

## **The Impact of Warehouse Relocation on the Supply Chain Department**

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**ABSTRACT:** Changes in the foreign trade environment have led to significant attention being focused on the logistics activities of global companies. Global operating companies have seen positive impacts over the last few years from foreign trade growth. In order to meet these positive impacts of growing trade, is it important that companies criticise and analyse all logistics activities and their warehouses. Since the supply chain is often called the beating heart of a company, this study attempts to find all effects of a warehouse relocation on the supply chain department. In order to cover all these aims, the following research question was formulated: What are the impacts of relocating a warehouse for the supply chain department? This research question is answered with the help of a literature review and qualitative research. In depth interviews with the method of phenomenology were used to understand experiences of a focus group, with samples that contributed recently to a warehouse relocation.

Based on research results, it can be concluded that relocation affects not only the supply chain department but the whole company. The positive impacts of relocation are fulfilling company expectations, redesigning the warehouse, an increase in employee confidence, improved policies and procedures, and financial benefits. The negative effects of relocation are the shutdown, time costs, communication, and financial impacts. This study also concludes that cohesion between warehouse and supply chain is needed to maximize the relocation process and that communication before and after relocation is not the same, as more meetings are necessary beforehand. Based on this study, the following recommendations are given: (1) prepare a detailed plan that covers each step in the whole process; (2) do research for risk scenarios, in order to understand what could go wrong during the moving process; (3) motivate all employees who are going to realize the relocation, because their support makes the relocation process smoother; and (4) realize all the desired changes with the relocation, which could range from system changes to storage criteria.

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**Keywords:** Logistics, Relocation, Relocation Process, Supply chain, Warehouse.

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### **I. INTRODUCTION**

In the last several years, an efficient and effective operating warehouse has become more important for the logistics sector and global companies. There are several reasons behind the conscious use of warehouses, from the newest warehouse equipment and technologies to their geographical locations. Yet the most important reason behind the awareness of having a well operating warehouse is the increase in foreign trade.

The increase of imports and exports started in 2005 with a small decrease in 2009 and 2015. Since 2017, Turkey's foreign trade has risen again. The Turkish Statistical Institute has reported an increase in exports in January 2018, up 10.7% in comparison to 2017, with a total amount of \$12.457 billion. Imports also increased by 38% in comparison to January 2017 with a total of \$21.524 billion in January 2018 (Institute, 2018:1). With the growth of the transportation and logistics sector and the increase in foreign trade, it is necessary to have a well-operating warehouse as a company. The number of warehouses in Turkey has also increased due to the increase in foreign trade and increasingly easy building processes (Deloitte, 2013: 27). There are in total 604 government-bonded warehouses and 555 private-bonded warehouses in use (T.C. Gümrük ve Ticaret Bakanlığı, 2018:1).

Logistics could be seen as a framework that is searching for a plan in order to have a flow of product and information through the business to customer. There are various activities that are considered part of logistics, including warehousing, transportation, distribution, and purchasing. One of the most important activities of logistics is warehousing. Warehouses today do more than store goods. They contribute also to price stabilising, sharing the risks of a company, financing, grading, and packing the goods. Logistics departments are a part of the supply chain departments in companies, and the warehouse is a part of the logistics department. These three departments work together in order to reach company goals. The warehouse activities are the operational flow of a company, and the supply chain department is the informational flow of a company. The purposes of supply chain management are to create value, enhance efficiency, and satisfy customers.

Global operating companies have seen positive impacts over the last few years from foreign trade growth. In order to meet these positive impacts of growing trade, is it important that companies criticise and analyse all logistics activities and their warehouses. Businesses have also been investing in order to increase their warehousing quality. However, investing in a warehouse is not always the best solution for a well-operating warehouse. Thus, businesses are having unforeseen moments and are sometimes not able to prevent a relocation of their warehouses. The steps for relocating a warehouse are described very well in literature, and some companies have experts working for them to realize the relocation. One unknown part of such a well-known topic is impacts of a relocation on the supply chain department. Since the warehouse is a part of the supply chain is, these impacts are important for companies.

## **II. PURPOSE OF THE STUDY**

The intention of this research was to do a study about the impacts of warehouse relocation on the supply chain department. It was unfortunately not clear which kind of impacts relocation had on this department. Therefore, the aim of this research was to gain specific information about warehouse management, warehouse settings, communication during the relocation, and the benefits and disadvantages of moving a warehouse.

This study will also explain the following specific objectives:

- Warehouse relocation decision process, in order to understand why companies move their warehouses
- The relocation phases described in detail, including which kind of steps should be taken for a smooth relocation
- What kind of financial benefits companies gain from relocation.

The main aim of this research is to understand the impacts of warehouse relocation on the supply chain department. Therefore, the main question formulated for this study is: What are the impacts of relocating a warehouse for the supply chain department?

## **III. RESEARCH QUESTIONS**

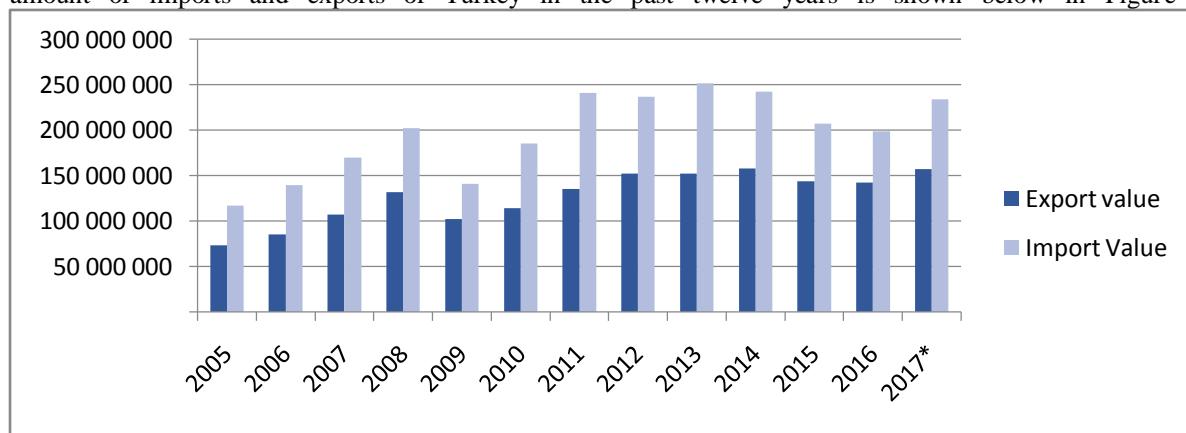
In order to meet the study aims as described in the previous paragraph and to support the main question, the following research questions were formulated:

- What are the activities and types of warehouses?
- What is the cohesion of a warehouse with the supply chain department?
- What kind of cost categories does a warehouse have?
- How does a company decide on the relocation of a warehouse?
- What are the steps for the relocation of a warehouse
- What types of warehouse management are available?
- What kind of quality management is used?
- How should communication proceed before and after the relocation?
- What are the benefits and disadvantages of a warehouse change?
- What are the financial benefits of this warehouse change?

## **IV. LITERATURE REVIEW**

In the last several years, an efficient and effective operating warehouse has become more important for the logistics sector and global companies. There are several reasons behind the conscious use of warehouses, from the newest warehouse equipment and technologies to their geographical locations. Yet the most important reason behind the awareness of having a well operating warehouse is the increase in foreign trade. The total

amount of imports and exports of Turkey in the past twelve years is shown below in Figure 1.



**Figure 1:** Import And Export Value Of Turkey 2005-2017

**Source:** (Turkish Statistical Institute , 2018:1)

### Warehouse Activities

Before explaining warehouse activities, is it firstly important to understand the full definition of a warehouse. Richards defined a warehouse as ‘a trans-shipment point where all goods received are despatched as quickly, effectively and efficiently as possible’ (Richards, 2014:1). There are several types of warehouses, and the choice of which type of warehouse would be used is decided by companies. The most commonly used warehouses are the public warehouse and the bonded warehouse. Each company must use a bonded warehouse in order to finish their import processes. Below are Chand’s classifications of different types of warehouses:

- **Private warehouses:** This warehouse type is a property of companies. (Chand, 2014:2).
- **Public warehouses:** A number of companies store their goods in this kind of warehouse (Chand, 2014:2).
- **Bonded warehouses:** This is a temporary storage place for all imported goods, where the import process is still going on (Chand, 2014:2).
- **Other types:** These are warehouses like merchandise warehouses, cold storages, or refrigerated warehouses (Chand, 2014:2).

Richards explains in his book *Warehouse Management* the following about warehouse activities: ‘The basic processes of warehouse management remain the same over time. We receive goods into the warehouse, we process orders, we replenish, we include some value-adding services, and then we dispatch the product’(Richards, 2014:2). Warehouse activities show that they are not only a place for storing goods. Regarding the theoretical explanations, it is possible to say that warehouses work on three flows: input, output, and internal. The input flow is the storage of goods. The output flow is transferring goods to customers. The internal flow is adding a value on the goods, by grading and packing or supporting the financial benefits of a company by stabilising prices of goods. Another important internal activity of a warehouse is sharing the risks of a company.

Radio Frequency Identification Technology - Resource Management System RFID-RMS. The RFID-RMS helps to support the warehouse activities with use of a system. In the article Design of a RFID case-based resource management system for warehouse operations is described this model as following: ‘*Designed to help users to select the most suitable resource usage packages for handling warehouse operation orders by retrieving and analysing useful knowledge from a case-based data warehouse for solutions in both time saving and cost effective manner*’. This model helps to enhance the effectiveness in formulating the resources, usage of packaging, managing the resource operation and for the programming of the forklift route (Chow H.K.H, 2006: 561-576).

### Cohesion Between Warehouse, Logistics And Supply Chain

The warehouse is a part of a company’s logistics department, and this department is responsible for all the warehouse activities. Logistics is in turn part of the supply chain department. Komarova explains in her scientific research that the goals and objectives of the logistics system determine the goals and objectives of the warehouse (Komarova, 2016:12). Martin Christopher, professor emeritus of marketing and logistics at Cranfield School, defines logistics as ‘essentially a planning orientation and framework in logistics and supply chain management that seeks to create a single plan for the flow of product and information through a business to

consumption' (Christopher, 2016:12). In the book *Warehouse Management handbook* are the responsibilities of the logistics department described as following: warehousing, traffic management, sales forecasting, purchasing, product planning, packaging, order processing, order entry, inventory control, global logistics, general management and facility location (Jerry, 1998:24).

It is possible to compare the logistics definition from the introduction with the warehouse activities. The difference is that the warehouse process is based on operations, and logistics is more based on information flow. Logistics is like a bridge between the operational side, which is the warehouse, and the informational side, which is the supply chain. The input and output flows of the warehouse are also available in the flows of logistics. Logistics can be separated into inbound and outbound logistics. Inbound logistics is moving semi-finished goods or raw materials from suppliers to the company. Outbound logistics is the movement of finished goods to the customers (Shurbi, 2017:1). John Mangan and Cardwan Lalwani explained in the book *Global Logistics and Supply Chain Management* their definition of supply chain management: 'The management, across and within a network of upstream and downstream organizations, of both relationships and flows of material, information, and resources. The purposes of supply chain management are to create value, enhance efficiency, and satisfy customers' (Lalwani & Mangan, 2016:11). The conclusion is that collaboration between supply chain and logistics is necessary. All departments in a company should be able to work together to operate at a maximum level.

### **Cost Categories**

There are several cost categories in warehouses, which are taken care of by the logistics department. Warehouse costs fall into two categories, fixed and variable costs. The fixed costs are rent, energy, building insurance, depreciation, and basic wages. Emmett explains that variable costs are overtime wages, maintenance, operational costs of equipment, and product insurance (Emmett, 2005:174-175). For the total costs, it is necessary to put fixed and variable costs together. Labour, space, and equipment are costs for warehouse purposes. Average costs are 60% for labour, 25% for space, and 15% for equipment.

Each company without any difference in size is managing a warehouse in time and space. There are monthly costs, which are the same for all companies; the details of the costs could be a difference but the categories are the same. Speh indicates four categories of warehousing costs, as shown in Table 1:

**Table 1:** Four Categories of Warehousing Costs

<b>Category</b>	<b>Explanation</b>
<b>Handling</b>	Handling costs include all goods that a warehouse receives and sends, all labour costs for the employees who work in the warehouse, labour costs for value-adding or damage-handling process, and all equipment costs that are necessary to fulfil activities in the warehouse, such as electricity and fuel (Speh, 2009:174-175).
<b>Storage</b>	This is the primary activity of warehouse storage. The storage costs are fixed, even as the company moves goods in or out (Speh, 2009:174-175).
<b>Operations administration</b>	All costs to support warehouse operation processes. These are variable costs and include costs for supervision, IT, insurances, and taxes (Speh, 2009:174-175).
<b>General administrative</b>	General management, non-operations staff, and general office expenses are examples (Speh, 2009:174-175).

**Source:** (Thomas W. Speh, 2009:174-175)

Besides these cost categories, there are also relocation costs for a company. Ackerman explains in *Practical Warehousing* how to estimate costs of moving. First, the inventory that will be moved should be estimated. After this estimation, how many loads are needed for the movement should be calculated. When it is known how many loads the company needs for the transfer of goods, the costs of loads can be determined (Ackerman, 1997:85).

It is very good to know load costs during a relocation, but this doesn't include all costs. The following costs should also be added to the total of costs:

- The office operation movement costs
- Warehouse maintenance costs
- Material handling equipment costs
- Storage racks and other equipment costs (Ackerman, 1997:86).

In addition, it is also wise to think what could affect the costs during the relocation of a part of the business. There could be thought to aspects like the size of a company, how much more the costs could be if the company were larger. Another aspect that could have an impact on the costs is whether the company will outsource the

relocation process or use the available and internal employees. Information technologies are also very important to think about and whether internal employees will relocate the systems and software or it will be done by outsourcing specialists.

### **Decision to Relocate**

It is a very important decision for a company to move, especially to consider all preparation for a relocation that is needed. There are several motivations for companies to change their warehouse. The most common reasons can be summarised as follows:

- Growth and an increase in capacity
- Optimization of the storage space
- Relocation of the entire company
- The opening of an additional site (partial relocation)
- The end of the rental agreement for the warehouse (Logistics I., 2017:1).

Ackerman also lists these eight most common reasons:

- |   |   |
|---|---|
| <ul style="list-style-type: none"><li>• Wrong size</li><li>• Operating problems</li><li>• Policy change</li><li>• Market change</li></ul> | <ul style="list-style-type: none"><li>• Transportation changes</li><li>• Taxes</li><li>• Technical changes</li><li>• As a symbol of progress (Ackerman, 1997:79).</li></ul> |
|---|---|

These motivations show that all companies want to have a relocation in order to have more continuity on their business. Companies aim to solve operating problems or to be consistent with the market changes.

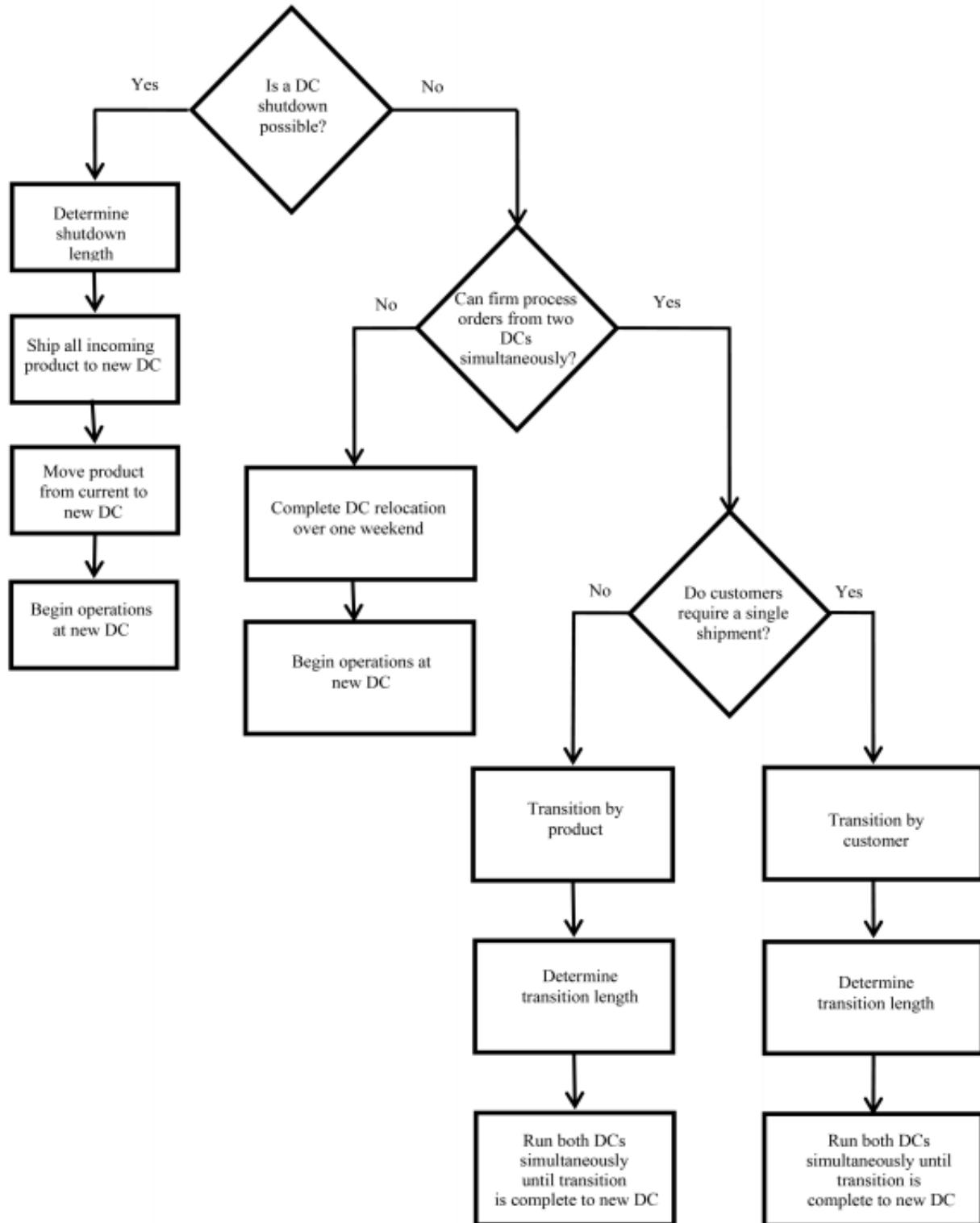
### **Process Of Relocation**

Each company desires a soft relocation of warehouses with minimal problems. In order to avoid or to minimize problems, a checklist is very important. The checklist should be prepared during the preparation phase of the whole process. Ackerman lists six sections for a checklist: personnel administration, receiving, shipping, materials handling operations, use of space, and sanitation security and safety (Ackerman, 1997:79). Figure 2 shows a framework that focuses on three decisions managers must address regardless of their industry.

**The first decision:** It should be decided if a shutdown of a warehouse during the relocation is possible or not. (Aase & Petersen, 2015:9).

**The second decision:** When a shutdown is not possible, the company should evaluate the possibility to operate in the new and the old warehouses at the same time. (Aase & Petersen, 2015:9).

**The third decision:** When it is not possible to operate in two warehouses, it is necessary to ask if customers require a single shipment. If customers do not require one shipment, then the transitions will be done by products, and it is necessary to determine the transition length. In case the customer requires one single shipment, it is necessary to do a transition based on customer (Aase & Petersen, 2015:9).



**Figure 2:** Relocation Framework  
 Source:(Aase & Petersen, 2015:10)

### **Warehouse Management**

Every company has one or more managers in order to manage all activities of each department. Steven P. Robbins and Mary Coulter have defined ‘manager’ as ‘someone who works with and through other people by coordinating, integrating, and monitoring their work activities in order to accomplish organizational goals’ (Coulter, 2012:209) Richards explains that managers have a number of operational challenges and implement company strategy in relation to warehouse activity. One trade-off that warehouse managers deal with is cost versus responsiveness and cost-efficiency versus volume throughput (Richards, 2014:1). Since warehouses are based on operational processes, are the warehouse management has more cost, efficiency, and effectiveness related functions.

In today’s fast-moving environment, managers have the goal to maximize effective use of operational resources while satisfying customer requirements. This is possible through motivating and managing staff effectively. Richards lists seven basic principles that today’s warehouse and logistics managers deal with: Cost control, accuracy, lead times, technology, workforce, safety and environment (Richards, 2014:4).

According to Armstrong and Michael explained on website studymode, the fundamentals of management are deciding what needs to be done and getting it done through people in the organization (Studymode, 2011:1). They highlighted that people of an organization are the main resource among all other resources that are needed by a manager, which indicates that a large proportion of management work is done through people. Therefore, in any management process, managers play a vital role in operating an organization (Sayeed, 2013:47).

### **Quality Management**

Each company has a quality management tool or a technique. Which management model is used depends on the sector. One of the most commonly used quality management models is from the International Organization for Standardization (ISO). ISO is a quality model that every company uses as a quality norm. When companies meet the ISO requirements for the different processes, they receive certificates. This ISO certification adds quality in each process of a company.

There are several quality management approaches available for enterprises. The most commonly used management approach is total quality management (TQM). TQM was founded in the 1920s in Japan to improve quality production. Over the years, it has been adjusted by quality experts W. Edwards Deming, Joseph M. Juran, and Armand V. Feigenbaum to the TQM of today. Kiran defines TQM as follows: ‘Total Quality Management consists of organization-wide efforts and an integrated system of principles, methods, and best practices to install and make a permanent climate in which an organization continuously improves its ability to deliver high-quality products and services to customers’ (Kiran, 2016:2).

Another well-known tool is the plan-do-check-act (PDCA) cycle from W. Edwards Deming. The PDCA cycle was developed by Deming in the 1950s with the aim of identifying and solving issues in companies. It is effectively used for solving problems and improvement of products and processes. The PDCA cycle is a simple and very effective tool for managers. The tool could be used for every issue, especially where the management wants to see progress in a short time. It not only gets management planning to an action point but also provides a way to manage all work that has to be done.

### **Communication**

Relocation is a sensitive process that requires careful communication for an effective output. Haacke (2015:2) recommends using an internal task force during the preparation phase of the relocation. The internal task force should include the following: ‘Formulating a timeline for execution of the relocation’. Matthew Dennis, a relocation specialist, explains the following about an effective communication plan related to the move. A communication plan should effectively communicate all parts of the company. The more employees are aware of the move plan, the more they will be enthusiastic. The effective communication plan should also cover general information about the new facility, construction, progress, and pictures, what employees could expect during the project, what the expectations of employees are, and what will be different. A clear and detailed communication plan will let employees understand why the change is being made by the company (Dennis, 2013:3).

Communication is one of the most important aspects of a company. It is not possible to manage any task or planning without communication. Without the support of employees, it is not possible to have a smoothly operational process. For a well operating process, it is necessary that employees are motivated. Herzberg introduced his motivation-hygiene or two-factor theory in the 1950s. The aim of motivation factors, which are

intrinsic, is only to increase and improve job satisfaction. The hygiene factors, which are extrinsic, aim to reduce job dissatisfaction by employees (Alshmemri, 2017:12-16).

## V. RESEARCH METHODOLOGY

Phenomenology was chosen as the research method. Phenomenology is a method that helps in understanding human experiences during a change process. Since the topic of this study covers a relocation process, this method is the best way to gather data (Berg, 2001:27). The aim of this study is to understand how a change process is realized, and phenomenology supports this aim. The data collection occurred by holding focus group interviews.

The way of data collection was by in-depth interviews with a focus group. For this study, the participants of the focus group are all employees of the logistics department of Company X. On 21 December 2017, the warehouse of Company X moved to another place. One of the requirements for the target population of this study was that participants had experienced relocation in the short term. The employees in the logistics department are aware of all the processes before and after the relocation since they were the most intensive department working on the relocation.

The first interview was held with the logistics manager, then with the logistics executive, and then the specialists. The reason for this order was to collect data first on a strategic level and then on an operational level. Each participant had different experiences in the relocation.

**Table 2:** Sample List for Qualitative Research

Department	Interviewee	Position	Interview Date
Logistics	Participant A	Logistics Manager	30.03.2018
Logistics	Participant B	Logistics Executive	30.03.2018
Logistics	Participant C	Logistics Specialist	30.03.2018
Logistics	Participant D	Logistics Specialist	30.03.2018

The data analysis was thematic. The focus group shared similar experiences about the change process. In order to organize the answers thematically, the questionnaire list for the in-depth interviews was divided into sections. The sections were drawn from the independent variables, which also represent the research questions of the study. These sections are listed below:

- Cohesion between warehouse and supply chain
- Decision for relocation
- Process of relocation
- Cost categories and financial benefits
- Benefits and disadvantages of relocation

The questionnaire list was prepared in English and consists of five sections and in total 25 questions. The sections were taken from the research questions.

The use of data registration and data analysis equipment maximizes the reliability of qualitative research. Therefore, recording equipment was used during the interviews. The audio records were also used during the preparation of interview summaries. Another reason for using audio records was that it counts as proof material. For maximizing the reliability of the interviews, a standard questionnaire list was used to ensure that each employee was asked the same questions. Sending the interviewee a summary of the meeting and verifying the correctness of the answers was also used to maximize reliability (Berg, 2001:127).

The qualitative research of this study is based on phenomenology and in-depth interviews with a focus group. All prepared questions for the interview could only be answered by people who had experienced relocation. This increases the validity of this research. Another aspect that increases the validity of this study is asking all respondents the same questions until there is an answer received. By using the five sections, it is also possible to compare all answers of the participants. This also increases the validity of this study.

There was a literature review done to gain information about the topic of warehouse relocation and the impact on the supply chain. The aim of this literature review was to find theory-based answers on the sub-questions. In order to do a correct literature review about the topics, a search plan was prepared for the literature review method. The goal of this search plan was to increase quality and reliability of collected information. In order to maximize the validity of the literature review, which is to measure what needs to be measured, a search plan was prepared. All sub-questions were separated into search terms, which created the possibility to search on topic

related information. Reliability is without any doubt the most important aspect of a literature review. It shows to what extent the research is free from coincidental research. By repeating of research, it is important to have the same results. The following actions were done to ensure a reliable review: use of more than one source, using recent sources, internal information from the company and a search plan.

## VI. FINDINGS

The qualitative results are showing that there is a cohesion between warehouse, logistics and supply chain of Company X. Regarding the logistics manager is it necessary to work in cohesion, each work activity in warehouse, logistics and the supply chain is influencing each other. Without cohesion is it not possible to operate smoothly or to reach company goals. In order to be aware of the latest progress are there between the supply chain and logistics monthly meetings. All key performance indicators of the suppliers are discussing the departments together. This happens regarding the key performance indicator reports. These reports show from each forwarder, custom agency and factory the monthly performance. Further are weekly meetings to discuss all activities related to product changes, new products and delist goods. The weekly meetings are between all departments of the company.

Regarding the relocation, issue has been made weekly or semi-weekly meetings with all departments as purchasing, quality, finance and regulatory. During the weekly meetings is the progress of tasks discussed. For an efficient communication are the following middles actively used: SAP system (Systems, Application, and Products) system, emails, meetings, and phones. The SAP system is the software where all departments work with by Nutricia ELN Turkey. This system provides each employee the necessary information. Since all departments contribute for a part of the working activities is there a strong cohesion available between the departments. All regular activities and tasks are set up and known by each department. Each department has own tasks and responsibilities. During the relocation did the logistics department set up all activity details what should be done and divided into related departments. Based on these responsibilities contributed each department on the relocation process. Logistics department was the managing department during the whole process.

### Cost Categories

Regarding the cost categories are there two results of the qualitative research. There are results about the cost categories in general and there are the costs regarding the relocation explained. As each warehouse has Company X also cost categories in their warehouse. The company is having the following cost categories handling, storage, operations and administration and general administrative expenses. Relocating a warehouse is beside the energy and effort also very costly. For the relocation made Company X one shot and yearly costs. A few of these costs are below in table 3 shown.

**Table 3:** Costs Made By Company X

Cost Explanation	One shot / Yearly	Amount
A temporary place for the moved goods	One-shot	220.000 TL
Total transport costs between old and new warehouse	One-shot	40.909 TL
Warehouse Manager and other official expenses	Yearly	160.000 TL
Investment for temperature control and system validation for 3000 pallets	One-shot	2.500.000 TL
Electricity	Yearly	120.000 TL

### Decision For Relocation

As of end 2017 is the contract ended between Company X and the current warehouse owner. There were two solutions for the board of Company X or they would extend the current contract, or there would be searched for another warehouse. There is chosen for a new warehouse after all negotiation. A tender is held to see all potential companies that could be the warehouse supplier for upcoming years. Firstly, are there drivers determined which are categorized into four groups. Below in figure 2 is shown an overview of all drivers and determined categories.

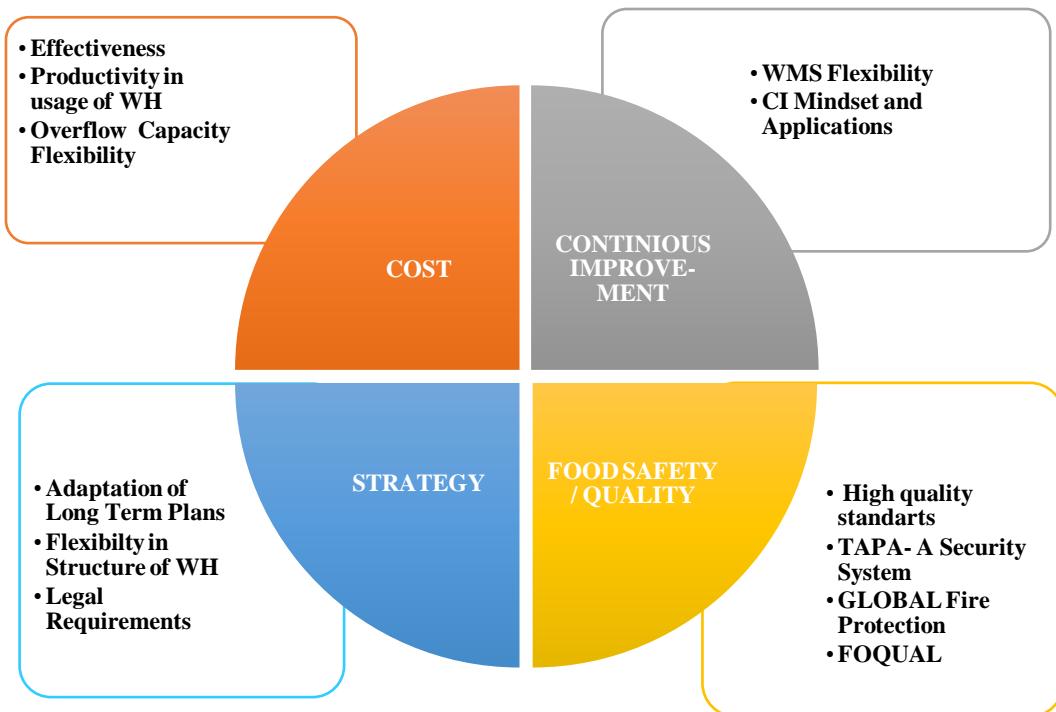


Figure 3: Tender Drivers Company X

#### Process Of Relocation

The whole relocation process of Company X exists in total from four phases, below in figure 4 is the order of the phases shown. Each phase of the relocation will be explained separately.

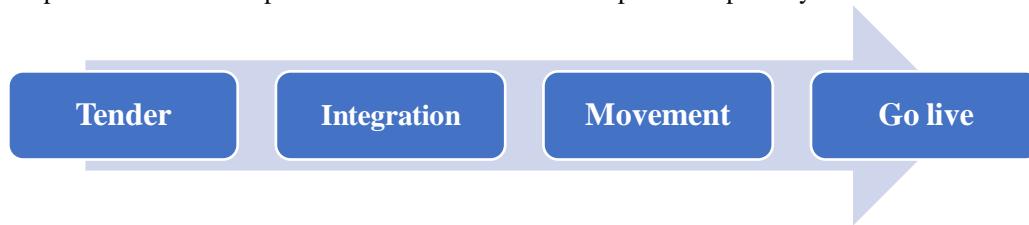


Figure 4: Movement Phases

The whole relocation process of Company X is described regarding the phases.

#### Phase 1: Tender

Company X started first with organizing a tender after they made the decision to move. The companies that participate the tender should satisfy the expectations of Company X.

#### Phase 2: Integration

The integration phase was a very intensive and time-consuming period for the company. In total took the integration process three months to complete. With integration, phase means the company the integration of all activities in the new warehouse. The integration process started with the preparation of a plan of action and checklists. All actions, which should be done before the movement are, wrote one by one by the logistics department. After this plan of action is given all departments their responsibilities and tasks.

#### Phase 3: Movement

After the integration phase is finalized, which means all actions points for health and safety are fulfilled by the new warehouse supplier, started the third phase of the movement. This is the phase were the physical movement of all goods from the old warehouse to the new warehouse happens.

#### Phase 4: Go live

After the physical movement phase started the fourth and last phase of the relocation. Go live phase exist of controlling if everything went well or not. Therefore was in this phase creating the first order very critical. It was also a milestone for the company because of the month of preparation to realize the whole movement.

### **Warehouse Management**

The way of managing is to accomplish all set goals for the company in short term and long term. Besides managing is it also important to coordinate activities in an effective and efficient way. Company X is also as a company taking care of actions for a smoothly working environment. The management of the logistics department is doing the following action points in order to create a well working environment for their employees.

- One to One meetings
- Motivation days
- Key performance indicators
- Open door culture

### **Benefits And Disadvantages**

There is made a comparison table that shows the benefits and disadvantages of the new and old warehouse suppliers for Company X.

**Table 4:** Comparison Table New And Old Suppliers

<b>Old Supplier Disadvantages</b>	<b>New Supplier Advantages</b>
<ul style="list-style-type: none"> <li>• Contract end this year (31.12.2017)</li> <li>• \$ based rent prices in the price list</li> <li>• Has additional union cost ( 5 % extra increase in handling costs )</li> <li>• 88 % of contract is fixed</li> <li>• No suggestions about new Distribution Centre which matching our quality</li> <li>• Has some legal issues</li> <li>• Lost flexibility in operation due to union and turn-over</li> <li>• No (pro) activity and efficiency in Logistics activities</li> </ul>	<ul style="list-style-type: none"> <li>• Have a contract for 4 years (+1 optional)</li> <li>• Owner of the warehouse (not leased)</li> <li>• All prices are in TL and no extra cost of union</li> <li>• 65 % of contract is fixed</li> <li>• The productivity of 8 % in warehouses costs for 2018</li> <li>• A class warehouse which has an in-rack sprinkler system</li> <li>• Flexibility in operation</li> </ul>

### **Financial Benefits**

The financial benefits of relocation are categorized in handling and rent by Company X. The total saving amount is exclusive the start-up costs in the new warehouse.

**Table 5:** Total Financial Benefit For Handling And Rent (2017-2021)

<b>Grand Total Handling and Rent</b>	<b>Old Warehouse</b>	<b>New Warehouse</b>
<b>5 Years Plan</b>	49.431.521 □	41.706.990 □
<b>2017-2021</b>		16%

As in table 5 is shown, is there in total a saving percentage of 16%. Besides the safety and health expectations is having a financial benefit also a requirement. When relocating a warehouse expects a company to find a warehouse with less costs and better storage quality.

## **VII. DISCUSSION**

As mentioned before based on literature review is a warehouse fulfilling logistics activities in a company. The primary and most important activity is storage of the goods. Secondly, collecting and pick up of goods to deliver is another important function of warehousing. Regarding the qualitative research results are the primary and most important functions of warehousing the storage of goods in a qualitative way and making goods ready for delivery.

Also important to express the pick-up of goods could also mixed, which means that there are several goods from different batches. equipment and software systems that could be used by the leaser.

Well known is that warehouse a part of the supply chain is. The logistics department is also a part of the Supply Chain, which means that warehouse activities also belong to this chain. In theory, explained is it possible to say that there should be cohesion between these departments. The supply chain is operating regarding principles that

also counts for logistics and warehouses. There is a main goal to accomplish; there is the main vision to accomplish together. Each department is a puzzle of a company and without cohesion between these departments is it not possible to reach goals. In practice based on the qualitative research results is there a strong cohesion between the Logistics, Warehouse and Supply Chain departments. It is necessary to work together because these departments are influencing each other. Each department has own tasks to contribute to the company goals.

Regarding theory could warehouse costs divided into two categories, the variable, and the fixed categories. It is also possible to place warehouse costs in four categories handling regarding Thomas W. Speh, storage, operations expenses and general administrative expenses. Based on the theory is it important make estimations on the relocation costs. Especially in the categories of vehicle transfer costs, the manpower that is needed for each out loading and the unloading and storage per load. Regarding the findings of this study is it important to note that storage and rent costs should have the first and second place in cost categories. The rent and storage costs are the largest parts of the total warehouse costs. There is a huge different between the new and old warehouse costs. Especially companies that are using public warehouses for their primary activities dealing with rent and handling costs. Therefore are global operating companies holding tenders in order to find the most profitable warehouse supplier.

In theory are there many common reasons described for the relocation of a warehouse. These reasons differ from wrong size, operating problems, market changes until the symbol of progress. As addition could also mentioned the following reasons there is an increase in capacity, the entire company is relocating or the rental agreement for a warehouse ends. Findings of qualitative research shows that Company X decided to relocate mainly because of an ending contract with the old warehouse holder. However, having an ending contract was not the only reason for moving their activities to a new warehouse. The company considered a movement because of the following reasons:

- The proactivity and efficiency of the old warehouse was influencing the logistics activities of the company,
- The increase of handling and rent costs with 5%,
- The old warehouse lost the flexibility in operation,
- The old warehouse did not have any suggestion about a new warehouse which was matching the quality standards of Company X,
- The current contract was fixed for 88%,

### **Relocation Process**

Changing a warehouse is a very hard process and not achievable in a few days. It is a process from minimum nine to maximum twelve months. Literature review results regarding Aase and Petersen about taking decisions during the relocation process with asking three questions. The first question is a warehouse shutdown possible or not? Second question is it possible to operate in an old and new warehouse at the same time? The third are the customers requiring a single shipment? Regarding the depth interview results of employees from Company X exists the relocation from four steps: 1. Tender, 2. Integration, 3. Movement and 4. Go live.

There are nowadays ton of management models available. However, it is important to know which one of these management models, are used the most in warehousing? Based on the literature review are the goals of a manager leading and motivating employees to maximize effective use of operational resources. Regarding the findings of this study are the functions of managers also leading, motivating and coordinating on different levels by Company X. holidays to other countries. Findings are showing that Company X is using the FOQUAL and WISE quality methods for the increase of their quality. The WISE method is providing a safe working environment which helps to reduce the number of gravity in a workplace. With the FOQUAL method is the aim to reduce the complaint from the customers.

Without communication is it almost not possible to realize tasks, goals or change anything in a company. Regarding the literature review are there a few theories on this topic. One of these theories is the two-factor theory of Herzberg. There is the motivation and hygiene factor regarding this theory. The motivation factor explains how to motivate the employees and the hygiene factor explains all aspects that influence an employee external. Based on the results of qualitative research is one of the most important aspects of relocating warehouses the communication between all departments. The logistics employees explain that it is necessary to have weekly meetings with all departments to be aligned about the activities that should be done for this process.

Relocating a warehouse is a very complex and a hard process, the motivations for moving a warehouse is explained before. However, to understand all benefits and disadvantages is also formulated the research

question: *What are the benefits and disadvantages of a warehouse change?* It was not possible to find a specific answer on this during the literature review but with results of depth interviews were it possible to understand it. Regarding the findings of qualitative results is one of the disadvantages of relocating a warehouse the energy and effort that would put in this process. The benefits of relocation are to operate in a warehouse with all expected changes. Another important advantage for Company X was that the new warehouse, not a leased warehouse is. The supplier of the new warehouse is the owner, this is making it possible to solve problems in a very fast way. Another advantage is the sprinkler system of the new warehouse. A sprinkler system between all layers makes the storage of the goods safer.

Besides, the benefits and disadvantages are financial benefits another important aspect for companies. A company is assuming each change to have a financial benefit. In addition, Company X aimed a financial benefit with their relocation. They have found the most profitable warehouse in operational and financial issues. The handling and rent costs are the largest cost category of companies,

As final the head question of this research, all other research questions are formulated in order to answer the head question. See below the head question of this study:

**What are the impacts of relocating a warehouse for the supply chain department?**

Supply chain department, logistics, and warehousing are the beating heart of a company. The aim of each department is to work on the mission and vision of a company. The results of this study show that relocation does not have the only impact on the supply chain department but the whole business. Therefore are all the positive and negative impacts described in general related to the company. A change in a company, relocation of a warehouse, has positive and negative impacts on a company. Regarding the qualitative review, results are the non-positive impacts of a change: shut down, time-consuming, communication and financial impacts. A movement has not only negative but also positive impacts on a company. These are as following: full filling company expectations, redesigning of the warehouse, an increase in employee confidence, policies and procedures and financial.

As mentioned before, the impacts of relocating a warehouse do not have impacts on the supply chain, but the whole company. The reason for this is that supply chain changes are affecting the whole company. It is like a domino stone when one department influences of a change will this continue in all department of a company. The only thing that could be expressed is the fact that logistics department for 80% taking the responsibility to realize this change. All other departments are contributing to their own tasks and responsibilities.

The limitations that are experienced during this study were as following:

- **Recent literature:** During this study are made for weeks literature reviews. Reason for this was to find the correct information about the topics related to this study. In addition was the other reason for doing weeks of literature review the not availability of theory based on this study. The theory that I could find were almost all published for more than five years. This was making it hard to find recent information especially about the benefits and disadvantages and the financial aspects of a movement.
- **Finding a company:** Another limitation of this research was finding a company that realized a warehouse movement in the past six months. Since this was one of the requirements for this study was this a serious limitation. After all, is found a company that relocated their warehouse.
- **Privacy:** The last experienced limitation of this study was the privacy reasons of the company. In order for privacy reasons was it unfortunately not possible to use all information provided by the company.

### **VIII. CONCLUSION**

Based on the literature review and qualitative research, the first conclusion is that the primary activity of a warehouse is the storage of goods. For companies operating in the food industry, it is also important to store goods in a safe way to prevent contamination risks. The most used warehouse type is the public warehouse. The type of warehouse depends on the size of companies. If a company is large enough, it is possible to have a private warehouse.

The second conclusion is that for maximum operational processes, cohesion between warehouse and supply chain is necessary. Without the supply chain, a warehouse is nothing, and without a warehouse, a supply chain is nothing. Both departments should be able to work together. Regarding the literature and results of qualitative research, it can be concluded that there is cohesion.

The third conclusion about the cost categories is that each warehouse has fixed and variable costs, which can be categorized in handling, storage, operations administrations, and general administrative expenses. About the relocation costs, the conclusion is that there are a lot of short-term costs. The fixed costs for a relocation are the

moving costs, and the rest depends on the expectations of the company. For example, if the company expects that each employee is aware of food safety, this will bring training costs for a company. These training costs are an example variable costs that will only happen once.

The fifth conclusion is that there are common reasons for taking a relocation decision. These reasons can vary from growth and an increase in capacity to ending a contract. Based on literature and research results, it can be concluded that a relocation process should proceed in phases. Each phase must be described in detail for a smooth change. Another conclusion about this topic is that holding a tender depends on the expectations and will of a company.

The sixth conclusion about warehouse management is that a warehouse manager should motivate employees for a maximum return from employees. In practice, managers use key performance indicators for employees. The key performance indicators contribute to a high-quality working attitude of employees. Theory concludes in general that a warehouse has the goal to lead and motivate employees to maximize effective use of operational resources.

A seventh conclusion is that communication before and after the relocation is not the same. Before realizing a relocation, it is important to inform first the employees and after all supply points of the company. Before relocation, meetings with the new warehouse are needed in order to be aligned with each aspect of the movement. Internally, there are also weekly or semi-weekly meetings with other departments about the progress. The conclusion is that a communication plan should be prepared before the relocation. Another conclusion is that the department meetings will decrease after the relocation.

The eighth conclusion is about the benefits and disadvantages of relocation. It can be concluded that the most important disadvantage of moving is the extra effort and labour required. On the other hand, the most important benefits are that a relocation could realize all expectations of the warehouse from a company. Financial benefits are also different for each company. It is possible to have financial benefits of relocation in the long term. In the short term, there are more costs for a relocation than benefits.

The conclusion on the main question is that a change in a company affects the whole company. It is not possible to think that a change in a company would influence only one department. Since each department has its own tasks and responsibilities for the realization of a change, it is not possible that only one department would be influenced. Positive impacts are that a company could redesign a warehouse layout as it wished, change the policies and procedures, gain financial benefits, and change systems. A relocation also has negative impacts, such as the shutdown of a warehouse, and various associated costs.

### **Recommendations for further studies**

Because of time-consuming and the aim of this study was it not possible to do more research on other topics. Distracted from this study are there more potential studies to do. Below are these topics are given as recommendations for further studies:

- **Processes design**  
During this study, was it not possible to design processes in MS Visio or another design program. Recommendation for this topic is to design each step in a relocation process. It is not only about the process design but also about how the departments should work during a relocation. The process design of movement process for each department would show the way each department is affected, or what the exact responsibilities or tasks are.
- **Financial benefits**  
The financial benefits of relocation are given general in this study. The second recommendation is to do a research only based on financial aspects and benefits. This could change from yearly costs to long-term return of a relocation. The published theory doesn't give much information about this topic. With case studies of businesses that relocated their warehouse is it possible to figure out financial savings of moving.
- **Changes in the company**  
With this study is only concentrated on the department's supply chain, warehouse, and logistics. The results conclude that the whole company affects a change. The third recommendation is, therefore, do more research on what kind of effects warehouse relocation has overall company. This study shows only the general impacts, not the detailed impacts.
- **Satisfaction of employees**  
Without the effort and energy of employees, is it not possible to realize changes in a company. Therefore is the last recommendation for further studies to have an imagination about the employee satisfaction regarding a change. Results of such kind of study will show results how they motivate employees before, during and after a relocation.

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