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Master Degree Project in Logistics and Transport Management

Logistics Sourcing Strategies in Nonprofit Point-based Organizations

A case study of the Supply Chain Processes at Miljonlotteriet

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Master Thesis within Logistics and Transport Management

Title: Logistics sourcing strategies in nonprofit point-based organizations – A case study of the supply chain processes at Miljonlotteriet

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Abstract

An organization's success depends greatly on their logistical performance and how well their strategy utilizes the strengths within the supply chain. The purpose of this thesis is to investigate the specific logistics context of a nonprofit point-based organization in order to analyze and evaluate the current logistics strategy and plausible concepts for improvement. The methodology used was a qualitative single case study, where both interviews and an observation were performed to understand the current logistical processes and future objective. The theoretical supply chain concepts were investigated as a mean to achieve this goal. An evaluation model was created to decide which concept is the most suitable for the company with a great deal of weight on barriers. The results indicated that the concept of Drop-Shipping would significantly improve the efficiency of the logistical processes and reduce the costs. The barriers connected to implementing Drop-Shipping were found to be surmountable, provided that the prerequisite of a partnership is fulfilled.

Abbreviations

3PL	Third Party Logistics
COO	Chief Operating Officer
EDI	Electronic Data Interchange
FMCG	Fast-Moving Consumer Goods
LTL	Less than Truck Load
POS	Point of Sales
RSP	Retailer-Supplier Partnership
SC	Supply Chain
SCM	Supply Chain Management
SEK	The ISO code for the Swedish currency
VMI	Vendor Managed Inventory

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1 Introduction

In this section, the problem area, limitations, and the purpose will be presented. In addition, the background of the problem will be given to clarify and lay the foundation for the problem discussion.

1.1 Background

There is significant amount of research made on the subjects of supply chain management (SCM), partnerships, and logistics strategies and their advantages and disadvantages in various industries and companies. However, the authors of this thesis noticed considerable lack in the research of logistics sourcing in specific circumstances such as that of Miljonlotteriet and other similar companies. These particular circumstances will be described in detail in the background section called fields of company operations.

The idea for the thesis arose as Miljonlotteriet themselves wished for investigation within the logistics department. During a meeting they mentioned the issue of considering outsourcing the warehouse and its connecting inbound and outbound transports while at the same time mentioning the unwillingness, or doubtfulness, to do so (J. Erlandsson, personal communication, 2012-12-19). The authors found the topic of great interest as vast possibilities were imagined to come with the different fields of Miljonlotteriet. Studies have shown that the logistics strategy has a tendency to be equally important as the core competence strategy for a firm's performance and their customer satisfaction (Bechtel & Jayanth, 1997). However, focus on logistics has mainly been adapted by those who are very cost aware and operate in very competitive markets. This is because these companies have noticed that lack of good logistical functions result in competitive disadvantages (Tracey, 1998). Due to this, it is of great interest to see how logistics is handled at a nonprofit organization in the field of point-based operations as they are likely to lack the pressure for cost savings and struggle with additional difficulties in predicting demands. The notion of the point-based field is further explained under the fields of company operations heading while the next section gives a brief introduction into the concepts chosen for further investigation for this thesis.

1.1.1 Logistics Strategies

When considering logistics strategies within SCM, the first two that come to mind are to outsource the logistics and to keep the logistics processes in-house with a company owned warehouse. The first, outsourcing logistics, is often defined as involving the use of a third party logistics provider (3PL) for all or part of a company's logistics processes (Lambert, et al., 1999). However, the concepts within logistics strategies are numerous, some are alternative ways of outsourcing or sourcing, others are alternative ways of reducing the costs. The concepts also bring different advantages and disadvantages as well as barriers that need to be overcome in order to achieve successful implementation. For this study the concepts searched for needed to represent aspects such as ease of implementation, handling the uncertainty of demand, dealing with different parts of the logistics process, and finding the most accurate concepts for the fields that the company operates in. Five concepts were found

to together cover all of these aspects and will be in focus of this thesis, namely; 3PL, drop-shipping, Vendor Managed Inventory (VMI), push-pull, and cross-docking.

3PL is, as mentioned, a third party logistics provider which handles the goods the same way as an own warehouse would, or possibly along with other companies' goods, but is more focused on the logistics aspect of the business (Lieb, 1992). With the expertise of a 3PL both the logistics processes and the core functions of the business are focused on to the maximum, rather than one company dividing its focus between the two activities (Lieb, 1992). This concept was chosen as it, to some extent, already is applied in the logistics strategy and further implementation would not need great investments, making it a fairly easy concept to implement.

Drop-shipping has been suggested to be roughly the same as outsourcing to third party logistics companies (Deepen, 2007). However, this research will evaluate it as its own concept and bring up aspects that are special for drop-shipping. More exactly, drop-shipping is mainly used in e-commerce industries and involves such cooperation where the supplier sends the sold goods directly to the end-customer, avoiding the entire retailer step in the physical logistics process (Chopra, 2003). Since it is common for e-tailers (retailing companies within e-commerce) to use this strategy (Ayanso, et al., 2006), it is of high interest for this thesis.

VMI is where the supplier handles the management of keeping the inventories in the retailers warehouse at the right level, not allowing stock-outs or too high inventory levels (Kannan, et al., 2013). Often in this case, the supplier will also keep the ownership of the goods until they have been sold to the end-customer, freeing up capital and reducing risk for the retailer (Simchi-Levi, et al., 2009). This concept was chosen for further investigation so as to include a concept which keeps the warehousing at its current state but advances the ordering processes.

Push-pull is a concept that combines the push strategy where goods are made on the basis of a forecast and then pushed through the supply chain, and a pull system where the goods are made available according to the actual current demand and then pulled through the supply chain (Simchi-Levi, et al., 2009). The combined offers hedging of risks and a possibility of aggregate demand (Zhang, 2008). Additional ways to aggregate demand is to also introduce postponement within the concept, which theoretically means that the differentiation of products is made as late as possible in the supply chain (Harrison & van Hoek, 2011). The authors searched for a concept to deal with the uncertainty of demand and moving the decoupling point and introducing postponement was found as a possible solution, therefore this concept of push-pull was chosen.

Finally, cross-docking is the concept where the warehouse avoids keeping inventory but instead sends goods straight from the receiving terminal to the shipping terminal (van Weele, 2010). For this, a good information system must be in place and timely deliveries are a required (Apte & Viswanathan, 2000). Cross-docking was chosen, on the contrary of VMI, to investigate the advancement of the warehousing with minimal interference in the purchasing and ordering processes.

1.1.2 Miljonlotteriet

Miljonlotteriet is the case company for the research and its thorough background can be found in the methodology chapter in the case study section. However, for a brief introduction it is important to note that it is mainly a scratch lottery business where the customers win "money" which they can choose goods for. This indicates that the organization does not simply sell its products but exchange them for the money that the lottery players have won. In this sense money are more like points which means that they cannot be collected as cash, at least not for the prizes up to 2000 SEK. The winners choose the prizes on internet and the goods are sent to them by mail. Further, the company is owned by a nonprofit organization where all the surplus of Miljonlotteriet goes.

1.1.3 Fields of Company Operations

Lottery

Miljonlotteriet belongs to a number of different fields which, in the analysis, have shown to affect the company significantly. The first is the industry of lotteries, which means that they must comply with the Swedish law of lottery. It also means that the customers of their products are unknown until each winning ticket is registered. However, the type of customers buying the tickets is quite well known, which gives some indications to the aspect of demand (J. Erlandsson & A Pihl, personal communication, 2013-03-07).

E-tailer

Secondly, they identify as an e-commerce, which means that the Swedish e-commerce law (Distans- och Hemförsäljningslagen) also applies (J. Erlandsson & A. Pihl, personal communication, 2013-03-07). Being a retailer in the e-commerce field makes Miljonlotteriet what is called an e-tailer. This creates an opportunity for adapting to the common e-tailer concept of drop-shipping, making it of great interest for this thesis.

Nonprofit

Thirdly, it is identified as a nonprofit organization as they are owned by the nonprofit organization IOGT-NTO, giving the company both advantages and disadvantages such as the possibility for tax and tariff reductions and some freedom limitations (J. Erlandsson, personal communication, 2012-12-19). It also affects their company culture, behavior as a company and their choice of focus for each part of the organization.

Point-based

Lastly, as previously explained, Miljonlotteriet is a lottery, products are not simply bought, but instead monetary winnings are being accumulated, much like points, and these can then be exchanged for products (J. Erlandsson, personal communication, 2012-12-19). The term of this final field has been created by the authors, since none previously identified explanation of this particular field was found. Furthermore, no research on companies with this chosen business idea has been found. The name authors have chosen for this field is "point-based" and reflects the gathering of winnings in form of money or points that can be exchanged for

products. The name stands for this particular field and the authors have identified a few other companies that can be considered to be within it. One is American Express with their point gathering system for every purchase with the card, where the points are traded for goods. Also various Christmas Magazine (Jultidningar) companies are considered to be within the same field, whereby the kids that sell the magazines collect points based on the total sales and can then choose either a product or money for those points. The name indicates that a customer purchases the goods available with points they collect or in the case of Miljonlotteriet prize money.

All of these different aspects of the company affect Miljonlotteriet and create specific challenges and benefits. They affect the way the business is run, which in turn affects the logistical processes. By logistical processes, in this thesis it is meant the flow of goods, capital, and information between supplier, retailer and customer. When looking further into the company and its logistical challenges it is important to keep in mind these different fields that affect the company in different ways. Exactly how each field affects the company is investigated throughout this thesis and presented in the analysis of each concept.

1.2 Problem Discussion

As mentioned in the background section, the logistics sourcing process has been of greater interest to various organizations in the past decades. Many organizations are increasingly using 3PL to handle their logistics processes; others are partnering up with their suppliers or even integrating further up in the supply chain. However, many organizations are still struggling with the decision of which processes to keep in-house and which to outsource or let supply chain partners handle. In-house logistics gives the organization greater control and awareness of its processes and possible improvement opportunities. Outsourcing, on the other hand, usually allows the organization to free up capital, focus on their core activities and often also lowers overall costs for logistics. Partnerships with suppliers give more control than outsourcing, better resource utilization than in-house, but are risky because of the information sharing that is required.

The different concepts represent different ways of integrating with the supply chain. The 3PL is the most common in general and is therefore of great interest. Drop-shipping is very common amongst e-tailers making the e-tailing characteristic of Miljonlotteriet fit the logistical process. VMI is a good integrating method without the need of great changes in the warehouse. Push-Pull is a way to deal with the demand uncertainty problems occurring in the industry. Finally, Cross-docking is a way of improving the chain by focusing on the own warehouse while keeping the disturbance of suppliers to a minimum. These five concepts cover the desired aspects to consider such as ease of implementation, which processes to intervene with, a way of dealing with demand uncertainty and alternative ways of sourcing. When considering a concept, barriers are an important part that should not be neglected; therefore the most common barriers of each concept have been included. However, keeping them separate from the advantages and disadvantages of each implemented concept gives the research an additional dimension with the three timely scenarios, namely; before implementation, while implementing and after implementation.

For point-based strategy organizations, the obstacles differ to some extent from regular organizations. These differences are on the most part based in the greater uncertainty of demand that these companies face and the issue of enormous orders versus zero orders explained in the methodology chapter in the background about Miljonlotteriet. Further, for a company such as Miljonlotteriet, which is owned by a nonprofit organization, it is also important to consider the main strategy the company follows and evaluate the focus of it. On the positive side, for point-based strategy organizations, it is possible to control this very uncertain demand by, for example, introducing similar goods as temporarily available, when they want to take the pressure of another good. This, as well as the e-commerce structure of the company, creates opportunities for sophisticated logistics strategies.

Therefore, it is believed that the absence of previous research in the specific environments, such as those of point-based strategy organizations, in combination with the case study available provides an opportunity to extend existing research.

1.3 Purpose

> *The purpose of this thesis is to investigate the specific logistics context of a nonprofit point-based organization in order to analyze and evaluate the current logistics strategy and plausible concepts for improvement.*

When investigating the specific logistics context of a nonprofit point-based organization the research defines the type of company and how their distinct circumstances affect their organization in general and logistics in particular. In order to evaluate the logistics strategy, the current logistics processes at the company were investigated, analyzed, and evaluated in comparison to five logistical concepts. An evaluation model was created to see if any or several of the concepts could be used for improvement of the logistics process and which could benefit the organization the most. In addition, barriers connected to the implementation of each method must be identified and considered before making a final choice of a preferable concept to put in place. In order to fulfill the purpose two research questions were created so as to guide the research and the readers of the thesis, the questions are found in the following section.

1.3.1 Research Questions

1. What are the main plausible supply chain concepts and how suitable are they for the current logistics strategy?

2. Which supply chain concepts are preferable and which changes need to be made to implement these into the current strategy?

1.4 Limitations

The first limitation that needs to be mentioned is that the study covers exclusively such companies which are described as point-based strategy and nonprofit organizations in the essay. This is since the authors found a lack of research in this field while other fields such as that of the traditional profit making company have been subject to research previously.

A selection of which prizes that were taken into account within the study is another limitation, as no products worth more than 2000 SEK were investigated. This was as it during the first communications with the case company came to the authors' knowledge that these prizes are the only ones stocked in their own warehouse (J. Erlandsson & A. Pihl personal communication, 2013-03-07). Intangible goods such as value checks were also not taken into account either as they are not held in stock at Miljonlotteriet.

2 Methodology

In this section a thorough description of the research methods chosen will be presented. Theories used as framework for the method will also be provided, as well as a clear map of the process.

When choosing a method for the study it is particularly important to find a suiting data collection method. This is due to the great challenge of finding the appropriate information in the vast amounts of data available today (Crowther & Lancaster, 2012). The methodology chosen for this research is a case study. A case study is a highly flexible methodology in which the authors will include data gathering methods such as interviews and an observation. This approach was partly chosen due to its flexibility and because several sources of evidence can be used. According to Yin (2009), many of the best case studies made use several data gathering methods. Case study methodology is considered to be within the interpretivistic paradigm since "*interpretivism focuses on exploring the complexity of social phenomena with a view to gaining interpretive understanding"* (Collis & Hussey, 2009), which suits the study as its purpose is to analyze and evaluate the company's logistics activities and the possibility to improve them.

2.1 Research Process

The research process began with dialogues with employees at Miljonlotteriet as well as the tutor about the potential directions and topics. This led to a topic decision and a purpose definition which in turn led to a number of research questions. The research questions were investigated and answered during the different phases of the report which are presented in the figure below.

Phases	Description of phase	Related sections of the research questions	Type of sources to use
Phase 1	Gathering background information of the company and basic theoretical material. Defining the chosen method. Building a base for the thesis.	- Question 1; finding concepts and current logistics strategy	- Books - Articles - Homepage of Miljonlotteriet - Meetings with Miljonlotteriet
Phase 2	Further insight in the supply chain management and existing strategies. Researching existing theories on strategy evaluation models.	- Question 1; plausible concepts	- Books - Articles - First interviews with Miljonlotteriet
Phase 3	Data gathering phase. During this phase focus will be put on gathering first hand data.	- Question 1; current logistics strategy - Question 2; preference of concepts	- Interviews with Miljonlotteriet - Interviews with suppliers - Observation at Miljonlotteriet
Phase 4	The models found in previous phases will be adapted to create an appropriate model for the case of Miljonlotteriet.	- Question 1; suitability of concepts - Question 2; preference of concepts	- Books - Articles - Information from earlier phases
Phase 5	Defining pitfalls and fears of strategy changes described in the literature and the fears of changing strategy existing at Miljonlotteriet. Finding literature which describes ways to overcome them.	- Question 1; suitability of concepts - Question 2; changes to be made for implementation	- Books - Articles - Interviews at Miljonlotteriet
Phase 6	Analyzing and concluding. Here clear answers to each of the research questions is given and the purpose is fulfilled!	All	- All previously gathered data

Figure 1. Map of research process. (Made by the authors)

To further clarify the study the layout of the empirical findings, the model, and the analysis can be seen in figure 2. This division was made to keep the different processes apart and make it easier for the reader to follow. The two first sections use two different names each as they give further clarity to the focus of the subchapter they represent.

Figure 2. Layout of empirical findings, model, and analysis. (Made by the authors)

2.2 Case Study

The methodology found most suitable by the authors for this research was to do a case study. A case study has been defined in different ways by different authors. Collis and Hussy (2009) state that *"A case study is a methodology that is used to explore a single phenomenon (the case) in a natural setting using a variety of methods to obtain in-depth knowledge"* (Collis & Hussey, 2009, p. 82). Yin (2009) defines case study as a methodology in a twofold technical definition as follows:

"1. A case study is an empirical inquiry that

- *investigates a contemporary phenomenon in depth and within its real-life context, especially when*
- *the boundaries between the phenomenon and context are not clearly evident."* (Yin, 2009, p. 18)

"2. The case study inquiry

- *copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result*
- *relies on multiple sources of evidence, with data needing to converge in an triangulating fashion, and as another result*
- *benefits from the prior development of theoretical propositions to guide data collection and analysis."* (Yin, 2009, p. 18)

The case study, according to Yin (2009), is a good methodology if the research questions are formulated as more explanatory questions on how or why, if the researcher has no control over the phenomena and the focus of the study is on events in the present time. All of these requirements are found within the study at hand, which makes case study a suitable methodology to conduct the research. *As a research method, the case study is used in many situations, to contribute to our knowledge of individual, group, organizational, social, political and related phenomena"* (Yin, 2009, p. 4).

A case study is often considered as one of the most flexible research methods as well as it is considered to result in a richer description of a matter. This results in the methodology being identified as including descriptive accounts of one or more cases, exploratory and testing of hunches, hypotheses and ideas, or a combination thereof (Somekh & Lewin, 2008) (Frankfort-Nachimas & Nachimas, 1996). Somekh and Lewin (2008) also define it as particular, descriptive, inductive, ultimately heuristic and seeking to brighten readers' understanding of an issue. This also speaks for the usage of the case study in this research. *"The main purpose of the research design is to help to avoid the situation in which the evidence does not address the initial research question"* (Yin, 2009, p. 27). The method will also provide guidance for how the research should be conducted. A case study can be done with one or multiple cases, in this study one case is researched, the case of Miljonlotteriet. In a case study data that is

qualitative or quantitative can be used and even a mix of the two (Yin, 2009). Due to the previously mentioned characteristics of qualitative data, it was the most fitting data gathering method for this research.

The core of the characterization is that its reliability depends crucially on how well the study has been focused and the borders identified (Collis & Hussey, 2009) (Hakim, 2000) (Somekh & Lewin, 2008). Hakim (2000) even argues that a descriptive case study takes the form of an exploratory study if little previous research exists in the studied field. Considering that the aim is a gap in the study it can be concluded that this research would fall into this category. That is, although descriptive of nature it would be considered as exploratory as there is very little previous research done in the particular area of the subject. Collis & Hussey (2009) would even argue that this study could be defined as an opportunist case study (a definition of Oetly and Berry, 2004), where the opportunity to study a phenomenon arises as the researcher obtains access to a particular organization or part of an organization. However, since this definition is not often mentioned by others in the field of research methods the authors will continue to define the method as exploratory case study for the increased recognition.

2.2.1 The Case - Miljonlotteriet

Miljonlotteriet is the company at case and will, although not generalize, be the subject to naturalistic generalization. The implication of this type of generalization is explained further in the reliability and validity section. Miljonlotteriet is a lottery organization which has successfully found a niche in the market by offering the winners products as prizes up to certain amounts and only has cash prizes if the amount won is substantial. This is a different approach from most lotteries where cash prizes are the most common. At the core of the company are their owners; IOGT-NTO (J. Erlandsson, personal communication, 2012-12-19).

IOGT-NTO – The Owner

IOGT-NTO stands for Independent Order of Good Templars (or more recent International Organization of Good Templars) and Nationaltemplarordern, the two largest temperance movements in Sweden (IOGT-NTO, 2013a). They merged in the 1970's and created what is now recognized as simply IOGT-NTO, without mentioning the meaning of the abbreviations as these are no longer of interest. Today it is the single largest temperance movement in Sweden (IOGT-NTO, 2013a). The movement has a vision of a society where alcohol and other drugs do not prevent people from living a free and fulfilling life, however, according to their membership promise; it is not a zero-tolerance on alcohol (IOGT-NTO, 2013b).

Membership promise (original) (IOGT-NTO, 2013b):

> ***"****Som medlem i IOGT-NTO lovar jag att arbeta för ett bättre samhälle utifrån IOGT-NTO-rörelsens grundsatser och program. Därmed lovar jag att leva helnyktert, det vill säga att ej använda alkoholdrycker med högre alkoholhalt än 2,25 volymprocent, narkotika eller andra gifter med berusande effekt."*

Membership promise (translated) (IOGT-NTO, 2013b):

> As a member in IOGT-NTO, I promise to work for a better society based on the guidelines and program of the movement of IOGT-NTO. Thus I promise to live in temperance, that is to not use alcoholic beverages with higher alcohol than 2.25 percent, narcotics or other toxics with intoxicating effects.

Instead, they focus on reducing the problematic drinking by running campaigns for creating awareness of the problems, affecting the politics with respect to drug usage, as well as running rehabilitation centers. They also arrange summer camps and similar activities where children with addictive parents or other caretakers can experience a different environment and meet others in similar situations (IOGT-NTO, 2013c). Due to their focus on societal programs and changes in society to positively affect people's lives rather than in the traditional temperance ways of zero tolerance, the organization gains greater support from the society (Eriksson, et al., 2010).

IOGT-NTO, in turn, owns Miljonlotteriet and the premises that Miljonlotteriet rents and operates in (J. Erlandsson, personal communication, 2012-12-19). Miljonlotteriet is a lottery organization where the entire surplus goes directly to IOGT-NTO (Miljonlotteriet, 2013b). With IOGT-NTO being a nonprofit organization they can both benefit from certain tax and tariff reliefs. The lottery, however, has its own board of directors and deals with its businesses separately from the non-profit organization IOGT-NTO (J. Erlandsson, personal communication, 2012-12-19). Therefore, when investigating the logistics of Miljonlotteriet this thesis does not need to investigate IOGT-NTO further yet understand where the profits go, who the owner is and what their main interests are.

Miljonlotteriet – The Company

Miljonlotteriet is mainly in the business of selling lottery tickets in the scratch form through subscription, stores and online, as well as running an online bingo service (Miljonlotteriet, 2013a). The organization's turnover amounts to more than 500 million SEK and the approximate surplus of 120 million SEK per year goes straight to their owners (Miljonlotteriet, 2013b). As mentioned previously, their entire surplus goes to the nonprofit organization IOGT-NTO meaning that IOGT-NTO is their main stakeholder and IOGT-NTO's own stakeholders are of great significance to Miljonlotteriet as well.

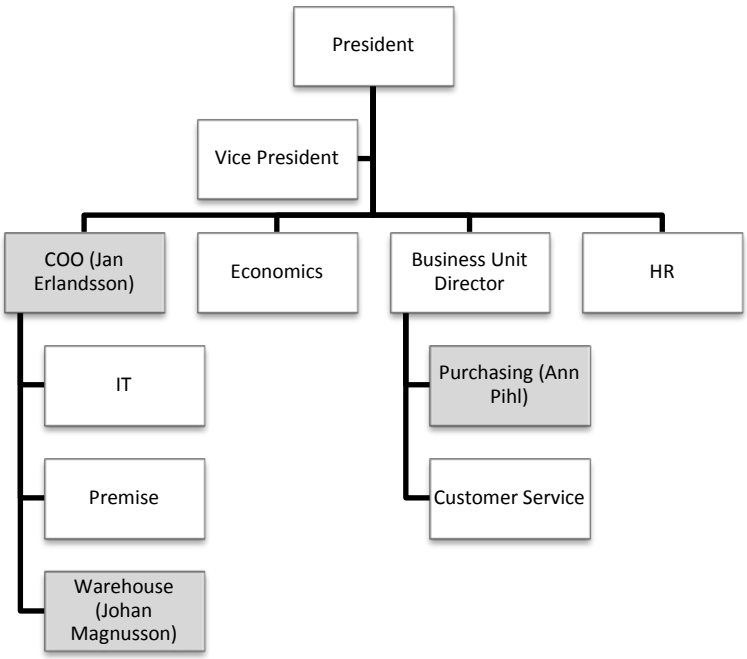

Figure 3. Organizational chart of Miljonlotteriet. (Made by the authors with information from Mr. Erlandsson, personal communication, 2012-12-19)

Figure three illustrates parts of the organization of Miljonlotteriet and is made by the authors with information received from Mr. Erlandsson (personal communication, 2012-12-19). The marked areas; Chief Operating Officer (COO), Purchasing, and Warehousing, are the areas of greater interest for this thesis, white fields are of marginal interest and additional fields which do not cover the logistics aspect have been removed for the gains of illustrative ease. In addition there is a board of directors in charge of making the organization follow the interest of IOGT-NTO (J. Erlandsson, personal communication, 2012-12-19).

The lottery offers large prizes such as money up to ten million SEK, cars, travels, remodeling of houses and others (Miljonlotteriet, 2013a). However, the focus of this thesis is on the prizes that are a main part of all winnings; the smaller prizes which come in shape of goods stored at the warehouse owned and operated by Miljonlotteriet themselves, goods chosen by the winners themselves, and of the maximum value of 2000 SEK. The possible prizes vary greatly from, for example, kitchen supplies to electronics and various home decorating products (Miljonlotteriet, 2013c). The customer base of Miljonlotteriet is of higher age (i.e. with many senior citizens), which can be seen to affect the goods demanded and the process in which they are ordered (J. Erlandsson & A. Pihl, personal communication, 2013-03-07). For example, there is quite high likelihood for their customers to choose postal notification of delayed goods rather than by e-mail (J. Magnusson, personal communication, 2013-04-10). A result of this can be seen in other aspects of the business as well, such as the setup of the lottery.

The setup of the lottery is that a customer can, in store or online, buy separate scratch lottery tickets or subscribe on a weekly or monthly basis. In addition on their homepage there are other games that can be played and won on (J. Erlandsson, personal communication, 2012-12-19). The customer groups online and subscribing amount to about 250 000 in total. A vast

amount of the customers at Miljonlotteriet are subscribers. Along with the tickets the customer can receive a catalogue of possible prizes or browse it online (J. Erlandsson, personal communication, 2012-12-19). Once a winning lottery ticket has been scratched the customer registers it on the webpage and collects the prizes. It is up to the customer to choose when to use their prize-money within a period of three years, right after winning them or accumulating them to earn a more expensive prize in the end. The customer also chooses the prize, one or several, for all the money they have won or only a portion of them (J. Erlandsson, personal communication, 2012-12-19).

Some of the prizes to choose from are so called “long-runners”, which means they have been available as prizes for a longer period of time and might stay for considerable more time, while others are “on temporary visit”, usually only available for about three months each (J. Erlandsson & A. Pihl, personal communication, 2013-03-07). When Miljonlotteriet is offering certain products, they often become one of the largest customers for that particular product in Sweden, Europe or even the world as they will offer few variations of it. An example of this is when they offer a camera, this particular kind of camera will be ordered in much larger quantities by Miljonlotteriet than any regular retailer since the retailers will offer other cameras as well, but Miljonlotteriet does not (J. Erlandsson, personal communication, 2012-12-19). This results in a great pressure on being able to acquire one particular item and the pressure lies mostly on the purchasers at Miljonlotteriet, but also on suppliers and their ability to deliver. Additionally, there is a high uncertainty regarding the demand of goods. The demand depends greatly on which people receive the winning tickets and what their preferences are, how much they have accumulated beforehand, how long they have had their accumulated prize-money, and so forth. All of these aspects add to an increased uncertainty of the demand within a company with a point-based strategy (J. Erlandsson & A. Pihl, personal communication, 2013-03-07).

2.3 Qualitative and Quantitative Data

According to Crowther & Lancaster (2012), data are facts that need to be processed into information before it can be used to understand aspects of a research. Data can be collected both as first hand data and second hand data. First hand data is, according to Crowther & Lancaster (2012), data that did not exist before it was collected as a part of the research and second hand data is information that existed before the research was performed and that was not primarily collected to be used in the study at hand. There are several ways of collecting first hand data, in this research it will be collected through interviews and an observation, which will be more thoroughly discussed in the following two sections. The first hand data that was collected through interviews was qualitative since open questions that cannot be ranked were asked. The observation is also qualitative data (Patton, 2002). Qualitative data is more concerned with questions such as what and how an aspect is, what the core of it is and what it means rather than how much. Quantitative data, on the other hand, is concerned with how great an amount and measurement of the aspect rather than the meaning of it (van Maanen, et al., 1982).

2.4 Interviews

2.4.1 Data Gathering in Form of Interviews

Interviews, which is a qualitative data collection method for first hand data, was used during the study (Collis & Hussey, 2009). According to Blumberg et al. (2008) interviews is the most common way of collecting data. The interviews contributed to the study since deep information could be obtained and it also made for an opportunity to ask more direct questions in order to achieve a greater understanding of the subject. Interviewing is a data gathering technique which is in most cases qualitative, as in this case. (Patton, 2002). Interviews are a good way to take part of all the knowledge already present at the case company. It gave a chance to better understand what the situation is like today and was a great opportunity to talk to the people working in and with the warehouse. It is a time consuming method, but it provided a good base for answering the research questions.

Face to face interviews were preferred over interviews on the phone. This is due to the fact that it is easier to keep the interview casual, better contact is established, and it is possible to see gestures and facial expressions of the respondent. Whenever it was possible, the active choice was to be two interviewers so as to make sure that enough follow-up questions were asked and minimizing the risk for misinterpreting the answers. Tape-recording the interviews allowed for securing data accuracy and avoiding data losses. It also gave the interviewers the possibility to engage more freely in the conversation, listen to the respondent carefully and ask additional questions. The respondents were asked for permission to record and all respondents agreed. As the authors were aware that recording in some cases may cause insecurity in the respondents, great care was taken to explain the purpose of recording and how it was used after the interviews. Furthermore, it was dealt with by establishing trust beforehand by introducing the researchers, the study, and asking easy warm-up questions. It was also important to the authors that the right language was used in the interviews, avoiding threatening or critical words, to keep the trust high between the interviewer and the respondent. Language of choice was Swedish since all the respondents were Swedish-speaking and it allowed them to express themselves in the best possible way, also permitting the authors to be consistent in the phrasing of their questions towards the different respondents.

2.4.2 Semi-structured Interviews

According to Collis and Hussey (2009), when the interpretive paradigm is used unstructured interviews are common. It is also common when the methodology is a case study (Blumberg, et al., 2008). In this study semi-structured interviews were used and the preparation of the core questions was done before the interviews. With this structure it was possible to ask follow up questions and explore new thoughts or subjects as they arose during the interviews. Using semi-structured interviews allowed for a flexibility to approach the different respondents in different ways (Adams, et al., 2007), which was necessary as different data was needed from the various respondents. The method gave a better base for obtaining all the information necessary and there are no significant problems with not asking the exact same

questions to all the participants of the interviews. It was not essential to use the same questions to all respondents as several different persons with different jobs within the companies were interviewed to get a richer picture of the current logistics process and the possibilities for a change. Interviewing different people using different questions makes it harder to compare the answers, but it also gave a deeper understanding of the subject, which justifies this strategy. There are two main points that the semi-structured interviews are meant to answer; to learn the respondent's opinion and to investigate if the respondent can confirm other information that the authors have found when collecting data (Blumberg, et al., 2008).

2.4.3 Selection of Respondents

The aim was to interview the staff at Miljonlotteriet involved in the decision making of purchasing, inventories, warehousing and other vital parts connected to the warehouse and the logistics processes. The selection of respondents was conducted by making a list of all the people at Miljonlotteriet which could be of interest to the research. This was then compared to the research questions and the information needed to make sure that all the information could be collected from the respondents chosen. Mr. Erlandsson (personal communication, 2012-12-19) was of great assistance in identifying these individuals. The present logistics process was of great interest for the research and therefore the authors chose to conduct an observation, both to strengthen the interview findings and to see the different tasks at the warehouse. This was preferred over interviewing the employees working at the warehouse since observing something gives a deeper knowledge than hearing a description.

Further on, the necessity and opportunity of collecting additional information from the suppliers of Miljonlotteriet occurred. As the authors had previous knowledge about the logistics strategy of Markslöjd, they made for a good pilot supplier interview. It allowed the authors to learn more about the strategy of sending goods directly to the consumer and at the same time gaining knowledge on how to conduct the following interviews. For the other interviews, Miljonlotteriet was asked to name larger suppliers and give permission to contact them. All three suppliers interviewed are among the top ten suppliers of Miljonlotteriet, but in different product sections and with different cooperation extents. Markslöjd, the pilot interview, are the tenth largest supplier, "Company A" is the fifth largest, and MerxTeam is the largest supplier for Miljonlotteriet.

2.4.4 Construction of the Interview Guide

A rough order of the questions was drawn up so as to follow a pattern where the focus at first is more general and in the end focuses on the specifics. This was due to that the more specific questions that are asked the less flexibility there is, yet with specific questions it is easier to compare the answers (Blumberg, et al., 2008). This way the authors felt they got the best out of both ways of asking the questions. All of the interviews began with an introduction of the authors, the research and asking basic questions in order to build up trust. This was then followed by a question on whether it was allowed to record what was being said, along with a careful explanation of the meaning with recording and assurance that though recordings were made, the information said would still be confidential and used only as the respondent agrees to. Open questions, where the respondent can answer in own words, were used as the main

type of questions during the interviews since it allowed for unrestricted answers (Patton, 2002). The aim was to have some closed questions as a supplement to the open questions and use them as control questions, however, it is also a way to get straight answers by providing alternatives to choose from when a question is vital but a straight answer is difficult to get. The first and greatest influences in the construction of the core interview questions were the research questions. From the research questions the authors constructed a list of necessary information needed and from these the final base questions were identified. The authors also searched in relevant secondhand data such as books and articles to found a good base for the questions. This is according to Blumberg et al. (2008) a good way of preparing for interviews.

According to Blumberg et al. (2008), it is important to write an interview guide to make sure that all aspects are covered and that the questions are asked in a similar way. Some questions were in fact asked to more than one respondent to achieve a greater reliability and to investigate if the opinions of the respondents differ. However it was not always possible since some of the respondents differed to a great extent from each other. As it was previously known that one supplier uses one of the core concepts investigated by this thesis, questions on that concept were centralized during the interview with that supplier. For the other suppliers, questions were created with some resemblance to the first interview; however, additional questions were added in order to receive the full view of their strategies, possibilities and focuses. Although it was known that the case study of the thesis is Miljonlotteriet, the focal point of the questions revolved around the suppliers and their views. Questions of more sensitive nature were slowly led up to. The interview guide can be found in the appendix. For the second and third supplier, a level of similarity was upheld as they, for this research, had the same functions. Due to this the first questions were the same for these two suppliers. These questions would give better insight in their strategies and their possibilities to cooperate with any strategic changes within Miljonlotteriet. Additional questions were prepared, but only used if the company had the strategies and possibilities that the questions concerned. This was done since the questions were depending on how they handled their logistics. As the interviews were nearly finished, it was important to include a quick summary of the main issues and findings so as to avoid misunderstandings.

2.5 Observation - Site Visit to Warehouse

Observational evidence can have different importance in different researches; here it was used to provide additional information to the case studied and aid in understanding the current situations when a change in processes is considered (Yin, 2009). Patton (2002) recommends researchers to take part in or observe the phenomena at hand in order to fully understand it as he argues that other means of gathering data, such as interviews, cannot provide such insight and understanding. Interviews often miss out on information that the respondent did not think about explaining and the interviewer did not think about asking specifically for, whereas an observation has tendencies to reveal much of this information and makes for a good complement (Patton, 2002). It is also a good way of gathering silent information on for example the culture of a company (Blumberg, et al., 2008).

Observations can be formal or casual and conducted by purely observing or by also participating (Yin, 2009). Formal observations tend to be part of the case study protocol assessing the occurrence of certain behaviors during certain periods, while casual observations usually take the form of a field visit, sometimes in connection to interviews and other evidence gathering (Yin, 2009). The casual observation has been used in the case of this research as the authors scheduled an interview with Johan Magnusson, the warehousing manager at Miljonlotteriet, and directly after followed a morning of routines with various warehousing employees. Mr. Magnusson followed the authors through the warehouse and introduced them to the employees within the warehouse. During the introduction, Mr. Magnusson also explained the basic functions and strategies at each part of the warehouse and answered additional questions that came up. Later the authors were allowed to walk around the warehouse and follow different employees in their daily work.

Participant observation is a mode of observation where the observers actively participate in the observed environment (Yin, 2009). According to Patton (2002), a participant observer usually uses various strategies for data collection such as interviewing, observing and participating interchangeably in order to extract the data needed. During the observation of this research, the authors followed Mr. Liljeros, employee working at the warehouse, through the process of goods delivery. This process includes accepting, counting, registering and quality checking the deliveries. Additional questions were asked when necessary to explain why a certain process was done the way it was, what information was available to various parts of the organization, and how underlying decisions were being made, making the observation match that explained by Yin (2009) and Patton (2002).

A major opportunity of the participant observation is the ability to perceive reality from inside the company in the case study rather than from an external point of view (Yin, 2009). Yin (2009) notes that many researchers have argued that an inside perspective of an observed situation is invaluable when producing an accurate interpretation of a case study phenomenon. Considering that most other firsthand data gathered in this research is through interviews, the observation gives a good alternative and an increasingly objective view to the questions at hand. Another opportunity is the ability for researchers to manipulate minor events in the setting, an opportunity only offered by the participant observation. The authors tried to keep the manipulation of the events to a minimum and follow the routines of the staff as much as possible. They did, however ask the staff to announce to them when certain important tasks were about to be completed so as not to miss the opportunity to observe them.

As with all methods, participant observations have problems related to it. The first of these is the problem of biases that can be produced by the researcher being involved. This is an unavoidable problem, which to some extent can be controlled simply by keeping it in mind and avoiding unnecessary interaction (Yin, 2009), an issue the authors had in consideration throughout the observation. Another problem could be that a participant observer is likely to become a supporter of the group being observed and thus risking to give up the unbiased view (Yin, 2009). This problem has a similar solution where the authors made sure to view each process as a part of a larger organization whose best operation also would benefit each individual. The risk was also kept in mind so a critical thinking could be detained. Thirdly,

there is a risk that the participant role might require too much attention from the observant role preventing the participant observer to take notes or ask necessary questions as a good observer might do (Yin, 2009). Battling with this problem the researchers chose to include questions about the warehouse at the interviews made before the observation so as to have as much knowledge as possible beforehand. Additionally, both authors conducted the observation and thus received a fuller picture of the process. The final problem is that the organization studied is physically dispersed and the participant observer may find it difficult to be at the right place at the right time, whether it is to participate in the event or to simply observe it (Yin, 2009). This problem was dealt by two previously mentioned solutions asking the staff to attend during the most important parts of the process and by both authors attending and observing the processes. As human perception differs between individuals an objectified picture was obtained as both authors chose to participate and thus got a broader perspective of the observed situation (Patton, 2002), this increases the reliability of the observation further (Yin, 2009). Yin (2009) emphasizes the importance of considering the trade-offs between the opportunities and problems of a participant observation as it can either add to the credibility of the research or threaten it.

2.6 Reliability and Validity

Reliability is if the results found in the research are accurate. For the results to be considered accurate it has to be possible to repeat the study and get the same results as the first time (LeCompte & Goetz, 1982). As the study is within the interpretivistic paradigm, reliability is not of the same significance as if a positivist paradigm was used (Collis & Hussey, 2009). The nature of the paradigm used is the fact that the researcher affects the outcome of the study. Therefore it can be difficult to reach a high reliability since if the study is repeated the different researchers might influence the study in different ways. This makes it very important to document how the study was done so that the reader can see how the results were reached to achieve a higher level of reliability (Roberts, et al., 2006). To achieve this, a clear figure of each step in the process is presented in figure 2 and the premade questions that were asked during the interviews can be found in the appendix. Further, in this methodology chapter a clear description of how the study was done is presented to make it as reliable as possible (Collis & Hussey, 2009).

"Validity is the extent to which the research findings accurately reflect the phenomena under study" (Collis & Hussey, 2009, p. 64). When using the interpretivism paradigm the focus is on understanding and explaining the phenomena, which benefits, and typically results in high, validity. Validity can be divided into parts that show its different aspects. *"The most common is face validity, which simply involves ensuring that the tests or measures used by the researcher do actually measure or represents what they are supposed to measure or represent"* (Collis & Hussey, 2009, p. 64). This will be done by making sure that the questions asked in the interviews are relevant for the topic. Another aspect of validity is construct validity that concerns the aspects that cannot be directly observed such as feelings and motivations. These aspects can be called hypothetical constructs and are assumed to be behind something that you can observe, for example that a smiling person is feeling happy.

Here there is a need to be very clear with the observations leading to the assumption that a person is, for example, feeling happy so that it is not misleading or faulty since the person might be smiling as a way of hiding other feelings (Collis & Hussey, 2009). There is also a risk for lower validity if few respondents are interviewed since they might all have the same opinion which might not represent the opinion that is most common (Blumberg, et al., 2008). To deal with this problem, several employees in Miljonlotteriet were interviewed, those with greater importance for the thesis were interviewed twice, and three suppliers were interviewed so as to gain another perspective of the process. Within Miljonlotteriet the identified great influencers of the logistics processes were all interviewed, which makes it a selective collection, while the warehouse itself was observed so as to gain personal perspective and thus increase the validity (Johnson, 1997). The first supplier interviewed was chosen since their logistics strategy was of interest to the thesis and the authors' previous knowledge about it helped identify them. The other two suppliers were chosen as they are significant suppliers to Miljonlotteriet while being seemingly different in their logistics strategies, adding two different points of view to the thesis; those that already send to the end customer and those who don't. With these choices of interviewees all the important aspects are covered in order to describe and analyze a case which can then be subject to naturalistic generalization. As the method used involves using data given by the company at case in the form of answers provided at interviews, the data will be interpreted and evaluated by the authors. This means that the information and the analysis which come out of the data will surely be influenced by the authors to some extent, as is the case for all qualitative research methods. Here it is also important to keep in mind that certain information might not be discovered as the interviewees may not wish to relieve or may not think of certain aspects, resulting in a limitation in itself. To secure highest possible credibility, some of the interview questions will be repeated to all the interviewees and asked several times in different formulations.

A strength of this methodology, the case study, is that it gives the authors the opportunity to investigate the matter deeper and with greater care (Roberts, et al., 2006). Also, having one case study results in greater trust from the organization investigated as the authors become devoted to them, which in turn is more likely to result in more and better information received from the organization. This has been shown in the work as the contact person at Miljonlotteriet assisted in booking interviews with key staff members, the company was willing to share some sensitive information, and they assisted in contacting suppliers. A crucial aspect is that the staff needs to feel that they are free to describe the actual situation and trust that the information will be used for the best of the company (Collis & Hussey, 2009).

A major weakness of this methodology is that it is not possible to make generalizations from one case study. Nevertheless, this is a matter of judgment and other arguments claim that the main goal of this methodology is not to generalize in its core meaning, but to achieve what is called 'naturalistic generalization' (Stake, 1978). By this it is meant that readers will recognize features of their own experiences in the case and intuitively generalize from the case rather than the sample of one being representative for the population as a whole (Stake, 1978). Further difficulties of the case study as defined by Collis & Hussey (2009) are the

toughness of negotiating for a suitable case and the time-consumption data gathering. The first aspect has been dealt with by starting the investigation by carefully negotiating with the case organization and making sure the authors have their full support. The second is dealt with by narrowing the research questions down and focusing on a very specific issue rather than looking at a picture that can easily become too wide for the purpose (Collis & Hussey, 2009). Studying one company can restrict access to competitors, suppliers and customers which might interrupt the balance between an in depth and wide study (Seuring, 2008). However in this case there are no direct competitors, several suppliers were interviewed and even though no customers were interviewed their importance for the study is of less significance. This is since the sensitivity of the customer on when the products are delivered is assumed to be low.

Information relevant for the study will be collected from several different types of sources. The written sources used will be books, scientific articles and webpages. It is always important to have a critical attitude to all information and the authors of this study will check where a source is from, who has written it, for whom and in what purpose to see which sources are trustworthy and which might lack credibility (Blumberg, et al., 2008). For some information it might be possible to find several sources providing the same information, which will make it more reliable since it is less likely that several sources are incorrect.

3 Theoretical Framework

In this section the frame of reference which was used to perform this study will be presented. A general overview of supply chain management, partnerships, and barriers will first be presented followed by the relevant concepts related to this study. Finally, a theoretical evaluation model which can be used to analyze the empirical data will be presented.

3.1 Supply Chain Management

Slack (2010) claims that all supply chain management (SCM) has a central objective; to satisfy the end customer. Strategic SCM leads to, and focuses on, long-term goals rather than short-term profits (Fawcett, et al., 2008). The need for integrated relationships between supply chain actors has been expressed for a long period of time; however, nowadays its systematic approach is also increasing in research (Flynn, et al., 2010). A definition of SCM is *"…a set of approaches utilized to efficiently integrate suppliers, manufacturers, warehouses, and stores, so that merchandise is produced and distributed at the right quantities, to the right locations, and at the right time, in order to minimize systemwide costs while satisfying service level requirements"* (Simchi-Levi, et al., 2009, p. 1). This indicates that all organizations should satisfy their direct customers but should also keep in mind to satisfy their end customers of their respective supply chains as they ultimately are equally important (Slack, et al., 2010). To satisfy the end customers Slack et al. (2010) identify five performance objectives for the entire supply chain to consider; quality, speed, dependability, flexibility and cost. A supply chain can be managed either as a partnership between two parties or with the focus on the entire chain as a single system. Also, some will focus on the flow of materials and parts while others will put the emphasis on flows of information, resources and capital. Though most researchers and organizations seem to fail to consider the strategic nature of SCM, a crucial point in its implementation (Flynn, et al., 2010), Simchi-Levi et al. (2009) manage to include the aspect and position SCM in three levels; strategic, tactical and operational. The highest level is the strategic level, also the one considered primarily in this thesis. It includes decisions of product design, what to keep internally and what to outsource, supplier selection, strategic partnering, warehousing and manufacturing plant locations, numbers and capacities as well as similar high level decisions. The tactical level contains decisions regarding purchasing and production, inventory policies, transportation strategies among others. These decisions are usually made on a quarterly to yearly basis. The lowest level of the SCM is the operational level and refers to every day decisions involving scheduling, lead time quotations, routing and truck loading.

There are three types of inventories; raw material inventory, work-in-process inventory, and finished product inventory (Simchi-Levi, et al., 2009). As the focus of this research is on the retailer's logistics, the central type of inventory would be the finished product inventory. Holding inventory is expensive, nonetheless there are a number of reasons to why it is done anyways; unexpected changes in customer demand, lead times and economies of scale in transportation are a few of these (Simchi-Levi, et al., 2009).

One model for calculation point of order and stock level is the Economic Lot Size Model, identified by Ford W. Harris in 1915. The model is extremely simplified and the assumptions in it are highly unrealistic, however, the assumptions give clues on what information organizations need to have in order to see the real costs of their warehousing operations. It includes such information as inventory carrying cost, order cost and lead time (Simchi-Levi, et al., 2009). Slack et al. (2010) identify a list of costs of logistics processes which also can help in decision making. It includes cost for stock-outs, working capital cost and obsolescence cost. When these costs are in-house, the company must put great efforts in identifying them, yet when the costs occur in another part of the supply chain, they will simply be shown in the bills paid to the partners (Simchi-Levi, et al., 2009). The cost size also depends on the supply chain strategy implemented in the company. For example, placing an order with a supplier as part of a regular and multi-item order might be relatively inexpensive; however, asking for a special one-off delivery of an item could prove far more costly. Equally, certain concepts, such as VMI, will also keep the costs of ordering down (Slack, et al., 2010).

Aside from the decisions of materials handling, cost identification and calculation, SCM is also to a great extent about managing relationships, upstream, downstream and in-house (Slack, et al., 2010). Managing relationships within the supply chain is one of the key issues and there are two types of particular interest for this research, namely: traditional market supply relationships and partnership supply relationships. The first, the traditional type, is where the buyer looks for the best supplier for each time it is necessary to purchase and they make a short-term deal (Slack, et al., 2010). The second, which is described as an important building block in any effective supply chain (Simchi-Levi, et al., 2009), is elaborated on in the following section.

3.1.1 Partnerships

Partnerships, as the authors of this thesis apply it, can also be called “strategic alliances” and defined as; *“…typically multifaceted, goal-oriented, long-term partnerships between two companies in which both risks and rewards are shared”* (Simchi-Levi, et al., 2009, p. 247). Further on, partnerships have been characterized as being based upon: the sharing of information, trust and openness, coordination and planning, mutual benefits and sharing of risks, recognition of mutual interdependence, shared goals, and compatibility of corporate philosophies. The key, though, is to share information, including demand and supply information (Harrison & van Hoek, 2011).

The open market relationships are typically characterized by short-term contracts, regional relations, little joint development and many suppliers per part. Entering a partnership means that the company will no longer be a player in the open marketplace. In this type of partnership the “non-economic qualities” such as commitment and trust, although costly and risky, also tend to secure other economic and strategic advantages that are difficult to achieve through the traditional open market (Harrison & van Hoek, 2011).

There are a number of issues to consider when deciding whether a strategic alliance is suitable for the organization (Simchi-Levi, et al., 2009, p. 248);

- Value added to products
- Improved access to market
- Strengthening operations
- Adding technological strength
- Enhancing strategic growth
- Enhancing organizational skill
- Building financial strength

Along with these, the question of whether the use of joint resources will result in greater advantages for both parties needs to be asked, analyzed and answered, prior to initiating a partnership (Fawcett, et al., 2008). Each organization has its fundamental strengths and it is important to identify these and make sure that the partnership will enhance them rather than weaken them. Also, it is of consideration that what differs an organization from its competitors is often another strength and must also be preserved (Simchi-Levi, et al., 2009).

There are risks with joining a partnership both economical risks and strategically risks. These are much due to partnerships being resource intensive and demand sharing of information with another company which increases the risk for wrong usage of company secrets (Christopher & Jüttner, 2000). In order to achieve a successful partnership, Richey et al. (2010) stress the importance of information sharing and operational planning as the two most important factors.

Retailer-Supplier Partnership (RSP) is the increased partnership of a retailer and supplier, which is viewed as a continuum where information sharing is on one side and a consignment scheme on the other. This means that it ranges from simply sharing information such as quantities sold, reasons for variations in orders, lead time and production capacities to the point where the supplier manages and owns the inventory completely until the retailer sells it. Between these extremes lie many possible options for partnerships; one of them is VMI which will be explained in detail in section 3.4 (Simchi-Levi, et al., 2009). It is mainly the increasingly global competition that is causing organizations to move from a company-best thinking to a supply chain partnership approach, resulting in increasing priority in joint improvements of inter-organizational processes (Flynn, et al., 2010)

The bullwhip effect is the increase in variability in the supply chain and can often cause both over production and stock-outs, resulting in large expenses for the entire supply chain (Chatfielda & Pritchard, 2013). Reducing this bullwhip effect, through better planning and reduced costs for suppliers, can allow the supplier to lower the prices of their product towards their partners as they are helping to save costs. Partnerships also typically save in reduced negotiations and drawing up of contracts, reduced monitoring of supplier soundness, including supply quality and increased productivity. There are also strategic advantages such as shortened lead time and product cycles, and conditions open to longer-term investments (Harrison & van Hoek, 2011). RSP is likely to cause shifts in power within the organizations,

therefore, the top management needs to be greatly involved in the steps of the implementation and their effects on the organization. Thirdly, RSP requires a certain level of trust between the supplier and retailer, without it the partnership will fail (Simchi-Levi, et al., 2009). The trust issue goes both ways; retailers must be able to trust that the suppliers will keep the information confidential, however, it is just as important that the suppliers can trust the retailers in their ability of handling the suppliers' information. Particularly when the retailer has several suppliers of the same product category and their forecasts may depend on the other suppliers' information (Simchi-Levi, et al., 2009). For this type of partnerships, Simchi-Levi et al. (2009) argue that Electronic data interchange (EDI) is an important requirement and cuts down on both data transfer time and entry mistakes. EDI is a system for sharing information between companies in a standardized form (Clarke, 2001). It transfers data more easily between companies and reduces the amount of errors. Clarke (2001) states that the benefits that can be gained from EDI can be seen within cash management, inventory management, distribution and transport.

Additional issues to be considered when partnering up are inventory and ownership issues, joint forecasting, meshed planning cycles, and joint product development. For retailers it is also important to consider the different costs that different logistics schemes have as they may differ greatly (Simchi-Levi, et al., 2009). Disadvantages of partnerships might also include the inability to accurately price the quality, the need for organizations to gather substantial information about potential partners on which to base decisions, the risk of exposing sensitive information to competitors, and the potential opportunism by suppliers. Another disadvantage is the occurrence in loss of opportunity to use current offerings presented by other suppliers as ones contract might prevent it (Harrison & van Hoek, 2011).

A few important issues to consider before establishing a partnership are (Simchi-Levi, et al., 2009);

- Technology – certain partnerships require expensive technologies
- Trust – trust is a must in a partnership and the possibility of finding suppliers who are trustworthy enough to make them partners will be a major issue in decision making
- Increasing supplier responsibility – may result in greater costs for the supplier which in turn should be considered when the contracts are made
- Float – partnerships may result in a change in payment structure where the retailer may need to pay the supplier much sooner than they are used to

The research of Fawcett et al. (2008) showed that managers of all functions and industries believe that SCM helps their companies gain competitive advantage. There is a shift towards supply chains competing instead of companies competing (Christopher & Jüttner, 2000). This is, to varied degrees, also true for the concepts covered in this thesis; VMI, drop-shipping, 3PL, postponement, and cross-docking. Basically, strategic supply chains succeed or fail depending on the degree of resource sharing among partners and the partners' ability to use these resources effectively (Fawcett, et al., 2008). Therefore, the following section will

introduce some of the common barriers connected to resource sharing in partnerships as well as a brief introduction to other barriers.

3.1.2 Barriers

Being in a partnership is challenging and requires great effort to overcome traditional barriers (Richey, et al., 2010). By understanding these barriers, managers can lead their organizations to great success within strategic SCM. As previously mentioned, the success of a strategic supply chain depends on the degree of resource sharing and the partners' ability to use the resources effectively, therefore it is seen as a major group of barriers (Fawcett, et al., 2008). Park and Ungson (2001) discuss the risks of partnerships by isolating two main categories; inter-firm rivalry and managerial complexity, as reasons to why it often fails. They also integrate the two and find that it is mainly due to the combination of them, rather than each separately, that partnerships had a tendency to result in failure.

List of barriers identified in Fawcett et al. (2008), including mechanical as well as human barriers:

- Inadequate information systems
- Processes poorly costed
- Non-aligned measures
- Measuring SC contribution
- Measuring customer demands
- Lack of resources for SCM
- Inconsistent operating goals
- Lack of clear alliance guidelines
- Lack of shared risks and rewards
- Lack of willingness to share information
- Organizational boundaries
- Lack of employee empowerment

Managers tend to recognize barriers such as technology, information, and measurement systems, but find it harder to detect issues concerning culture, trust, aversion to change and willingness to collaborate (Fawcett, et al., 2008). One potential reason for this could be that barriers like technology, information and measurement systems can easily be compared by aligning one company's solution against the other's and looking for a match (Fawcett, et al., 2008). For example, a retailer with an IT system, A, is compared to the supplier with another IT system, B. If the two systems are compatible and can work together without one of the firms having to make great changes in order to share information, the two can cooperate easily, otherwise they cannot. However, with a human barrier like culture, trust, aversion to change, and the willingness to collaborate, the comparison becomes more of a judgment call rather than an evaluation of facts, which makes the assessment more complicated and uncertain (Fawcett, et al., 2008).

From the extensive research on the barriers of effective supply chain management by Fawcett et al. (2008), several interesting points about the human nature were confirmed. Human nature was found to be the root of nearly all barriers as people are change averse and prefer the status quo (Samuelson & Zeckhauser, 1988). Training, educating and recruiting of the right people, must also be incorporated in the manager's strategy of SCM (Fawcett, et al., 2008). People tend to be suspicious to SCM changes and their intentions so they avoid them whenever possible, which is most likely related to the fact that most individuals do not have a clear perception of what such a change means in relation to their task at the organization (Samuelson & Zeckhauser, 1988). This, in turn, is related to the findings that top management often lacks, or fails to communicate, a clear vision of the strategic supply chain adaptions. When people do not understand the potentials and benefits of a change and when they resist it, there is a great risk of efforts to prevent the adoption of the new concept, resulting in losses of profitability (Fawcett, et al., 2008). One way of avoiding this barrier is to create a clear vision of what the partnership is about and how it will affect each part and individual employees of the company. Other ways of avoiding this barrier include developing clear guidelines for how the relationship should be managed, inducing joint operating goals and performance measures, and empowering employees (Richey, et al., 2010). For the team of employees to be successful, senior level management must be greatly involved and support the project fully (Richey, et al., 2010).

Within the mechanical barriers, inadequate information systems was found to be the greatest barrier, much due to the fact that successful partnerships are information driven and missing or incorrect information often creates demand for expensive expediting (Fawcett, et al., 2008). When these problems occur it is often due to old information systems still in use (Bechtel & Jayanth, 1997). In order to measure the payoff, management has to track and analyze supply chain oriented measures (Richey, et al., 2010). Organizations need to be open to alignment, communications, joint structure, quantified supply chain metrics, and partner interdependence. Managing the balance between own goal orientation and the goal of the supply chain can contribute to great gains in service effectiveness and cost efficiency (Richey, et al., 2010).

In conclusion, the purpose of any partnership is to mobilize resources to reach goals that no individual could reach themselves. Nevertheless the ability for organizations to use shared resources is a direct function of the quantity and quality of resources shared. Therefore, the partnership is only as successful as their ability to use the collective resources (Monczka, et al., 1998).

3.2 Third Party Logistics and Outsourcing

Most commonly, when discussing outsourcing, researchers talk about it as 3PL, even where other types of outsourcing is mentioned, the focus lies on 3PL. This is much due to its vast spread in the past decades (Razzaque & Sheng, 1998). In their literature survey of outsourcing of logistics functions Razzaque and Sheng (1998) mention three alternatives an organization has to choose from when laying down their logistics strategy. These are:

- Providing the function in-house
- Owning logistics subsidiaries
- Outsourcing the function (i.e. buying the service)

The first two points assume that the volumes that go in and out of the warehouse are large enough for it to be plausible; examples of this are seen in automotive industry where large companies have logistics subsidiaries and 7-eleven's old strategy where they owned the entire process from raw material to end product (Gottfredson, et al., 2005). These levels are difficult to achieve when the customer is the end consumer, when the organization does not have stores but sends the goods directly to the customer and when the goods are of lower value. The third point, outsourcing, is a very common, yet broad, strategy which is usually broken into pieces and researched piece by piece (Razzaque & Sheng, 1998). The most common of these is Third Party Logistics where some even consider it to be generally synonymous to outsourcing (Lieb, 1992).

A widely used definition of 3PL is the one written by Lieb (1992) in the first of a 20 year long series of researches starting in 1990. The definition is as follows: *"Third-party logistics involves the use of external companies to perform logistics functions that have traditionally been performed within an organization. The functions performed by the third party can encompass the entire logistics process or selected activities within that process"* (Lieb, 1992, p. 29). This definition is widely referred to even in research conducted very recently and is very relevant for this research as it discusses both outsourcing entire logistics processes as well as partial outsourcing of certain activities. Partial outsourcing is what naturally happens when an organization has gone through the process of determining its core functions and deciding on how to source each of them. Certain functions will reveal that outsourcing is the most efficient way while others will prove to be most efficient in-house, thus selected activities should be outsourced (Gottfredson, et al., 2005).

In their research Lieb and Bentz (2004) found that the most common functions to outsource are direct transportation, customs brokerage, freight payment, freight forwarding, warehouse management and shipment consolidation. All of which have been in the top outsourced functions from the first time they were included in the research with the first published table starting in 1997 (Lieb & Miller, 2002). Many researchers argue that the main positive aspect of outsourcing to 3PL companies is the opportunity it gives the organization to focus on its core activities (Lieb, 1992). Additionally, the organization gains from the fact that others can perform the activity more efficiently (Gottfredson, et al., 2005). The possible gains can be in the form of lower costs, better customer service, improved asset utilization, increased

flexibility, and access to leading edge technology (Lieb, 1992). Some of which are noted to be reasons for initially changing ones strategy to outsourcing while others become a reason to keep outsourcing (Lieb & Bentz, 2004). Additional noted advantages include reduced lead time between orders and deliveries, reduced inventory and storage, a clear view of costs and transport conditions, and smaller investment needed in logistical operations (Kimura, 1998). Among the disadvantages of outsourcing the warehouse to a 3PL there are three main to consider; redundant workers in need of new jobs, inability to accumulate logistical expertise in-house, and increase risk of information leakages of corporate strategy (Kimura, 1998).

3.3 Drop-shipping

According to Chopra (2003) drop-shipping is when the manufacturer holds the stock of the products and deliver them directly to the customers. The retailer receives the order from the customer and then passes it on to the manufacturer that performs the transport of the goods to the customer. The flow of information goes from the end customer to the retailer and from the retailer to the supplier (Chopra, 2003). The retailer pays the supplier a price set beforehand for the service of the delivery and the product (Khouja, 2001). *"Recent surveys in the US shown that about 30% of pure Internet retailers rely heavily on dropshipments for primary order fulfillment. "* (Ayanso, et al., 2006, p. 136).

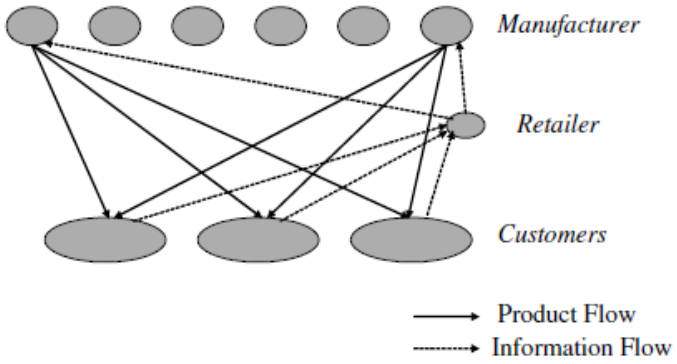

Figure 4. Illustration of drop-shipping. (Chopra, 2003, p. 127)

Drop-shipping can be used to varying extent, state Ayanso et al. (2006) and Khouja (2001). Some retailers choose to hold no inventory themselves and rely on the drop-shipping for all of their products while others choose to use it together with their own stock of goods. Ayanso et al. (2006) call this dual strategy while Khouja (2001) calls it mixed strategy. The dual strategy enables the retailer to keep a stock of goods if the demand is insecure or the replenishment lead times are difficult to predict so that the demand can be met at all times while still using drop-shipment (Ayanso, et al., 2006). The mixed strategy also makes it possible for the retailer to receive the benefits with drop-shipping and avoid the disadvantages at the same time (Khouja, 2001). Some retailers choose to have products that are sold less frequently delivered by drop-shipping and products demanded frequently in an own warehouse, according to Chopra (2003).

"Drop-shipping allows e-tailers to sell merchandise without directly spending on inspecting, holding, picking, and packing." (Ayanso, et al., 2006, p. 136). Chopra (2003) states that the biggest advantage to be seen from using drop-shipping, for the retailer, is that the stock of goods will be kept by the manufacturer. The manufacturer has a greater demand for products than the retailer and can therefore provide a better availability of products and a lower level of the stock than a retailer can. The cost within the supply chain for warehousing will be lower, as well as the handling cost, since the retailer will not need a warehouse. According to Khouja (2001) one benefit for the retailer is the terms of payment between the supplier and the retailer which might increase working capital of the retailer. If the customer pays when they are ordering the goods and the supplier do not demand payment more than once a month, which is usual within the business, the working capital increases. Other benefits achieved from using drop-shipping are seen to the highest when the products have a high value, low demand or uncertain demand (Chopra, 2003). Khouja (2001) states that there are substantial benefits for retailers using drop-shipment compared with having their own stock of products. *"These advantages include savings in the holding cost, which includes cost of capital, taxes, insurance, storage, and material handling, and, more importantly, decreased obsolescence cost"* (Khouja, 2001, p. 109).

Chopra (2003) states that the transportation costs of performing drop-shipping are substantial. The products need to be transported by a transportation company to the customers, who are usually located far from the warehouse. Therefore, transport will be more expensive than if fully loaded trucks or less than truck load companies were used for the transport. This is since the customers are spread out and if the goods are delivered to a warehouse that is only one location. One negative aspect, that was found by Chopra (2003) and Khouja (2001), was that if the retailer has several suppliers the deliveries from more than one supplier to one customer cannot be done at once. This will be less convenient for the customer than to have all the products in the same delivery. This will also increase the transportation cost since goods to the same location will have to be delivered separately from each supplier. Another negative aspect of the concept is that the handling of the returns will be more difficult to manage. Either the returns are sent to the supplier which might mean that a customer has to return products to several companies instead of one or the products are returned to the retailer. The first alternative is seen by Chopra (2003) to be expensive both when it comes to transport and when it comes to managing the returns. The second he regards as need for an investment to create a place where the retailer can handle returns. By letting the suppliers handle the warehouse the retailer risks to lose control over the warehousing and the costs connected (Rabinovich, et al., 2008).

According to Chopra (2003) and Khouja (2001) a requirement for drop-shipping is a good information support system to be able to deliver information between the supplier, the retailer and the customer. The response time is usually considered to be high with this concept since the information has to flow between the retailer and the supplier (Chopra, 2003). With drop-shipping only up to 20-30 suppliers should be used since more would make the implementation harder (Chopra, 2003).

3.4 Vendor Managed Inventory

Vendor managed inventory (VMI) is when the supplier and the retailer agree on in between which higher and lower level the stock at the retailers warehouse should be kept. With VMI the supplier is responsible to make sure that the stock level is kept within the decided boundaries (Kannan, et al., 2013). The retailer does not need to make orders and can instead let the supplier be in charge of inventory (Simchi-Levi, et al., 2009). The owner of the goods can be either the retailer or the supplier, however some VMI users today choose to have the supplier as the owner until the goods are sold to the end customer (Simchi-Levi, et al., 2009). This saves the cost of inventory for the retailer and can give an incentive for the supplier to make sure the inventory level is not too high, which otherwise is one of the disadvantages that can occur with VMI (Simchi-Levi, et al., 2009). If VMI is implemented a shift in the contact between the companies will occur from being mostly between the sales and marketing departments to between the logistics departments. This will also make a difference when it comes to price, since the focus will no longer be on ordering to discount prices but on having the right inventory level. The incentives for buying large quantities to get a lower price can no longer be a part of the strategy if VMI is used (Simchi-Levi, et al., 2009).

To be able to use VMI, a sophisticated information system is required to handle the interaction between the companies. *"Electronic data interchange, EDI, or Internet-based private exchanges- to relay POS information to the supplier and delivery information to the retailer- are essential to cut down on data transfer time and entry mistakes"* (Simchi-Levi, et al., 2009, p. 255). Waller et al. (1999) state that EDI is not necessary for VMI to function. If the number of stock keeping is not substantial the retailer could choose to only notify the supplier some of the purchasing information which the supplier can use to decide on how much and when to refill the retailer's stock. This way of handling VMI is suitable for pilot projects (Waller, et al., 1999). However, Waller et al. (1999) also state that: *"Successful implementation of VMI often depends on computer platforms, communications technology, and product identification and tracking systems."* There are several systems available today that can handle VMI (Waller, et al., 1999). The information needed for the concept to work is of confidential nature and therefore a high level of trust between the companies is essential. It might be good for both of the companies to have a contract that states that the savings, which come from implementing VMI, should be shared between the supplier and the retailer. Some criteria for measurement of how the partnership is working out is also a good way of keeping track of each other. Other than that communication and working together is a key variable to a successful VMI partnership (Simchi-Levi, et al., 2009).

According to Dong and Xu (2002) there are advantages for both, the supplier and the retailers, with VMI, however, they also state that VMI always leads to an increase in profit for the retailer but not always for the supplier. *"In the short-term, VMI is found to reduce total costs of the channel system, but under certain cost conditions between buyer and supplier, it could decrease the purchasing price and supplier's profit. In the long-run, it could more likely increase supplier's profit than in the short-run."* (Dong & Xu, 2002, p. 75). Advantages for the supplier are greater knowledge and the ability to coordinate distribution and the

production of the goods (Kannan, et al., 2013). It also reduces the bullwhip effect (Simchi-Levi, et al., 2009). However, not all suppliers believe that VMI will provide benefits for the supplier (Dong & Xu, 2002). Kannan et al. (2013) state that using VMI yields cost benefits throughout the supply chain. As VMI results in better information to the supplier improvements in planning can be made, thus reductions in buffer stocks and excess products can be achieved. This in turn results in reduced transport costs as the supplier also can plan the routing according to the newly gained information in order to achieve full truck loads (Waller, et al., 1999).

The number of deliveries to the retailer's warehouse usually increases, if VMI is implemented. Pipilani (2006) states that the disadvantages of VMI for the retailer are loss of control and the necessary tie to the supplier which makes it difficult to switch suppliers as better offers emerge.

3.5 Push-Pull

Traditionally, supply chains were classified in one of the two extremes of this strategy; they were either a push supply chain or a pull supply chain (Simchi-Levi, et al., 2009). The push supply chains are driven by forecasts (Simchi-Levi, et al., 2009) and their focus lies on the manufacturers that produce and push the products through the supply chain (Zhang, 2008). Since the retailers order the entire supply before selling it they bear all of the supply chain's inventory risks (Cachon, 2004). The push strategy tends to have a longer adaption period to market changes, and there is always some obsolescence of inventory when demand disappears. This is where the previously mentioned bullwhip effect appears and makes planning and managing a difficult task. Along with this comes the decision of whether to build supply based on forecasted peaks or to build it based on an overall average forecast (Zhang, 2008). Because of these problems, unexpected high transport costs, high inventory levels, and unexpected high manufacturing costs tend to occur in the push strategy (Simchi-Levi, et al., 2009).

The pure pull strategy, on the other hand, holds no inventory but instead reacts as the orders are made (Simchi-Levi, et al., 2009), thus the core of it is the consumers and their current demand (Zhang, 2008). Since only the supplier holds inventory while the retailer orders it based on actual current demand, the retailer holds none of the supply chain's inventory risk (Cachon, 2004). There are two requirements necessary for a properly working pull strategy; the availability of a fast information system (Simchi-Levi, et al., 2009) and a fairly quick advance term (Zhang, 2008). With pull strategy there are decreases in a number of logistical steps such as lead times, inventory at retailers, variability in the systems and inventory at the manufacturer. All of which make the pull strategy a very attractive one. However, pull systems are very difficult and impractical to implement as the lead times tend to be too long for certain types of goods. Also, economies of scale are nearly impossible to realize. Therefore, the pure pull strategy only suits certain product types, such as luxury cars for example (Simchi-Levi, et al., 2009).

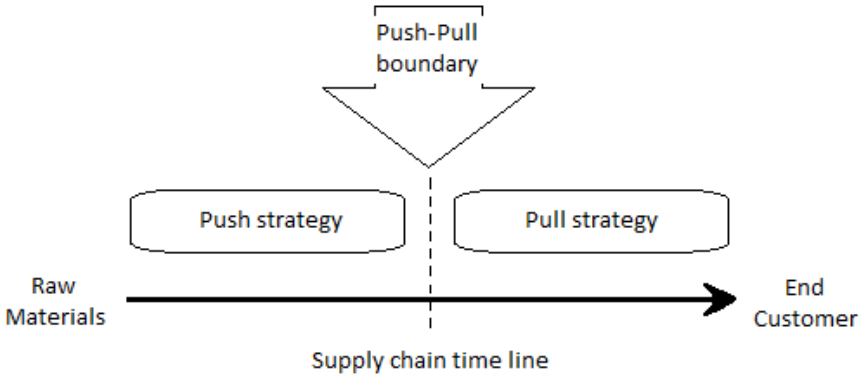

Figure 5. Push-pull supply chains. (Simchi-Levi, et al., 2009, p. 190)

Today, many organizations have seen the advantages of both push and pull strategies and have lately started incorporating a combination of the two; called push-pull strategy. Some even argue that the extremes of pure push or pull strategy throughout the entire chain are nearly eliminated (Zhang, 2008). In a push-pull strategy, one part of the chain is operated in a push-based manner while another is operated in a pull-based manner. Placing the boundary of the two, the push-pull boundary, is the main issue of this strategy (Simchi-Levi, et al., 2009). This boundary is often also called the decoupling point (Harrison & van Hoek, 2011) and is clarified as the point at which the switch from the built-to-forecast mode to the built-to-order mode takes place (Ambe & Badenhorst-Weiss, 2010). In most traditional supply chains, this boundary is set late on the timeline, meaning that the push strategy follows most of the chain and the pull-section usually only refers to the final step from retailer to end consumer. Lately, however, several supply chains have chosen to move the decoupling point to an earlier stage and with it embrace a strategy sometimes called “postponement” or delayed differentiation in product design (Simchi-Levi, et al., 2009). More concretely; postponing the decision on the exact specifications as long as possible to have a greater chance of knowing exactly what the demand of the customers will be (Harrison & van Hoek, 2011). Decoupling point is a fictive point while differentiation points are the real points in the process when the product is given its differentiating attributes (Ambe & Badenhorst-Weiss, 2010). The decoupling point is therefore an aggregate of the differentiating points (Ambe & Badenhorst-Weiss, 2010). As mentioned in the section with general supply chain information, aggregate forecasts are more accurate, and postponement and an earlier decoupling point help to aggregate forecasts. By using postponement the supply chain delays any decision of the specifics of a product as long as possible and in the best scenario they will have standardized components only, all the way until an order by the end customer is placed (Simchi-Levi, et al., 2009).

It can be concluded that there are a number of things to consider when deciding where to put the decoupling point and where to differentiate the products. Uncertainty of demand, scale economy, product characteristics, and market demand are the main ones (Zhang, 2008). The vast disadvantages of the push strategy are offset by its ease of implementation and applicability to the customary buyer-seller relationship, while the great advantages for the retailer by the pull strategy are slightly decreased due to its need of a greater amount of trust established between the parties.

3.6 Cross-docking

Cross-docking has various definitions, mainly depending on the degree to which it is being implemented and equally there are various functions for it, depending on the organization's needs and intentions (Saxena, 2007). Van Weele (2010, p. 377) defines cross-docking as a *"…direct flow of merchandise/product from receiving to shipping, thus eliminating additional handling and storage steps in the distribution cycle."* Other definitions are more specific and incorporate details such as that it is a stop between the manufacturer and retailer (eliminating the wholesaler's warehousing) (Simchi-Levi, et al., 2009) or that its surroundings consist of an entire terminal for the sole purpose of cross-docking and no warehousing is done in connection to it (Stephan & Boysen, 2011). For the purpose of this thesis, however, the more general definition of van Weele is the more appropriate and should be kept in mind. Gattorna et al. (1998) identify cross-docking to be in place at the retailer's distribution center, however, in this instance it is acknowledged that the retailer must have a substantial flow of goods.

Traditional warehouses work in the way that they receive the goods, store the goods, pick them for orders, then ship them (Belle, et al., 2012). Out of these, storing and picking the goods tend to be the most costly. Storing because of the high inventory holding costs and order picking because it is labor intense (Belle, et al., 2012). Reducing these costs should be the warehouses goal and when choosing to use cross-docking, these are eliminated (Belle, et al., 2012). Additional benefits of cross-docking are good customer service, reduction in inventory management, storage space, handling cost, order cycle time, faster inventory turnover, and accelerated cash flow (Wen, et al., 2008). It is advised for retailers to use cross-docking as a slow continuous improvement concept, with great care for correct implementation and a result of large cost improvements.

Apte and Viswanathan (2000) identify four prerequisites of cross-docking; effective handling of the physical flow, effective use of advanced IT for information management, effective use of full-truck-loads shipments, and effective use of proper planning and management tools. Furthermore, they stress the importance of a good flow of information and claim it is at least as important as the physical flow, if not more. If any of these are not implemented and used efficiently, the drawbacks of the cross-docking concept will quickly offset the possible great benefits; processes will slow material movement, increase inventory, and unfavorably affect the distribution efficiencies (Apte & Viswanathan, 2000). Simchi-Levi et al. (2009) also identify good information systems as a prerequisite and add the ensuring continuous flow of goods, accurate forecasts, and information sharing as additional prerequisits. Ideally, cross-docking is used for industries with a steady demand of the products they offer (Apte & Viswanathan, 2000).

3.7 Choosing a Strategy

One of the more basic theories for choosing a supply chain strategy is the Fisher (1997) model, where the nature of the product stands in focus of the decision and the strategies are divided in two categories, making it a two versus two comparison (see figure 6). Fisher's (1997) model is extremely simplified and created mainly for the typical businesses with little

respect to specific circumstances such as those of point-based organizations. However, Fisher's (1997) model has been revised and restructured many times and the researches basing on and developing his model made up for a good base for constructing a model to fit this research.

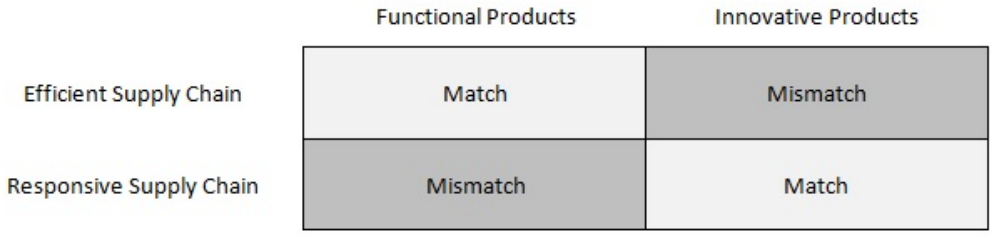

Figure 6. Fisher's (1997) model.

Lo and Power (2010) who put their attention on testing the Fisher (1997) model find it very weak and stress that the choice of strategy, or concept within ones strategy, relies on a vast number of other attributes than just the product type. It is also found that dividing products in two categories; innovative and functional, is not always clear and may therefore result in doubtful conclusions as well as the division of strategies may be unclear or even used in a hybrid way at times. With regard to this criticism, Ambe and Badenhorst-Weiss (2011) identified three simple steps for identifying the right strategy for the supply chain; however, they also, continue to put great focus on the product. The three steps are as follows;

1. Understand the market and the nature of customer demand
2. Determine competencies and capabilities of the company
3. Choose the strategy applicable.

Although they put a heavy weight on the product, Ambe and Badenhorst-Weiss' (2010) steps open up the possibility that the nature of the customers, the company, and the suppliers also need to be taken into consideration. Fawcett et al. (2008), focusing mainly on the barriers of SCM, identify a large part of these characteristics that play a role in the process of choosing a strategy. Park and Ungson (2001) further develop the issue of the complexity in strategies involving increased partnership and give yet another dimension to the model.

Taking these studies into consideration the model below was created in the following way; the authors used the original idea of Fisher (1997) where he tests the match of strategy and characteristic, gathered all relevant characteristics identified by the researchers Ambe and Badenhorst-Weiss (2010), Fawcett et al. (2008), Park and Ungson (2001), and Lo and Power (2010), Beamon (1998), Richey et al. (2010). Some of the characteristics also became very visible in the empirical findings, both in the interviews and observation; these are also presented in the figure 7. The characteristics were chosen to best evaluate the logistics concepts in respect to the current logistics strategy in place at the case company so as to fit the purpose of this thesis. Some of the characteristics were merged or rephrased in order be more comprehensive. Once identified, they were reorganized into categories in order to suit an evaluation model in line with the purpose of the research. The final list of characteristics, the

categories they belong to, a brief explanation of their meanings, and their main origin is found in figure 7.

Category	Characteristic	Clarification	Origin
Supply Chain	Supply chain response time	The time it takes for the entire supply chain to react in changes in demand.	(Beamon, 1998), (Richey, et al., 2010), (Lo & Power, 2010), (Fawcett, et al., 2008), (A. Pihl, Personal Communication, 2013)
	Order fulfillment lead time	The time it takes from the point the order is placed by the end customer, to the point when the customer receives their goods.	(Ambe & Badenhorst-Weiss, 2010), (Fawcett, et al., 2008), (Lo & Power, 2010)
	Advanced notification	The ease of handling temporary information such as current problem, shipment notifications, etc.	(Richey, et al., 2010), (Fawcett, et al., 2008), (Observation, 2013)
	Total logistics cost	Total cost of logistics processes once in operation.	(Beamon, 1998), (Lo & Power, 2010), (Richey, et al., 2010)
Relations	Value added services	Tasks that add value to the product before reaching the end customer, such as co-packing, repacking, etc.	(Fawcett, et al., 2008), (Ambe & Badenhorst-Weiss, 2010), (Richey, et al., 2010)
	Information support system	How advanced the minimum IT system is and how integrated the information sharing can be.	(Richey, et al., 2010), (Park & Ungson, 2001), (Fawcett, et al., 2008)
	Partnership	Level of cooperation needed and introduced.	(Park & Ungson, 2001), (Richey, et al., 2010), (A. Pihl, Personal Communication, 2013)
	Avoid disruption in supply	Reducing the bullwhip effect to avoid stock-outs and rest products.	(Richey, et al., 2010), (Lo & Power, 2010), (Beamon, 1998)
Warehousing	Standardization of operations	Making the activities within the warehouse more regulated.	(Richey, et al., 2010), (Ambe & Badenhorst-Weiss, 2010), (Lo & Power, 2010), (J. Magnusson, Personal Communication, 2013)
	Innovative solutions	The opportunity (considering investment costs, expertise, space) of innovating the processes at the warehouse.	(Ambe & Badenhorst-Weiss, 2010), (Fawcett, et al., 2008)
	Inventory turnover	Amount of times per year the inventory is sold.	(Fawcett, et al., 2008), (A. Pihl, Personal Communication, 2013), (J. Magnusson, Personal Communication, 2013)
	Reverse logistics	The ease of dealing with returned goods, concerning shipping, handling, information, costs, and decision making.	(Beamon, 1998), (J. Magnusson, Personal Communication, 2013)

Transportation	Environment	The effect that the changes in strategic concept have on environmental aspects.	(Park & Ungson, 2001), (Richey, et al., 2010), (Lo & Power, 2010)
	Fill rate	How full the trucks are, inbound and outbound.	(Beamon, 1998)
	Delivery speed	The time it takes to make the delivery from warehouse to end customer.	(Beamon, 1998), (Lo & Power, 2010), (Fawcett, et al., 2008), (Ambe & Badenhorst-Weiss, 2010), (S. Carlsson, Personal Communication, 2013)
	Delivery dependability	The frequency of incorrect deliveries, broken deliveries, incorrectly estimated time in deliveries, etc.	(Beamon, 1998), (Lo & Power, 2010), (Fawcett, et al., 2008), (Ambe & Badenhorst-Weiss, 2010), (A. Pihl, Personal Communication, 2013)
	Distribution coverage	The possibility of reaching every customer.	(Ambe & Badenhorst-Weiss, 2010), (Beamon, 1998)

Figure 7. List of characteristics. (Made by the authors)

Once the characteristics were identified a design of the model was created based on the Fisher (1997) model of making a dual comparison. However, rather than keeping it a two point comparison, i.e. match or mismatch, a five point scale evaluation was used. The final model design is found in figure 8 and can be expanded depending on how many strategic concepts that are being reviewed. It is important to note that each concept is to be compared with the status quo.

	Supply Chain	Relations	Warehousing	Transportation
	• Supply chain response time • Order fulfillment lead time • Advanced notification • Total logistics cost	• Value added services • Information support system • Partnership • Avoid disruption in supply	• Standardization of operations • Innovative solutions • Inventory turnover • Reverse logistics	• Environment • Fill rate • Delivery speed • Delivery dependability • Distribution coverage
++	**Significant Improvement**			
+	**Slight Improvement**			
0	**No change**			
-	**Slight Deterioration**			
--	**Significant Deterioration**			

Figure 8. The model. (Made by the authors)

The final rating of the characteristics is also shown in the model as it is in use in figure 9 which can be found in section 5.1. As mentioned, the authors chose a five point rating scale where the basics of identifying the improvements and the deteriorations would be shown clearly while at the same time allowing for an additional step to show if the change in the characteristic would be marginal or substantial. Chopra (2003) uses the five point scale where, instead of numbers there are plus and minus signs, so as to illustrate that lower scores are negative, the middle point is neutral, and the higher scores are positive. This was incorporated in the model with the slight modification that a zero was used, instead of a combination of plus and minus, in order to maintain the highest possible visual clarity in the created model.

4 Empirical Data

In this section a summary of the empirical findings derived from the interviews as well as the observation will be presented. The individual questions can be found in the appendix.

4.1 Introduction

Interviews were performed at Miljonlotteriet with Ann Pihl and Johan Magnusson. Ms. Pihl is the chief buyer and Mr. Magnusson the warehouse manager. In addition to those, interviews with persons from three of Miljonlotteriet's suppliers were performed. The suppliers were "company A", MerxTeam AB and Markslöjd Lightning Group. At "company A" the authors spoke with a board member of the company, at MerxTeam the authors interviewed Edwin Heuvelman, the Managing director and finally the authors spoke with Sara Carlsson, the Supply Chain Manager at Markslöjd.

Ms. Pihl (A. Pihl, personal communication, 2013-03-13) and Mr. Magnusson (personal communication, 2013-04-10) both described the flow of goods at Miljonlotteriet from finding a new product to the shipment to end customer in detail. First, the right product needs to be found and an inspiration source is different fairs in Sweden, Germany and China (A. Pihl, personal communication, 2013-03-13). When a product is found, a sample is taken to the company for testing, to see if the product holds the right standard. If it passes the test, it is valued and the cost of transporting it to customers is investigated. Products that are too heavy or for other reasons such as a high transport cost to the end customer cannot be ordered since the high transport cost will make the product uneconomical. Then, the product is ordered and when the order is confirmed it is put into the system. When the goods are delivered to Miljonlotteriet's warehouse the order is printed and the number of products delivered written on the order, Ms. Pihl (personal communication, 2013-03-13) describes. Mr. Magnusson (personal communication, 2013-04-10) says that the goods are delivered either on pallets or in containers. The person responsible for incoming goods adds the delivery into the system, including the size of the delivery, the weight and how it is supposed to be placed. Ms. Pihl (personal communication, 2013-03-13) states that if the received goods do not match the order the person receiving the goods contacts the assistant buyer who in turn contacts the supplier. Mr. Magnusson (personal communication, 2013-04-10) describes how the goods are placed in pallet spaces within the IT system and only then are seen as being in the warehouse. The goods are later moved to the picking area. When a customer of Miljonlotteriet has won, they can order a product online, says Ms. Pihl (personal communication, 2013-03-13). Every day Miljonlotteriet has something they call "vinstkörning" (which literally means "prize run"). This is when the address of the receiver of the goods is printed which means that the product is reserved for that particular customer. The actual act of sending the goods may happen shortly after the "vinstkörning" or several days later, depending on the current load of work (A. Pihl, personal communication, 2013-03-13).

Ms. Pihl (personal communication, 2013-04-08) thinks that one of the aspects that make Miljonlotteriet so special is that the money they make does not go to any stockholder but to

charity. Another aspect she mentioned was the fact that they are such a large buyer of one product and never buys whole product types such as several types of cameras.

4.2 Purchasing

The products are chosen, to a large extent, based on the experience and "gut feeling" of Ms. Pihl, says Ms. Pihl (personal communication, 2013-03-13). They try several products and notice what is going well and what is not. Usually electronic products are very popular, she continues. The demand for the products from the customers can be influenced by Miljonlotteriet according to Ms. Phil (personal communication, 2013-04-08). The products can be presented on both, the webpage and the magazine, or only on the webpage. Products that are presented in the magazine are always more popular than the ones presented only on line (A, Pihl, personal communication 2013-04-08). The pictures showing the products are very important too. The picture has to show the product in a good way so that it appeals to the customers and they clearly understand what kind of product it is. There are never two similar products offered at the same time, if a camera is offered as a prize it is only one kind of camera and not several types. The demand for one type of product can only be met by one specific product at a time (A, Pihl, personal communication 2013-04-08).

When an order is placed there are several factors to be taken into consideration such as which season it is. The winter/spring is Miljonlotteriet's busiest time. Also, products with a value of less than 400 SEK can be ordered in container loads, products with higher values are usually ordered in smaller amounts, states Ms. Pihl (personal communication, 2013-03-13). When they do direct imports they need to order at least a 20 foot container. After the product has been available for the customers for about one month they can make a forecast for the next six months. During the first months after a product is introduced, the demand is the greatest, then it slowly declines as the long time subscribers' demand for the product becomes saturated. One, two or even three containers of a product can be needed, but usually not more, depending on the product. It is not any ordinary market, says Ms. Pihl (personal communication, 2013-03-13). When the demand goes down for a product, it is still presented on the homepage for some time. Really old products are written off, but products that have been gone for a while can be photographed again and be "new" once more. There is a budget for obsolescence but only about 60 percent of that will be used. Obsolescence is not a big problem for Miljonlotteriet, states Ms. Pihl (personal communication, 2013-03-13).

If Miljonlotteriet runs out of a product, and it is still requested by customers, there is a decision to be made, Ms. Pihl (personal communication, 2013-03-13) points out. Either a new order is placed, this is usually the case when it is a product from a Swedish supplier since delivery time is shorter, or the customers get their money back on their winning account and can chose another product, more common for Chinese products as an order from China takes about 13 weeks to reach Miljonlotteriet. This is allowed today, unlike before when the law was much more strict and companies like Miljonlotteriet were always required to deliver the goods demanded by the customers. What helps is that today, Miljonlotteriet has more products to offer to customers, making the unavailability of one product less of a problem for each customer (A. Pihl, personal communication 2013-03-13). Forecasts are made and

compared with what actual figures. Track is also kept of how much is ordered each week. Today, there are no calculations on ordering costs but they have a new controller working on this. (A. Pihl, personal communication, 2013-03-13).

There are some advantages to Miljonlotteriet compared with others when they order products, states Ms. Pihl (personal communication, 2013-03-13). Since the products are not sold but won there is no competing on a normal market space and the product prices do not show up on sites where prices from different retailers are compared, she continues. This means that Miljonlotteriet are not disturbing any other channels that sell the same products to consumers. However the product is marketed, for example if the product is in the magazine delivered to Miljonlotteriet's customers. Due to that Miljonlotteriet get a discount on the products from some suppliers (A, Pihl, personal communication, 2013-03-13).

4.3 Relations

About 60 percent of Miljonlotteriet's suppliers are Swedish, states Ms. Pihl (personal communication, 2013-03-13). Some of the suppliers have a very wide range of products, so from some suppliers as much as 50 products might be ordered while others only supply one product to Miljonlotteriet. However, when they buy from a supplier they do not buy several different products within the same category. For example, if they buy a camera, they only buy one type of camera. However, as they will need a large amount of this particular good they often become the largest current buyer of it in Europe. The fact that they buy such large quantities of just one product makes it difficult for some of the suppliers. On the question if they buy from retailers such as Jula or Clas Ohlson Ms. Pihl (personal communication, 2013-03-13) answers that those companies do not allow other companies to buy their products. Ms. Pihl (personal communication, 2013-04-08) identified the largest suppliers and said that "Company A", Markslöjd and MerxTeam were among them. Miljonlotteriet does not use mail order companies as suppliers but sometimes they cooperate with them through sharing address and sending offers from Miljonlottereit together with the send outs that mail order companies such as Ellos send to their customers since the target groups are the same (A, Pihl, personal communication 2013-04-08).

Miljonlotteriet is reducing the amount of goods they order from China and aim to eliminate it completely, though there is still a smaller amount of products ordered from there. This is due to the fact, that unique products can be found in China. Before going to China it is difficult to predict what type of product could be found, but Ms. Pihl (personal communication, 2013-03-13) stresses that great products are always found there. Ms. Pihl (personal communication, 2013-03-13) states that the decision process of buying relies to a great extent on her "gut feeling" and previous experiences of similar products. Ms. Pihl (personal communication, 2013-04-08) says also that to some of their suppliers they state how many products they want each month and the supplier delivers that even if the supplier in turn has to order a larger quantitative once from its own supplier to meet the request from Miljonlotteriet.

On the question of which advantages and disadvantages Ms. Pihl (personal communication, 2013-04-08) could see if the supplier could deliver directly out to customer to a good price,

she answered that the benefit would be that Miljonlotteriet would not need any warehouse and the disadvantage would be that, if not good enough forecasts were made from Miljonlotteriet the supplier would have stock-outs. Another disadvantage she sees would be that the supplier might try to hide problems, for example stock-outs.

4.3.1 MerxTeam

MerxTeam mostly provides kitchen related products, but has also a range of other products to offer their customers. They deliver to their customers' warehouses and for some of their customers they take care of the logistical process and deliver directly to the end user of the products. MerxTeam has been a supplier to Miljonlotteriet for some years, states Mr. Heuvelman (personal communication, 2013-04-23).

MerxTeam has chosen to specialize on a specific range of products and can, therefore, focus on increasing the volume sold of those products. By doing this, they can take advantage of accumulated demand forecasts which make it easier to hold stock. Having a stock, creates availability for the customers which, along with the distribution solutions are what MerxTeam makes money on, according to Mr. Heuvelman (personal communication, 2013-04-23). It is not by selling a product, but having a good warehouse and logistical strategy that they make money. If a customer wants something outside the ordinary product list, MerxTeam will deliver it, providing that the volume requested by the customer is high enough to justify it or is closely related to existing product range, says Mr. Heuvelman (personal communication, 2013-04-23). He also states that stock-outs can occur, but this is not a significant problem for the company.

MerxTeam delivers about one thousand orders per day. The customers have access to their business system in which they can see the time of delivery and other vital information. Mr. Heuvelman (personal communication, 2013-04-23) says that the forecasts they receive from their customers concerning the amount of goods that will be demanded is difficult to predict and, it is often incorrect. There is also no certainty on what type of product the customers will demand. However, to deal with these problems they keep track on what is ordered each week during the past two years and then calculate forecasts and trends. (E. Heuvelman, personal communication, 2013-04-23). MerxTeam has almost no wrong deliveries and their system is very safe, which means that the customers do not need to control each delivery they receive, but can put it straight into their own warehouse, which saves time and money. (E. Heuvelman, personal communication, 2013-04-23).

Logistics is very important to MerxTeam. The products they deliver are not unique in function, sometimes in design, so to compete they need to deliver more than a product, explains Mr. Heuvelman (personal communication, 2013-04-23). In this process they work with packaging and printing, to make sure that their customers' customer gets the products on time. What makes MerxTeam unique within their field is that they deliver both to their customer and to the customers' customer. Often they take care of the whole warehousing and logistics part for their customers, this puts higher quality demand on their warehouse and logistical solutions, says Mr. Heuvelman (personal communication, 2013-04-23). If a

customer makes an order before 12am and the delivery point lies between Malmö and Sundsvall, the goods leave the warehouse the same day in order to be delivered the next day, since they keep a stock of goods. The logistical solutions chosen by the company is a way to compete with other companies (E. Heuvelman, personal communication, 2013-04-23).

Mr. Heuvelman (personal communication, 2013-04-23) states that the logistical solution they provide for Miljonlotteriet is straightforward. They take care of the buying process and transporting of the goods that Miljonlotteriet orders from them. Several years ago Miljonlotteriet and MerxTeam discussed the possibility for MerxTeam to transport the products directly to the customers. A task that, if Miljonlotteriet wishes, MerxTeam has no problems of managing, says Mr. Heuvelman (personal communication, 2013-04-23). MerxTeam already sends products to end customers. More than 65 percent of their deliveries go to the end customer, some of which are private persons and other which are companies such as restaurants. The transport is performed by transport companies such as Posten. MerxTeam has a weight based transport price within Sweden, however, if the customer chooses to the goods can be pick up at MerxTeam's warehouse. (E. Heuvelman, personal communication, 2013-04-23)

Mr. Heuvelman (personal communication, 2013-04-23) says that he has seen a tendency at many companies to have larger stocks than they need. This is a huge cost for them since many products stay in the warehouse for a long period. Several companies also have problems calculating this cost for stock keeping. They do not know that there is a lot of money to be made and saved from good logistical solutions. Mr. Heuvleman (personal communication, 2013-04-23) states that a challenge for companies that send goods in smaller loads than pallet size is that a package with several products needs to be broken down in order to send it out, for example, just one product. This needs to be managed in a good way so that money can be made on sending out just one product instead of many. It is a challenge to find the right solution to that problem (E. Heuvelman, personal communication, 2013-04-23).

Mr. Heuvelman (personal communication, 2013-04-23) says that a trend that he has noticed now is that the larger companies are becoming larger and take up a bigger part of the turnover for MerxTeam. Another trend is for companies to have very small stocks and deliveries coming more frequently instead.

4.3.2 "Company A"

"Company A" sells mostly technology products and Miljonlotteriet has been their customer for many years (Board member, personal communication, 2013-04-18). They have a buffer stock in Gothenburg and a warehouse, with substantial flow, in another city in Sweden (Board member, personal communication, 2013-04-18). "Company A" takes care of the business and logistical part of a deal and tries to keep the number of times the goods are loaded and unloaded to a minimum, says the Board member of "Company A" (personal communication, 2013-04-18). They work actively at minimizing the transport and stock keeping, which means that some of the products never reach their warehouse or the buffer stock in Gothenburg since

they arrange for the manufacturer to deliver it straight to the customer's warehouse (Board member, personal communication, 2013-04-18).

The Board member of "Company A" (personal communication, 2013-04-18) points out that Miljonlotteriet has quite high requests for margins which means that "Company A" needs to keep the costs down to meet those requests. One of the ways they keep costs down is by having the goods transported directly from the main warehouse to the customer. For example, they have some products that go directly from China to Miljonlotteriet without stopping in any Swedish warehouse first (Board member, personal communication, 2013-04-18). The customary way for "company A" to transport goods from China is by ship, but if some products are needed immediately, they sometimes transport them by air, which of course is much more expensive (Board member, personal communication, 2013-04-18). When "company A" transports the goods from their warehouse they use Posten. Here they have an advantage by having a partner who has a substantial flow of goods, since they deliver to the end customer. This gives their partner a good price for the transport of goods and "company A" benefits from that since they can use the same deal (Board member, personal communication, 2013-04-18).

"Company A" does not sell to private consumers; they only sell business to business states their Board member (personal communication, 2013-04-18). This is much due to their great competence in their area and that the consumer market has never appealed to them. The questions to deal with if the products are sold to a consumer market are completely different and it is not of interest for "company A" (Board member, personal communication, 2013-04-18). When "company A" sells from their warehouse there is some tough competition, and to be able to compete they need to minimize the handing and have a good logistics process (Board member, personal communication, 2013-04-18). "Company A" is not working towards VMI with their customers as their business strategy does not comply with the concept. "Company A" sees the logistics processes as a competitive advantage. They have several technical solutions that make the planning for the customer easier, such as possibility for the customer to see if a product is in the warehouse or not. The logistical solutions and the warehouse that "company A" has is all a part of the way they compete with other companies according to the Board member (personal communication, 2013-04-18).

4.3.3 Markslöjd

Markslöjd AB sells lighting products to businesses. They deliver the products both to company's warehouses and take care of the logistical processes for companies, such as e-commerce companies where they deliver directly to the end customer, says Ms. Carlsson (personal communication, 2013-04-03).

Markslöjd has one warehouse in Sweden that supplies the western European part of the companies' customers. The warehouse consists of 13 000 pallet spaces and has a value of about 55 million SEK. The warehouse delivers goods to a value of around 500 000 to 1 million SEK per day. In the peak season that number goes up to a couple of millions instead, states Ms. Carlsson (personal communication, 2013-04-03). The deliveries from the

warehouse are done by several different transporting companies such as Posten, Schenker and others. The transporting company that is used depends on where the goods are going to and who can perform the transport at the lowest price at that time (S. Carlsson, personal communication, 2013-04-03).

The difference between delivering to an end customer or to a retailer is quite substantial, says Ms. Carlsson (personal communication, 2013-04-03). When goods are being sent to a company the delivery is often done per pallet and to one place. When goods are sent to end customer sone or a small number of products are being sent to each place. Another scenario is that some companies do not want to have large stocks of products and need smaller deliveries instead, states Ms. Carlsson (personal communication, 2013-04-03). When deliveries are made to end customer the delivery looks like it is coming from the customer of Markslöjd and not from Markslöjd itself. In such cases Markslöjd performs the logistics for their customer. Markslöjd is quite large in this type of deliveries to end customers. However, some of their competitors also use this type of strategy for delivering to customers and companies. The decision to use the strategy of providing the logistics service to their business customers was made when Markslöjd noticed the growing e-commerce market and wanted to take advantage of it. Ms. Carlsson (personal communication, 2013-04-03) says they call it Drop-Shipping and this form of business stands for about 5-10 percent of their turnover. However Markslöjd has noticed an increase in the demand for this type of solutions from companies, states Ms. Carlsson (personal communication, 2013-04-03). On the question if this type of solution is an advantage for Markslöjd, Ms. Carlsson (personal communication, 2013-04-03) answers that it both is and is not. Markslöjd is good at the logistical solutions and have no problem providing it to the customers. The advantage she can see for their customers with such a solution is that Markslöjd does it well and fast. It is a service they provide, Ms. Carlsson (personal communication, 2013-04-03) concludes.

The contracts between Markslöjd and their customers differ, whether Markslöjd is sending directly to end customers of the company or to the company itself. When they send directly to end customers the cases are dealt with on a case to case basis, but when delivery to a customer’s warehouse is made, the cases are merged on, for example, a monthly basis. The contracts are also negotiated with each company and the extra cost for delivering to end customers is added as a transport and handling fee, says Ms. Carlsson (personal communication, 2013-04-03). The delivery within Sweden up to Sundsvall is generally completed in a day. Sometimes they reserve a number of products for a customer so that they can promise to be able to deliver that amount without stock-outs (S. Carlsson, personal communication, 2013-04-03).

4.4 Warehousing

Mr. Magnusson (personal communication, 2013-04-10) refers to one of his colleagues to answer the question of the cost for the warehouse, but estimates it to be around 3.2 million SEK. The warehouse itself consists of 1600 pallet spaces and seven workers are employed full time within it. During the periods with much to do in the warehouse the workers sometimes

has to work overtime and additional personnel might be brought in to help with the work. (J. Erlandsson & A. Pihl, personal communication 2013-03-07)

According to Ms. Pihl (personal communication, 2013-03-13), Miljonlotteriet tries to avoid repacking the products, as it takes too long to do and packaging material is expensive. She says that they try to get as much as possible delivered to their own warehouse in a way that no repacking is necessary. However, this is not always possible from a cost or practical perspective. Therefore, some repacking must be done, she concludes. Mr. Magnusson (personal communication, 2013-04-10) says that a great deal of co-packing is done, when a customer has ordered more than one product they can sometimes be packed together to save transportation cost. This cannot be done with all products since some products might be too large to be co-packed or in other ways make co-packaging difficult.

The greatest challenge with the warehouse today is to make the workers develop their skills and learn how to handle more tasks so that they can perform those when needed, according to Mr. Magnusson (personal communication, 2013-04-10). The warehouse of Miljonlotteriet is a bit outdated, there are few tools there. For example mail order companies that have larger volumes are more effective. Miljonlotteriet would need larger volumes if they were to optimize the way they work today states Ms. Pihl (personal communication, 2013-04-08).

On the question, what she thinks would be the main challenges if the warehouse were to be outsourced, Ms. Pihl (personal communication, 2013-04-08) answered that it would be if the system does not work, that it is implemented wrong, that the wrong person were chosen to implement it, that the top management of the company must place great emphasis behind it, it would have to be monitored all the time and the logistical solution has to be perfect. If the right demand was set towards the other company and it would work it would be good for the variations in demand that Miljonlotteriet has between different seasons (A, Pihl, personal communication, 2013-04-08). Ms. Pihl (personal communication, 2013-04-08) sees no extra value in offering differentiation of the products to the customer for example offering an X-box and the possibility to choose which games that should be included in the prize rather than just winning an X-box with already decided games included. They try to have a width on the products that can be won and do not want to offer similar products.

The area of the warehouse is just enough for the current needs of Miljonlotteriet, states Mr. Magnusson (personal communication, 2013-04-10). He does not think that an outsourced warehouse could do what they do to a lower cost and if outsourcing was done there would be large deterioration in quality. He also stresses that the persons working for Miljonlotteriet have the heart for the company and know which send outs need to be prioritized, perhaps due to stock-outs (J. Magnusson, personal communication, 2013-04-10). The pros Ms. Pihl (personal communication, 2013-04-08) sees from having the warehouse internal within Miljonlotteriet is foremost the sense of responsibility that everyone within the company has. All of the personnel feel responsible for the goods and the delivers that they do. This means that there is an extra quality check from that sense of responsibility and which is valuable. No damaged goods are sent out and if there is a mistake done it is likely to be detected. If the warehouse would be controlled by someone outside the company there is a large

responsibility to manage that right and make sure that the company handling the warehouse is doing it right. There needs to be a lot of controlling to make sure that nothing goes wrong (A, Pihl, personal communication 2013-04-08).

4.4.1 Observation of the Warehouse

A general observation of the warehouse operations as a whole, was that the information flow throughout the company varied in its form. While there is an IT system in place where all the inventory information is being held, many other parts of information travel through various communication channels such as phone, e-mail, personal communication, and information boards.

Receiving of Goods

Mr. Liljeros who is responsible for the receiving of the goods within the warehouse described the process. He states that he usually gets a phone call or message a few days before the goods are delivered to the warehouse in order to plan the reception of goods ahead of time. The delivery is made by truck, in containers or on pallets, and arrives at the furthest end of the warehouse in the buffer stock area. Mr. Liljeros compares what has been delivered, to a specification of what has been ordered, which he receives from the purchasing department. Some of the suppliers make few mistakes and are therefore are not checked as thoroughly as deliveries from other suppliers. Then, he checks the number of products received. If the goods are co-packed, he opens maybe one or two boxes and counts the number of products in the boxes. He then multiplies the number he finds in one box with the number of boxes and compares the result with what was ordered. He checks the commodity identification number and the color of the products. If one of the packages looks damaged, he opens it and investigates if the goods are damaged or not. When the control of the received goods is done, Mr. Liljeros enters the delivery into the system which shows that the goods are at the warehouse. This is done even if only a part of the ordered goods has been delivered. If smaller discrepancies occur the supplier is contacted and a solution is agreed upon. When the goods are within the system, Mr. Liljeros checks if the stock in the picking area is low or has run out of products. If such is the case, he can choose to put the whole or parts of the delivery straight into the stock at the picking area or even sometimes directly to the packing area. If the goods are not needed in the picking area, he chooses a pallet place within the buffer stock. A product that has been in stock before often has its given place already. With new products he needs to find an available place in the computer system to put the products in. Sometimes Mr. Liljeros needs to re-stack the products so they will fit into the shelves of the warehouse. The sizes of the places to store the goods vary. Mr. Liljeros explains that that is deliberate since some smaller goods do not take up as much space as others and can therefore be stored in smaller sized places.

Their systems for the buffer stock and the picking stock are not the same. In the buffer stock the shelves are named in alphabetical order and the shelf spaces are marked with numbers. That system is foremost used by Mr. Liljeros to see the status of the places and be able to place the goods correctly. This system is also present within the picking stock area, however, there it is only used by Mr. Liljeros since the other workers use another system. The other

system is within the picking stock and consists of two letters that show what type of product it is and a couple of numbers that separate the goods from each other. This is mostly used by the persons picking the goods for delivery out to the customers. The number of the place of the goods in the picking stock is stated on the ordering notes. Sometimes Mr. Liljeros needs to move a few products around to make place for a new load of products but usually not, since he leaves a few empty places between the goods if he can. If two products are part of one prize, they are placed in the same spot in the picking stock in the same amounts. Mr. Liljeros usually prints out a note and hangs it above the products to remind the persons packaging the products that they are supposed to be packed together.

Packaging

The picking area is divided into an area for the picking stock and an area where the packaging is done. The packaging area is divided into three stations. One station is where the tickets are packed to be sent out to stores and companies that sell the tickets to customers. This is performed by one person responsible for ticket packaging. Tickets that are sent out directly to Miljonlotteriet's customers are printed and sent out by another company. The other two stations are where the products are packed; one for packaging of single products to each customer and one for co-packaging, if a customer has ordered more than one product. The orders are received in the picking areas as address notes with all the information needed on them to pick the products, pack them and send them out to the customers. The information is the number of products, where they are located in the picking stock area and the customer's address. The notes come in bundles of 15 in alphabetical order to make the products easier to find. The bundles are divided in single product shipments and co-packing shipments. The co-packing bundles have the orders with fewest products first. The bundles with several products that need to be co-packed are usually done by the more experienced personnel, since it is up to the person to pack the goods well enough so it does not break but also so that the packing material is not wasted. For the single products that are sent out, the way of packing is generally more standardized. If they already are in a box, the address note is placed directly on it without further packaging. If they are not satisfactorily packaged they are placed within a box or a grey plastic bag before they are sent to the customers.

Some products cannot be co-packed due to their size, weight or other factors. The system cannot make a difference for products that could be packed together with smaller products but not with larger products. If a product cannot be packed with some products it is marked as not being able to pack together with any other products, in this case, the personnel has no possibility of making the choice and co-packing it anyway.

The persons working with the packaging choose themselves how they work, if they pick up several products from the picking stock area at once or just one at the time. They can also choose to work with several bundles of address notes at the same time or just one at the time. Mr. Magnusson states that the employees work more effectively, if the can work the way that they think is best for them, rather than if he would standardize the whole picking and packing process. When a product is packed, it is placed in a commodity cart which needs to be packed with goods so it is as full as possible to save space. When a commodity cart is full it is taken

out to the place where the transporter of the products picks it up to deliver it to the customers. DHL picks up goods two times a day when they also pick up from other places, says Mr. Magnusson, while Posten comes more seldom as their pick-ups from Miljonlotteriet are smaller.

Mr. Magnusson states that he does not think that another company can make the same work as they do in the warehouse, as well as they do it today. The contact between the warehouse and the purchasers is very good, according to Mr. Magnusson. The persons working for Miljonlotteriet have a greater feeling of responsibility towards the company compared to what could be possible for persons that are not working within the company. If the warehousing functions were performed by another company, they would not have the same knowledge and the responsibility that the employees within the warehouse of Miljonlotteriet have, says Mr. Magnusson. Another company could not see what has been ordered and out of stock for a while and would not know how to prioritize concludes Mr. Magnusson.

Reverse Logistics

It is not common that a product is returned to Miljonlotteriet from a customer, but the reasons for returns vary, states Mr. Magnusson. Products that are broken, that the customers are not satisfied with, or that a customer has not collected at the delivery point are sent back. The goods that are returned to Miljonlotteriet are controlled and if the package is not broken and the product is intact the product can be put back into the stock. The products that are sent back are entered into the system, the reason for the return is stated and it is treated accordingly. Returned lottery tickets, for example, are not sent out again, so as to ensure that no one has tampered with them.

If a product of low value is broken, when it is delivered to the customer, the customer gets a new one without sending the old one back. If the value of the product is higher, a return address note is sent to the customer, so that they can return the product either to Miljonlotteriet or to the supplier, depending on the supplier's routines. Some suppliers want the broken product back to fix it, others do not want the product back. If the suppliers do not want the product back, it is sent to Miljonlotteriet who controls it and either sends another of the same product, a new product or puts the customer's money back into the customer's winning account again, states Mr. Magnusson.

Stock-outs

If a customer has ordered a product that is not in stock they receive a letter informing them of the situation. These letters are sent several times, if the product continues to be out of stock for a longer period, to update the customer. The letter, which is a standard letter, is put into the envelope in a machine at Miljonlotteriet, but the enveloping of the tickets and other things sent out to the customers is outsourced to another company. Mr. Magnusson states that the letters of stock-outs are so few that it is cheaper to do them in-house.

4.5 Transportation

Mr. Magnusson (personal communication, 2013-04-10) estimates that about 1000 send-outs are done in one day. How many lottery tickets that are sent out vary substantially and is therefore difficult to estimate.

Gift vouchers, Ms. Pihl (personal communication, 2013-03-13) states, are delivered directly from the supplier, without going to Miljolotteriet's own warehouse first. On the question if their suppliers can deliver directly to the customers instead of to Miljonlotteriet's warehouse, Ms. Pihl (personal communication, 2013-03-13) states that Miljonlotteriet has much better contracts with the delivery companies. They can therefore get much lower prices on the delivery to customer than what their supplier would offer for delivering directly to the customers. Also, most of their suppliers are business to business companies that do not deal with customer delivery. As an example, Ms. Pihl (personal communication, 2013-03-13) states that electronic devices are difficult to find for such a deal. On the question if they had thought about having a contract with Markslöjd where they deliver to the customers instead of to Miljonlotteriet's warehouse, she answered that it would be more expensive for them than if they did the delivery themselves, much due to the better contracts with delivering companies. According to Ms. Pihl (personal communication, 2013-03-13), a 3PL cooperation with one of their suppliers would not work. As it is now they get too good prices on the delivery and have full loads of trucks leaving the warehouse, she continues.

5 Analysis

In this section, the results and analysis of the data collected will be presented, including the outcomes of the interviews as well as the observation with respect to the theories previously discussed. The model created will be used to evaluate the concepts, barriers will be analyzed and a final analysis of everything included will be obtainable.

5.1 Evaluation Model

The complete evaluation model with all concepts and scores can be seen in figure 9 and a bar chart of the comprised total scores is found in figure 10, for illustrational purposes. The total points of each model as well as total points per category of each concept are also presented in the rich model in figure 9. All scoring has been executed through the analysis of the previously presented theoretical and empirical findings and these analyses can be found in the following sections of the chapter.

Supply Chain strategy	Supply Chain		Relations		Warehousing		Transportation		Total Score
3PL	• Supply chain response time	0	• Value added services	0	• Standardization of operations	++	• Environment	+	
	• Order fulfillment lead time	+	• Information support system	+	• Innovative solutions	++	• Fill rate	+	
	• Advanced notification	-	• Partnership	0	• Inventory turnover	0	• Delivery speed	0	
	• Total logistics cost	++	• Avoid disruption in supply	0	• Reverse logistics	--	• Delivery dependability	0	
Score		2		1		2		2	7
Drop-shipping	• Supply chain response time	+	• Value added services	-	• Standardization of operations	+	• Environment	++	
	• Order fulfillment lead time	++	• Information support system	++	• Innovative solutions	+	• Fill rate	+	
	• Advanced notification	-	• Partnership	++	• Inventory turnover	++	• Delivery speed	++	
	• Logistics cost	++	• Avoid disruption in supply	+	• Reverse logistics	0	• Delivery dependability	0	
							• Distribution coverage	0	
Score		4		4		4		5	17
VMI	• Supply chain response time	+	• Value added services	0	• Standardization of operations	0	• Environment	-	
	• Order fulfillment lead time	+	• Information support system	+	• Innovative solutions	0	• Fill rate	0	
	• Advanced notification	0	• Partnership	++	• Inventory turnover	++	• Delivery speed	0	
	• Logistics cost	+	• Avoid disruption in supply	+	• Reverse logistics	0	• Delivery dependability	0	
							• Distribution coverage	0	
Score		3		4		2		-1	8
Push-Pull	• Supply chain response time	+	• Value added services	++	• Standardization of operations	-	• Environment	+	
	• Order fulfillment lead time	--	• Information support system	+	• Innovative solutions	0	• Fill rate	+	
	• Advanced notification	0	• Partnership	+	• Inventory turnover	0	• Delivery speed	0	
	• Logistics cost	-	• Avoid disruption in supply	++	• Reverse logistics	0	• Delivery dependability	0	
							• Distribution coverage	0	
Score		-2		6		-1		2	5
Cross-docking	• Supply chain response time	+	• Value added services	0	• Standardization of operations	+	• Environment	-	
	• Order fulfillment lead time	++	• Information support system	++	• Innovative solutions	+	• Fill rate	-	
	• Advanced notification	+	• Partnership	+	• Inventory turnover	++	• Delivery speed	0	
	• Logistics cost	+	• Avoid disruption in supply	0	• Reverse logistics	0	• Delivery dependability	0	
							• Distribution coverage	0	
Score		5		3		4		-2	10

Figure 9. Model with scores. (Made by the authors)

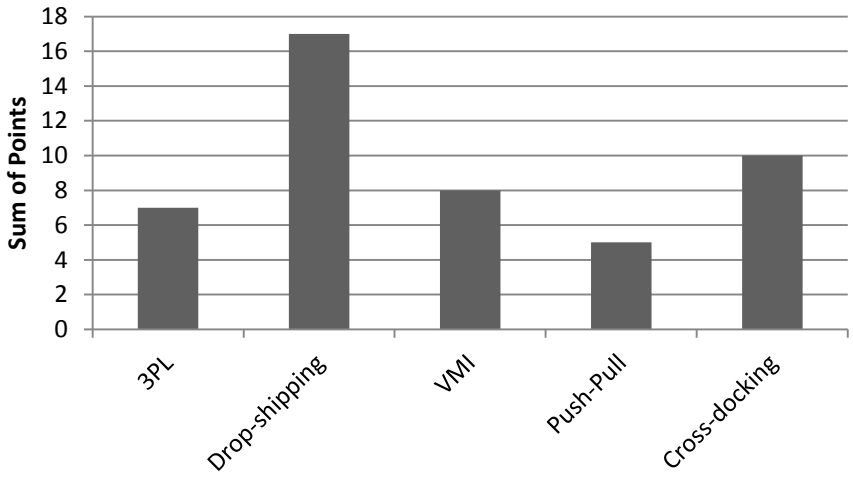

Figure 10. Total scores of each concept. (Made by the authors)

5.1.1 Third Party Logistics and Outsourcing

Supply Chain

The supply chain response time of 3PL stay the same whether the warehouse is outsourced or kept in-house due to the risks of the bullwhip effect are just as great with this concept. Order fulfillment lead time will increase slightly as the professional logistics firm is more likely to perform the warehousing and distributing tasks quicker than a retailer whose main expertise lies in other sections of the business. The improvements in the information support system needed for the concept to work efficiently will help the advance notification slightly. However, the whole information supply chain has been increased with one actor and is most likely to complicate the matter for the existing parties of the chain. The total logistics cost will decrease as each of the inputs in the logistics process will be shared amongst a greater amount of products, making each shipment cheaper. This aspect gives the opportunity for great cost savings as it includes such costs as rent, electricity, heating, employees, gas, and so forth.

Relations

Adapting to 3PL by outsourcing warehousing will not affect relations greatly. The value added services such as co-packing and repacking will, if requested, still be done to the same extent. Partnership, will be unchanged as the warehousing is just another service bought from another company and the relationships with the suppliers stay the same, while the relationship with the 3PL company becomes similar to the relationship with, for example, Posten that they have today. The disruptions in supply stay the same as the number of steps within the supply chain will be the same as well as the information sharing between the parts. The only change within the relations section would be a slight increase in the information support system, a required change for the concept to work and for the information to be able to flow effectively between, Miljonlotteriet and the 3PL provider.

Warehousing

The warehouse itself will be larger and hold and handle a much larger quantity of goods, therefore, it will have a greater standardization of operations as well as more innovative solutions. 3PL companies tend to have large warehouses and handle many goods each day, standardization is, therefore, a requirement in order to operate efficiently. At the same time, the 3PL companies also have a greater focus on the logistics processes and each investment in improvements and innovations are not only put on one company's logistics cost, but distributed amongst many, giving each of their customers an even greater cost advantage. Inventory turnover will stay the same as the purchasing and delivering processes, in this concept, remain unchanged, as the 3PL company and its other customers will not in any way affect the amount of goods Miljonlotteriet chooses to hold in inventory. The reverse logistics may in this concept cause excessive problems. To which destination should the returned goods be sent? Who will be responsible for deciding if a product is in a good enough shape to be returned to the stock? Who will decide how a customer will be compensated for which situation? These are all difficult questions that occur in this area. If the goods are sent back to Miljonlotteriet for all decision-making, they will end up with a number of undamaged products at their offices which will need to either be sent to the 3PL company, have their own system of sending goods to customers from their own office, or simply be credited for as returned and, therefore, damaged goods. If the goods, on the other hand, are sent back to the 3PL company, Miljonlotteriet will need to trust them to make good decisions whether the products are good enough to be resold or if they need to be disposed. Although Miljonlotteriet claims that these returns do not account for a great deal, it is still a significant question in the implementation process of the concept, if the concept would be adapted.

Transportation

A 3PL company has a greater flow of goods through its warehouse and with that come the advantages of greater fill rates and more sustainable handling per product. The fill rate and environmental effects on the inbound transportation will depend greatly on how the 3PL company chooses to deal with the incoming goods ordered by Miljonlotteriet. However, the outbound transportation will without doubt get a positive effect as larger and fuller trucks transport the goods along with other orders to its end customers. As the supply chain remains roughly the same in length and number of stations, the delivery speed, delivery dependability, and distribution coverage also stay roughly the same. Changing the owner and operator of the warehouse the goods are stored in, does not affect these aspects greatly. Even though one could argue that some goods will be sent out quicker from the warehouse as the delivery trucks will make their pickups more frequently, the change does not affect the delivery time per se but rather the previously mentioned order fulfillment time.

5.1.2 Drop-shipping

Supply Chain

The supply chain response time will be better since there will be fewer steps in the chain with drop-shipping. There will also be increased information between the different parts of the

supply chain which will reduce the response time. Therefore, on the contrary of the theoretical finding; the authors believe that the response time will decrease. The order fulfillment lead time will also be better due to the same reasons and also due to shorter transport times since there is one less warehouse to transport the goods to within the supply chain. Advanced notification, even with a better information system, will be worse since it will be increasingly difficult to notify the supplier than parts of the own company. However, the decrease is not substantial since the information support system and the partnership will make it easier to share information between the companies compared with today. The logistical costs will go down. Even if the suppliers take an additional fee for transport and handling all the costs for having their own warehouse will be eliminated. The costs for the supplier to perform drop-shipping will be less than the costs Miljonlotteriet has with their current strategy. This is due to that suppliers could use their existing warehouse, personnel and knowledge to perform the logistical process to some extent. Some of the suppliers already have the products for Miljonlotteriet within their warehouse so the increased cost for the supplier will not be substantial. The personnel will still need to handle these products even if, with drop-shipping, they might need to perform other tasks also, such as re-packing. Even the suppliers that send the products directly to Miljonlotteriet from the manufacturer can instead have the products within their warehouse. The fixed costs for the warehouse will be divided on all of the customers to the supplier which will make the cost for Miljonlotteriet less. The handling and holding costs will also decrease. Due to all of these reasons the authors believe that the logistical cost will be substantially better with drop-shipping.

Relations

Value added services for the customers in form of co-packaging are going to decrease with drop-shipping. Different goods from different suppliers can no longer be co-packed for delivery to customer as it was observed at Miljonlotteriet. This is an effect of the fact that with this concept each supplier will send out the goods to the customers making co-packing of goods from two different suppliers impossible. It is not possible to co-pack all types of products with the current strategy; some products are for example too heavy or too large to co-pack. Therefore the value added service will only decrease for some products in this aspect. The repacking that Miljonlotteriet performs if the products are delivered several in one package or otherwise needs to be repacked will still be possible for the supplier to do which leads to no change of that aspect. Due to these reasons the value added services decreases slightly. The need for a better information support system is crucial for this concept to function. Drop-shipping requires a more substantial information flow between the suppliers and Miljonlotteriet. Information such as what a customer has ordered, if there are any problems, and forecasts for the future needs to flow with ease between the companies so that the information can be a benefit for both companies. Therefore the information support system will be much better with drop-shipping.

For drop-shipment to work a partnership between the supplier and Miljonlotteriet is needed. A trust that can only be achieved through partnership is the ground for the information sharing between the companies. Therefore the cooperation will increase to a much higher level. If they use drop-shipping it puts higher demands on their supplier and they need to be certain

that the supplier can deliver the products and for this a closer cooperation is needed. The avoiding of disruptions in the supply will be better with drop-shipping since the information flow will be greater. This reduces the risk for stock out, since the bullwhip effect will be smaller. The avoidance of disruption in the supply chain is expected to increase slightly but, could increase more depending on how much and what information that is shared.

Warehousing

As the information received from the interviews show, the flow of goods is likely to be greater at the suppliers of Miljonlotteriet than within the own warehouse. There is a larger need for standardization in a warehouse with larger flows. Therefore, the standardization of operations will increase when the warehouse of the supplier is used, instead of Miljonlotteriet's own warehouse. The standardization with the current strategy is also not high and will increase. How much it will increase depends on the supplier and therefore there is no way of predicting its size. This is the reason for only marking it as a smaller increase. The innovative solutions are also expected to increase since they are not very high as it is. Also the cost for a new solution will be spread on all of the suppliers customers and not only Miljonlotteriet, which would mean that they are easier to implement since the increased cost will be smaller. However, here it is also depending on the supplier and only a small increase is assumed. The inventory turnover time will be much higher since the goods will not be bought by Miljonlotteriet before they are ordered by one of Miljonlotteriet's customers. The reverse logistics will be more problematic, if it is supposed to be handled by Miljonlotteriet. The cost for performing it within Miljonlotteriet might be too high. If the returned goods are sent to the supplier's warehouse, Miljonlotteriet risks to lose some of the control as they no longer can decide if a return of product is valid or not. It can be stated in the contract if some of the suppliers, as it is today, do not want their products in return if they are broken. Some suppliers can therefore instead choose to send a new product without controlling the old as sometimes done by Miljonlotteriet today. The authors believe that these circumstances for Miljonlotteriet mean that it is slightly different from what was stated about drop-shipping by the authors in the theory. Miljonlotteriet will save money and time since they do not have to deal with reverse flows. It is believed by the authors that the benefits and drawbacks cancel each other out and no increase or decrease regarding reverse flows.

Transportation

The impact on the environment is better with drop-shipping since fewer transports will be made as one warehouse is removed from the chain thereby, shortening the transport chain. The removal of the warehouse itself means that no trucks will be used and lower electricity usage at Miljonlotteriet, which also benefits the environment. The fill rate will increase as the suppliers have greater flows of goods and can fill the trucks with deliveries to other customers as well as Miljonlotteriet's, which will reduce the amount of emissions. The increase in fill rate will be small since the deliveries out to customers today are performed by transport companies such as Posten, who can co-transport. By other authors in the theory the transport is stated to increase but since Miljonlotteriet today uses transportation companies for the delivery to the consumer the authors of this research believe that they will not increase but

decrease. The flow of goods into the suppliers of Miljonlotteriet's warehouse will be larger than the flow into Miljonlotteriet's warehouse. This is due to the goods the supplier of Miljonlotteriet gets from their supplier is substantially more than Miljonlotteriet now receives from their own supplier. Delivery speed will increase with drop-shipping since there is one less warehouse in the supply chain. The delivery dependability is believed to stay the same since Miljonlotteriet can contract on this with the supplier with fees for not keeping the agreement. The distribution coverage is the same with drop-shipping since the transportation out to customers will continue to be performed by an outside transport company. This is due to that all three of Miljonlotteriet's suppliers that were interviewed for the essay stated that they outsourced the transport to another company.

5.1.3 Vendor Managed Inventory

Supply Chain

The supply chain response time will be better since the information will increase, which reduces the bullwhip effect. Order fulfillment will also be better since a higher grade of information reduces stock-outs, as the supplier knows when a product starts to run out of stock at Miljonlotteriet. Advanced notification will be the same with VMI since the information system support will be better and ease notification. The logistics costs are lower with VMI. The stocks can be owned by the supplier reducing the cost for stock keeping. Order costs, as well, will be lower since no orders are made by Miljonlotteriet.

Relations

The value added services will not be affected by VMI since the services to the customers from Miljonlotteriet will not be affected. The information system is better if VMI is implemented since the need for information flow between the supplier and Miljonlotteriet will be higher. However, no advanced system is needed at first and therefore the increase is only expected to be slightly higher. A partnership is needed between Miljonlotteriet and their supplier, so that a trust can be established, with the information that is needed for VMI to function. The level of knowledge that the companies need about each other speaks for a partnership. There also needs to be a trust that the supplier is capable to hold a good level of stock. This results in a much better partnership if VMI is implemented. Avoidance of disruption in supply will be slightly better since the information flow will be better, which reduces the bullwhip effect. However, forecasts are still needed and total avoidance of disruptions will be difficult to reach.

Warehousing

The standardization of operations will not change if VMI is implemented nor will innovative solutions since VMI does not affect either of those aspects of the warehouse. The turnover of inventory will be higher since the supplier will restock the warehouse more often and the stock kept at Miljonlotteriet's warehouse will be lower. The stock can be owned by the supplier, which means that the inventory turnover will be high. The reverse logistics will stay the same as VMI does not affect that part of the warehouse.

Transportation

Decreased stocks result in though more frequent deliveries. This will mean more transports and, therefore a slight increase in environmental impact is predicted. The fill rate of the transports from the supplier to Miljonlotteriet is assumed to be the same. This is since the suppliers have better knowledge and can plan transports and fill the trucks with deliveries to other customers too. The delivery speed, the delivery dependability and the distribution coverage will not be affected if the concept of VMI is implemented since it does not affect these areas.

5.1.4 Push-Pull

Supply Chain

The response of the supply chain as demand changes would be better with the implementation of postponement and pull concepts as these allow the orders of end customer to be visible further up in the chain, avoiding the bullwhip effect. At the same time, the differentiation of products is to be executed later in the chain and the demand changes of those do not affect the earlier stages of the chain as greatly. Order fulfillment lead time increases as each product that is postponed needs to be differentiated based on the order and each product that is simply in the pull concept needs to be transported a longer way through the chain. Examples of these could be that a cup which is offered in different colors needs to be colored in the ordered color before it is sent to the customer, while a television whose decoupling point lies at the suppliers needs to be transported to the warehouse of Miljonlotteriet before it can be sent to the customer. Advance notification is expected to stay roughly the same with this concept. Although the information system is expected to improve the problem notifications and the supply notifications will improve in the consistency of their shape, nevertheless, they will most probably not occur any faster or with additional accuracy. Finally, the logistics cost is, in the case of Miljonlotteriet, will rise to some extent. As stock holding for the pulled goods decreases, the transport cost for these will increase. At the same time, the handling costs are consistent. For the goods in the postponement section the holding of the core stock will be equal while additional, differentiation stock, is needed, increasing the costs of these logistical processes. The money saved from the fuller truck loads for inbound transports could go to cost for additional product handling at the warehouse where the products are differentiated, an expensive task as employees are needed for it and employees are one of warehouse's most expensive expenditures.

Relations

Moving the decoupling point in the push-pull concept to adapt more to a pull system increases all values of the relations. The value added services such as co-packing and repacking will, if desired, still be done to the same extent, however, the new dimension of being able to choose a product's specific attributes when ordering makes the value added services increase from a viewpoint of the customer. This concept derives much from the initiative of wanting to add more value to the good before it reaches the customer, therefore the value added services increase greatly. The information support system must be increased slightly for the

decoupling point to be moved and for enabling postponement. The same goes for partnerships. The information flow between the parties, such as Miljonlotteriet and their suppliers, increases as they cooperate to improve the customer service level. The disruption in supply is avoided, even though there are the same amounts of stops through the chain. However, since the decoupling point moves and the goods are pulled through the chain rather than pushed the disruption decreases greatly. The risk of the bullwhip effect is nearly eliminated in this end of the supply chain.

Warehousing

Although, there is a great deal of standardization even when the decoupling point is moved to increase the pull part of the chain, the postponement aspect of the concept makes the system slightly less standardized. This is true particularly in a warehouse such as the one of Miljonlotteriet where the core idea is that each employee does its best when given the freedom to do it their own way, as explained by Mr. Magnusson (Personal Communication, 2013-04-10). In this scenario, Miljonlotteriet would have a greater use of the warehouse personnel as the assignments and responsibilities increase, which in turn makes the lack of the standardization greater. The decisions to innovate the processes would still be in the hands of Miljonlotteriet and the obstacles would remain at the monetary and space limits that Miljonlotteriet holds. Therefore, the possibility to create innovative solutions will lie at Miljonlotteriet to the same extent as it does today. It is likewise for the reverse logistics which will continue to be a part of the process at Miljonlotteriet and is neither helped nor upset by this strategic adjustment. The inventory turnover is an uncertain issue within this concept as it depends greatly on how Miljonlotteriet chooses to use the advantages of a pull system and postponement. If postponement is kept to a minimum and they simply move the decoupling point to adapt to the pull system for their part of the supply chain, the inventory turnover will increase greatly. If, on the other hand, postponement is used, the inventory turnover may decrease as the need for additional types of inventory increases. However, with the right combination of the two, where certain products may be postponed while others are simply pulled, the inventory turnover can be kept at an equal state and therefore it is seen as unchanged in this model.

Transportation

The transportation from the warehouse to the customers will stay equal in all aspects. However, the transport from supplier to the warehouse will have a different approach. As goods are to be more standardized with the inbound transport, the quantity of these goods will stay about the same as it is today. However, as differentiation is to be offered to the customer, the inbound transport also needs to contain these differentiation parts of products and will, therefore, be increased. Due to this, the fill rates will increase and the general environmental sustainability for the supply chain will also increase slightly. The delivery speed, delivery dependability and distribution coverage will remain unchanged as the same suppliers will deliver the same way and there are no reasons to believe that slight changes in types of products or amounts of products may change the quality of the transportation in this sense.

5.1.5 Cross-docking

Supply Chain

The supply chain response time will be decreased as the suppliers will be closer to knowing the current demands of the customers themselves rather than speculating in the amounts ordered by Miljonlotteriet to keep as a safety stock. It is also a positive outcome of increased communications between the supplier and Miljonlotteriet. The throughput of goods is much faster, making the order fulfillment lead time shorter. Assuming that the forecasts are somewhat in line with real demand, most of the goods will be ordered to fit the upcoming demand, as the goods are then ordered, they will already be on their way to be shipped. Advanced notification improves, as information sharing improves, however, for cross-docking, only a certain amount of partnership is needed and the concept itself will not make a great improvement in this aspect. The logistics cost will be decreased greatly as some of the major costs within the warehouse are decreased, namely: stock holding and handling costs. Instead of handling the goods twice, each shipment is only handled once, lowering the costs of manual labor and instead of having a great deal of money locked into expensive goods waiting to be ordered, the money can be invested in other parts of the operation. Also, the space freed up at the warehouse makes space for greater volumes to flow through, making the warehouse available for growth. What offsets the cost aspect to some degree is the cost of more frequent deliveries to the warehouse. Lower fill rates cost the organization money and as long as the flow is at its current state, Miljonlotteriet's cost gains with cross-docking will be limited.

Relations

Cross-docking is a concept where the warehouse is optimized while the customers do not notice it in a positive or a negative way, this is because value added services stay consistent. Equal amount of co-packing and repacking is done and no additional value added services are added to the process. The information support system must increase, particularly within the company, as all stations within the warehouse need to be aware of when goods are arriving and at what time, and all stations must also know what goods are ordered and need to be shipped, so as to create the best possible flow. The information support also needs to increase towards the suppliers as there is a greater need for more exact information about arrival of shipments and the stock available at the supplier's. This increase in the information support system will then cause a slight increase in partnership between Miljonlotteriet and its suppliers. However, these increases in cooperation and information sharing will not affect the disruption in supply. Although greater information normally leads to greater avoidance of disruption in supply, the smaller shipments and fewer goods carried in inventory at Miljonlotteriet will offset the positive effect of it and the expected result is that it stays unchanged.

Warehousing

The standardization of operations is needed in this type of a concept as it needs a certain rhythm in the process of the warehouse. Each part of the unloading, repacking, co-packing,

and loading process must be coordinated with the others for it to be efficient. Along with standardization, innovative solutions must also be implemented to some extent. Following the innovations concerning packaging and transport which, make the process as a whole easier, is particularly important. The idea of the concept of cross-docking is to reduce inventory levels and make the goods flow through as fast as possible. Therefore, the inventory turnover should increase significantly. In an optimal scenario, the goods would not stay at the warehouse at all; instead they would go straight from the suppliers' trucks to the packaging area where they are consolidated and onto the trucks of Posten and Schenker. Since the optimal scenario for the concept is not possible for an organization such as Miljonlotteriet with their flow size, the middle ground, where some products, in some cases, are being cross-docked causes a smaller gain in the inventory turnover. However, with the current state where a great deal of stock is kept for quite a long period of time, inventory turnover will have a significant increase in the warehouse of Miljonlotteriet, even with the middle ground solution. Reverse logistics, with cross-docking, stays practically the same, both in the aspect of decision making and the actual handling of goods. Some adaptions might need to be done as the goods handling is slightly changed, however, these changes will neither improve nor make the process any more complicated.

Transportation

Cross-docking does not affect transportation significantly. The delivery speed, delivery reliability and distribution coverage are all expected to stay constant as the same suppliers and distributors are used in the same way. Their qualities and services will not change since it is mainly the processes within the warehouse that change. The fill rate of the trucks is expected to decrease and with that comes the environmental issues of more frequent transports. It would be up to Miljonlotteriet to decide the degree of this as they decide the extent to which the cross-docking concept is implemented.

5.2 Miljonlotteriet

Being an e-tailer, Miljonlotteriet can reach customers nationwide without the need of stores, but they also gain the opportunity of offering a number of products without the requirement of keeping them available on shelf or in warehouse. The customers will browse a catalogue or webpage rather than the shelves. A cost that increases, on the other hand, is the logistical cost of sending the goods to the customers, therefore, significant amounts of outflows are necessary in order to achieve economies of scale and get good prices from the 3PL transportation companies.

The fact that Miljonlotteriet is a point-based organization makes demand difficult to predict. The customers do not purchase the goods, instead they collect money they have won to select prizes on several price levels. This makes it very difficult to predict, if the customer will choose a product on a lower price level or wait and gather more money to reach a higher price level. Therefore, there is no way of knowing when the customer will order a product or which product. This aspect highly affects the demand and the uncertainty of the forecasts. The demand is also influenced by the fact that Miljonlotteriet is a lottery. Who has won, how

much, and how much that person has won in the past, all affect which product the customer will demand and at what time. These two fields of Miljonlotteriet create a high demand uncertainty affecting the whole logistical process. Substantial weight should be put onto managing these demand issues.

The demand has a large influence on the logistical processes and if the forecasts of the demand could be improved, so would the logistical process. If the demand could be influenced it would improve several aspects affecting the whole process. A less uncertain demand would increase the security on the forecasts which would reduce stock-outs. This could be done since the bullwhip effect would be reduced if the amount of products needed for a longer period of time could be notified, with greater precision, to the supplier. Other non-logistical benefits include customer satisfaction and higher service levels. The orders for less popular products could be adjusted so no large stock of a product with less demand spends long periods of time in the warehouse. With higher knowledge on demand the transports can be more easily planned both in to the warehouse and out to customers. Within the warehouse it will also be easier to plan for overtime or extra employees during times with higher demand. Furthermore, better demand forecasts would aid the suppliers who have problems delivering the large quantities of just one product that Miljonlotteriet orders by giving them a base for the planning of the orders.

A few possibilities for handling demand were found during the interviews with Miljonlotteriet. The products presented in the catalog are said to be more popular than the ones only presented on the webpage, which gives an opportunity to influence the demand. Thus, products can be presented either on the webpage or in the catalogue depending on how large the stock is, whether the demand is higher or lower than expected, and if the time from order to delivery to Miljonlotteriet is so long that there is a risk for stock-outs. This gives a tool to control the uncertain demand and leads to better and more reliable forecasts of the demand. Another way of affecting the demand is by the type of products that are offered as prizes at the same time. If a product is very popular, more customers might choose that instead of other products that could have been the top seller, had the other product not been presented. If a product's popularity is difficult to predict, it creates additional demand uncertainty. It needs to be taken into consideration when creating the plan of the prizes and could be turned from a disadvantage into an advantage if managed well. Then, top selling prizes could be decided when making the plan. Prizes that have the potential to be top sellers could be placed in different offering periods to gain the maximum of demand for each product. The products could also be offered at the same time if it is suspected that the supplier cannot deliver the forecasted amount, the demand for that product would thereby be decreased to a manageable level. Two products from the same product category can also be used to influence the demand for individual products. For example a smaller TV could be offered within a lower price level and a technically advanced TV could be offered in a higher price level. This means that the demand for one type of product can be spread out on two products. This way of manipulating demand might cause more uncertainty in prediction of which of the two similar products that will be mostly demanded. Out of the mentioned demand influencing

methods Miljonlotteriet uses the catalog and the choice of which products to offer at the same time, to some extent.

One important task when keeping a track of the demand is to collect and save all the historical data. Then, similarities can be found that might help the prediction of the future. It is also important to keep bases for decisions made in the past, both to evaluate and to have when the next decision is made. Figures, experiences and routines are important knowledge that should be written down in order to be remembered and used in the decision process. There is nothing in the lottery law, which Miljonlotteriet has to follow, that says that they have to be able to deliver a product that they offer to the customers. However, if several products are removed after a short period of time the lottery inspection might object, or the credibility of Miljonlotteriet might decrease in the eyes of its customers. Due to that, Miljonlotteriet finds it very important that the products presented in the catalog can be offered throughout its time of validity. On the opposite side of the issue is the risk of stock out occurrence which, according to the empirical findings, seems to be a problem of less significance to Miljonlotteriet as their customers are less time-sensitive. The joy of winning a prize might make the customers more willing to wait a longer period to receive the price than they would if they had bought it.

The profit from Miljonlotteriet goes to charity and this might affect the company in different ways. Apart from the possible tax benefits, the essence of Miljonlotteriet could be affected. A risk is that nonprofit companies have all focus on customer satisfaction and neglect cost savings. There is also a risk for a nonprofit company not to have the same pressure to deliver profit as profitmaking companies do. The risk is that a high profit will create contentment even though the profit actually could be significantly higher if the cost issue was to be present in every aspect of the company. This risk of settling when the profit is “high enough”, and not working to maximize the profit to its greatest extent, stands in the way of reaching the maximized efficiency. If this is the case, it would be difficult for the company to know it since the profit delivered is high and then it is easy to not go the extra mile to cut costs. The nonprofit part could also affect the mindset of the company when it comes to prioritizing. Having a good working environment and happy employees increases the efficiency, though great care must be put on not letting that focus affect the economy of the company negatively. If the economy is negatively affected, the workers will be affected to a greater extent as the company might have to downsize the personnel.

Miljonlotteriet has succeeded in finding a niche market with the differentiation of offering products as prizes rather than money, as is the case at their competitor’s lotteries. Being differentiated and not having close competition within the same niche market is a great advantage, nevertheless, it is also a risk as no competitor forces them to cut costs and improve in all aspects in order to compete. The risk lies in that the company is not on the edge and always looking for new ways to improve and be at the top of the market. The challenge is then to succeed with continuous improvements even without the fierce competition. An organization which does not use all opportunities of improvements holds the risk of being challenged by another company entering the same niche. In this case, the new competition will take advantage of the weak points and with better management of these, gain competitive advantage. Even if they do not perform better than Miljonlotteriet, a competitor would take

over some of the customers, leaving Miljonlotteriet with a smaller opportunity to grow. Therefore, the best is to, at all times, act as if it is necessary to beat a competitor. This increases the efficiency and profit within the company and decreases the risk for any other company to challenge them within the niche of Miljonlotteriet.

During the gathering of empirical data, it became clear that Miljonlotteriet orders products from China, though they are in a phase of trying to reduce and hopefully eliminate it. This would be a good idea for the best of the logistical process. The transport time would be reduced if the products were sourced closer to Miljonlotteriet, which in turn would reduce the stock out time at their own warehouse. When ordering from China, they also need to order larger quantities, of at least one container, and have larger stock in their own warehouse to hedge against stock-outs. Ordering larger quantities does not only lead to higher inventory costs but it is also considered to be significant risk taking as the products popularity is often unknown beforehand. If the product is not popular it will be in the warehouse for a long time before it is ordered by any customer, causing risks of obsolescence, higher insurance rates, and tied up capital. China also has different holidays than Sweden, which needs to be taken into account since more products need to be ordered before a holiday to make sure that there is enough to last until the holiday is over which means that it will take up space in the warehouse under those periods.

Most of the aspects discussed above can be found to be applicable to other companies within the same fields. The aspects of being an e-tailer are considered to be very general which means that the influence of it is the same for other e-tailing companies. Both the point-based and lottery fields affect demand towards higher uncertainty, for Miljonlotteriet and in general, however, the combination of the two is likely to increase the demand uncertainty further. It is fully possible for any company to affect demand through the types of products offered, however, only those having both catalogue and online product offerings can affect demand the way Miljonlotteriet can. For all companies there are gains with keeping a track of key data and transforming it into information as discussed above. The delivery time insensitivity amongst the customers which can be seen at Miljonlotteriet is a result of them being a lottery company which means that other companies in the field of lottery could be assumed to have the same benefit. The nonprofit field affecting Miljonlotteriet is expected to affect other nonprofit companies in the same way as is discussed in this thesis. The combination of not having direct competition and having less pressure that comes from being a nonprofit owned organization can result in less focus on cost savings in all aspects of the business. This combination could be seen as rather unique for Miljonlotteriet. Due to this, companies using these findings will need to first acknowledge their status quo focus in order to use it successfully.

5.2.1 Miljonlotteriet's Suppliers

MerxTeam and Markslöjd both perform delivery to end customer today. "Company A" does not, however, they have a partner who does when it comes to photographic equipment. The Board member of "Company A" (Personal Communication, 2013-04-18) states that they have no desire to sell products to end customers. All of the suppliers have their own warehouse

even if “Company A” tries to have the goods delivered directly from the manufacturer to the retailer and not keep goods within their warehouse if it is possible to avoid. MerxTeam and Markslöjd both have stocks at their warehouses. All of the suppliers use a transporting company for the deliveries from their warehouses and with some limitations MerxTeam and Markslöjd both usually deliver the goods ordered the next day. Logistics is seen as a way to compete for all three suppliers.

It is believed to be no problem for any of the suppliers interviewed in this research if Miljonlotteriet were to implement the concept of 3PL since they would still deliver the same way they do today only to another address. If drop-shipping were to be implemented, however, it is assumed that there would be a change for the suppliers too. Both MerxTeam and Markslöjd states that they already send products to end customer and this would therefore mean only a small change for them. “Company A” does not perform this type of service today which might be a barrier for them. However, they might be able to deliver goods to customer with help from their partner if Miljonlotteriet were to ask them. This is a possibility that needs to be investigated more, if Miljonlotteriet chooses to implement drop-shipping. VMI will probably mean that the suppliers has to send products more often and even implement an IT support system to keep track of the stock level at Miljonlotteriet. This might be difficult to convince the suppliers to do since Miljonlotteriet are not such a large customer to them. However, if benefits for them, such as lower costs and better information, were to be the results they might be willing to consider it. Although, there are some doubts on to which extent if any VMI is beneficial for the supplier so this might not be a strong argument. If push-pull or cross-docking were to be implemented the suppliers would need to deliver smaller loads and more frequently. The authors believe this would not be a problem for any of the suppliers. “Company A” might have to make a smaller change in sending the products meant for Miljonlotteriet to their own warehouse and then in smaller loads to Miljonlotteriet’s warehouse to be able to meet the demand for small deliveries. However “Company A” already has a warehouse and to have products there today this is believed to be no larger problem. With cross-docking there might be a tighter delivery window for the suppliers to do their deliveries within. This is believed to be something that can be managed by the suppliers.

5.3 Barriers

Several barriers can be found when implementation of new concepts is to be made. One of them is the technical barrier. New or different technology might be needed if a concept is to be implemented. The system today at Miljonlotteriet is not the most advanced technical system and some changes could improve it. Functions needed might be difficult to implement in the current system and an entire new system could be required. However, a new system yields advantages beyond the main reasons it was implemented for. Some of the possible advantages with a new system could include more information available about the own company that can be used as statistical base for new decisions and forecasts. Even if it takes longer to add more information into the system, the output of the detailed information will be worth it as investigations for complex decision making will be significantly easier. A better information system will also make it easier to make cost improvements since statistical tools

and data will be available for both investigation and evaluation. Furthermore, tracking problem might be easier and its solutions become more visible. If a problem can be detected faster, it can be dealt with quicker. The same is true if a point where improvement can be made is found, then the improvement can be implemented sooner. The time it takes for the employees to learn a new system might be outweighed by these additional advantages as well as the fact that the implementation is a one-time investment and the advantages will be a continuous benefit.

Apart from the technical aspect of the information flow, the information flow itself needs to be looked into before implementing a new concept. The amount of information that needs to be shared has to be decided, what information that needs to be shared with other parts of the supply chain needs to be set, and which information that must be kept within the own company, such as business secrets. For all of the concepts suggested in this research, there is a need for a better information support system. The advancement of the system needed varies between the concepts but all of them need some form of addition to the current system or maybe even a completely new system to handle the increased information flow. Drop-shipping for example needs a system that shares great flows of information between the supplier and Miljonlotteriet while 3PL only requires some flow of information between Miljonlotteriet and the company managing the warehouse which could be handled by a less advanced system. The information system needs to be developed taking into consideration which parties that are supposed to see the information. For example with drop-shipping and VMI it would be within a partnership and, therefore, more information can be shared with less risk, for 3PL it would only be a company providing a service which would mean that less information would be necessary. Push-pull concept and cross docking would require a better information system but no substantial changes. Technology can be an expensive investment that many companies might hesitate before implementing. A careful evaluation of the benefits from the new concept, the new system, and the cost has to be made before any decision is made.

The level of trust between the parties is highly important when a new concept is to be implemented. The companies will both have issues that are of great importance to them and the demands from both sides needs to be fulfilled. The openness when a problem occurs is highly important so that a solution can be found, if one company tries to hide a problem it will in the end come out and a severe breach of the trust will be the result. Therefore, it is important to not look for someone to blame, but for a solution and avoidance of the problem in the future. A company cannot keep controlling its partners all the time as it would occupy a great amount of resources, thus, mutual trust between the companies must be present, along with certain performance demands and measures. If the trust is low, a partnership or even cooperation on a lower level might be impossible to have, which in turn will make the concept impossible to carry out. The level of trust required varies greatly depending on which concept that is to be introduced, however, some level of trust must always be present. To some extent issues that are of concern can be dealt with by clearly written contracts.

Follow ups and measurement systems needs to be changed and adapted to the new concept. This is since the performances will no longer be done in the same way. If another company is

supposed to take over the operations of some parts of the logistics the measurement on that needs to be stated beforehand so that an evaluation of the performances can be made.

Another very important group of barriers is the people barriers. These are difficult to investigate beforehand and complicated to deal with throughout the implementation process. It is inevitable among the employees within the firms making the change. The employees can be unwilling to change, unwilling to learn something new or afraid of losing their jobs. In addition, every company has its own culture and partnerships between companies need to take it into account. If the employees are against the change they might, deliberately or not, work against the new concept. Not working actively to make the change as good and easy as possible can, in some aspects, be as bad as working against it. One way of dealing with the people barriers is to make clear which changes that will be done, how it will affect the way of working, the situation for each individual, and for the company as a whole, in order to as early as possible prevent speculations and their related fears. Speculations about the change can lead to the employees being more adverse since the unknown could be a threat and the worst case scenario is often imagined by the individuals. If it is clearly explained why the change is done and which benefits come from it, both for the company and in turn for the personnel and their way of working, the employees might even be in favor of the change instead of feeling insecure and adverse. The theory on barriers showed that people barriers, while being key for successful implementation of a new concept, are the most complicated to handle, however, a strong management team with clear view of the changes can overcome these difficulties.

The barriers of implementing a new concept within the current strategy have been analyzed with the respect of the situation of Miljonlotteriet. However, any company with interest in the concepts will benefit from this analysis as it covers all the major barriers and discusses both those that are a great obstacle for Miljonlotteriet as well as those that are not. This indicates that all barriers must be considered before an implementation for all companies.

Third Party Logistics and Outsourcing

As mentioned earlier, some of the barriers with 3PL include finding a company to outsource to, create a worthy contract and demands that need to be fulfilled by the other company. Another barrier that is more specific for 3PL is the issue with the reverse logistic. Some of the suppliers do not want to handle the reverse flow, creating a question on what to do with those products. It would be inefficient for Miljonlotteriet to do it, letting the company responsible for 3PL handle it would also here mean that a greater trust had to be developed. The suppliers that do not want the broken products back could choose to send new ones without the returning of the old. Another barrier is, that if implemented the warehouse at Miljonlotteriet will no longer be needed and there is a complicated question of what to do with it. The complexity of the issue lies in the fact that the owner of Miljonlotteriet, IOGT-NTO, owns the building and has a personal interest in renting it to Miljonlotteriet, rather than a third party. The options for the warehouse, if 3PL was to be chosen, are to rent only the warehouse out to another company or to move Miljonlotteriet all together to a location that only has offices. In the case of moving Miljonlotteriet, IOGT-NTO gets the opportunity of choosing whether to rent out the entire building or sell it. If rented out or sold there will be an income from the old

warehouse. Another issue would be the employees working within the warehouse. This is a very difficult aspect that needs to be dealt with. In the best scenario they could be relocated within the company, another acceptable option is to create a contract where the personnel move to the 3PL company, while the worst scenario would be to lay them off.

Drop-shipping

The barriers foremost connected with drop-shipping are, as mentioned, that an extensive contract should be made and the information exchange demands a close partnership. In addition to this there are some barriers that are more specific for drop-shipping. One is that some of the suppliers will not be able to provide a drop-shipping solution based on either unwillingness or lack of delivery possibilities to consumers. This might be overcome by another barrier which is that it will not be practical to have a drop-shipping connection with all of the suppliers Miljonlotteriet has today. The handling of so many partnerships will be far too expensive and overwhelming. Although, the range of products might become increasingly limited with fewer suppliers, the partnership creates a greater possibility to affect the suppliers to offer the products that suits Miljonlotteriet. The closer connection and the fact that Miljonlotteriet will be a larger customer if they order more from the same supplier are most likely to affect the price positively.

Another barrier will be that the tasks performed by some of the personnel will be slightly different. There will be a new focus on managing the partnership and all the information and the purchasing will be done by cooperating with the suppliers to a greater extent to make sure that both parties benefit from the products selected. The issue with the reverse logistics is similar to the one with the concept of 3PL. Some of the suppliers do not want to handle the reverse flow creating a question on what to do with those products. It would probably be inefficient for Miljonlotteriet do so. The suppliers that do not want the broken products back could chose to send new ones without the returning of the old. New products returned that the customer do not want is not as large issue as broken products. The issue on what to do with the warehouse will also be the same as with 3PL since it will no longer be used. The very difficult issue of the personnel working within the warehouse might be slightly less problematic as more persons working with the partnership and the information sharing would be required. This creates a slightly better position to be able to relocate, and even empower, the current employees within the company.

Vendor Managed Inventory

Even with VMI partnership, level of information and the creation of the contract are barriers. Special barriers for VMI are the tasks for the persons working in the office will be slightly different since only the ordering of new products, and no reorders, need to be made and a partnership with information flow has to be managed. Another barrier is the issue of the technology. An advanced information support system might be needed, if not initially then probably later. The technology also has to be implemented at the suppliers, which makes it more difficult to use temporary suppliers for just one product. The suppliers need to understand the special circumstances for Miljonlotteriet and their need for the products to be in stock. Convincing the suppliers might also be a barrier with this concept since the benefit

of VMI for suppliers is a discussed question and not certain. Miljonlotteriet would also be more tied to the suppliers with the concept.

Push-pull

The common barriers mentioned above are present if the presented push-pull decoupling point was to be used. There are also some specific barriers for this concept. The warehouse would need a substantial remodeling to fit this concept which would be very expensive to carry out. The information system would have to be developed to a much higher level than today, resulting in a great implementation cost. The result of moving the decoupling point would also be that the deliveries would be smaller and more frequent, requiring a substantial flow. To further implement the concept by introducing postponement into it, the business strategy of Miljonlotteriet would need to change in the way they offer products and why. Similar products where customers can choose between products with small variations would be needed; which, according to the empirical data, they have no desire to do for a number of reasons.

Cross-docking

Apart from the common barriers above, the barriers connected specifically with cross-docking include investment, standardization, and flow of goods and information. It would take a substantial investment to adapt the warehouse to cross-docking as it require slightly different warehouse layout and processes. The way of working within the warehouse would have to be more standardized in order to allow Miljonlotteriet to achieve the benefits of the concept, as standardization is a key aspect of cross-docking. The flow of goods would also need to be higher in order for this concept to give the advantages it has the potential to, while the flow of information must be improved to the most efficient.

5.4 Evaluating Strategies

After analyzing each concept in respect to the model as well as the barriers, the following section will connect the two and evaluate the total benefits and drawbacks. It is also a thorough analysis of each concept which, after reading it, will give the reader a base for understanding which concept that is preferable and why.

Third Party Logistics and Outsourcing

Although the outsourcing theory is already applied to Miljonlotteriet, the main use of it in this research is to see whether it should be applied to an even greater extent. Adapting the 3PL theory to the case of Miljonlotteriet further would imply outsourcing their warehousing activities to a 3PL company. As it is today, Miljonlotteriet operates the warehouse and its internal processes in-house but outsources the transport processes to companies such as Posten and Schenker. With an increase of the outsourcing concept, their entire physical logistics process would be outsourced. Theory shows that the main reason for outsourcing to 3PL companies has been to cut costs, however, the main reason for keeping the outsourcing strategy proved to be of the more qualitative kind, including better customer service and

increased flexibility. This is very interesting for the empirical findings of this research. Miljonlotteriet, when asked what their general views on outsourcing are, were doubtful. Although, some respondents acknowledged the possibility of cutting costs, all were concerned about the quality of the process performed. The theoretical and empirical investigations show a result of the greatest disadvantage of 3PL for Miljonlotteriet being the redundant workers. Neither laying off employees nor letting them move to a 3PL company are desirable solutions while the repositioning of all the employees currently at the warehouse of Miljonlotteriet is both difficult and inefficient. A more logistics-specific disadvantage of the concept is the problems occurring with reverse logistics where a profitable solution for Miljonlotteriet is missing.

In conclusion of the concept, 3PL ended in fourth place of the five concepts with close competition for the third and second place. However, the barriers identified with 3PL can be overcome and a full implementation of the concept is possible with very few changes in other parts of the current strategy. With the low need of change comes also the few changes in the results, as it can be seen in the model created by the authors, 3PL is the concept with most unchanged characteristics.

Drop-shipping

The concept of drop-shipping is made possible by the e-commerce features of Miljonlotteriet. What makes it even more interesting is the finding that there is a vast use of the concept in the general e-commerce industry. If drop-shipping would be implemented it would mean that fewer suppliers were to be used as stated in the theory, and, that they would deliver the products from their warehouses to the end customers. Drop-shipping would, among other things, reduce the cost of logistics for Miljonlotteriet and increase the delivery speed. It would also mean that a closer connection between Miljonlotteriet and its suppliers would be needed. The largest barrier with implementing drop-shipping would be the people barrier which, to some extent, can be solved by relocation of workers within Miljonlotteriet and keeping the employees well informed. Not all of the suppliers to Miljonlotteriet could deliver this way, however, the suppliers interviewed in the empirical section were found to be able to do so. In addition, the number of suppliers must be reduce, which will offset the problem that some might not be able to use drop-shipping. The reverse flow would also be a barrier but it is believed by the authors to be possible to overcome as the suppliers themselves can decide what to do with the flow of broken goods.

Drop-shipping was the concept found to be the most preferable according to the evaluation model created by the authors. It got significantly higher points than the rest of the concepts and the most used value was the significantly improved. It was also the concept with the most overall improvements. If implemented it is believed by the authors to make a substantial improvement for Miljonlotteriet. Finally, drop-shipping also carries the possibility of partial implementation. This can be done in order to safe space at the warehouse by drop-shipping the less demanded goods or to test the concept within the current strategy and on specific suppliers. Implementing drop-shipping partially, however, will not result in the same amount of benefits as implementing it completely, this is important to bear in mind as evaluations of

the pilot implementations are performed. The authors recommend a pilot partial implementation for first evaluation and complete implementation as the ultimate strategic concept.

Vendor Managed Inventory

VMI could be implemented in two different ways at Miljonlotteriet but as a start the authors believe that it can be a good idea to implement it as a pilot project. This would mean no expensive investments on an advanced IT support system initially. Later, if it is found to be a good concept, an investment in a more advanced IT support system is recommended. The main benefits of VMI showed to be reduction of the total logistical cost for Miljonlotteriet and increased information flow between them and the supplier. The largest barrier would be to convince the suppliers to implement it, provided that they do not have it already. If Miljonlotteriet chooses to have an advanced IT supports system it would be an expensive investment.

In the model, VMI ended up on third place much due to that several aspects remain unchanged with the concepts and the disadvantages from it were not so substantial, in fact only one aspect within the model was. The benefits seen were only larger in two points; the partnership needed and the inventory turnover. However, if Miljonlotteriet still wants to have many different suppliers, the barrier of convincing them to invest in such a system is likely to be extensive.

Push-Pull

The push-pull concept implies that a combination of the push concept and pull concept is combined which creates a decoupling point between the two. The current situation at the supply chain of Miljonlotteriet is that the decoupling point is placed at the warehouse of Miljonlotteriet while the differentiation point of the goods is significantly earlier in the chain. The possibility seen here is for the supply chain to move the decoupling point one step further up in the chain, to their suppliers. Another opportunity is to offer a slightly differentiated product by creating differentiation in-house, however, this is only applicable to a certain type of goods. With the push-pull concept, Miljonlotteriet would reduce one of their greatest problems that were identified in the empirical findings; demand uncertainty. Theory shows that this concept helps aggregate demand and allows retailers to place orders based on actual demand rather than forecasted demand. This allows the supplier and retailer to share the risks, also called risk pooling. The concept gains a great deal in the relations, towards the suppliers as well as the customers, however, it is expected to affect costs and lead times negatively. In order to implement this concept there are many, and substantial, changes to be made, making it a complex strategy to implement. Also it is best implemented when the flow of goods is large, which creates an obstacle for Miljonlotteriet as the inbound and outbound flows would be too small to be efficient.

In conclusion of the push-pull concept, the decoupling point should be moved to the suppliers' warehouses and certain differentiation of product could be moved into the warehouse of Miljonlotteriet. It should be noted, though, that the concept is mainly an

improvement of services provided and quality and that costs and lead times might increase. Considering the current focus of Miljonlotteriet, this concept seems in line with their views. However, it scored the least in the model, had many unchanged characteristics and is the only one believed to score negative in costs. The question then is whether it is worth assigning more money than it already is for service performance when there are other concepts which could improve both.

Cross-docking

Unexpectedly, for the authors, cross-docking scored second in the model and has the potential to give a good outcome. Partial implementation of cross-docking is most suitable for Miljonlotteriet and means that certain types of goods and certain suppliers would be a part of the cross-docking system, while others will stay as a part of the traditional warehouse system. The concept requires a good information system and standardized operations within the warehouse, thus it needs considerable implementation efforts which can be costly, time consuming, and complex. On the other hand, the organization as a whole benefits from the implemented improvements and an opportunity of growth within the existing warehouse arises. Theoretically, the greatest benefit of cross-docking is the cost savings, however, with the case of Miljonlotteriet in mind, the costs will only decrease marginally due to the low flow of products. Instead, the concept is good for general improvements of the warehouse and allows for increased flow in the event that Miljonlotteriet outgrows its current warehouse which is considered to be “just large enough”. The single greatest barrier is the implementation cost as both information systems and warehouse processes must be improved. Due to the marginal improvements in logistics costs the payoff time would be long. A second barrier is the smaller loads when transporting as the frequency increases, causing both environmental and cost issues. The higher the flow of goods; the lower the barrier, in this case. A third barrier is that the risks of wrong implementation which would mean that no benefits would be achieved.

Cross-docking, in conclusion, is a good concept to invest in, although for small flow of goods the return will take time before it becomes visible. Scoring second best in the model with no major flaws it shows a slight increase in many aspects. This model, in its form of partial cross-docking, should undeniably be investigated further, particularly if growth is to be expected in the future.

6 Conclusion

Miljonlotteriet's current logistical strategy is that they outsource some parts of the logistical process such as the transportation of the products to end customer. Other activities are kept in-house such as warehousing and packaging. The aspects within the company are very individualized, although, they do communicate to some extent, neither the communication ways nor the operational processes are standardized. The four main fields, nonprofit, point-based, lottery and e-commerce, as well as the combination of them, define Miljonlotteriet as a company and steer their strategic decisions. The influence of being a lottery and a point-based organization creates high uncertainty of demand. This can be handled in two ways, either by manipulating demand using the tools such as products offered and/or catalog presentation or by managing the uncertain demand using concepts such as push-pull. E-commerce influences the logistical aspects of Miljonlotteriet since the goods need to be transported to the end customer. The field of being nonprofit affects the intangible aspects of Miljonlotteriet such as the stakeholder's interests and the culture of the company.

In accordance to the first research question the concepts analyzed, 3PL, drop-shipping, VMI, push-pull and cross-docking, focus on different aspects of the logistical process and give a broad view of the plausible changes. Their strengths and weaknesses were thoroughly investigated to evaluate their benefits to Miljonlotteriet. This was done using the model developed for this purpose and a deep analysis of the barriers identified for each of the concepts. The findings of the analysis were mapped, in figure 11, to illustrate their final positions and clarify the answer to the second research question. Push-pull proved to be the least beneficial concept and was, therefore, the only one to place in the low yield, difficult implementation box. 3PL placed in the easy implementation, low yield box as it is the concept which results in the least changes. VMI placed closest to the center as it is a concept which indicates its lack of extreme improvements and barriers. Being a high yielding concept with very risky implementation process, cross-docking was placed furthest away from the middle and in the high yield, difficult implementation box. Finally, as seen in figure 11, the results showed that drop-shipping was the most suitable concept placed in the desirable easy implementation, high yield box. Drop shipping got the highest points in the model with most characteristics that would improve significantly and few that would deteriorate. The barriers of this concept were found to be surmountable. These barriers helped identify the answer to the second part of the second research question and showed to be;

- Initiate closer partnerships with suppliers
- Reduce the amount of suppliers
- Redistribute the personnel
- Cease to have own stock keeping
- Handling the reverse flow of products

Also, very few adjustments need to be made to the concept itself prior to implementation to suit Miljonlotteriet and their major suppliers. Therefore drop-shipping is the concept recommended by the authors even if some of the other concepts could also be successfully

used. What the analysis of all the concepts shows is that there are some great opportunities for logistical improvement. These can be seized either by increasing the logistical focus in-house or assigning other parties with already existing logistical focus to manage it, such as the suppliers in the drop-shipping concept.

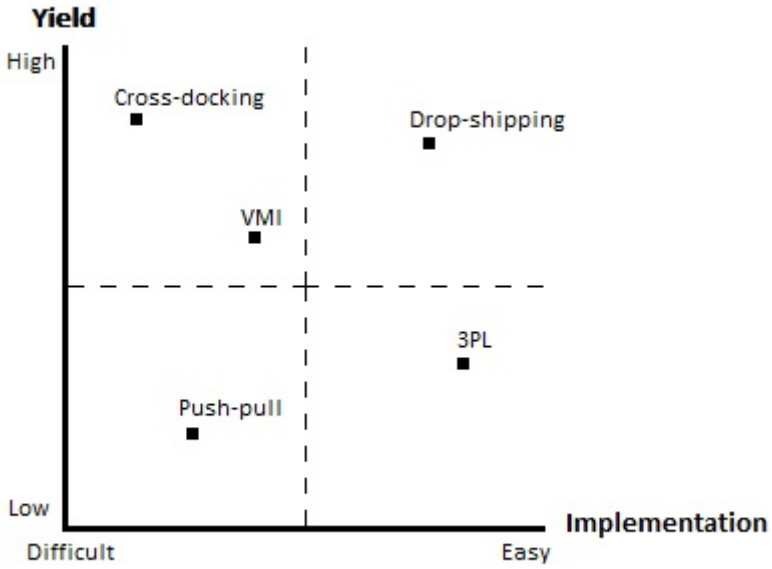

Figure 11. Mapping of concepts. (Made by the authors)

Miljonlotteriet could make thorough cost calculations on the current strategic situation, as well as possibly desired changes. A cost calculation on drop-shipping and an investigation of their current suppliers and their ability and will to perform according to the drop-shipping concept could be the next step for Miljonlotteriet. A pilot study can be a good way of investigating if drop-shipping suits the company without making any substantial investments or changes.

6.1 Reability and Validity

The study was within the interpretivistic paradigm and thus reliability is not of the same significance as the validity. However, in the methodology section a clear description on how the study was preformed is presented which increases reliability. The validity of this thesis was strengthened by the fact that three suppliers were interviewed. These were among the tenth largest suppliers giving a good indication of the most important suppliers of Miljonlotteriet. Within Miljonlotteriet several employees in different positions were interviewed and an observation was performed so as to gain a higher validity of the findings of the different aspects of the company. Several questions were asked to more than one respondent increasing the validity of the responses. The strength of the methodology was that a deeper understanding could be gained from the single case as a deep analysis of it could be made. From this study it is not possible to generalize however, readers can recognize similarities to their own situation in the details of the case study, which in turn can be used as partial generalization.

6.2 Future Research

Further academic research is recommended on making a model for comparing concepts on a cost base. Such a model would complement the model presented in this thesis. It would also be interesting to investigate hybrid concepts, that is, how it is possible to combine different strategies to gain advantages from more than one concept. Furthermore, research on the field of point-based organizations is needed in order to show any common features as well as differences between regular retail companies and point-based companies. Closer investigation of the point-based organizations intentions, logistics processes, and business structure would also be of interest to all companies within, or considering to enter, the field.

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Interviews

1. Jan Erlandsson, Chief Operating Officer, Miljonlotteriet 2012-12-19 and 2013-03-07
2. Ann Pihl, Purchasing Manager, Miljonlotteriet 2013-03-13, 2013-03-07 and 2013-04-08
3. Sara Carlsson, Supply Chain Manager, Markslöjd 2013-04-03
4. Johan Magnusson, Warehousing Manager, Miljonlotteriet 2013-04-10
5. Board Member, “Company A”, 2013-04-18
6. Edwin Heuvelman, Managing Director, MerxTeam, 2013-04-23

Observation

Miljonlotteriet’s warehouse, Mölnlycke, 2013-04-10

Appendices

Interview questions

Ann Pihl, Purchasing Manager at Miljonlotteriet, 13-03-13

Numbers, estimates and facts for:

- Order volume per month
- Any existing order levels
- How large are your orders normally, minimum and maximum
- Cost of ordering
- Warehousing costs such as rent, electricity, heating, employees, etc.
- Costs of obsolescence
- Costs of stock-outs
- Inbound and outbound deliveries in numbers
- Number of suppliers today
- How many of the suppliers are manufacturers and how many are wholesalers?
- How many different products are bought from each supplier? How much does it vary?
- Number of employees hired in the warehouse. Hours per week/month that they work only within the warehouse (excluding additional hours they do within the offices)
- Average weight of each package? How does the weight affect your processes?
- How much repacking is being done in the warehouse today and how much extra time does it take?
- Current size of warehouse
- Fill rate of the warehouse, maximum and minimum
- Are faster deliveries ever an option (e.g. by flight)?
- Do you receive any discounts for larger orders?

What is your process for choice of suppliers?

Please describe the flow of information and goods from your order to supplier to the delivery to customer.

Ann Pihl, Purchasing Manager at Miljonlotteriet, 13-04-08

Which are your largest suppliers? Are any of them Mail order businesses?

Could we contact a few of your suppliers for questions regarding their strategies and possibilities?

What, according to you, differentiates Miljonlotteriet from its competitors?

What benefits do you see in operating your own warehouse?

When searching and ordering products, do you try to affect demand of existing goods by the implementation of similar or competing products?

What do you see as the greatest risks, what are your greatest fears with outsourcing the warehouse?

What do you think would be the greatest advantage of outsourced warehouse?

Have you considered postponement, i.e. differentiating the products at your own warehouse?

If limitation of products is a problem, do you see it expanding in the future?

Have you considered VMI as a strategy and do you see it working for Miljonlotteriet?

Have you considered Drop-shipping as a strategy and do you see it working for Miljonlotteriet?

Johan Magnusson, Warehousing Manager at Miljonlotteriet, 13-04-10

What are the costs associated with the warehouse? Rent, electricity, heating, employees, etc.

What is the size of the warehouse?

How many people are employed at the warehouse and how many hours per week do they perform there? Do any of them have additional tasks connected to the offices?

How many deliveries and send-outs do you have per day/month?

How much repackaging is done and how extensive is it? What are the reasons for it?

What are the biggest challenges of the warehouse as it looks today? In terms of time, cost wise, in terms of knowledge

Do you see any areas where the warehouse can be improved and how?

Please describe the flow of information and goods from your order to supplier to the delivery to customer.

What aspects of warehousing are you particularly good at (better than other warehouses)?

> What makes Miljonlotteriet differentiated from competitors in the logistics aspect?

What is the specific strategy of Miljonlotteriet?

Is postponement possible in the current warehouse?

> Advantages? Disadvantages?

Is VMI possible in the current warehouse?

> Advantages? Disadvantages?

Sara Carlsson, Supply Chain Manager at Markslöjd, 13-04-03

Could you tell us what your current logistical strategies are?

Why were these strategies chosen?

What are the processes and contracts for outbound transport?

How large is your outbound flow per day?

How many warehouses do you have?

How large are they?

How do you handle the extra cost aspects when customers ask for delivery directly to consumer?

Adding the extra logistics costs, how large portion of the products price is it?

What is the name you use for this concept? (Direct-to-consumer)

What are the main differences, for your logistical processes and for the contracts, between delivering to your customers versus the end-customer?

Could you describe what a typical contract with a customer with the wish for drop-shipping looks like? What are the main differences compared to a customer where you send the goods to their warehouses?

What is more common for you? Drop-shipping or delivery to retailer?

Are the drop-shipping contracts standardized or made up individually to fit each customer?

What trend do you see for drop-shipping?

What benefits does drop-shipping offer you? What benefits does it offer your customers?

How long is the order delivery time for you drop-shipping services?

How do you manage stock-outs and how problematic is it in your industry?

What are your competitors' logistical strategies? Do any of them offer drop-shipping?

Board member 13-04-18 – "Company A" and Edwin Heuvelman 13-04-23 – Merxteam

How many warehouses do you have in Sweden?

How many outbound deliveries do you have per day?

How many employees are working in your warehouse/s?

Do you do Drop-shipping?

How large portion of your customers are retailers?

Where do your deliveries go to today? End customers, warehouses, stores?

Could you describe the logistical strategy at your company and why this strategy was chosen?

What are your processes and contracts for inbound and outbound transport?

Describe the typical partnership with a typical customer of yours. Information sharing, forecasts, contracts, etc.

What are your views on close partnerships with customers?

Do you have or have you considered such partnership concept as VMI, Drop-shipping or the like? Which ones and why?

Do you use drop-shipping today or do you have the possibilities or desires to do so in the future?

To which extent do you use logistics to gain competitive advantage? Is it a part of your core strategy?

What are the strategies of your competitors and in which way do you differentiate from them?

How do you work actively in continuously improving your logistics processes?

What trends do you see for your logistical possibilities and challenges?

How large of a customer is Miljonlotteriet to you? Describe your relationsip today.

Is there anything else you would like to add regarding your logistical processes and strategies, or other information?

Possible additional subjects depending on the answers in previous questions

What additional costs do you charge for, and how much, when drop-shipping is used rather than delivery to the retailer?

What are the main differenced for your business between drop-shipping and delivering to retailer? Do you prefer any of them?

Do you see your drop-shipping/VMI/Push-pull/other as a great advantage compared to the logistical solutions retailers without such strategies have? In what way?

Do you see any preferences by your customers for any particular strategy