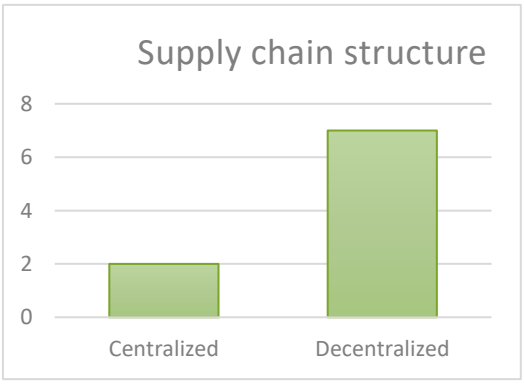



**Figure 7 Supply Chain Structure**

To verify literature with experiences from practice the respondents were asked what kind of advantages and disadvantages they experience dependent on the supply chain structure. Literature has indicated that flexibility and responsiveness are of great importance to the poultry processing industry, because of the quickly changing circumstances. According to Mr. Franssen, the poultry

processing industry is characterized by affordability, freshness, convenience, and good environmental performances. This means that the poultry industry has short production cycles, greater and lower labour costs per unit and high fluctuations in demand (Interview, Steven Franssen 24.05.2016). There is a strong need for flexibility, efficient processes and a high level of responsiveness needed in the chain to support the vision and goals of the company. It is dependent on the type of industry, company culture and expected results from a structure, which type of structure is more beneficial to the company. In table 8, are the responses from the interviewees presented. These quotations show the beneficial aspects of the different types of supply chain structure.

**Table 7 Supply chain structure**

| Quote | Keyword | Dimension | Quote |
|---|---|---|---|
| **Q23** | SC-strucutre | Benefits | *"The supply chain is decentralized and creates great amounts of flexibility".* |
| **Q25** | SC-strucutre | Benefits | *"A combination of a decentralized and centralized structure. Per plant the entrepreneurship is stimulated because the plant managers are responsible for their own performances and results. But some aspects are directed from the head-office to the various plants."* |
| **Q29** | SC-strucutre | Benefits/ Communication | *"Decentralized organizations have the opportunity to react faster to changes because the higher management doesn't have to come to an agreement. But you have to share best practices and continuously learn from each other".* |
| **Q28** | SC-strucutre | Optimization | *"I am convinced that when combining varies activities, operations can be much more efficient."* |
| **Q30** | SC-strucutre | Capcity/ optimization | *"Based on cost consideration are activities centralist or decentralized. Also is specialism on processes/operations an aspect that has influences on the structure".* |
| **Q44** | SC-strucutre | Capicity | *"I believe that a mix works most ideal. You have to find ways to contribute to each other processes and have an open dialogue. By having the mix, the best of both structures can be guaranteed and create added value."* |

By evaluating the current structure it is possible to evaluate if certain parts of the business better perform in a centralized way or in a decentralized way (interview Joop Reuskom, 29.05.2018) According to respondent four "*it is Important to see what characteristics and needs we as an organisation have and adapt based on these factors our supply chain structure*." The respondent adds, *"when redesigning the processes and business activities it is very important to pay attention to the details and responsibilities, when taking away responsibilities it can result in a lower level of motivation and commitment what leads to even more inefficient processes.*

Herewith the respondent highlights the importance of not only focusing on the possible optimization of redesigning structures but also the integration of people into processes and structures.

# 4. Discussion of Results

This thesis discusses how vertical collaboration between a poultry processing company and a logistics expert can have a positive influence on the economic efficiency for both companies. During the research, a framework was created on how to collect and analyze the data. Furthermore, the framework provides insights into the possibilities and requirements for a successful collaboration.

Based on these results and the definition of vertical collaboration a link can be made to what the interviewees indicated as important and required and what is emphasized by literature. Different models are established over time to indicate how a collaboration can be built up. The answers from the interviewees have introduced a couple of aspects that should be taken into consideration when trying to define the intensity of the vertical collaboration. First of all, according to the respondents, it is needed to define the shared interest and goal of a vertical collaboration. Why would a company want to collaborate with another company? Also, it is required to define what the contribution is to the business processes when collaborating. As mentioned by respondent four, when optimization can take place by collaborating it has to simplify business activates instead of getting more complicated for one of the partners. Furthermore, the respondents indicate a strategy should be established and supported in order to stay successful. The model established by Lambert et al. (1996) supports the answered from the respondents and indicated three key aspects that create a clear reasoning why and what a collaboration should improve.

1) Drivers; the reason for collaborating, equals cost reduction, customer service
2) Facilitators; supportive factors to encourage collaboration, equals the same type of management style
3) Components; joint activities and operations to build up the relationship equals communication and investment.

The answers to the three main key driver will also help in defining what kind of collaboration can be created. One of the models used to define the level of collaboration is a model established by Lambert et al. *(1999),* shown in table 8. The different types of relationships indicate how far the integration of the parties goes. Having a closer and a more efficient relationship will lead to a reduction of logistics costs (Bowersox,1989). The one type of collaboration is no better than another type, but it gives the opportunity to choose the one that has the best fit for both of the parties.

**Table 8 Types of Collaborations (Lambert et al. 1999)**

| Type I | Type II | Type III |
|---|---|---|
| A collaboration that consists of mutually recognized partners that coordinate activities and planning. The duration, breadth, strength and closeness is limited. | Is a cooperation were partners merely coordinate but integrate part of the business planning meaning a detailed information sharing. This type of relationship can be recognized by the long-term relationship with an involvement of various business operations. | cooperations are when the participants have integrated their operations to a significant level of being an extension to each other (Lambert et al., 1999). |

Vertical collaboration focusses on pooling resources together to achieve a long-term collaboration structure, managed by the poultry processing company and the logistics party (Mattessich, Monsey, and Murray-Close, 2001). Therefore, the focus can be directed towards the second type of collaboration, as shown in table 4. This means that information sharing is more organized and a shared long-term vision is established. Before talking about information sharing and a shared long-term vision, a clear strategic goal and business mission has to be aligned with the party as indicated by the respondents. Partners have to agree on a common vision and key business processes. Without these strategic goals, it is impossible to achieve optimal results and improve the economic efficiency as also indicated by the interviewees. By having the right reasoning a clear vision and strategy a long-term plan can be established.

The focus should be towards a more efficient flow through the entire business process. Furthermore, the willingness and commitment a firm has to collaborate should be discussed in detail, this is also confirmed by the interviewees. They answered positive about collaborating but insisted that there should always be a moment of evaluation and pointed out, that further research is needed in order to be convinced that optimization could be achieved through collaboration. The last step is to define the components, which operation is shared and what communication models are used. This information indicates that the internal side of a company should be ready and committed to experimenting with a collaboration. A collaboration needs a lot of trust in order to open up and share business processes and information. These two main components, trust and information sharing, are also highlighted by the respondents multiple times and are seen as very important and necessary. Benefits can only be achieved when communication and information sharing is at a high level. This means that the information needed must always be accessible and act as a shared knowledge basis. Moreover, collaboration is not just a shared knowledge base on an operational level but should be implemented at strategical level across the organizations.

Furthermore, the level of commitment and integration has to be discussed. Determining the level of commitment is challenging because it is a physiologic aspect and can be found in the design and culture of a company. Commitment proves the importance of a goal and proves that when times get rough a partner will not quit immediately (Cohen, 2014). These key determinants pay attention to the discussion when the collaboration is successful both partners are rewarded, but also the risk when unsuccessful both partners will have to share the pain (Bowersox et al. 1989).

According to Bowersox et al. (1989)*, a collaboration is successful when integrating various stages of production processes,* the parties involved will have to modify their own activities and align them with the processes shared with the business partners. This aspect is inidcated as found more difficult by the respondents and required good communciation and investment. Based on the predetermined set of goals, the level of commitment and integration can be defined (Bowersox,1989).

The operational aspect focusses on the business processes, daily activities and key components a collaboration should be built on. Literature states that a collaboration can only be built on mutual trust, openness, communication and shared risk and rewards (Bowersox, Daugherty, Droedge, Rogers, and Wardlow, 1989). The interviewees clearly agree on some of these components. Seven respondents indicated that trust is a key component to build up a relationship, the other factors are mentioned four times by the respondents. Only two of the respondents mentioned that equal investment and rewards are needed in order to collaborate. Furthermore, they were the only respondents who mentioned something about adapting and changing business processes, so that the process can be linked,

coordinated and managed. Technology and digitalization plays an important role in this and will be discussed in the following paragraph a collaboration is focused on developing a link on in -an external level where companies work together. As shown in the results section indicates respondent five that vertical collaboration relationships should not only focus on operational level but require adaptation and redesigning of processes. Literature emphasizes also on the importance of adapting and changing the organizational structure. The adaptation and redesigning of processes is not without risk, because the actual impact of a collaboration on the various levels in the company are unknown. This is not taken into consideration in this research and can be seen as possibility for a future research study.

### *Trends*

There are many aspects that influence the economic efficiency of a firm. While researching the recent trends in economic efficiency two major trends were recognized, digitalization and competitive strategies. It became clear from literature and the interviewees that digitalization is a very important trend in the food processing and logistics industry. Having insight into business processes and costs is indicated by five interviewees as important and required if a poultry organization wants to operate in a competitive way. Other keywords such as transparency, monitoring processes, better allocation of resources and responsiveness are mentioned two to three times by the respondents and explained as key factor that contribute to the overall performance of business activities. The keyword digitalization is mentioned multiple times by the respondents and is important because of the developments in systems and technology. Interviewees indicated that by having real-time data available it was possible to better plan and coordinate activities. As mentioned by respondents is the difficulty reacting to the hourly changing demands from customers and the freshness (shelf life) of the goods. These two aspects increase the importance of the trend even more for the poultry processing industry.

Also indicated by the respondents, and supported by literature is that having real-time data available is crucial for improving the efficiencies of business activities and the overall firm performance (Renko, 2011). The lack of information can increase uncertainties in the decision-making process and mistakes, because not all the partners were informed correctly. In order to be able to reduces costs and create better forecasts it is required to share relevant data.

Moreover, the respondents have indicated limitations in relation to data and information. The respondent's state that due to the high volume of available data, there are difficulties with finding out which data should be analyzed and processed. Most of the interviewees have indicated that the poultry processing companies are collecting a lot of data, but that the data is not processed or analyzed because of missing systems and technology. Some of the interviewees mentioned that systems are not updated yet to the latest technology and features, which makes it more difficult and time-consuming to work with the data. This indicates that the companies pay attention to the developments but don't have it high on their priority list, because of time and costs.

However, all of the respondents mentioned the importance of having data available across all business processes. According to literature and the respondents having data available can support the visualization and the need for a directive and corrective action. This shows the importance of having a good flow of information, material and finished goods. The supply chain is connected by the flow of information, material and finance. Therefore, it is important to not only attain information and data for yourself but to share them with the partners and departments involved. By sharing useful information, it creates the opportunity to make more accurate and well-coordinated plans. The digitalization trend has a positive influence on the flow of information and enables companies to better

support and monitors their business processes. This reflects in improving demand forecasts, decreasing shortages of finished products or raw materials, and the improvement of distribution efficiency.

The second highest priority according to the respondents is monitoring performances. If a company wants to stay competitive and have an advantage it must know how business processes flow and where optimization can take place. Based on the literature and interviews it can be stated that the trend competitive strategies and digitalization are closely linked to each other and support each other's process. While focusing on creating more responsive supply chains and flexibility, real-time data is indicated as one of the most important factors according to the respondents. An intriguing point is that some well-known initiatives as efficient customer response and collaborative planning forecasting and replenishment (CPFR) are also about focusing and linking crucial information to various departments. These methods have already proven that they are successful in reducing inventory and streamlining the complete supply chain from an incoherent inefficient supply chain into a coordinated pull system based on customer demand. However, this research focusses on collaboration on logistics aspect without out integrating sales and marketing, but in order to implement a successful collaboration, contracting parties have to share data extensively and improve data quality. The exchange of forecast can improve the interaction between the partners and increase the economic value that no single firm would be able to achieve (Sung Min and Mahoney, 2006). Although, CPFR and vertical collaboration can increase the economic efficiency of a firm, collaborative relationship can also result in big financial losses because of the increased interdependency and impact of sharing too much information (Sung Min and Mahoney, 2006). The trend digitalization is on its own not enough to make a collaboration successful or to improve a firm's performance, it is the combination of multiple aspects that makes a successful collaboration (Renko, 2011)

### *Economic efficiency*

When referring back to chapter 1, the definition of economic efficiency explained two main streams, an allocative efficiency and a technological efficiency (Kalirajan, 1989). These two streams are closely linked to all business processes but the question is how the economic efficiency can be improved. As a result, it is found that value stream mapping can be used to support the processes of redesigning manufacturing processes. The two-stage analysis, firstly gives insight into all processes a product family goes through. The map indicates, because of the clear overview and collected data, pain points and bottlenecks and the so-called non-value adding and value-adding activities. The detailed map identifies all stages of production and creates a clear overview of how long these activities take. In case of the example the focus was to indicate how this tool can be used to redesign the processes and achieve efficiency in these processes by improving the flow of material and information.

By analyzing the processing capacity it is possible to indicate points of improvements. That stage is the second stage of the VSM were the future state can be designed and a better allocation of resources and a reduction of waste can be achieved. This technique does not only take the allocative stream into aspect but also the technical side, including data and technology. The time and resources needed to obtain all relevant information is a very costly stage if this data is not available in information systems. This can be underlined by the experience of the researcher itself, while trying to establish the VSM the researcher faced difficulties in finding the right resources and data to complete this tool.

The last question that this study has researched what the advantages and disadvantage are of a centralized as well as a decentralized distribution system. The literature and interviewees were

strongly agreeing that flexibility is the biggest advantage of a decentralized supply chain structure. The second biggest advantage of a decentralized structure is the adaptability to local changes. These two components are also indicated by the respondents as a key component to the industry. As mentioned before the poultry processing industry is highly competitive and requires a lot of flexible and responsive actions due to fluctuating demands. Both respondents and literature indicated that the biggest advantage of having a centralized distribution structure can be classified by the economics of scale. Secondly mentioned is the optimization of performance, by the centralization of activities it is possible to eliminate duplicated activities.

A centralized structure focusses on what can be achieved by contributing to each other instead of optimizing its own individual behaviour. Nevertheless, there are also some drawbacks like a centralized distribution system can only work in optimal condition when everybody is fully informed. Because the structure of the distribution system it can happen that not everybody is fully informed and in possession of all necessary and relevant information to make a critical decision. This can result in actions that are too late or not necessary. Furthermore, it is found in the literature that a centralized distribution system can have a delayed response time because of its geographical location were decentralization proofs to be more flexible and responsive.

As indicated by multiple respondents, the poultry processing is known for its high fluctuations in demand, tight margins, and freshness and requires therefore a well-coordinated supply chain structure. These components strongly influence the type of distribution system that would be able to fulfill all requirements and in the end improve the overall performance of a poultry processing company. However, an aspect that is not addressed by the respondents is the need for an information system that supports the structure regardless of which structure is chosen.

Future research could address the mix of both structures, known as hybrid structures. Already one interviewee mentioned that a mixture would create the solution to an increased performance, but this has to be investigated further.

## *4.2 Limitations*

Looking back at the research there are some critical evaluations found, the research is limited to one industry , and can serve as a good basis for the poultry processing industry, but additional research would be needed for other sectors in the food industry. Moreover, this research has only focussed on logistics service providers in general and did not focus on a specific type of logistic service provider what strongly effects the results per type of vertical collaboration. Therefore a suggestions is made for further research in paragraph 4.3.

Also with reference to the data collection some limitations could be found. This research aimed at interviewing ten professionals active in various fields of expertise. Because of time limitations and cancelled appointments the research is only based on eight interviews. The eight respondents of this research are all working for international organizations, sized between: 35 and 100 employees. When looking at the data is can be said that the data found is reliable, but not repeatable. This could bias the findings of this research and limit the generalization to the whole poultry processing industry. Furthermore, this number of respondents can be found too small, to generalize this and to have a real objective research.

Additionally, limitations could be found in the design of this research. When this research would be repeated the design needs to be adapted and increase the number of interviewees. The terminology

and formulation of the questions could be different to overcome inconsistencies in the answers from the repsondents. In this research, various types of expertise were questioned, but from the respondents that have a background in logistics, there answers were more considered and show a relation to literature were the respondents without any expertise in logistics have very inconsistent answers and do not answer the questions asked at all. To overcome this, questions could have been asked differently to guide the respondents better. However, in general the helicopter and the various expertise of the interviewees gave great insight and information about the topics discussed in this research.

## *4.3 Future Research*

The findings of this research have contributed to answering the research question. While researching the topic, the researcher came across findings she did not anticipated. The unanticipated findings are related to the Value Stream Map and indicated the need for models that go a step further and reduce non-value adding activities, improve tact time and reduce waste. These models can be used to further research the possibility of internal improvement and the relation to the overall performance. The practical example of the VSM that is presented in Chapter three could be a supportive document when conducting an empirical study within an actual food company to identify true value adding points within a company.

Furthermore, a research could be started related to the impact of information sharing on risk management and the overall business performance when vertical collaborating with third-party logistics company (3pl) or a fourth-party logistics company (4pl). This can be linked also to the supply chain structure and the earlier suggestion to look into hybrid supply chain structures. What kind of effect has information sharing in relation to the structure and the performance of a business? In this research the focus is on the overall increase of the economic efficiency when collaborating with a logistic service provider. Therefore there is a need for further researching and comparing the contrast and results when choosing to vertically collaborate with a 3pl or 4pl .

Although the academic literature is building up, is this topic still a very young research field and practical evidence is scarce. There are still some questions about vertical collaboration and some of these questions will maybe only be answered if collaboration will launch at a more intense rate.

### *4.3.1 Managerial implications*

The findings of this thesis are unique and contribute to the overall knowledge bases. The findings of this research point out that poultry processing companies should focus on monitoring performances and internal improvements. The findings of this research points out a strategical relationship that could improve the economic efficiency of a firm. The internal performances of a company strongly effects the overall result and is therefore important to all companies active in the food processing industry. The results of this thesis indicate the need for applying a tool that provides managers a better view of how internal business activates are linked and integrated. This helps visualize pain points what supports the processes of improving internal activates. Although this research falls short of developing a full strategy of implicating a vertical collaboration can this thesis be used as supporting document and framework.

### *4.3.2 Scientific implications*

In the introduction of this research is stated that the key aspects of this research, economic efficiency, vertical collaboration, logistical parties and poultry processing companies have on individual level much data available. But up till now are there  are only a few scientific studies that

correlate some of these key aspects. This research study aimed at combining all four key aspects and indicated the relationships found between them compared to the poultry industry. Therefore can this research study be a contribution to the already existing knowledge, but work should be undertaken to better understand the results between the various types of vertical collaboration and logistics service providers. This research has also indicated that it is important that these topics will be researched further at a more intense rate in order to be able to determine which combinations work best together and creates the biggest increase in economic efficiency.

# 5. Conclusions and Recommendations

This thesis has provided an overview of the relevant aspects of vertical collaboration focusing on the logistic parties and the poultry processing industry in the Netherlands. This research does not take any other party into consideration. Based on a literature study and in-depth interviews with practitioners and industry experts the following conclusions could be established.

Poultry processing companies faced various challenges over the last years, the changing requirements of consumers and suppliers as well as the strong fluctuating of demands. The developments in the economy have created the need for improvements and innovation and it is a real opportunity for poultry processing companies to adapt and innovate and to establish a strategical collaboration that supports financial growth and improved performances.

> *"By the usage of vertical collaboration the parties involved are able to reduce their transportation costs and optimize their processes what will help to maintain their market share and increase service levels with relatively low logistics costs. The efficiency of both parties will increase because of a better process flows "*

The reflection that could be established after the research on the hypothesis that was introduced in Chapter 1. Indicates that vertical collaboration is an effective way to achieve more efficient workflows, increased efficiency in road transport and an overall business growth.

*This will be supported by the conclusions that could be established per sub question.*

### What models can be used to define the level of collaboration*?*

A vertical collaboration is focused on linking business processes together and work towards a shared goal. This can only be down in a successful way when a company is ready to open up and share information with a third party. In this case it is about opening up to a logistics expert and create a knowledge bases together. Before this can be done the requirements and conditions of a vertical collaboration have to be discussed and are of great importance to make it an effective collaboration. Important is to establish and align visions, missions and shared goals. Based on the respondents and literature used for this research it could be concluded that good communication, coordination, openness, trust and information sharing are indicated as key drivers to allow parties to establish a collaboration that is able to respond quickly but in a cost-efficient manner. The coordination and management of business activists have to be taken into consideration when redesigning business processes.

The introduced models from Lambert et al. (1999 and 1996) and Bowersox et al. (1989) are of great support and take all aspect mentioned above into consideration when starting to develop a vertical collaboration.

### What trends are there in relation to economic efficiency?

In the current economy digitalization is a prominent factor that has major influences on the information flows between business processes. In the poultry processing industry, it is of great importance to obtain the most accurate and real-time information in order to have the best forecast and interaction between planning and production. Also, the stream of information is important to the levels of flexibility. Technological progress and information technology support cheap and efficient communication and shortens the response times between various departments.

The elements: analysis, automation, R&D agility, manufacturing, supplier visibility and distribution are elements that a firm should have under control and always tries to improve. Having real-time data available is one of the most important factors when reacting quickly, responsive and in a correct way. The today's market operates at a rate of changes that continuous increases the need for flexibility and innovative solutions. Digitalization is an upgrade of the entire business model and has to be implemented strategically in every business process to achieve an increased efficiency.

### How can value stream mapping contribute to an improved economic efficiency?

The economic efficiency of a company is influenced by the allocative efficiency and the technical efficiency. By improving these two components internally the flow of information and material can contribute to a better overall efficiency and support an overall increased business performance. Furthermore, by having a well streamlined internal process it is easier to align and intergrade business processes with the collaborator. It can be concluded that, value stream mapping contributes to a better flow of information and allocation of resources. As mentioned multiple times, the flow of information and allocation of resources is an essential aspect to improve in efficiency. Value stream mapping is a great tool for the identification of bottlenecks and point for improvement but when reducing tact time and inventory other tools will have to introduce. This will be discussed further in the recommendations.

### What are the advantages of a decentralized as well as a centralized distribution system (supply chain)?

Poultry processing companies have to react quickly, be flexible and responsive. Having a mix of a centralized and decentralized structure offers them the possibility of having the flexibility but optimal control over all processes. By pooling resources together processes can be managed better what increases the quality of services, flexibility and the level of responsiveness. Logistics is in the food processing industry key and can be seen as a differentiator if this goes in a cost-effective manner and time.

This research has focused on how a vertical collaboration can increase the economic efficiency and indicates the importance of having the internal commitment and components to work towards a vertical collaboration. Having a shared goal and mission, are the basis for developing a collaboration. The next step is to adapt and align business processes, this is seen as a more difficult factor because of interdependency and the investment that has to be made, but contributes to the overall strengthening of the competitive advantage. Another factor that contributes to an overall performance is sharing critical-real-time data, this is not only a crucial factor when the focus is on improving performances but in general, it can be concluded that data and monitoring of data should have a high priority. Only by closely monitoring performances and contributing to each other's processes and an increased efficiency in business processes can be achieved. Therefore, it can be stated if the internal operation is closely monitored and efficient, with a reduction of waste and increased efficiency, it is easier to align processes with the other party involved. As mentioned before monitoring performance and coordinating processes is important to make a collaboration work and improve the quality of the business processes

Overall it can be concluded that the answer to the main research question "*How can economic efficiency be increased through vertical collaboration with logistical parties in the poultry processing industry in the Netherlands?*" is that a vertical collaboration between a logistics expert and a poultry processing company is able to reduce inventory, better allocate resources and manage distribution,

information and materials in a more efficient way. This is achieved by sharing knowledge, data and focus on the primary activity of both of the partners. Also, the exchange of forecast and shared planning strongly contributes to an increased flexibility and more efficient use of sources and materials. The combination of all those factors leads to an overall increased performance of business activities, what automatically increase the overall efficiency of a firm.

## Recommendation

It is recommended based on this research for poultry processing companies in the Netherlands to look into a collaboration with a logistics expert. Logistic activities are costly, and used at an intense rate in this sector. Therefore it is strongly recommended to have a critical self-evaluation how logistic activities are integrated into the various business processes and frequency. By doing a critical self-evaluation, points of improvements, and patterns can be found between demand changes and costs. Based on the findings of the research it is recommended to poultry processing companies to adapt to new structures and make use of new skills and link technology resources to the various business processes. Focus on adding value to business activities and emphasis the core of all the business processes. The first step is to optimize the internal business activities and standardize the flow of information, material and finished goods as much as possible. A company that is aware and able to monitor performances is one step ahead in strengthening their competitive position. Because of the trends and developments in the market it is required and advised to companies to devote time to evaluate current used technology and systems. By doing so, it can be seen what kind of data exactly is created and what is done with it. Nowadays, the collection and analysis of data are seen as a key advantage. However, you will have to collect the right data in order to have an advantage.

The second and long-term recommendation for a poultry processing company would be to work out a plan that indicates points of improvements and clearly defines one's mission, goal and strategical decisions. After applying the VSM it is advised to go a step further and use other tools that are aiming at identifying the operations or employee skills that could be improved, in order to encourage smoother procedures, more efficient workflows, and overall business growth. By using the right tools and monitoring the important variables it will help to eliminate non-value added activities and improve business processes in a strategic method. By defining these needs it is possible to discuss and analyses the possibilities of creating a vertical collaboration. Involving more expertise will give a broader perspective and shared knowledge base.

# Reference List


Akkerman, R. (2007). *Operational performance of two-stage food production systems.* Groningen: University of Groningen. Retrieved 05, 29, 2018, from https://www.rug.nl/research/portal/files/13173050/01_c1.pdf

Baarda, B. (2014). Research. This is it! In *Guidelines how to design, perform and evaluate quantitative research.* Groningen: Noordhoff Uitgevers bv.

Banning, B., Sierat, P., and Slappendel, L. (2014). *Logiestiek waarde creër je samen.* ABN AMBRO. Retrieved 03, 01, 2018, from https://insights.abnamro.nl/contact/bart-banning/

Barrat, M. (2004). Understanding the meaning of collaboration in the supply chain. *Supply Chain Management*, 30-42.

Barua, A., Konana, p., Whinston, A., and Yin, F. (2004). An Empirical Investigation of Net-Enabled Business Value. *Mis Quarterly, 28*, pp. 585-620./doi.org/10.1108/13598540410517566

Bask, A. H. (2001). Relationships among TPL providers and members of supply chains – a strategic perspective. *Journal of Business and Industrial Marketing, 16*(6), 470-486. doi.org/10.1108/EUM0000000006021

Bicer, and Seifert. (2017). Optimal Dynamic Order Scheduling. *Production and Operations Management*, 2266-2286.doi.org/10.1111/poms.12759

Braglia, M., Carmignani, G., and Zammori, F. (2006). A new value stream mapping approach for complex production systems. *International Journal of Production Research*, 3929-3952. doi.org/10.1080/00207540600690545

Bunte, F., Dijkxhoorn, Y., Groeneveld, R., Hofstede, G., Top, J., van der Vorst, J., and Wolfert, J. (2009). *Thought for Food: the impact of ICT on agribusiness.* Wageningen UR. Retrieved 06,04, 2018, from http://edepot.wur.nl/11245

Bowersox, Daugherty, Droedge, Rogers, & Wardlow. (1989). *Leading edge Logistics.* Council of Logistics Management.

*Cambridge Dictionary*. (2018). Retrieved from Collaboration: https://dictionary.cambridge.org/dictionary/english/cooperation

Cao, M., and Zhang, Q. (2013). *Supply Chain Collaboration : Roles of Interorganizational System, Trust and Collaborative Culture.* London: Springer. doi:10.1007/978-1-4471-4591-2

Cao, M., and Zhang, Q. (2013). *Supply Chain Collaboration Characterization.* London: Springer.

Cascone, J., Feinberg, A., Goshorn, B., Goldin, B., Friends, B., and Malhotra, S. (2015). *Food Industry Logistics : Trends that Matter*. (Deloitte, Editor) Retrieved 05,28,2018, from Food Logistics: https://www.foodlogistics.com/technology/article/12090973/food-industry-logistics-trends-that-matter

Choi, T., and Hong, Y. (2002). Unveiling the structure of supply networks: Case studies in Honda Acrua, and Daimler Chrysler. *Journal of Operations Management, 20*(5), 469-493. doi:10.1016/S0272-6963(02)00025-6

Christopher, M. (1998). *Logistics and supply chain management- strategies for reducing cost and improving service.* London: Prentice Hall.

Cohen, W. (2014). *The real secret of success? Total commitmen*t. Process excellence network. Retrieved 05,14, 2018 from, https://www.processexcellencenetwork.com/business-transformation/columns/the-real-secret-of-success-total-commitment

Craig, R., Carter, P., and Easton, L. (2011). Sustainable supply chain management: evolution and future directions. *International Journal of Physical Distribution and Logistics Management, 41*(1), pp. 46-62. doi.org/10.1108/09600031111101420

Cruijssen, F. (2006). *Horizontal cooperation in transport and logistics.* Center for economic research. Tilburg: Tilburg Center for Economic Research.

Cruijssen, F. (2012). *Framework for collaboration.* Cappelle aan de Ijssel: CO3 Project. Retrieved from http://www.co3-project.eu/wo3/wp-content/uploads/2011/12/CO3-D-2-1-Framework-for-collaboration-full-report-2.pdf.

Cruijssen, F., and Verweij, C. (2006). *Europese logistiek netwerken: Optimalisatie Europese netwerken voor verladers.* Retrieved from ttp://www.transumofootprint.nl/upload/documents/03%20Projecten/Europese%20netwerken/03%20Output/02%20Wetenschappelijke%20publicaties/Paper%20Samenwerken%20in%20theorie%20en%20praktijk%20Europese%20netwerken.pdf.

*Dictionairy*. (2018). Retrieved from Defenition of Vertical Collaboration: http://www.dictionary.com/browse/integration

Dijk, A. v. (2016). *Transport in Cijfers*. Retrieved from Transport en Logisitek in Nederland: https://www.tln.nl/product/Documents/Transport-in-cijfers-2016.pdf

Dutch Poultry Centre. (2017). *The Dutch poultry sector.* De Nederlandse Pluimveesector. Retrieved from http://www.dutchpoultrycentre.nl/dutch-poultry-centre/dpc-infobank/presentaties/34-dpc-corporate-presentatie-2016/file

Ellis, R. (2011). *Understanding the logistics in the Netherlands.* CBRE Netherlands. Retrieved 25,03,2018 from http://www.cbre.eu/portal/pls/portal/res_rep.show_report?report_id=261

European Commision Mobility and Transport. (2018, 02 22). *Promoting efficient, safe and green land transport*. Retrieved 23,03,2018 from European Commission: https://ec.europa.eu/transport/modes/road_en

Fawaz, A., and Jayant R. (2007). Analyzing the benefits of lean manufacturing and value stream mapping via simulation. *International Journal of Production Economics, 107*(1), 223-236. doi:10.1016/j.ijpe.2006.09.009

Financial and Economic Analysis team. (2010). *Understanding Transport Costs and Charges.* Ministry of Transport. Retrieved 23,03,2018 from https://www.transport.govt.nz/assets/Uploads/Research/Documents/UTCC-Legislation-and-freight-transport-costs.pdf

Flynn, B., and Koufteros, G. (2016). On theory in supply chain uncertainty and its implication for supply chain integration. *Supply Chain Management*, 3-27. doi:http://dx.doi.org/10.1111/jscm.12106

Forum, I. T. (2010). *Integration and competition between transport and logistics businesses.* Transport research centre. Retrieved from https://www.itf-oecd.org/sites/default/files/docs/dp200908.pdf

Gillior, H. (2018, Feb 5). *Digitalisation- An Unstoppable Mega Trend*. Retrieved 06,06, 2018, from Institue for Digital Transformation: https://www.institutefordigitaltransformation.org/digitalisation-an-unstoppable-mega-trend/

Gligor, D. M., Esmark, C. L., and Holcomb, M. C. (2014). Performance outcomes of supply chain agility: When should you be agile? *Journal of Operations Management*, 71-82. doi:http://dx.doi.org/10.1016/j.jom.2014.10.008

Goffin, K., Lemke, F., and Szwejczewski, M. (2006). An exploratory study of close supplier-manufacturer relationships. *Journal of Operations Management*, 189-209.doi.org/10.1016/j.jom.2005.05.003

Golicic, S., Foggin, J., and Mentzer, J. (2003). *Relationship magnitude and its role in inter-organizational relationship structure.* Journal of Business Logistics. ScienceDirect. doi.org/10.1002/j.2158-1592.2003.tb00032.x

Grazia Speranza, M. (2018). Trends in transportation and logistics. *European Journal of Operational Research*, 830-836. doi:https://doi.org/10.1016/j.ejor.2016.08.032

Gunasekaran, A., Lai, K., and Cheng, E. (2008). Responsive supply chain: A competitive strategy in a networked economy. *The international of Management Science, 36*(4), 549-564.

Gunert, G. (2003). *How changes in consumer behaviour and reailing affect competence requirements for food producers and processors.* Washington: MaPP Research Centre. Retrieved Juni 1, 208, from https://pdfs.semanticscholar.org/96b3/928f3f3370dcdf89567eeaa4f15379e720ad.pdf

Handayati, Y., Togar, M., and Simatupang, T. (2015). *Agri-food supply chain coordination; the state-of-the-art and recent developments.* Indonesia: Springerlink. doi:10.1007/s12159-015-0125-4

Hines, P., Rich, N., and Esain, A. (1999). Value Stream Mapping: A distribution industry application. *Benchmarking: An International Journal*, 60-77. doi:https://doi.org/10.1108/14635779910258157

Hsiao, H.-I. (2009). *Logistics outsourcing in the food processing industry.* PhD Thesis, Wageningen University. Retrieved 27,03,2018 from http://edepot.wur.nl/11438

Intrieri, C. (2016). *Logistic Cost Reduction: 6 Focusses to Create More Profit*. Retrieved 03,04,2018 from Cerasis: http://cerasis.com/2016/02/16/logistics-cost-reduction/

Jackson, C. (2012). *How food and beverage companies gain competitive advantage.* Retrieved 06,05, 2018, from Godlan: https://www.godlan.com/documents/Manufacturing-ERP-Software-White-Paper-%20How_food_beverage_companies_gain_competitive_advantage-Infor_SyteLine_ERP_Godlan_Manufacturing_Consulting.pdf

Kalirajan, K. (1989). On Measuring economic efficiency. *Department of Economics*, 75-85.

Kemp, G. (2004). *Outsourcing Essentials: The ITO/BPO Connection.* Retrieved 05,04,2018 from https://lup.lub.lu.se/luur/download?func=downloadFileandrecordOId=1468621andfileOId=1647056

Kilibarda, M., and Andrejic, M. (2012). *Logistics service quality impact on customer statisfaction and loyalty.* Belgrade: Faculty of Transport and Traffic Engineering. Retrieved from file:///C:/Downloads/6_2_ICSC_12_KILLIBARDA.pdf

Knemeyer, A., Corsi, T., and Murphy, P. (2003). Logistics outsourcing relationships: Customer preceptions. *Journal of Business Logistics*, 77-110. doi:https://doi.org/10.1111/j.1745-493X.2004.tb00254.x

Koehler, E. (2018). *Agriculture and food*. Retrieved 23,03,2018 from Rijksoverheid: https://www.hollandtradeandinvest.com/key-sectors/agriculture-and-food

Kumar, P. (2012). *Why Operations Management is Important for a Company.* Ramanujan Education. Retrieved 29,02,2018 from http://www.ramanujan.edu.in/rcm/sites/default/files/Why%20Operations%20Management%20is%20Important%20for%20a%20Company.pdf

Lambert, D., Cooper, M., and Pugh, J. (1999). Issues in supply chain management. *Supply Chain Management*, 65-83. Retrieved 07,04,2018 from http://www.hatfieldandassociates.com/pdf/issues_in_scm.pdf

Lee, H. (2002). *Aligning Supply Chain Strategies with Product Uncertainties.* California: Sage journals. doi:doi/pdf/10.2307/41166135

Leitner, R., Meizer, M., Prochazka, M., and Sihn, W. (2011). Structural concepts for horizontal cooperation to increase efficiency in logistics. *CIRP Journal of Manufacturing Science and Technology*, 332-337.

Li, A., Ragu-Nathan, B., Ragu-Nathan, T., and Subba Rao, S. (2006). The impact of supply chain management practices on competitive advantage and organizational performance. *The internal journal of Management Science, 34*(2), 107-124. doi:https://doi.org/10.1016/j.omega.2004.08.002

Makadok, R. (2001). Toward a synthesis of the resource-based and dynamic capability views of rent creation. *Strategic management Journal, 22*, 384-401.

Martin, N. (2013). *Horizontale samenwerking tussen logiestike dienstverleners door ladingsconsolidatie.* Faculteit bedrijfseconomische wetenschappen, Masterproef. Hasselt: Universiteit Hasselt. Retrieved 26,03,2018 from https://www.scriptiebank.be/sites/default/files/Masterproef_Niels_Martin_Horizontale_samenwerking_tussen_logistieke_dienstverleners_door_ladingsconsolidatie.pdf

Mathiassen, L., and Pries- Heje, J. (2006). Business agility and diffusion of information technology. *European Journal of Information Systems*, 116-119. doi:10.1057/palgrave.ejis.3000610

Mattessich, P., Monsey, B., and Murray-Close, M. (2001). *Collaboration: What makes it work.* Amherst. H Wilder Foundation. doi:094006932-6

McNamara, C. (2016). *Digitalization: The future of Food and Beverage.* Siemens. Retrieved June 2018, 5, from https://www.plm.automation.siemens.com/media/global/en/DE4FB-Industry-Briefing-Digitalization-In-Food-And-Beverage-66023_tcm27-17780.pdf

Meizer, F., Leitner, R., Prochazaka, M., and Sihn, W. (2011). Structural concepts of horizontal cooperation to increase efficiency in logistics. *Journal of Manufacturing Science and Technology*, 332-337. doi:https://doi.org/10.1016/j.procir.2015.12.037

Mentzer, J., Foggin, J., and Golicic, S. (2000). *Collaboration: the enablers, impediments and benefits.* Supply Chain Management Review.

Min, S., Roath, A., Daugherty, P., Genchev, S., Chen, H., and Arndt, A. (2005). Supply chain collaboration: What's happening? *International Journal of Logistics Management, 16*(2), 237-256. doi:10.1108/09574090510634539

Mukhopadhyay, T., Rajiv, S., and Srinivasan, K. (1997). Information Technology impact on Process Output and Quality. *Management Science*, 1645-1659. Retrieved 07,05,2018 from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.108.866andrep=rep1andtype=pdf

Nguegan, C., and Chengedzai, M. (2017). *Supply chain management problems in the food processing industry: Implications for business performance.* doi: https://doi.org/10.4102/ac.v17i1.485

Nihar, S., and Marianthi, G. (2013). *Centralized vs. Decentralized Supply Chain Management Optimization.* Rutgers University New Jersey: Department of Chemical and Biochemical Engineering.

Oakland, J. (2014). *Total Quality Management and Operational Excellence.* New York: Routledge.

Oliveira, J., and Fernandes, A. (2017). *Continuous improvement trough "Lean Tools": An application in a mechanical company.* Vigo: Elsevier. doi:10.1016/j.promfg.2017.09.139

Osterwalder, A., and Pigneur, Y. (2010). *Business Model Generation: .* New Jersey: John Wiley and Sons, Inc.

Pan, A., and Yotopoulos and Lawrence, J. (1973). A test of Relative Economic Efficiency: some further results. *The American Economic Review, 63*(1), 214-223. Retrieved from http://www.jstor.org/stable/1803137

Prajogo, D., and Olhanger, J. (2012). Supply chain integration and performance: The effects of longterm relationships, information technology and sharing, and logistics integration. *International Journal of Production Economics, 135*(1), 514-522. doi: 10.1016/j.ijpe.2011.09.001

Qrunfleh, S., and Tarafdar, M. (2013). Lean an agile supply chain strategies and supply chain responsiveness. *An International Journal, 18*(6), 571-582. doi: 10.1108/SCM-01-2013-0015

Rabobank. (2017). *Vleespluimvee*. Retrieved 13,03,2018 from Rabobank Cijfers and Trends: https://www.rabobankcijfersentrends.nl/index.cfm?action=brancheandbranche=vleespluimvee

Ramanathan. (2014). Performance of supply chain collaboration- a simulation study. *Expert Systems with Application, 41*(1), 210-220.

Razzaque, M. A., and Sheng, C. C. (1998). Outsourcing of logistics functions: a literature survey. *International Journal of Physical Distribution and Logistics Management*, 89-107.

Renko, S. (2011). *Vertical Collaboration in the Supply Chain.* Rijeka: InTech.

Rijksoverheid. (2018). *Government Support; Road Transport*. Retrieved 14,03,2018 from Netherlands Enterprise Agency: https://business.gov.nl/regulation/licences-road-hauliers/

Rijksoverheid. (2018). *Key sectors Agriculture and food*. Retrieved 13,03,2018 from Hollandtradeinvest: https://www.hollandtradeandinvest.com/key-sectors/agriculture-and-food

Romero, D. (2011). *Use of Value Stream Mapping Tools for Manufacturing Systems Redesign.* London, U.K.: World Congress on Engineering. doi:97898818210-6-5

Romero, L., and Arce, A. (2017). Applying Value Stream Mapping in Manufacturing. *IFAC- PapersOnline*, 1075-1086. Retrieved 25,04,2018 from https://pdfs.semanticscholar.org/247d/16382bb1fb2e2f17225152d140602a4bd63a.pdf

Saharidis, G. (2011). *Supply Chain Optimization: Centralized vs Decentralized Planning and Scheduling.* (D. P. Li, Ed.) Rijeka: INTECH open. Retrieved 25,03,2018 from file:///C:/Users/a.vanderlinden/Downloads/15529.pdf

Saharidis, G. (2009). Centralized and decentralized control policies for a two-stage stochastics supply chain with subcontracting. *International Journal of Production Economics*, 117-126.

Simatupang, T. M., and Sridharan, R. (2002). The collaborative supply chain. *Journal of Logistics Management*, 15-30. doi.org/10.1108/14635770410520285

Simatupang, T., and Sridharan, R. (2004). A benchmarking scheme for supply chain collaboration. *Benchmarking: An International Journal*, 9-30. doi.org/10.1108/09574090210806333

Slack, N., and Lewis, M. (2008). *Operation Strategy.* Essex: Prentice Hall Financial Times.

Srinivasan, K., Kekre, S., and Mukhopadhyay, T. (1994). Impact of Electronic Data Interchange Technology on JIT shipments. *Management Science*, 1291-1304. doi.org/10.1287/mnsc.40.10.1291

Stank, p., Goldsby, J., Vickery, K., and Savitskie, K. (2003). Logistics service performance: estimating its influence on market share. *Journal of Business Logistics, 24*(1), 24-55.

Stank, T., and Traichal P. (1998). *Logistics strategy, organizational design and performance in a cross-border environment.* Great Britten: Elsevier Science Ltd. doi:1366-5545/98

Stanley, E., Amydee, M., Bradlee, J., and Gregory, M. (2012). Toward an understanding of supply chain collaboration dynamics. *Supply Chain Management*, 44-72. doi:https://doi.org/10.1111/j.1745-493X.2011.03241.x

Stock, and Lambert. (2001). *Strategic logistics management.* New York: McGraw Hill. ISBN: 9780071181228

Sung Min, K., and Mahoney, J. (2006). *Collaborative Planning, Forecasting and Replenishment as a Relational Contract: An Incomplete Contracting Perspective.* Champaign: Univeristy of Illinois.

Sutherland, J. (2015). *Creating Collaborative Advantage*. Retrieved 18,04,2018 from European business review: http://www.europeanbusinessreview.com/creating-collaborative-advantage/

*Trading economics*. (2018). Retrieved 07,03,2018 from Netherlands Gross Domestic Product: https://tradingeconomics.com/netherlands/gdp

Transport en Logistiek Nederland. (2016). *Transport in cijfers.* Zoetermeer: Transport en Logistiek Nederland.

Treacy, M., and Wiersma, F. (1993). *Customer Intimacy and Other Value Disciplines.* Harvard Business Review. Retrieved 09,03,2018 from https://hr.maricopa.edu/sites/default/files/Customer%20Intimacy%20and%20Other%20Value%20Disciplines.pdf

Trienekens, J., Wognum, P., Beulens, A., and van der Vorst, J. (2012). Transparency in complex dynamic food supply chains. *Advanced engineering informatics, Volum 26*(1), 55-65. doi:http://dx.doi.org/10.1016/j.aei.2011.07.007

Uitvoeringsinstituut Werknemersverzerking. (2018). *Groeined tekort aan vrachtwagen chauffeur*. Retrieved from https://www.werk.nl/xpsimage/wdo222333

*Uitvoeringsinstituut werknermers verzekering*. (2018). Retrieved 16,03,2018 from Kansen voor vrachtwagenchauffeurs : https://www.uwv.nl/overuwv/kennis-cijfers-en-onderzoek/arbeidsmarktinformatie/kansen-voor-vrachtwagenchauffeurs.aspx

van den Hurk, J. (2018). *Vleespluimveehouderij*. Retrieved 06,03,2018 from Rabobank: https://www.rabobank.nl/bedrijven/cijfers-en-trends/veehouderij/vleespluimveehouderij/

van der Elst, C. (2018). *The search for vegetable proteins*. Retrieved 09,03,2018 from Rabobank: https://www.rabobank.com/en/about-rabobank/background-stories/food-agribusiness/the-search-for-vegetable-proteins.html

Visser, L. (2010). *Thresholds in logistics collaboration decisions.* Tilburg: Center for Economic Research. Retrieved 03,05,2018 from https://pure.uvt.nl/ws/files/1274237/Proefschrift_LVisser.pdf

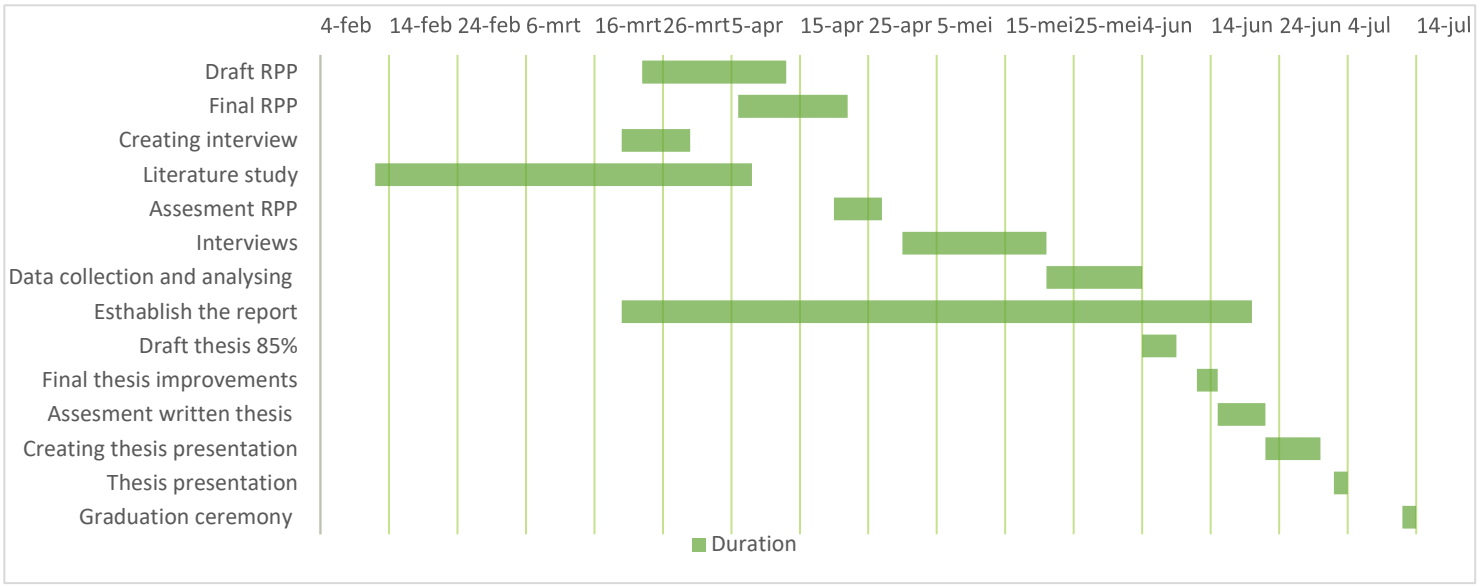
Windhorst, H. (2016). *The Netherlands, the leading country in Europe egg and poultry meat*. Retrieved 019,03,2018 from Zootecninternational: https://zootecnicainternational.com/focus-on/netherlands-leading-country-european-egg-poultry-meat-exports/

Xiuhui, L., and Qinan , W. (2007). Coordination mechanisms of supply chain systems. *European Journal of Operational Research*, 1-16. doi:10.1016/j.ejor.2006.06.023

ZahirAbbas, N., and Shahrukh, A. (2001). *Value Network Mapping (VNM): Visualization and Analysis of Multiple Flows in Value Stream Mapping.* Ohio: The Ohio State University. Retrieved 05, 07, 2018, from http://www.lean-manufacturing-japan.com/Value%20Network%20Mapping%20%28VNM%29.pdf

# Appendices

## Appendix 1. Research project plan



# Appendix 2: Interview Question (Dutch – English)

1. Introduceren van het interview.
2. Achtergrondinformatie vragen, huidige positie en werkervaring.
3. Wat voor indruk heb je van verticale coöperatie?
   3.1. Wat voor beelden, associaties of gedachten komen in je op?
4. Hoe denk je over optimalisatie in het logistieke netwerk in de Supply chain?
   4.1. Wat zijn volgens u key factoren voor optimalisatie in de Supply chain?
   4.2. Wat zijn volgens u de factoren die de complexiteit van de chain verhogen?
   4.3. Hoe reageert u op deze ontwikkelingen?
5. Hoe omschrijft u de structuur van de chain?
   5.1. Heeft u overwogen hier verandering in aan te brengen?
6. Hoe reageert u bedrijf op de ontwikkeling in information technologie?
   6.1. Wat doet u met de data die wordt gegenereerd binnen u bedrijf?
   6.2. Wat zijn u capaciteiten m.b.t. het delen van data?
   6.3. Maakt u gebruik van KPI's? Zo ja waarop zijn deze KPI's gebaseerd?
7. Heeft u overwogen om samen te gaan werken met schakels in de chain? Of hoe staat u ertegenover om processen te delen?
   Zo ja, wat zijn de gedachten die in u op komen?
   Zo nee, waarom niet?

1. Introduction to the interview
2. Background history, Position, work experience etc.?
3. What do you associate with vertical collaboration?
   3.1. what is vertical collaboration according to you?
4. What do you describe as optimization
   4.1. What are, according to you, key factors for optimization in the de supply chain?
   4.2. According to you, what are factors that influence the level of complexity in the supply chain?
5. How would you describe your current supply chain structure?
   5.1. Have you ever considered changing the structure of the supply chain?
6. How reacts your company to the developments in information technology?
   6.1. What do you do with the data that is generated in the company?
   6.2. What are your capacities for sharing data ?
   6.3. Are you using KPI's? If Yes, on what kind of factors are the KPI's based?
7. Have you considered to collaborate with stakeholders in the chain? Or would you be willing to share operations?
   7.1. If yes, What are your thoughts about collaboration?
   7.2. If no, Why would you not want to collaborate?

# Appendix 3: Coding of Interviews

| Quote | Collaboration | Interviewee number |
|---|---|---|
| **Q1** | *"For me, it is important that first the basis of the logistics network is optimized and structured. The next step would be negotiating with logistic parties that are developed further in their processes and work together with them".* | R5 |
| **Q2** | *"No, transport is part of our processes and we try to plan this in the most efficient way. Everything we cannot do ourselves is outsourced to external parties".* | R1 |
| **Q3** | *"If processes simplify and improve I absolutely would consider collaboration. Important is to discuss where the parties involved will have to adapt and change, but to have a common goal and work towards higher efficiencies and cost deduction is something that I have a positive taught about".* | R4 |
| **Q4** | *"Yes, and I would gladly devote more time to go deeper into this topic to research more aspects around this topic."* | R3 |
| **Q5** | *"If processes can be optimized and costs can be decreased I believe that collaboration is a great investment."* | R2 |
| **Q6** | *"collaboration is a hot topic, and it is often discussed. In practice, it seems more difficult than thought to align processes in a way that optimization can be achieved. But with a clear and common goal is collaboration a good solution to fulfill and react to each other needs."* | R6 |
| **Q7** | *"If an organization has the means and will is a collaboration something to seriously think about."* | R7 |
| **Q8** | *" to be successful you have to contribute to each other processes and have an open dialogue that creates synergy."* | R8 |
| **Q9** | "trust is a very important component. Furthermore, because we are working with fresh products with high fluctuations in demand communication between stakeholders in the chain is key." | R3 |
| **Q10** | "Openness and trustworthiness have to be in alignment". | R4 |
| **Q11** | "sharing best practices and communicating is important, building up data and analyzing this gives information that is key". | R5 |
| **Q12** | " stepping down of sub-optimization and finding a way to cooperate and trust each other with an open culture." | R7 |
| **Q13** | "a two-way communication structure with trust is indispensable. Having a shared goal and determine the duration of the collaboration are also aspects that are important to discuss". | R6 |
| ***Q49*** | *"do we have a common goal and interest that would contribute to the current performances?"* | *R3* |
| **Q14** | *Building up data and standardize processes. Also is digitalization of the organization and key aspect to get more insight into logistics costs and load factors."* | *R5* |
| **Q15** | *"The digitalization of logistic information is very important to our organization".* | *R3* |
| **Q16** | *" It's all about lowering costs, when it is possible to eliminate empty kilometres or eliminate work processes that are duplicated you optimize the chain."* | R4 |

| | | |
|---|---|---|
| **Q17** | *"It is important to work with internal benchmarking and lower costs and work with less obsoletes and miss-overproduction."* | R1 |
| **Q18** | *" Everything depends on delivery time. Having the transparency and the insight how when and where products have to be delivered processes and times can be better aligned."* | R6 |
| **Q19** | *" By monitoring and evaluating logistic costs and the planning logistic activities can be managed in a more efficient way. Communication and transparency are key in this process."* | R7 |
| **Q39** | *"There is so much data and information available in the supply chain what makes it a very interesting topic, but because of the many stakeholders and complexity, something very difficult to achieve".* | R5 |
| **Q40** | *" What if the logistics provider has also other activities? You need full commitment of the company to make this work".* | R4 |
| **Q45** | *" If the forecasts are better managed and aligned and we share information in an earlier stage, I can image that collaboration can contribute to a better support and performance".* | R1 |
| **Q46** | *" My opinion is that it is very important to discuss and make arrangements about what and how information is shared. Right now basic information is shared and published on a freight letter, but specific information as price, product and so on should be protected'.* | R2 |
| **Q52** | *" business activities have to be standardized and show improvement. The question is who will adapt where to reach higher efficiency and lower costs.".* | R5 |
| **Q54** | *" In the past a similar type of relationship was introduced, but the logistics service provider offered many value added services wherefore costs were higher. Also did the organization not pay enough attention and support to this relationship. Based on the related high costs and developed friction the board decided to end this relationship".* | R5 |

| Quote | Supply chain | Interviewee number |
|---|---|---|
| **Q20** | *" a decentralized supply chain structure".* | R2 |
| **Q21** | *' A decentralized structure, but In my opinions, has this not been a well overweight decision."* | R4 |
| **Q22** | *" I would describe the supply chain structure as a decentralized structure".* | R5 |
| **Q23** | *" The supply chain is decentralized and creates great amounts of flexibility".* | R3 |
| **Q24** | *" Everything is determined at the head office, from there information flows and operations are directed to the other locations or drivers. This is a centralized structure. "* | R6 |
| **Q25** | *"a combination of a decentralized and centralized structure. Per plant the entrepreneurship is stimulated because the plant managers are responsible for their own performances and results. But some aspects are directed from the head-office to the various plants."* | R7 |
| **Q26** | *" Changing this structure would lead to improvements, because duplicated processes will be eliminated".* | R1 |
| **Q27** | *"Because of growth and external factors is the chain decentralized. Because you analyze the current state I believe optimization is always possible. So also in* | R4 |

| | | |
|---|---|---|
| | *centralizing some activities. Important is to see what characteristics and needs we as an organisation need and adapt based on these factors our structure."* | |
| **Q28** | *"I'm convinced that when combining varies activities, operations can be much more efficient."* | R3 |
| **Q29** | *"decentralized organizations have the opportunity to react faster to changes because the higher management doesn't have to come to an agreement. But you have to share best practices and continuously learn from each other".* | R5 |
| **Q30** | *" based on cost consideration are activities centralist or decentralized. Also is specialism on processes/operations an aspect that has influences on the structure".* | R7 |
| **Q31** | *"By the digitalization of information is it possible to react quickly when things are changing and do you have the opportunity to have all activities transparent and perform to your best ability."* | R6 |
| **Q44** | *"I believe that a mix works most ideal. You have to find ways to contribute to each other processes and have an open dialogue. By having the mix, the best of both structures can be guaranteed and create added value ."* | R8 |
| **Q47** | *" In the current situation are parts of the processes outsourced what creates a limitation for our customers because they are limited in changing their orders, this has costed us customers. I recognize that we need flexibility and the option of adaptation and responsiveness".* | R2 |
| **Q50** | *" optimalisation should always lead to cost reduction, but the therefore you need data and insight to all business processes. By analyzing and monitoring these processes and performances it is possible to eliminate activities that are non-value adding or costly and unnecessary. This is a very long and intensive process but do you want to operate and have a competitive position is should be listed high on the priority list".* | R4 |
| **Q51** | *" As organization we have to react hourly to changing demand, this influences strongly how we can react most of the time the actions are very costly. But was it possible to overcome or prevent this costs by better coordinating and communicating between the various departments".* | R5 |
| **Q53** | *" By redesign processes and activities it is very important to pay attention to details, when taking away responsibilities it can result in a lower level of motivation and commitment."* | R5 |
| **Q56** | *"the complexity of our demand requires a good connection between the various departments and a lot of expertise."* | R6 |

| Quote | ***Information Technology*** | Interviewee number |
|---|---|---|
| **Q31** | *"By the digitalization of information is it possible to react quickly when things are changing and do you have the opportunity to have all activities transparent and perform to your best ability."* | R6 |
| **Q32** | *" By combining and aligning logistic movements optimization can be realized. A Good logistic system is needed in order to be competitive. Thus by lowering costs and logistic movements the overall results will be improved."* | R8 |
| **Q33** | *"I personally focus more on system implantation than information technology, but on this moment data that is generated is not used and the organization doesn't pay a lot of attention to the trends and developments of IT. "* | R5 |

| | | |
|---|---|---|
| **Q34** | *"Right now data that is generated in the chain is not used to analyze or compare performances. I find it very important to have clear and detailed agreements on what kind of data is shared".* | R3 |
| **Q35** | *" The organization is looking for a general system that all information is combined. But it is not listed high on the priority list. Even though that data is very important to monitor performances"* | R4 |
| **Q36** | *" Data that is generated in the organization is not processed and analyzed. Information gathered from various processes and operations are not analyzed because in the organization we are working with so many different programs that it is very difficult and a lot of work to find the right data to compare. But I believe that the information and data created is very important and explaining what is happening and stand in relation to each other in the various business processes."* | R2 |
| **Q37** | *" As organization are we not completely up to date. Systems have to be implemented and data should be used to work and monitor processes. Right now we are spending a lot of time to collect and process data. By implementing a system more time can be spent to analyze the data.* | R7 |
| **Q38** | *" We try as much as possible to react towards these trends and developments. Right now we are working on a project to digitalize even more and make all data digital available. "* | R6 |
| **Q41** | *" A jointly used system would highlight the opportunity to combine loads and work in a more cost-efficient manner".* | R8 |
| **Q42** | *" Because of high fluctuations in demand and the need of delivering your customer a quick action has to be taken. These actions are expensive, by having more insight and real-time information these costs can be decreased or even eliminated."* | R4 |
| **Q43** | *"By having your information real-time insight the coordination and planning can be done in a more efficient manner".* | R3 |
| **Q48** | *" If the data is more connected to each other I'm convinced that it is possible to react better to the changing circumstances in the market and link various performances and costs".* | R2 |
| **Q53** | *" I have experienced that data and performance measurements are very important, if something goes wrong I don't have historical data that allows me to see if this has happened before or how well a logistics provider is performing. I absolute would like to have a system that creates this data for me so that I can frequently check performances."* | R5 |
| **Q55** | *"By using technology such as barcode scanning and digital communication tools connections can be made between different departments and support optimization.'* | R4 |
| **Q57** | *"I'm working right now on a project where I try to implement a logistics management system and connect this to our enterprise resource planning systems. I hope to create a clear and more detailed overview of all the processes and create the possibility of reacting in an efficient and responsive way. "* | R6 |

# Appendix 4: Interviews

## Plant manager – Pluim vee verwerking- + 25 Jaar ervaring

I:Wat voor indruk heeft u van verticale coöperatie?

R:Ik kan mij er iets bij voorstellen, eigenlijk met meerdere in de keten gezamenlijk het optimum opzoeken. Wanneer de planning beter is op elkaar afgestemd en eerder aan elkaar informatie vestreken kan ik mij voorstellen dat een samenwerking zeker positief effect kan hebben om elkaar te helpen.

I:Hoe denkt u over optimalisatie in het logistieke netwerk in de Supply chain?

R:Ik denk dat je altijd bezig moet zijn met optimalisatie in de keten. Je kunt altijd weer dingen vinden die beter moeten en een soort van optimalisatie.

I:Wat zijn volgens u key factoren voor optimalisatie in de Supply chain?

R:Je personeel goed en precies instrueren. Kosten verlagen, minder verliezen en werken met interne benchmarking.

I:Wat zijn volgens u de factoren die de complexiteit van de chain verhogen?

R:Het bezig zijn met levende dieren omdat je niet alles hieraan kan veranderen en je een hoge versheid moet garanderen.

I:Hoe reageert u op deze ontwikkelingen?

R:Het bijhouden en registeren van informatie. Het opbouwen van historische data is erg belangrijk. Om referentie punten te hebben.

I:Hoe omschrijft u de structuur van de chain?

R:Linieer proces- Gunstiger proces kan worden gewaarborgd door loops uit de chain te halen en dus minder tussentijdig transport nodig te hebben

I:Heeft u overwogen hier verandering in aan te brengen?

R:Veranderingen zouden het proces positief beïnvloeden als de loops uit het proces worden gehaald met betrekking tot een bepaald hoeveelheid product groepen.

I:Hoe reageert u bedrijf op de ontwikkeling in information technologie?

R:Het voorraadsysteem wat wij gebruiken is wel aanpasbaar dat het zou kunnen worden gerealiseerd.

I:Maakt u gebruik van KPI's?

R:Ja we maken gebruik van KPI's Zo ja waarop zijn deze KPI's gebaseerd? Rendement machine uren, Technicus uren hoeveel storingen. Productiviteit van personeel.

I:Heeft u overwogen om samen te gaan werken met schakels in de chain? Of hoe staat u ertegenover om processen te delen?

R:Nee heb ik niet overwogen, de algemene stroom met goederen die uit de fabriek komen worden met eigen transport onderverdeeld naar klanten en andere vestigingen. Deze worden zo efficiënt mogelijk ingepland. Alles wat wij zelf niet kunnen plannen, of een spoed actie nodig heeft wordt gedaan met externe partijen. Dit proberen wij met lokale partners te doen. Maar in de algemeenheid doe wij de het nodige transport dus zelf.

## Logistiek medewerker- Pluim vee verwerking- 10-25 Jaar ervaring

### I:Wat voor indruk heb je van verticale coöperatie?

R: Ik vind belangrijk is dat de het beste is gewaarborgd voor de organisatie. Op logistiek gebied is het belangrijkste dat de vraag van de klant voorop staat.

### I:Hoe denk je over optimalisatie in het logistieke netwerk in de Supply chain?

R:Food service klanten half fabricaten, gedeeltelijk worden activiteiten nu ge-outsourced. Wat betekent dat processen niet meer de zelfde flexibiliteit hebben waardoor er klanten verloren zijn gegaan. Ik zie dat wij veel flexibiliteit en snelle schakelingen nodig zijn.

### I:Wat zijn volgens u key factoren voor optimalisatie in de Supply chain?

R:Het bij elkaar brengen van processen en diverse handelingen bij elkaar brengen binnen de organisatie.

### I:Wat zijn volgens u de factoren die de complexiteit van de chain verhogen?"

R:Lead time en voldoen van eisen van de klant vers product – Flexibiliteit is erg belangrijk in de voedsel sector. Deze sector is tijdsgebonden- van wege het vers producten verandering kunnen veel kosten met zich mee brengen

### I:Hoe omschrijft u de structuur van de chain?

R: Gedecentraliseerd, Logistiek wordt alles zelf geregeld en met lokale partners gedaan. Ik ben zelf best benieuwd de tak logistiek er uit zou kunnen zien als het gecentraliseerd is. Misschien kunnen we doordat we dan over veel grotere aantallen spreken veel betere afspraken maken met desbetreffende transport bedrijven.

### I:Hoe reageert u bedrijf op de ontwikkeling in information technologie?

R:Binnen de organisatie wordt er gezocht naar een algemeen systeem dat alle informatie bij elkaar zou brengen. Trends in logistiek en IT zijn er ontzettend veel maar op dit moment zijn de prioriteiten niet goed onderverdeeld en wordt er te weinig tijd besteed aan deze ontwikkelingen.

### I:Wat doet u met de data die wordt gegenereerd binnen u bedrijf?

R:Op dit moment wordt er te weinig gedaan met de informatie verkregen vanuit de processen. Alle handelingen die extra moeten worden gedaan doordat er veel gebruik wordt gemaakt van verschillende programma's zorgt voor extra werk. Maar ik denk wel dat de data die wordt gegenereerd in ons bedrijf heel erg veel kan vertellen over wat er eigenlijk binnen de organisatie gebeurt. Ook is het denk ik mogelijk om meer informatie te halen en verbanden te leggen wanneer data met elkaar in de verschillende vestigingen word vergeleken.

### I:Wat zijn u capaciteiten m.b.t. het delen van data?

R:Maakt u gebruik van KPI's? Zo ja waarop zijn deze KPI's gebaseerd? Een belangrijke factor die ik bij houd is de emballage krediet. Het is erg belangrijk dat ook zulke informatie inzichtelijk is.

### I:Heeft u overwogen om samen te gaan werken met schakels in de chain? Of hoe staat u ertegenover om processen te delen?

R:Ik sta positief er tegen over om te gaan samen werken. Zodra processen kunnen worden verbeterd en vereenvoudigt een ondernemer heeft de kans om te groeien dus lijkt het mij een goede investering. Wel moeten er goede afspraken zijn over hoe er wordt samen gewerkt en het beste blijft gewaarborgd.

## Logistiek – Transport en Logistiek-10-25 Jaar ervaring

I:Wat voor indruk heb je van verticale coöperatie?

R:Een partnership die gebaseerd is op automatiseren en een gezamenlijke informatie stroom die er voor zorgt dat werkzaamheden uit handen kan worden genomen .

I:Hoe denk je over optimalisatie in het logistieke netwerk in de Supply chain?

R: Samen kijken naar wat voor systeem werkt om informatie in te voeren. Hierdoor is het mogelijk ook een verzamel data base te creëren waar de partner en wij zelf alle informatie uit kunnen gaan halen. Door eerder inzichtelijk te hebben voor beide partijen kunnen planning en voorspelling beter op elkaar worden afgestemd. Ook werk je naar een soort van outsourcing van de logistieke processen waardoor het mogelijk is om meer tijd te besteden aan de core activiteiten van het bedrijf.

I:Wat zijn volgens u key factoren voor optimalisatie in de Supply chain?

R:Het overnemen van werk en het een voudiger maken van processen al voorbeeld ritten registratie. Man uren digitaliseren is erg belangrijk, ook de emballage stroom controleren en digitaliseren zie ik als een belangrijke factor waardoor de supply chain kan worden verbeterd.

I:Wat zijn volgens u de factoren die de complexiteit van de chain verhogen?

R:Het op elkaar vertrouwen en afhankelijk zijn van elkaar. Door de hoge fluctuatie in afname is je kracht en service naar je klant toe maar dat verhoogd de kosten tegelijkertijd. Omdat je met vers producten werkt is het erg belangrijk dat communicatie is tussen de verschillende locaties of schakels en snel kunt reageren.

I:Hoe omschrijft u de structuur van de chain?

R:De chain binnen ons bedrijf is gedecentraliseerd en zorgt voor veel flexibiliteit binnen de verschillende locaties. Maar ik ben er van overtuigd dat de organisatie binnen de verschillende locaties anders en meer efficiënt kunnen moet kunnen. Als je operaties zou kunnen combineren, is een verlaging van kosten mogelijk. Op dit moment wordt er te weinig nagedacht om operaties samen te samen te voegen en tot een optimalisatie te komen.

I:Heeft u overwogen hier verandering in aan te brengen?

R:Persoonlijk ben ik hier ook mee bezig, maar binnen de organisaties zal er meer aandacht moeten worden besteed een meer centraal geregeld systeem en digitalisatie van processen waardoor het mogelijk is meer inzicht te krijgen in de algemene processen van de verschillende locaties.

I:Hoe reageert u bedrijf op de ontwikkeling in information technologie?

R:Nog niet genoeg, er zijn verschillende systemen die worden op gepakt en uitgebreid zodat er meer informatie via de systemen verloopt dan dat er via verschillende medewerkers, maar er is daar nog een hele inhaal slag te halen.

I:Wat doet u met de data die wordt gegenereerd binnen u bedrijf?

R: Op dit moment wordt er te weinig gekeken naar data binnen ons bedrijf. Op dit moment wordt er dan contact opgenomen met de externe transporteur om gegevens informatie op te vragen die op dat moment nodig is. We gebruiken op dit moment alleen maar GPS gegevens voor de auto's die wij zelf hebben om de chauffeurs te kunnen volgen en waar nodig aan te sturen

I:Wat zijn u capaciteiten m.b.t. het delen van data?

R:Het is erg belangrijk om duidelijke afspraken te maken met de transporteur over de informatie stroom. Op dit moment is dit gebaseerd op de relatie die al is opgebouwd met de transporteurs. Je

weet altijd al de basis informatie, door de CMR, maar met een samenwerking denk ik dat het heel belangrijk is dat specifieke informatie, als prijs en product wordt afgeschermd.

I:Maakt u gebruik van KPI's? Zo ja waarop zijn deze KPI's gebaseerd?
R:Nee dat doen wij niet omdat we maar erg weinig tot niets doen met de data die wordt gegenereerd binnen ons bedrijf.

I:Heeft u overwogen om samen te gaan werken met schakels in de chain? Of hoe staat u ertegenover om processen te delen?
R:Ja dat heb ik zeker al een keer overwogen en zou er graag dieper weg willen leggen om bepaalde aspecten verder te kunnen gaan monitoren. Binnen de organisatie zijn er meerdere mensen die er actief mee bezig zijn en ik zou erg graag stappen in willen maken omdat ik geloof dat samenwerking effect heeft op het resultaat.

## Logistiek Manager-Pluimvee verwerking- 25+ Jaar ervaring

I:Wat voor indruk heb je van verticale coöperatie?
R:Ik vind belangrijk is dat de het beste is gewaarborgd voor de group. Op logistiek gebied is het belangrijkste dat de vraag van de klant voorop staat. Hebben we een gezamenlijke interesse en doel wat wij samen als samenwerkingen kunnen gaan bereiken.

I:Hoe denk je over optimalisatie in het logistieke netwerk in de Supply chain? R: Optimalisatie kun je heel breed implementeren. Het is de noodzaak dat de in en outs van de processen bekent zijn. Ik vind de waarom in alle processen heel belangrijk en geeft een kritische blik. Daarnaast zal een inventarisatie en je behoefte opnieuw bepalen altijd lijden tot optimalisatie naar mijn mening.

I:Wat zijn volgens u key factoren voor optimalisatie in de Supply chain?
R:Het gaat altijd om kosten verlaging. In sommige gevallen doe je dubbele werkzaamheden, maar door een verhoging in je beladingsgraad of minder lege KM te rijden heb je ook een optimalisatie bereikt. Belangrijk is om inzicht te hebben in alle werkzaamheden, bij het analyseren van alle activiteiten is het mogelijk om de activiteiten die niet toevoegen en alleen maar geld kosten te elimineren. Het is een grote stap om optimalisatie in de chain te bereiken en kosten te verlagen, maar wil jij aan de top concurreren en voorop lopen is dit onderwerp heel erg belangrijk.

I:Wat zijn volgens u de factoren die de complexiteit van de chain verhogen?
R:De eilandjesverdediging van de organisatie. Als bedrijf reageren wij per uur op de vraag wat met snelle acties moet worden opgelost tegen hoge kosten. In de situatie moeten deze kosten worden gemaakt omdat de klant moet worden geleverd, maar hadden deze kosten niet voorkomen kunnen worden door beter inzicht te krijgen. Ook hebben wij te maken met externe factoren als het weer waar grote verschillen zichtbaar zijn in de afname waardoor

I:Hoe omschrijft u de structuur van de chain?
R:Gedecentraliseerd, ik maar dat is naar mijn mening niet een overwogen besluit geweest maar door groei en externe factoren zo gegroeid. Iets wat zo gegroeid is kunnen altijd optimalisaties toevoegen door de centraliseren. Omdat je aandacht besteed aan het topic zul je altijd verbetering kunnen vinden. Ik denk ook dat het belangrijk is om te kijken wat wij als bedrijf nodig hebben en wat uit welke manier van aansturen het beste bij ons past.

I:Heeft u overwogen hier verandering in aan te brengen?

R:Uit mijn oogpunt is het belangrijk dat er aandacht wordt besteed aan de gezamenlijke factor binnen de organisatie en te kijken naar de situatie hoe die nu is. Door namelijk centralisatie in de organisatie te gaan coördineren zullen dure oplossingen die op dit moment tot de hoge kosten lijden zeker kunnen verminderen. Aan de andere kant heb je ook minder flexibiliteit, wat een hele belangrijke factor is, omdat je afziet van alle kleine relaties die je nu heb opgebouwd met allerlei lokale partners.

Positieve kenmerken: Individueel belang en meer verantwoordelijkheid naar de organisatie is nu hoger. Een structuur verandering kan gevolgen hebben op motivatie en betrokkenheid voor de organisatie. Een centraal systeem zal positieve gevolgen hebben maar er moet gewaarborgd worden dat bij iedere besluitvorming alle argumenten moeten worden gehoord om iedereen mee te krijgen.

I:Hoe reageert u bedrijf op de ontwikkeling in information technologie?

R:Binnen de organisatie wordt er gezocht naar een algemeen systeem dat alle informatie bij elkaar zou brengen. Trends in logistiek en IT zijn er ontzettend veel maar op dit moment zijn de prioriteiten niet goed onderverdeeld en wordt er te weinig tijd besteed aan deze ontwikkelingen.

I:Wat doet u met de data die wordt gegenereerd binnen u bedrijf?

R:Op dit moment wordt er te weinig gedaan met de informatie verkregen vanuit de processen. Alle handelingen die extra moeten worden gedaan doordat er veel gebruik wordt gemaakt van verschillende programma's zorgt voor extra werk en maakt het het processes niet eenvoudiger. Ook is het niet waterdicht doordat er nu veel mensen werk aan te pas komt.

I:Wat zijn u capaciteiten m.b.t. het delen van data?

R:Op het hoofdkantoor wordt er veel aandacht besteed om de organisatie beter te kunnen functioneren en standaardisatie in de gehele organisatie toe te passen. Het vinden van een gezamenlijk systeem is hier een punt van aandacht in. Zodra dat is gewaarborgd is word de deling van informatie dus data makkelijker.

I:Maakt u gebruik van KPI's? Zo ja waarop zijn deze KPI's gebaseerd?

R: Een belangrijke factor die ik bij houd is de emballage krediet. Het is erg belangrijk dat ook zulke informatie inzichtelijk is. Verder vind ik KPI's lastig te benoemen omdat ik er niet echt gebruik van maak, wel heb ik aspecten die van groot belang zijn: performance ( leveringen, stiptheid), chauffeur gedrag, communicatie niveau. Deze factoren controleer ik met een steekproef maar een echte controle heb ik niet, zodra er calamiteiten zijn is dit wel lastig.

I:Heeft u overwogen om samen te gaan werken met schakels in de chain? Of hoe staat u ertegenover om processen te delen?

R:Het standaardiseren van processen is heel belangrijk. Als de processen verbeteren en vereenvoudigen is het absoluut iets waar ik positief tegen oversta. Binnen een samenwerking is het wie past zich waar aan, want ik ben van mening dat het een gezamenlijke activiteit waar beide partijen moeten gaan schakelen om samen naar een kosten verlaging en hogere efficiënte te gaan. Vertrouwen en openheid moeten goed op elkaar zijn afgestemd. In praktijk denk ik dat geografische locatie ook van belang is om je flexibiliteit te kunnen waarborgen.

Er is in het verleden tot op beperkte hoogte een vergelijkbare soort samenwerking opgestart. Maar de gekozen transporteur was ook een grote organisatie waar er vele extra services werden geboden zonder dat deze gevraagd werden waardoor de kosten van het normale transport te duur werd. Vanuit

de organisatie is der ook niet genoeg aandacht aanbesteed om dit optimaal te blijven ondersteunen. Waardoor de samenwerking al snel een hoge kosten post werd en is beëindigd.

## Logistiek Manager- Pluim vee sector- 10-25 Jaar ervaring

### I:Wat voor indruk heb je van verticale coöperatie?

R:Er is zoveel data beschikbaar in de supply chain vanuit allerlei informatiestromen om het best haalbare uit logistiek te halen dit kan betekenen zo vol mogelijk geladen rond rijden, dit uit kosten besparing maar ook milieu oogpunt. Dat het een heel interessant en leuk onderwerp maar door de complexiteit veel schakels nog niet kan worden ondersteund waardoor het gaat stranden.

### I:Hoe denk je over optimalisatie in het logistieke netwerk in de Supply chain?

R:Deze organisatie heeft een storm achtige groei gemaakt dat heeft ervoor gezorgd dat lokale spelers belangrijk waren en zijn deels gaat het met eigen vervoer. Dus voor ons is het belangrijk inzichtelijk te hebben d.m.v benchmarking/ tendering meer informatie te hebben over de logistieke spelers en de mogelijkheden tot uitleveren zodat de vraag van de klant kan worden voldaan.

### I:Wat zijn volgens u key factoren voor optimalisatie in de Supply chain?

R: De standaardisatie van processen, systeem scanning technologie, het uitleveren van goederen en de desbetreffende digitale communicatie en verbindingen maken met systemen, zoals de digitale vrachtbrief. Doordat zulke dingen digitaal met elkaar kunnen worden gekoppeld is het makkelijker specifieke data te delen of te vergelijken met elkaar ook is het mogelijk om beter en sneller met elkaar aanpassingen te maken.

### I:Wat zijn volgens u de factoren die de complexiteit van de chain verhogen?

R: Organisatie structuur, het product wat wij vervoeren en de externe markt. Data opbouwen om de discussie aan te gaan. De standaardisatie van processen. En ook een stuk digitalisatie en transportkosten/beladingsgraad/ automatiseringen. De complexe vraag waar wij mee te maken hebben vraagt enorm veel kennis van verschillende afdelingen om het zo goed mogelijk te laten verlopen.

### I:Hoe omschrijft u de structuur van de chain?

R:De organisatie heeft een gedecentraliseerde structuur.

Decentrale organisaties hebben het voordeel dat er sneller kan worden gehandeld omdat er niet eerst vanuit directie een besluit hoeft te worden genomen. Daarnaast houd je een stuk lokale ondernemer geest. Het nadeel is dat je wel je best practices moet blijven delen met elkaar en van elkaar moet leren en niet continue het zelfde wiel blijven uitvinden. Logistiek is de laatste schakel in de chain waardoor deze achter blijft, dit bedrijf is heel erg gericht op zijn core business maar gaat wel over enkele miljoenen. Logistiek is de laatste schakel in de keten en op dit vlak wordt er heel individueel gewerkt waardoor je achter blijft, vind ik.

### I:Hoe reageert u bedrijf op de ontwikkeling in information technologie?

R:Ik houd mij meer bezig met systeem implementatie en probeer verschillende tools aan elkaar te gaan koppelen. Zo ben ik bezig om een transport management systeem te gaan koppelen aan een Erp systeem. Daarnaast met het gebruik van een BI tool hier verschillende analyses en verbeteringen te kunnen gaan aanbrengen. Ook zullen deze verschillende systemen helpen in het inzicht creëren en beter kunnen reageren op veranderingen omdat de verschillende systemen hier de werknemer in zullen helpen.

I:Wat doet u met de data die wordt gegenereerd binnen u bedrijf?

R: Veel te weinig, op dit moment worden er enkele rapporten opgesteld maar dit moet nog veel verder worden uitgewerkt. Binnen de organisatie valt hier nog heel veel verbetering te behalen.

I:Wat zijn u capaciteiten m.b.t. het delen van data?

R: Op dit moment doen wij veel via google drive, maar hier vallen nog grote inhaal slagen te maken. Zoals eerder gezegd ben ik daar mee bezig en zijn dit dingen die in de toekomst moeten worden opgepakt.

I:Maakt u gebruik van KPI's? Zo ja waarop zijn deze KPI's gebaseerd?

R: Voor mij moeten KPI's zijn gebaseerd op geld en productiviteit. Je moet je performances goed kunnen benchmarken en kunnen controleren. Zonder data en historische data kun je moeilijk veranderingen aan brengen. Meten is weten en data zorgt ervoor dat aanpassingen in processen kunnen worden gecontroleerd of dat het daadwerkelijk een verbetering is. Ook kun je kwaliteit en flexibiliteit meten. Ik zou een periodieke controle willen hebben en deze delen met de desbetreffende afdelingen.

I:Heeft u overwogen om samen te gaan werken met schakels in de chain? Of hoe staat u ertegenover om processen te delen?

R: Voor mij ligt de focus nu vooral op het herstructureer en verbeteren van processen zodat de basis in orde is. Wel heb ik gemerkt dat wij op dit moment met partijen werken die iets kunnen toevoegen en het proces makkelijker maken. Zulke dingen vind ik heel interessant maar dat zijn toekomst plannen.

## Directeur- Transport en Logistiek – 25+ Jaar ervaring

I:Hoe omschrijft u de structuur van de chain?

R:Centraliseert, alle informatie stromen worden vanuit het hoofdkantoor aangestuurd. Binnen het bedrijf hebben wij erg korte communicatie lijnen dat is heel erg belangrijk voor ons. Door de informatie stroom zo veel mogelijk te digitaliseren kunnen wij snel schakelen en is het ook mogelijk om met minder fouten te werken omdat het systeem je helpt en controleert. Het digitaliseren en online communicatie middelen helpen wel mee om je bedrijfsactiviteiten beter, sneller en nauwkeuriger uit te voeren.

I:Hoe denk je over optimalisatie in het logistieke netwerk in de Supply chain?

R:Alles valt en staat met levertijden. Door inzichtelijk te krijgen wat de kosten zijn die gepaard gaan met bepaalde levertijden kunnen betere besluiten worden gemaakt.

I:Hoe zou dit kunnen worden bereikt?

R:De partijen hebben allemaal eigen belangen en als vervoerder moet je daar mee schakelen. Door inzichtelijk te maken en te verduidelijken dat een andere optie geld kan besparen. Bereik je een gezamenlijke optimalisatie. Verkeersintensiteit is een externe factor die veel invloed op de supply chain.

I:Wat zijn de volgens u de factoren die de complexiteit van de chain verhogen?

R:Verkeersintensiteit, aanlevertijden, lostijden en wachttijden zijn vier factoren die absoluut de complexiteit verhogen. Verduurzaming zie ik als een positieve complexiteit verhogende factor, het zijn investeringen die moeten worden gemaakt maar uiteindelijk worden wij er allemaal beter van.

I:Hoe reageert u bedrijf op de ontwikkelingen in informatie technologie?

R:Wij proberen daar zoveel mogelijk in mee te gaan. Vaak lopen we daar wel in voorop. Op dit moment zijn we ook een nieuw systeem aan het testen om nog meer digitalisatie toe te passen binnen het bedrijf. Door middel van verschillende applicaties proberen wij alle facetten digitaal inzichtelijk te maken.

De vraag vanuit klanten is in opgang maar het is een mind-set, dat er dus nu geen papieren mee worden geleverd maar dat de informatie direct online beschikbaar is.

I:Wat doet u met data die wordt gegenereerd binnen u bedrijf?

R:Wat zijn capaciteiten m.b.t het delen van data? In logistiek is er niet veel geheim omdat op de CMR veel informatie opslaat. De vraag is wat wil je nog meer delen en is de informatie belangrijk. Wij zijn met onze systemen al verder dan de meeste klanten.

I:Communicatie blijft lastig, maar is heel erg belangrijk. Door informatie vast te leggen in systemen voorkom je miscommunicatie.

R:Maakt u gebruik van KPI's? Nee ik maak daar geen gebruik van. Ik bekijk het van een ander perspectief, wat we doen is niet moeilijk maar we het moeten het goed doen. En ik vind het belangrijker om het goed te doen dan er een cijfer aan te hangen. Als het verkeerd gaat moet het opgelost worden en gecontroleerd. De informatie om KPI's op te zetten is wel inzichtelijk en kan worden gemonitord.

I:Heeft u overwogen om samen te gaan werken met schakels in te chain?

R:Het is een onderwerp wat vaak word besproken met onze klanten om de Processen te verbeteren. In praktijk blijkt het alleen niet zo makkelijk te gaan als dat wij denken. Ieder heeft zijn bedrijf ingericht op de processen in het bedrijf omdat passend aan elkaar te maken. Als je de prioriteit en wil hebt en elkaar vertrouwt zijn samenwerkingen een mooie oplossing om in te spelen op behoeftes. Het moet een twee weg communicatie zijn met continue deling van informatie. De verhouding van investering moet gelijk zijn en een duidelijke gezamenlijk doel moet leiden tot een kostverlaging. Een andere belangrijke factor is de tijdsduur van de samenwerking.

## Logistiek Planner – Industrie en Retail – Pluimvee- +25 Jaar ervaring

I:Hoe denk je over optimalisatie in het logistieke netwerk in de Supply chain?

R:Er is altijd een mogelijkheid om te optimaliseren. Het combineren van transport is een van deze mogelijkheden om te optimaliseren. Door het transport zo goed mogelijk te laten aansluiten op elkaar en het max haalbare te realiseren.

I:Wat zijn volgens u key factoren voor optimalisatie in de Supply chain?

R:Communicatie tussen verschillende locaties, en externe transporteurs. Het is erg noodzakelijk om goed en duidelijk te blijven communiceren, wij werken met vers producten met korte lead time waardoor het heel erg belangrijk is dat de versheid van de producten kan worden gewaarborgd met goed op elkaar afgestemd transport. Doordat wij binnen de organisatie gezamenlijke doelen hebben kunnen wij processen beter op elkaar afstemmen, hierbij is het belangrijk om goed inzichtelijk te hebben wat voor bedrijf processen en handelingen moeten worden gedaan en wanneer, dit gebeurt nu nog niet in een systeem. Een goed systeem zou hier heel veel besparingen in man uren en handmatige werkzaamheden zijn. De economie groeit en de transport sector is op dit moment erg krap. Dus door logistiek te verbeteren is niet alleen kost verlaging mogelijk maar ook een verlaging van logistieke bewegingen.

### I:Wat zijn volgens u de factoren die de complexiteit van de supply chain verhogen?

R:De versproducten met de veranderende vraag en transport capaciteit /de wens van de klant zijn de grootste factoren die de complexiteit verhogen. Daarnaast is de productie ook belangrijk, omdat je niet te vaak wil schakelen en alle voedselveiligheid regels te maken hebt.

Een betere afstemming met elkaar geeft beter inzicht wat de mogelijkheden zijn op ergens te kunnen reageren. Een gezamenlijk systeem is eigenlijk onmisbaar door real time informatie aanwezig en er sneller kan worden geschakeld. Op dit moment worden besluiten gemaakt op theorie ipv van de werkelijkheid dit zorgt ervoor dat er problemen kunnen ontstaan tijden bijv. productie.

### I: Hoe omschrijft u de structuur van de chain?

R:Er worden pogingen gedaan om centralisatie toe te passen maar op bepaald niveau. Deze locatie is gericht op de productie van de grootste Nederlandse Retail en Belgische Retail. Door dat wij daar tussen zitten hebben wij van beide kanten met een planning te maken. Door hier een scheiding in te hebben heb je nog meer inefficiënties.

### Hoe reageert u bedrijf op de ontwikkeling in information technologie?

R:Te weinig, de organisatie loopt eigenlijk qua digitalisatie en system achter. Op dit moment worden gezamenlijke ritten alleen gepland als beide personen er aan denken dat een ander ook deze rit heeft. Een gezamenlijk systeem geeft automatisch aan dat een rit gecombineerd zou kunnen worden wat veel kost efficiënter is.

### I: Maakt u gebruik van KPI's? Zo ja waarop zijn deze KPI's gebaseerd ?

R:Ja op specifieke aspecten maken wij wel gebruik van KPI's. De belangrijkste zijn voor ons de kosten per KM. Doordat we over deze informatie dagelijks berekenen kunnen wij precies zien wat factors zijn die van invloed zijn.

### I: Heeft u overwogen om samen te gaan werken met schakels in de chain? Of hoe staat u er tegen over om processen te delen ?

R: Wij staan er zeker voor open, ik geloof dat de mix van een externa transporteur en eigen vervoer vind ik ideaal werken. Je moet manieren vinden om elkaar aan te vullen, en je moet een open dialoog hebben. Je communicatie is heel erg belangrijk en een openstructuur is erg belangrijk. Door de mix te hebben van eigen en extern transport is het mogelijk om in te spelen op elkaars behoefte wat zorgt voor een synergie. Doordat op zo'n manier te doen word er met elkaar mee gedacht en is het een meerwaarde.

## Supply chain manager- Pluim vee sector- 10-25 Jaar ervaring

### I: Hoe omschrijft u de structuur van de chain omschrijven?

R: Decentraal opgezette locaties, met lokaal ondernemerschap met een gezamenlijk overhead. Per land komt alles samen naar een hoofdlocatie omdat dat vanuit de vraag van de markt komt om een centraal aanstuurpunt te hebben. Ook vanuit kosten en specialisme zijn enkele zaken gedecentraliseerd of juist ge centraliseert.

Voor: vanwege eigen verantwoordelijkheid voor de resultaten en performance is dat positief en creëer je een open cultuur en flexibiliteit.

I:Optimalisatie in het logistieke netwerk:

R: Alle logistieke bewegingen moeten worden beoordeeld op kosten en wat het oplevert. Door een controle uit te voeren op de kosten en planning is het mogelijk om transport beter op elkaar af wordt gestemd en te optimaliseren.

Communicatie en transparantie zijn hele belangrijke aspecten in om dit te kunnen doen. Als je er voor kan zorgen dat het stuk transport inzichtelijk is voor iedereen en regels opstelt hoe om te gaan met deze transparantie bereik je zeker een stuk optimalisatie.

Alle informatie over hoe een auto rijdt/ hoe vol de auto zit moet worden verzameld. Een systeem kan dit overzichtelijk maken en toe gangbaar maken voor iedereen.

I: Hoe reageert u bedrijf op de ontwikkelingen in informatie technologie?

R: IT en systeemmachtig loopt de organisatie achter. De manier van werken past op dit moment niet meer in het nu, systemen moeten worden gemoderniseerd. Door deze aanpassingen te doen zal er in alle stromen meer transparantie zijn. Je gaat minder tijd verliezen aan het verzamelen en verwerken van data. Door het systeem is het mogelijk om te gaan werken met data. Door ondersteuning daar aan te kunnen bieden zou een BI tool van pas kunnen komen.

Maakt u gebruikt van KPI's? te weinig, maar zou der wel heel graag mee willen gaan werken. Ik geloof er wel in dat je niet een overkill aan KPI's moet hebben. Maar de kunst is juist om de belangrijkste KPI's te benoemen en te gaan monitoren en te gaan sturen. Zodra je een systeem heb en die data beschikbaar heb staat dit zeker op mijn wensenlijst.

Door mee te gaan met ontwikkelingen professionaliseer je organisatie en kun je op de juiste plaatsen gaan bijsturen in de organisatie.

I:Heeft u overwogen om te gaan samenwerken?

R:We zien een hele mooie samenwerking met de grootste Retail klant waar op verschillende discipline direct contact is tussen klant en de organisatie. Als team moet je ervoor zorgen om er dicht op te zitten en weten wanneer er afstemming moet zijn. Er is een openboek structuur en verklaart een intensieve samenwerking. Als je als organisatie de middelen hebt om dit te gaan doen is het iets serieus om over na te denken.

Afstappen van de sub optimalisatie, en je open stellen en vertrouwen om daar samen een grotere stap te maken.

# Appendix 5: Value stream map icons