



Open your mind. LUT.
Lappeenranta University of Technology

LUT School of Business and Management
Johtaminen ja organisaatiot
Kandidaatintutkielma

Logistiikan keskittämisen ja hajauttamisen hyödyt ja haitat työntekijän
näkökulmasta

The advantages and disadvantages of logistics centralization and
decentralization from employee's perspective

8.5.2015

Tekijä: Anniina Kujala 0405459

Ohjaajat: Heidi Olander

Pasi Tuominen

TABLE OF CONTENTS

- 1. INTRODUCTION 1
 - 1.1. The aim of this study 2
 - 1.2. The research problem and research questions 3
 - 1.3. Theoretical framework 4
 - 1.4. Research method 4
 - 1.5. Structure and limitations 5
- 2. ORGANIZATION STRUCTURE..... 6
 - 2.1. The effects structure has on the organization..... 7
 - 2.2. Changing the structure of an organization..... 8
- 3. CENTRALIZATION AND DECENTRALIZATION 9
 - 3.1. Advantages of centralization 10
 - 3.2. Disadvantages of centralization..... 11
 - 3.3. Advantages of decentralization 13
 - 3.4. Disadvantages of decentralization..... 14
 - 3.5. The requirements for structure implementation 15
- 4. THE RESEARCH PROCESS 17
 - 4.1. Research method and material 17
 - 4.2. The description of the interviewee’s 19
 - 4.3. The reliability of this study 19
- 5. FINDINGS AND ANALYSIS 20
 - 5.1. Organization structure 21
 - 5.2. The advantages and disadvantages of centralization..... 24
 - 5.2.1. Advantages of centralization 24
 - 5.2.2. Disadvantages of centralization 28
 - 5.3. The advantages and disadvantages of decentralization..... 32
 - 5.3.1. Advantages of decentralization 32

5.3.2. Disadvantages of decentralization	35
6. CONCLUSIONS	37
6.1. Summary.....	37
6.2. Conclusions.....	40
6.3. Future research suggests.....	43
BIBLIOGRAPHY.....	45
ATTACHMENTS.....	49

1. INTRODUCTION

Organization structure has become a relevant topic in practice and theory, since a need for flexible and adaptable organizational designs has increased in today's highly competitive and complex business environment (Hernaus, Aleksic & Klindzic 2013; Johnson & Leenders 2006; Caruana, Morris & Vella 1998). These days many companies are adjusting to the increasingly competitive environment by changing organization or work structure (Liang-Hung & Iuan-Yuan Lu 2005). Organization structuring has a great influence on the way an organization functions, and restructuring certain jobs or structures can be used to e.g. lower the overall costs or to improve efficiency (Faes, Matthyssens & Vandenbempt 2000). Instead of changing the structure of the whole organization, these days companies have focused on re-organizing single functions or activities to improve efficiency without having to implement a change process for the entire organization.

One dimension of organization structure is the level of centralization (Schminke, Cropanzano & Rupp 2002). Centralization means, that decision-making power is located in company headquarters or some divisional level, and decentralization refers to decisions being done by individual plant or manager (Karjalainen 2011). A discussed theme in literature has been whether to centralize or decentralize certain functions in an organization (e.g. Arnold 1999; Faes et al. 2000; Vagstad 2000; Karjalainen 2011; Uva & Catalão-Lopes 2013). However, this topic has not been discussed thoroughly in the current literature from logistics perspective, which this study does.

Supply management, including logistics, is seen as the most important activity in the value chain and a source of competitive advantage, and is recommended to be the focus of strategic restructuring (Burgess 1998; Arnold 1999; Rozemeijer 2000; Cousins & Spekman 2003; Paulraj, Chen & Flynn 2006; Bernardes & Zsidisin 2008). Strategic restructuring can be used to increase the service level of logistics, which is very important, since logistic service level is likely to become a differentiator in competition and logistical excellence can help gain profitable and long-term customers, increase market share and improve revenue gains (Ellinger, Daugherty & Gustin 1997). Especially in logistics, customers are demanding suppliers to provide excellent service, and this phenomenon has been worsened by globalization and economic problems

(Cousins & Spekman 2003). One dimension of restructuring is centralization and decentralization, and the focus of this study is to clarify the advantages and disadvantages of centralization and decentralization from logistics perspective in order to help companies to decide which structure should be implemented in their company to increase efficiency and performance in logistics.

Future research has been suggested to evaluate companies to find the benefits and disadvantages related to the level of centralization (Uva & Catalão-Lopes 2013). This study summarizes advantages and disadvantages for both centralization and decentralization from logistics perspective by comparing two different logistical structures inside one case company. In the studied company, a central logistics department handles some of the plants' logistics (centralized model), whereas other plants have their own individual on-plant logistical departments (decentralized model). The empirical research section stems from interviews with employees from both models in order to compare centralization and decentralization benefits and disadvantages. For finding the optimal structure for a certain job, it is necessary to get to know the opinion of different divisions and employees (Hernaus et al. 2013). This is why the issue of centralization versus decentralization is being looked through the employee's perspective in this study.

1.1. The aim of this study

The aim of this study is to examine the advantages and disadvantages of both centralization and decentralization, and clarify what factors to take into consideration when choosing between these two models. This study aims to summarize the pros and cons of both structures by utilizing the employee's opinions and knowledge as well as the existing theoretical literature on the subject. Ultimately, the goal is to answer the research questions profoundly and comprehensively and increase understanding on the effect structure has on logistics. According to the author's knowledge, there are no studies that address the issue of centralization versus decentralization from logistics perspective. Optimizing logistics an important topic, since well-designed logistics can improve efficiency and customer satisfaction and ultimately translate to more revenues with lower operational and transportation costs (Wang, Ma, Lao & Wang 2014). This

means researching logistics is extremely important in today's highly competitive markets.

Relatively unexplored topic is how organizations group their activities (Harris & Raviv 2002). The studied case company gives an intriguing setting for research, since they utilize both centralization and decentralization in different plants. This eliminates the effect of company-specific factors, which would have to be considered if the structural comparison was executed between two different companies. It is important to study structure's effect to logistics, because structuring affects e.g. performance (Kohlbacher & Reijers 2013) and competitiveness (Liang-Hung & Iuan-Yuan Lu 2005).

1.2. The research problem and research questions

The main research problem is that there is not enough information and understanding about the effects of the level of centralization, since there is a gap in current literature (Karjalainen 2011). There exists also a managerial need for more studies on this subject to justify changing the level of centralization, and to demonstrate the benefits of centralization or decentralization (Karjalainen 2011). Overall, the existing academic literature on centralization and decentralization is scarce (Uva & Catalão-Lopes 2013), and there is a need for more studies on this subject especially on logistics perspective to create more understanding on the effects centralization and decentralization have on logistics.

The main research question of this study is:

- **What are the advantages and disadvantages of centralization and decentralization in logistics?**

This study aims to answer one secondary research questions as well to clarify what factors need to be taken into consideration when choosing between these structures, since there are some limitations to implementing a certain structure. The secondary research question is as following:

- What factors or prerequisites need to be considered when implementing centralization and decentralization?

1.3. Theoretical framework

The theoretical framework of this study focuses on the following aspects presented in Figure 1. First of all, organization structure is gone through by explaining the concept and dimensions of organization structure. Then the effects of organization structure to the organization and the employees are presented. It is important to go through organization structure studies in addition to centralization and decentralization theories, since a choice between centralization and decentralization is ultimately a choice between organization structures. The concepts of centralization and decentralization are briefly explained, and after that the advantages and disadvantages of centralization and decentralization are presented along with requirements of implementing these structures found in the theoretical literature and current research. The theoretical literature section for centralization and decentralization utilizes theories from purchasing and supply management, since there are no studies on centralization versus decentralization on solely logistics' perspective according to the author's knowledge.

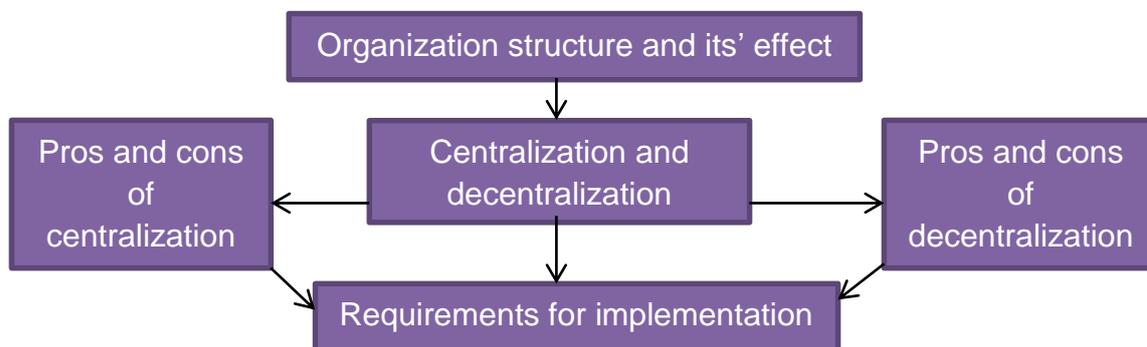


Figure 1. Theoretical framework.

1.4. Research method

This study is conducted as qualitative research, because qualitative research aims to describe a phenomenon or give more understanding on an issue, rather than providing statistical data that can be generalized to all situations (Eskola & Suoranta, 2008, 65). The aim of this study is ultimately to give more understanding on centralization and decentralization from logistics perspective, which means qualitative research method fits well to the aim of this study. This research is based on empirical research acquired from interviews with employees from the same company but from different plants, to

attain knowledge from different logistical structures this case company practices: other plants implement centralization by bundling many plants' logistical needs to be handled by one central department, while the other plants handle their logistics by themselves from their own on-plant departments. It is good to acknowledge, that there are some differences in the compared plants in e.g. production quantities and products, but overall the logistical tasks and the employees jobs are similar enough to be compared. This research is also founded on earlier research and literature. The answers to the research questions as well as the findings of this study are based on analyzing the interview results and utilizing the information attained from theoretical studies.

The interviews were conducted using two different methods. The interviews of the centralization employees were carried out through e-mail, since the geographical location of the employees interviewed was very versatile. The interviews of the employees, which were from the plant implementing decentralization were conducted as face-to-face interviews. In order to assure comparability of the opinions presented in the interviews, the focus in the e-mail interviews was to make the interview as discursive as possible, and to encourage the interviewee's to express opinions in their own words and also to ask questions, if there were something that was unclear. All of the interviews were individual and semi-structured, which means the same themes were discussed in the interviews, but there are differences in the formulation and arrangement of the questions (Ruusuvuori & Tiittula 2005, 11). In semi-structured interviews the researcher has formulated the questions, but the interviewee's can answer the questions with their own words and also ask new questions themselves (Koskinen, Alasuutari & Peltonen 2005, 104). This allows the interviewee's to bring up new ideas outside of the interviewer's expectations and express opinions freely in their own words, as well as it creates more discursive interview when there is no strict order (Koskinen et al. 2005, 104–109). Since this study requires deep understanding of the issue, which can only be achieved through conversation-like interviews, the research methods fit the study well.

1.5. Structure and limitations

This research focuses on estimating the benefits and disadvantages of centralization and decentralization. This study does not attempt to create a model for choosing the

best structure in all situations, since a choice of structure depends heavily on the context and environmental factors as well. Assessment of factors outside the company, e.g. market environment, is left out of this study; the focus is to only find the advantages and disadvantages that are visible inside the company. This study is limited to focus only on the employee's perspective, and it does not take into account e.g. the headquarters' perspective, as the interviewees were employees. Even though job design can be seen as closely knit to making the choice between centralization and decentralization, job design is limited out of this study, since job design primarily focuses on creating meaningful and motivating jobs, whereas the choice of centralization and decentralization comes down to the bigger picture: designing the optimal organization structure.

The structure of this study is as following: first of all, there is introduction section, where the aim of this study, the research problem and research questions, the theoretical framework, the research method and the limitations and structure of this study are presented. Then the theoretical literature is reviewed, which includes organization structure studies representing the concept of organization structure and the effects structure will have on the organization, as well as the effects of changing organizational structure. Another part of theoretical literature is the advantages and disadvantages of centralization and decentralization found in the studies, as well as the prerequisites for implementing these structures. After the literature review the research process is presented, including the research method, description of the interviewees and the reliability of this study. Then the results and analysis of this study based on interviews are undergone to find the benefits and disadvantages of centralization and decentralization and to clarify the factors that need to be considered when choosing which structural model to implement. Finally, the conclusions and summary of this study are reviewed, and future research suggests are presented.

2. ORGANIZATION STRUCTURE

Organization structure can be defined as the way power and responsibility are allocated across the organization, as well as how the work activities are carried out and divided among the organization's members (Nahm, Vonderembse & Koufteros 2003). Organization structure is based on optimally coordinating interactions among activities (Harris & Raviv 2002). Organizational structure can be divided into e.g. four

dimensions: centralization, formalization, size and vertical complexity. Centralization refers to the concentration of power of decision making authority in an organization. Formalization translates to the extent at which operating rules, instructions and procedures are written down and to which extent the rights and duties of organizational members are determined (Willem & Buelens 2009). Organization's size can be determined by for example measuring the number of people working in the organization. Vertical complexity refers to the number of levels found in the organization's hierarchy; usually the larger the organization, the higher level of vertical complexity. (Schminke et al. 2002).

Coordination and specialization are also important organizational structure dimensions. Coordination is the process of informing each other about the behaviors and planned actions of others (Willem & Buelens 2009). Specialization refers to the extent at which jobs and activities are divided into subtasks, and people are assigned to execute only one of these tasks; thus causing the development of specific knowledge for certain individuals (Willem & Buelens 2009). Organizational structure has many other dimensions, such as functional differentiation, professionalism, managerial attitude towards change, administrative intensity, communication, vertical differentiation and integration (Nahm et al. 2003). The five most commonly discussed organizational structure dimensions are however formalization, centralization, vertical complexity, specialization and communication (Nahm et al. 2003).

2.1. The effects structure has on the organization

Organization structuring has a great influence on the way the organization functions. For example, structuring the company to have many departments in close physical proximity has been shown to result in more face-to-face communication, information sharing, better level of insight into each other processes, easier coordination and better performance (De Snoo, W. Van Wezel & Wortmann 2011; Pagell 2004). When maximizing value in organization structure design, a trade-off between knowledge transfer costs and control costs is required: either the knowledge needs to be transferred to those who make the decisions, or that decision rights are transferred to those who have the knowledge (Christie et al. 2003). Organizational structure should be designed to accompany the needs of information and knowledge transferring, in

order to encourage information sharing between employees and different departments (Yazici 2002). Organization structure can create competitive advantage only if the structural and process characteristics are designed in a cooperative way (Hernaus et al. 2013).

Organizational structure has an effect on e.g. organizational performance (Kohlbacher & Reijers 2013), organizations' competitiveness (Liang-Hung & Iuan-Yuan Lu 2005), strategy (Cousins & Spekman 2003), decision making (Christie, Joye & Watts 2003), information sharing (De Snoo et al. 2011), communication (Yazici 2002), technology (Christie et al. 2003), supplier relationships (Cousins & Spekman 2003), innovativeness (Koberg, Uhlenbruck & Sarason 1996), empowerment (Hempel, Zhang & Han 2012), and the attainment of manufacturing practices (Nahm et al. 2003). Variation in structure can also influence the number and level of skill required in certain jobs, which can lead to different compensation or pay; most of the times the higher the skill requirement, the fewer people are able or willing to work in such a position, which leads to increase in compensation (Campion & Berger 1990).

2.2. Changing the structure of an organization

Organizational design evolves through time and it should not be considered as static (Christie et al. 2003). Recent advances in technology have opened up new possibilities for communicating and transferring information, revolutionizing individuals' ability to share, analyze and store information, which has led to new ways of organizing work (Burgess 1998). Though change may be sometimes necessary, it should be taken into consideration that changing the existing organizational structure will likely bring resistance to change among employees, which can be caused by e.g. uncertainty about the consequences, feelings of loss, lack of trust and threatened job status or security (Griffin 1993). Resistance can be overcome by e.g. educating the employees or allowing the employees to participate in the change process (Griffin 1993). Dent and Galloway (1999) however state that people may not resist the change itself, but more in fact resist the loss of status, pay or comfort. Resistance of change in their opinion means that employees are not embracing the change, or that the employees feel the change is not feasible. Employees' emotions have an impact to their behavior and the change itself and its implementation (Klarner, Todnem & Diefenbach 2011). Dent and

Galloway (1999) state that the employees' knowledge should be the initiator of any change process, and that the employees' attitudes and knowledge should be utilized in any organizational change to ensure success.

Factors influencing the choice of structure can be divided into internal (e.g. management style, technology, organizational design, workplace spirituality and high performance improvement) and external (e.g. environmental uncertainty, available technology and labor market) factors (Garg & Rastogi 2006; Campion & Berger 1990). The pre-conditions for successful structure implementation are top management involvement, appointment of a senior manager in charge, setting clear and measurable targets, identifying and deciding on projects, implementing well-designed organizational structure, allocating the necessary resources to different teams, letting teams to formulate and implement their strategy on specific projects, supporting teams with training and proper ICT and monitoring system implementation and initiating improvements when necessary (Rozemeijer 2000). All in all, any organizational change is likely to encounter resistance among employees since units and employees do not see the benefits the change will bring (Karjalainen 2011). This means the ultimate requirement for implementing structural change is to know the effects of the change as well as the advantages and disadvantages, so that the change of the structure can be justified.

3. CENTRALIZATION AND DECENTRALIZATION

The recent changes in technology and information systems have welcomed us to a new era, where it is possible to handle certain jobs from a far and physical proximity is no longer an issue. There exists a greater possibility than ever to centralize different tasks to be handled from a central department, rather than having a department for every function in every plant. Centralization means, that decision-making power is concentrated at the top levels of an organization (Caruana et al. 1998; Schminke et al. 2002), and decentralization refers to decisions being done by individual plant or manager (Karjalainen 2011). Centralization and decentralization has been studied from supply chain and procurement's perspective (e.g. Karjalainen 2011), but existing literature on centralizing logistic departments is scarce. Therefore, this theoretical field will utilize studies and theories from the field of purchasing and supply management.

Logistics can be seen as a part of purchasing and supply management, since it ultimately means purchasing of services from transportation companies. In this case these studies will provide important knowledge on centralization and decentralization.

3.1. Advantages of centralization

There is a consensus among academics that it is reasonable to expect cost savings from centralization, even though the verification and quantification of these savings can be difficult (Karjalainen 2011). Centralization is an emerging trend, which is used to avoid duplication of operations as well as to take advantage on synergies (Uva & Catalão-Lopes 2013). As competitiveness increases in today's markets, companies are seeking synergies in their global purchasing across business units and thus centralization may be considered to be a logical step in professionalizing the purchasing function (Faes et al. 2000). In order for a company to decide the optimal degree of centralization, the advantages and disadvantages must be examined and analyzed from the company's perspective.

One of the biggest reasons to centralize is the acquisition of synergies. Synergy can be defined as the value that is added when two or more business units join forces and share resources, information or knowledge (Rozemeijer 2000). Global purchasing synergies achieved through centralization can be divided into three groups: economies of scale, economies of information and learning and economies of process (Faes et al. 2000; Trautmann, Bals & Hartmann 2009). *Economies of scale* refers to attaining lower unit costs through volume bundling and standardization; *economies of process* means establishing one line of conduct to working and reduction of duplicated work efforts; *economies of information* and learning means sharing knowledge on suppliers, technologies or strategies (Karjalainen 2011). One of the most essential synergy benefit is cost savings through volume discounts and reducing overlapping work activities, illustrated best by equation $1+1=1,5$ (Karjalainen 2011). Significant volume discounts are available from pooling, and the number of units centralizing does not need to be very high before the economies of process become obvious (Karjalainen 2011). Other synergy benefits are for example acquiring profound knowledge of the market, coping with supply shortages better and better service from suppliers (Karjalainen 2011).

Centralization advantages according to Faes et al. (2000) include: stronger negotiation position that can lead to better prices and terms, uniformity in group purchasing strategy, getting more profound knowledge of the market as well as a global supply view, effective usage of the available purchasing skills and centralization requires less administrative work and reduces purchasing expenses. Centralization benefits of purchasing and logistics include simplification of back office systems for supply management and increased efficiency in choosing the right supplier (Uva & Catalão-Lopes 2013). Other advantages of centralization include e.g. quantity discounts (Munson & Hu 2010), more efficient allocation of capital across divisions (Harris & Raviv 2002), lower coordination losses (Alonso et al. 2008), increase in job satisfaction resulting in better commitment and job performance (Andrews, Baker & Hunt 2008), greater buying specialization (Johnson & Leenders 2006), increased coordination of policies and systems (Johnson & Leenders 2006), and more efficient decision making in companies where own-division bias is large (Alonso et al. 2008). All benefits do not however materialize at the same time or equally fast to all business units and individuals (Karjalainen 2011).

3.2. Disadvantages of centralization

One of the biggest challenges for organizations is integrating internal functions, such as supply chain and logistics. Lack of integration is an indicator of overlapping processes as well as a lower level of organizational performance. Centralized structure is a double edged sword to integration: centralization can be the enabler of integration and lower companywide costs by creating synergies, but it can create additional problems within the plant especially during the structure change, and managerial perception is that centralization harms integration within the plant. One of the biggest obstacles in creating integration between departments is consensus between managers of different functions, and in order to achieve consensus, various members of the supply chain need to communicate frequently about their goals, priorities and functions, which is often easier in decentralized structures. Centralization will be more costly in situations where incentives are required to transfer information truthfully across managers in different divisions across the organization structure (Harris & Raviv 2002). (Pagell 2004).

Communication problems resulting from centralization can be seen as a big obstacle. Centralization can lead to a situation, where the ones that have the decision making power are far away from the employees that are affected by those decisions (De Snoo et al. 2011). This eventually means, that face-to-face-communication would happen rarely between the decision-makers and the affected employees. Face-to-face communication has been found to be the richest communication medium since it provides immediate feedback, it provides multiple cues such as body language or tone of voice, and it supports personalization of communication (De Snoo et al. 2011). Enterprise resource planning systems and various IT communication systems can be utilized to improve communication between parties despite of the physical proximity, but real time face-to-face communication is preferred and is more efficient than scheduled and formal communication (Pagell 2004; Yazici 2002). Formal meetings, which are augmented by information systems, have one big problem according to Pagell (2004): scheduled meetings tend to take place when it is convenient to meet, and not when a problem or opportunity arises, which means some issues never get thoroughly discussed.

The disadvantages of centralization also include e.g. resistance of participants, excessive overhead costs, slow responses to divisional matters and lack of information (Karjalainen 2011; Cousins & Spekman 2003). Centralization has also been found to reduce employee's perception of distributive justice (Schminke et al. 2002) and to limit entrepreneurial behavior (Caruana et al. 1998). Centralization seems to limit the organizations ability to identify new market opportunities, reallocate resources, achieve commitment in management level, take risks, or implement marketplace moves on a suitable basis (Caruana et al. 1998). Disadvantages of centralization are also bureaucracy and agency costs, where bureaucracy costs mean e.g. the costs of establishing a central unit and hiring competent staff, and agency costs are e.g. costs stemming from lack of commitment (Vagstad 2000). Faes et al. (2000) also suggests that increase of the degree of centralization can lead to local management frustration over losing control and responsibility over an important function.

3.3. Advantages of decentralization

Although centralization promises great benefits, some companies are moving towards decentralization for e.g. these reasons: having problem-solving capabilities close to problems, having cost control in each profit center, having close relationships with local suppliers and having easier adaptability to local conditions and cultural differences (Faes et al. 2000). Decentralization makes it easier to use local information more efficiently (Vagstad 2000), and decentralized organizations have better adaptability to local conditions, since the decisions are made usually by local managers, who have insight and the best information about current conditions (Alonso et al. 2008). Local information argument can be seen as irrelevant in today's world, where communicating is easy and cheap between divisions, but local information is still a powerful force for decentralization (Alonso et al. 2008).

Allowing people with diverse knowledge to work together will enable them to perform better together (Yazici 2002). According to Faes et al. (2000) decentralization encourages close cooperation between local actors and allows adjusting to local conditions, which can lead to better terms and better service with suppliers. Decentralization in purchasing can motivate local buyers more, and decentralization seems to create goodwill to local community (Faes et al. 2000). If knowledge relevant to decisions can be found at the lower levels of the organization, then decentralization will reduce knowledge transfer costs; however, the benefits of minimizing knowledge transfer costs are reduced when the knowledge of the headquarters needs to be transferred to lower levels of the business (Christie et al. 2003). Increasing value by minimizing total of knowledge transfer costs and control costs requires some level of decentralization, but it is hard to find the optimal level of decentralization, since neither knowledge transfer costs nor control costs are observable (Christie et al. 2003).

Other advantages of decentralization are for example employee empowerment (Hempel et al. 2012), diminishment of bureaucracy (Vagstad 2000), increase in job satisfaction and motivation (Zheng, Yang & McLean 2010), service improvement and cost diminishment (Johnson & Leenders 2006), increased opportunity of managing total costs of ownerships factors (Johnson & Leenders 2006) and allowance of better communication (Schminke et al. 2002) leading to increase in overall efficiency of

employees (Zheng et al. 2010; Schminke et al. 2002). Decentralization is beneficial to reaching organizational goals, enabling better use of employee abilities and permitting faster adaptability to environmental change (Andrews et al. 2008). Decentralized supply management stems from the need of fostering domestic economies and avoiding investment concentration in a single geographical area (Uva & Catalão-Lopes 2013). Decentralization enables crossing borders and establishing business units in foreign countries, as well as stimulates internal competition between business units (Arnold 1999).

3.4. Disadvantages of decentralization

One of the biggest obstacles in decentralization is coordination. Coordination is harder in decentralization, because the local manager in charge of one decision usually is uncertain about the decisions made by other managers, which can cause problems, if self-interested local managers do not internalize how their decisions affect others, and put excessive weight on adapting decisions to local conditions (Alonso et al. 2008). Decentralization is not necessary a barrier to coordination, but this requires the local managers to realize their interdependence and coordinate and communicate well between different departments and divisions (Alonso et al. 2008). Decentralization requires the local managers to actively participate in communication and be willing to transfer information and knowledge to other departments and divisions to ensure coordination.

Decentralization can prevent the acquisition of synergies (Uva & Catalão-Lopes 2013), which can lead to higher costs, diverse ways of working and lack of harmonization, increase in duplication of work, and diminish knowledge sharing between units inside an organization (Karjalainen 2011). Complete decentralization does not maximize firm value in the presence of operating and information externalities, substitution effects or complementarities among the components of a business (Christie et al. 2003). Decentralization can lead to differences in strategy execution among units, scattering of knowledge relevant to decisions and higher requirement of administrative work and possibility of higher expenses through lack of global supply view (Faes et al. 2000).

The disadvantages of decentralization also include e.g.: biased decisions in favor of the local supplier (Vagstad 2000), prevention of utilizing a real global sourcing strategy (Faes et al. 2000) and requirement of costly measuring and evaluating systems for the lower level managers' performance thus increasing control costs (Christie et al. 2003). Decentralization requires more formal training, it can duplicate functions and it will need efficient performance and reporting systems to give top management the necessary information (Andrews et al. 2008). The risk in decentralization is that the decentralized departments are too small to purchase effectively and globally, and strategic orientation may be neglected (Arnold 1999). Complex puzzle-solving jobs, e.g. scheduling, require much concentration, and close proximity of peers may affect individual performance negatively, since disturbances may occur more frequently in decentralization (De Snoo et al. 2011).

3.5. The requirements for structure implementation

Trading off the advantages and disadvantages of centralization and decentralization determines what kind of structure a company adopts (Harris & Raviv 2002). A key decision multi-site organizations must make is the degree of centralization, and to do so, organizations must balance conflicting forces to define the suitable degree (Munson & Hu 2010). Standardization, efficiency and coordination push toward centralization; and customization, responsiveness and adaptation push toward decentralization (Faes et al. 2000; Alonso et al. 2008). The most important decision is, however, not whether to centralize or decentralize, but to identify the right cases in which to do so and establish how it should be implemented within the company (Faes et al. 2000). The context ultimately determines the best suitable approach (Rozemeijer 2000).

The basic requirement for centralization is, that two or more locations have common requirements and it is possible to standardize e.g. contracts or purchase categories (Karjalainen 2011). On the other hand, decentralization should be utilized, if units don't have common requirements and it is not possible to e.g. handle tasks from a single centralized unit. The potential of centralization depends on the nature of the delivered service, meaning only those functions should be centralized, which lead to added economic value without endangering quality (Uva & Catalão-Lopes 2013). For example

purchasing and logistics departments have found to have high centralization potentials, since managing purchasing and logistics effectively can create a competitive advantage (Uva & Catalão-Lopes 2013). However, geographical diversity can be a barrier for implementing centralization, since it can result in e.g. differences in language and culture and existence of diverse regulatory environments (Uva & Catalão-Lopes 2013).

Organization structure decision between centralization and decentralization requires companies to assess and compare their knowledge transfer costs, meaning costs stemming from transferring information between the headquarters and the local unit, and control costs, meaning the costs that derive from monitoring the lower-level managers performance (Christie et al. 2003). IT systems can move more knowledge from the experienced employees to the higher level decision makers at lower costs, but this is constrained by the humans' ability to comprehend the transferred data (Christie et al. 2003). IT systems have to be extremely well-planned and implemented in order to enhance communication (Pagell 2004).

A portfolio model designed to assist on choosing what categories to centralize and what to decentralize has been illustrated by Trautmann et al. (2009) based on two dimensions: strategic importance (meaning impact on core competence and economic factors) and synergy potential (meaning economies of scale, economies of information and learning and economies of process). Categories that have both high strategic importance and high synergy potential are suitable for global integration, but any other categories are more suitable to remain decentralized to local purchasing units (Trautmann et al. 2009). Organizations can also decide to choose a hybrid model, with different strategies and operating models to e.g. different products (Karjalainen 2011). Hybrid models, such as centralized pricing with decentralized purchasing, can be used to encapsulate the best aspects of centralization and decentralization, by for example using centralized framework agreements and decentralizing tasks after contracting to local units (Karjalainen 2011; Munson & Hu 2010).

4. THE RESEARCH PROCESS

The research process started in January 2015, when the topic of this study was chosen in cooperation with the company where the interviews were conducted in. The research process started with finding suitable previous research to be used as a basis for this study. It quickly became clear, that there were practically no previous studies that would cover the issue of centralization versus decentralization from logistics perspective. Instead, studies from purchasing and supply management were utilized to create an adequate framework for this study. It still was rather difficult to find suitable centralization and decentralization studies, which would be adaptable to this research. The theoretical framework of this study was planned to exploit also theories from organizational structure, since the choice between centralization and decentralization ultimately is a choice between structures as well. The advantages and disadvantages of centralization and decentralization cannot be thoroughly presented, if the structural factors are not taken into consideration.

The theoretical framework was composed before the interviews were conducted, so that the interviews would be somewhat founded on previous studies. After the interviews the empirical research section was written, where the information acquired from interviews was united with previous research. Subsequently the research questions were answered, and the summary and the main conclusions of this study were composed partially founding on previous studies. In the following chapters, the research methods and the utilized material are presented along with the description of the interviewee's to give a more detailed description of the research process itself.

4.1. Research method and material

This study was conducted as qualitative research, since the aim of this research is to give more understanding on a phenomenon rather than providing statistical data that can be generalized to all situations (Eskola & Suoranta, 2008, 65). The empirical research section was founded on interviews with eight different employees from the same company; three of the interviewee's represented centralized logistics, and five of the interviewee's represented decentralized logistics model. The interviews were semi-structured, where the interviews covered the same themes, but the questions were formulated and arranged somewhat differently (Ruusuvoori & Tiittula 2005, 11). Semi-

structuring allowed the interviewees to express their own opinions more freely, and the interviews were more conversational (Koskinen et al. 2005, 104–109). This allowed the interviewee's to give more perception and insight on the theme discussed, and give new outlook on the issue for the interviewer as well. Semi-structured interviews make it easier to examine the interviewee's attitudes, opinions and experiences regarding some issue (Uusitalo 1991, 92). Qualitative research and semi-structured interviews were chosen to be utilized because they fit best the objectives and the nature of this study. This research exploits the knowledge of the employees to find out the advantages and disadvantages of centralization and decentralization, and this requires discussion-like interviews with the employees where issues outside from the researcher's expectations are presented to give more realistic impression of the factors regarding this topic.

The frame of the interview consists of 6 themes and the same framework was utilized for all of the interviews (Attachment 1). Interviews however had little differences depending on whether the interviewee represented centralized or decentralized logistics. For example, centralized employees were asked about the occurring of resistance of change, whereas decentralized employees were asked on the possibility of a change awaking resistance in them or others. The used terminology was explained to the interviewee's before the actual interview, and interviewee's were encouraged to ask if something was unclear, and also to bring up any topics related to this issue if something came to mind. The interviews with the employee's representing centralization were conducted via e-mail, since the interviewee's of this group were geographically dispersed and the researcher had time limits which didn't allow travelling to all locations for face-to-face interviews. The interviewee's that represented decentralization were interviewed face-to-face. However, all of the interviews were conducted based on the same framework, and the focus was to create as discursive interview for the e-mail interviews as well. In order to ensure comparability of the interviews, attention was paid to making the interviews as similar as possible among all interviewee's.

The interviews were conducted in February and March in 2015. The face-to-face interviews were recorded and the relevant sections were transcribed. Then the transcribed material along with the material derived from e-mail interviews was divided

into distinct themes, which were analyzed separately. The analysis was conducted keeping in mind the interpretation of research results. The interpretation was founded on earlier research to find as conclusive results as possible. During the analysis the research questions, research problem and the researched phenomenon were bore in mind.

4.2. The description of the interviewee's

Eight employees from the same company were interviewed. Three of the interviewee's represented centralized logistics model, whereas five of the interviewee's represented decentralized logistics. The shift to centralized logistics model in Finland is fairly recent in this company, and especially interviewing Interviewee 2 provided a lot of background information about the change process and the reasons to centralize logistics functions instead of carrying on with decentralized logistics. Interviewee's 4-8 are currently working in a different plant that implements decentralization in logistics, but it has been questioned whether the control of logistics in this factory also should be transferred to a central logistics department. Since the company as well as the interviewee's wish to remain anonymous, the interviewee's are described with little detail.

Interviewees 1-3 are working in logistics in different units representing centralized logistics models. The tasks of these employees range from transportation bookings and transport contracts to managing land transport operations.

Interviewees 4-8 are all logistics coordinators from the same plant representing a decentralized logistics model. The tasks of these employees range from inland and overseas transport scheduling by trucks and trains to inventory and customs issues.

4.3. The reliability of this study

The reliability of a study is generally assessed through two factors: reliability and validity. Reliability refers to the trustworthiness of the study, or in other words the possibility of replicating the study in similar settings and getting equivalent results (Hirsjärvi, Remes & Sajavaara 2009, 231). Validity refers to choosing the correct research methods, which are able to measure the chosen phenomenon and give results regarding the phenomenon (Hirsjärvi et al. 2009, 231). The concepts of reliability and validity however adapt better to quantitative research instead of

qualitative research, but since the concepts have such a strong position in assessing reliability, they should be taken into consideration in qualitative research as well (Koskinen et al. 2005, 255–259).

In qualitative research, the analysis and findings are dependent on the researcher itself, which proposes some challenges (Uusitalo 1991, 82). The researcher should remain objective and try to understand the researched phenomenon without letting the researcher's own beliefs and attitudes influence the interpretation. The reliability of a study is increased, if the research process and methods are carefully described in the study, the empirical research section is in dialogue with earlier research, and the researcher's own basis is reflected (Eskola & Suoranta 2008, 208-212).

The interviews were executed in Finnish, so there may be some nuances or expressions the English translation failed to precisely capture. Also, it has to be taken into consideration that the interviews were conducted using two different methods: e-mail and face-to-face interviews, which could have resulted as incomparability of the interviewee's answers. This has however been taken into consideration while analyzing the findings of this study. The interviews were conducted in a firm where the interviewer had previously worked for. Since the interviewer knew three of the eight interviewee's beforehand, this could have resulted in possible distortion of the opinions provided in the interviews. This was however taken into consideration regarding the objectivity of this study. The researcher assessed how the relationships would possibly affect the interview results and kept this in mind during the whole research process. However, the prior working experience helped the researcher to understand the procedures and the concepts in the company better. The prior experience from the company did not have a major effect on the research process, since the prior employment lasted for three months, which allowed the researcher to still look at things from a fresh perspective, while still having deeper understanding of the company's procedures beforehand.

5. FINDINGS AND ANALYSIS

In this section the results and analysis of this study are presented. The results are divided into subchapters, following the arrangement used in the theoretical framework to keep the main issues of this study clear. In this section is important to notice, that

only interviewees 1, 2 and 3 have actually experienced centralization. The rest of the interviewees 4-8 were only thinking the theoretical advantages and disadvantages centralization could bring if implemented into their factory.

5.1. Organization structure

The issues that should be taken into consideration when changing organizational structure based on the interviews are as following: 1) human elements, such as resistance to change can propose problems 2) job satisfaction can differ between employees, 3) employees feel the difference of factories prevents implementing structural models from other factories to the decentralized factory and 4) successful change process requires careful preparation, analysis and utilizing the employee's knowledge and opinions as well as making sure every employee is participating in the change process.

Successful structure change requires giving attention to human elements such as resistance to change, mixed feelings and employee behavior (Burgess 1998). Interviewee 2 expressed, that resistance to change was particularly visible in factories that were losing control of functions and tried to justify decentralization with e.g. the need of close communication with logistics and production. Faes et al. (2000) also suggests that increase of the degree of centralization can lead to local management frustration over losing control of a function. Surprising was to find out, that Interviewees 4, 6, 7 and 8 did not feel a possible change would awake much resistance in them, only possibly in other employees. Rather they felt they would adjust to any possible conditions, if needed. This is a positive remark, since individuals resistant to certain change will likely hold information and be less cooperative, which has an effect on organizational performance (Yazici 2002). Interviewee 6 also expressed that you should be open to change, whether it means implementing totally new ways of working, or returning to the previous ways.

“Change would inevitably awake resistance, which is obvious. But you can get accustomed to everything. - - I feel that you should be open to change. But I feel there should also be a possibility to return to the old ways, if it is discovered that this new way simply does not work. Or to come up with a new solution.” (Interviewee 6)

Interviewee 1, who had been working as a logistic coordinator in a decentralized model, felt some anxiety when the plant moved to centralized logistics. Interviewee 1 was worried about e.g. decreasing number of own tasks and was overall skeptical towards the success of the change. When time has passed, Interviewee 1 was however quite pleased: central logistics department has gotten accustomed with the plants' and customers' needs, and Interviewee 1 has gotten other tasks to handle to replace the ones that were lost. However, there is one thing that has gotten worse because of a change to centralization: Interviewee 1 feels the job was more meaningful before, and job satisfaction of Interviewee 1 has decreased as a result from centralization. On the other hand, job satisfaction of Interviewee 3 has increased after the change. There is also contradiction in theories regarding job satisfaction in centralization and decentralization: Andrews et al. (2008) state that centralization increases job satisfaction, whereas Zheng et al. (2010) indicate that decentralization results in better job satisfaction and motivation. The reason for this contradiction is simple: people react differently to certain things.

"I felt that my job was more meaningful before - - I am not that aware of some things related to my work, as I was before." (Interviewee 1)

"I feel that I am more satisfied with the new centralized model than I was before." (Interviewee 3)

All of the interviewee's from the plant utilizing decentralized logistics (Interviewee's 4-8), or in other words from the plant that has own logistics department inside the plant, felt that structure models should not be taken from other plants to be implemented in their plant. They feel that their plant is different than others in e.g. production quantities, amount of different machines, number of external warehouses utilized, and the complexity of the logistics process. This may prevent the utilization of centralization in this factory, since the basic requirement for centralization is that two or more locations have common requirements and it is possible to standardize e.g. contracts (Karjalainen 2011). Interviewee 2 however feels that operating models from other plants could be applicable to the decentralized factory as well. It is good to acknowledge that Interviewee 2 is not as familiar with the decentralized factory's procedures as are the interviewee's 4-8.

“Absolutely it is not possible to implement the procedure models of other plants to our plant – as Lada and Mercedes Benz are totally two different things. - - If we produce about 4000-5000 tons a day, and the other factories 40 tons a day, then they are simply not comparable.” (Interviewee 8)

“I feel that centralization will fit the decentralized factory as well. But some of the tasks may be better to handle locally, e.g. production triggered deliveries. Customer deliveries on the other hand result from customer’s call off, and the only important thing is to then get the information of possible production delays to dispatchers.” (Interviewee 2)

Interviewee 3 states that implementing centralization ultimately requires the employees to see the company’s best interest over the plant’s interests. Interviewee 3 states that it is always difficult to change the accustomed procedures and ways of working, but there are no threats to successful implementation if everyone involved is willing to take care of things well and try to forget the pursuit of personal gains. It seems that clear communication of a new vision, strategy and process at all hierarchical levels can result in easier implementation (Yazici 2002). Interviewee 6 feels that overall, everything is possible, if the correct preparations are taken and implementation is handled in a correct way. This requires the company to assess the need of change, possible consequences and the reaction of employees as well as to compare the advantages and disadvantages of every option. With careful preparation and situation analysis, which utilizes the employee’s knowledge, companies can improve their efficiency and improve their competitiveness.

“If everything is taken into consideration, there are no threats to centralization. This however requires every participant to be willing to take care of things well, and be able to forget pursuing personal or unit-specific gains and focus on seeing the entirety and the company’s best interests.” (Interviewee 3)

“Everything is possible to do. It just requires extremely well preparations and implementation.” (Interviewee 6)

Change should not be however implemented, if it is done just for the sake of change, as Interviewee 1 expresses. Interviewee 1 feels that change does not bring all the

benefits it was supposed to give, and that changes are issued according to modern trends, and not the needs of the firm or the employees. Employees will become truly committed to the change, if they can be convinced of the need of the change and are included in the development and implementation stages, since participation will give an outlet for negative feelings, which can be turned into improvements (Burgess 1998).

“Centralization seems to be the trend of the day, and I’m pretty sure at some point it is decided that decentralization is better after all, until proven again otherwise - - sometimes it feel that things are changed just for the sake of change, without any concrete benefits”. (Interviewee 1)

It is a positive remark, that the employees overall seem to be very receptive and open towards change, as well as a change can be justified. Keeping this in mind, it is easier to justify a possible change, if the advantages and disadvantages of a change can be presented from the factory’s perspective. A basic requirement for implementing centralization and decentralization is to assess and analyze the advantages and disadvantages of both models in order to comprehensively compare the suitability of these structures.

5.2. The advantages and disadvantages of centralization

In this section is important to notice, that only interviewees 1, 2 and 3 have actually experienced centralization. The rest of the interviewees 4-8 were only thinking the theoretical advantages and disadvantages centralization could bring if implemented.

5.2.1. Advantages of centralization

Advantages of centralization appointed in the interviews are 1) cost savings, 2) easier coordination and communication, 3) increased efficiency in performance, 4) harmonized ways of working, 5) having a larger team, 6) improved feedback from customers and carriers and 7) possibility of exploiting joint transportations among factories.

Interviewees 1, 3, 4 and 6 all thought that centralization would bring cost savings. There is consensus among academics that it is reasonable to expect cost savings from centralization (Karjalainen 2011). Interviewees 1 and 3 felt that cost savings would be

acquired through enabling the logistics personnel to focus only on logistics issues, which would enable finding the most cost-efficient transportation through more profound price comparison. Interviewee 4 expressed that it would be possible to expect cost savings from centralization, when the information about transportation would be at the same place, resulting in e.g. avoiding costs resulted from double-booking. Interviewee 1 although admitted that at least to the interviewee's recollection there are no statistics that would confirm that cost savings were actually acquired; but generally quantification and verification of cost savings acquired from centralization can be difficult (Karjalainen 2011).

"Cost savings are the first thing that comes to mind (when thinking about the benefits of centralization)." (Interviewee 6)

Easier coordination and communication came to mind for Interviewees 2, 3 and 7 as an advantage of centralization. Interviewee 2 feels that centralization has improved coordination and communication, because by informing one central logistics department you can inform four factories at the same time. Centralization has in fact been found to enhance coordination (e.g. Alonso et al. 2008 and Johnson & Leenders 2006). Efficient coordination requires active communication (Alonso et al. 2008), which according to Interviewee 3 has gotten more fluent with factories. Sharing knowledge and expertise through efficient communication can also create sustainable competitive advantage (Cousins & Spekman 2003). Interviewee 2 emphasizes the possibility of utilizing new information systems, and the meaning of giving single point of contact to all interest groups.

"Centralization has made coordination and communication easier. By informing one department you eventually inform all 4 factories at the same time. In addition, I can get information about possible problems and get better insight on the situation from one single source." (Interviewee 2)

One benefit of centralization is increased efficiency in performance. Interviewee 3 felt that centralization had increased efficiency and it is easier to handle the challenges presented by production. Interviewee 3 also feels it is possible to improve several performance measures. Centralization is in fact used to increase efficiency by avoiding

duplication of operations (Uva & Catalão-Lopes 2013), and to make sure the available purchasing skills are used effectively (Faes et al. 2000).

“Since Finland is a small country and the current economic situation is challenging, it is more important than ever to take care of transportation efficiently. I feel that centralization is the key factor in this, it enables improving all possible efficiency measures.” (Interviewee 3)

Interviewee 2 and 5 point out, that harmonized operating models and common measurement systems are one advantage of centralization, since everything is handled from the same department. Economies of process, a synergy benefit from centralization, leads to establishing one line of conduct to working (Karjalainen 2011). Harmonization of procedures leads also to unifying the way the carriers are chosen, which according to Interviewee 2 lessens the effect of personal contacts, and prohibits the logistic coordinators to favor e.g. their friends company when choosing transportation. Centralization can in fact prevent biased decisions in favor of the local supplier (Vagstad 2000). Centralization will also bring uniformity in group purchasing strategy (Faes et al. 2000).

“Harmonized operating procedures, common measurement systems and the diminishment of the effect of personal contacts are centralization’s benefits.” (Interviewee 2)

Interviewees 2 and 3 feel that it is easier to manage a larger team, which resulted in creating a single department to handle logistics needs for several plants. Having a larger team will make sure the available purchasing skills are used effectively (Faes et al. 2000). Interviewees 2 and 3 express that it is easier to handle substitution and to find substitute workers for holidays when having a bigger team. Interviewee 2 also points out, that due to a bigger team, the work can be divided to different employees, which allows the worker to focus on a single task and gain specialized knowledge. According to Bernardes et al. (2008), leveraging specialized knowledge can improve customer satisfaction.

“ - allowing people to focus on a single task encourages specialization. Having a larger team leads to the availability of competent substitute workers.” (Interviewee 2)

Interviewees 2 and 3 express the feedback from transportation companies and customers has been mainly positive, regarding the switch to centralization. Nowadays customers place customized service requests, which can be a burden to logistics and make the service level process more complex, but integrated logistics may help firms cope with customer demands (Ellinger et al.1997).

“The feedback from carriers has been mainly positive, since now they can find out the logistics needs of different plants from one location, and on the other hand the orders they get are unified, as is other knowledge. Though local contacts are still needed.” (Interviewee 2)

“We have gotten similar or improved feedback from customers regarding the corresponding functions, compared to before the change to centralization.” (Interviewee 3)

One benefit of centralization is the exploitation of joined transportations, ultimately leading to cost savings. The interviewees 1 and 3 mentioning joint transportation seem to contradict each other. Interviewee 3, or one of the managers in the central logistics department, states that joint transportation is working well. On the other hand, Interviewee 1, a logistic coordinator handling some of the logistics issues from the plant in cooperation with the central department, says that joint transportation would be possible in theory, but it is not often exploited. There is a possibility that the satisfaction level of Interviewee 3 is possibly overrated, as Interviewee 3 is a manager. Managers involved in the change process generally show higher satisfaction levels due to overrating, as pointed out by Faes et al. (2000).

“When the booking of trucks for multiple factories is handled from the same place, it is possible, at least in theory, to exploit joint transportation. On the other hand, that does not happen that often.” (Interviewee 1)

It is good to acknowledge, that centralization can bring great advantages, but this requires a lot of effort. Just changing the organizational structure will not lead to the accumulation of significant advantages, since it always requires a lot of work from the organization and its' employees to achieve the determined goals. As pointed out by Karjalainen (2011), all benefits of centralization do not materialize at the same time to all parties.

5.2.2. Disadvantages of centralization

The disadvantages of centralization composed from the interviews are as following: 1) complicated flow of information, 2) communication problems, 3) slower reaction time to unexpected issues, 4) the difficulty of hiring competent staff and 5) scattering of the big picture. Interestingly, communication seems to improve, and get worse, as a result of centralization according to the interviewees. It depends on the perspective, whether centralization is seen to improve or hamper communication.

One disadvantage of centralization is that it seems to disturb the flow of information, as stated by Interviewees 1, 2, 4, 5 and 7. Interviewee 1 expresses, that the production and central department do not communicate as well as they should. Interviewee 1 tells, that sometimes ordered products are just sitting in the warehouse waiting for transportation, as the central logistics department is not aware that the product is already made ahead of production schedules, and could already be delivered to customer instead of taking space in the warehouse. Interviewee 2 also admits, that there are disconnects in the information flow, regarding e.g. possible problems and local information from factories. Interviewees 4, 5 and 7 speculated that information would not reach the correct people, and real-time information would be harder to obtain in centralization. Centralization has been found to create lack of information according to Karjalainen (2011) and Cousins (2003).

“The important local information and the feedback from the factories go through an additional loophole, and some of the information may not reach its destination. - - The disadvantage of centralization is disconnects in the information flow.”
(Interviewee 2)

Another disadvantage of centralization is that it hinders communication according to Interviewees 1, 5, 6 and 7. Consensus between managers of different functions can only be achieved through efficient and frequent communication, which can be more difficult in centralized structures (Pagell 2004). Interviewees 1, 5 and 6 say that main communicational problems would arise from different language, especially if the central department would be located outside of Finnish borders. Interviewee 6 also points out, that problems could originate from different values caused by different ethnic backgrounds. Interviewee 6 expresses that efficient communication between people from different countries requires understanding of Finnish values. The possible barriers for centralization stemming from geographic diversity are e.g. differences in language and culture (Uva & Catalão-Lopes 2013).

“In the central department, there are Russian-speaking employees who do not speak fluent Finnish, which has caused communication problems”. (Interviewee 1)

“In modern times it is possible to be located anywhere, because of modern technology. But the values need to be in order as well.” (Interviewee 6)

Interviewee 7 suggests that it would be complex to handle all of the communication regarding logistics through e-mail, if face-to-face communication would not be possible. Face-to-face communication has been found to be the richest communication medium since it provides immediate feedback and multiple cues such as body language or tone of voice (De Snoo et al. 2011). Interviewee 7 also suggests that exchange of ideas would diminish greatly due to lack of face-to-face communication. IT usually provides a way to communicate formally, but informal communication means should be seen as equally important, since informal communication plays a big role in brainstorming and exchange of ideas (Yazici 2002). Open communication about problems and opportunities is very important, and there is evidence that real time communication is preferred over scheduled and formal communication (Pagell 2004).

“It would be complex to operate, especially if the communication would rely entirely on e-mail. I just can’t see how that could possibly work. - - In centralization communication would be handled by phone and e-mail, whereas right now (in decentralization) I can just walk to my colleague’s office and discuss things face-to-face. We often discuss and exchange ideas casually, which I guess would not

happen in centralization, because you probably would call the central department only if you had something you needed to ask, and not to just talk.” (Interviewee 7)

Partially as a result of problems in communication and flow of information, Interviewees 1, 6 and 8 feel that reacting time to unexpected issues will increase. There is evidence that centralization will in fact lead to slow responses to divisional matters (Karjalainen 2011; Cousins & Spekman 2003). Interviewee 1 states that when there are unexpected problems in production, the central logistics department is not up to date, because of disconnects in the flow of information. Interviewee 1 also points out that finished products spend more time in the warehouse, because central department has not reacted early enough to production changes and e.g. booked transportations accordingly. Interviewee 1 also points out, that when reaction time increases, so does the amount of excessive costs, which diminishes the cost savings acquired through centralization. Interviewee 6 points out, that booking of shipments is already centralized to a Swedish department, which has slow response times, which has led to e.g. customer dissatisfaction. Interviewee 8 is worried that centralization would add another loophole to the flow of information, which would increase the reaction time and slow down the whole logistics chain.

“When there are sudden problems in production, the central logistics department is not always aware of the situation; there are disconnects in the flow of information.” (Interviewee 1)

“We are here in the factory and can see the real life action of production machines, and the flow of information is good. If the department is far away, then I see it as a big challenge. It adds another loophole, which increases time to react.” (Interviewee 8)

One problem of centralization is the difficulty of hiring competent staff, which is aware of the procedures happening in the factory according to Interviewees 4, 5, 6, 7 and 8. Interviewee 2 also admits that at the beginning of the change to centralization the staff was incompetent, which created some problems. Vagstad et al. (2000) states that one disadvantage of centralization is the costs of establishing a central unit and hiring competent staff. Interviewees 4, 5, 6, 7 and 8 are worried that it would be difficult to find competent staff to work in the centralized department since not all of the current employees would be able to move to a different location to work. Specialized

knowledge possessed by the current employees is difficult and costly to communicate to others, since it includes development of intuition and judgment, which can only be achieved through first-hand experience over time (Christie et al. 2003).

“Finding competent staff to a central department would pose threats, since not all people are willing to move to work in a different location.” (Interviewee 8)

“Some errors, e.g. a wrong route on the order information, are noticed here and are questioned here. I feel those things would not be noticed as well in a central department, they would just assume that everything is correct. It could create a lot of mess.” (Interviewee 7)

Another disadvantage of centralization according to Interviewees 1, 6, 7 and 8 is the scattering of the big picture, even though it could be presumed that centralization would create integration and unify the entirety. Centralization will without a doubt integrate the logistics departments of different factories to one entirety, but it will also transfer logistics away from all the other departments found on-plant. Interviewee 1 feels that centralization has lowered job satisfaction, because the entirety was more explicit and it was easier to “stay on track” of what is happening. Interviewee 8 feels that adding a central department to the logistics chain will make functioning harder, if the logistics tasks are scattered to be handled from different locations. Interviewee 7 points out, that it is easier to handle logistics when you are working near the factory.

“The joint transportations are more difficult to handle, since several people from different locations are managing them.” (Interviewee 1)

“It is easier to handle logistics nearby, compared to being away and being unfamiliar of the practical functioning and not seeing how it actually works; then it would be harder to have knowledge on the logistics chain.” (Interviewee 7)

Employees feel that working in close proximity of the factory is very important, and almost all of the disadvantages of centralization seem to be related to the increasing of distance between the logistics department and the departments' located in the factory. One of the biggest issues in centralization is making sure information reaches the necessary parties on time despite the physical proximity, and this issue can be somewhat eased by utilizing efficient IT based information systems, as well as encouraging people to actively transfer information.

5.3. The advantages and disadvantages of decentralization

All of the interviewed employees have experienced decentralization first-hand at some point. Interviewee's 1-3 previously were utilizing decentralization in logistics before the change to centralization, and interviewee's 4-8 are currently working in a plant utilizing decentralized logistics.

5.3.1. Advantages of decentralization

The advantages of decentralization are as following: 1) being more up-to-date on production and transportation, 2) faster reacting time to unexpected events, 3) employees have better knowledge on the factory and its functioning, 4) better communication and idea exchange and 5) better adaptability to more complex factories.

An advantage on decentralization is being better up-to-date on issues related to production and transportation according to Interviewees 1, 4, 5, 7 and 8. Interviewee 1 feels that when the logistics is being handled from an on-plant department, it is easier to stay up-to-date on production-related issues. Interviewees 4 and 7 express that they get production-related information quickly and easily. Decentralization makes it easier to use local information more efficiently (Vagstad 2000). Interviewees 5 and 8 say that it is important to follow-up production to make sure transportation is booked accordingly, and they are unsure whether it would be possible to stay up-to-date from a centralized logistics department.

"We have to follow-up on production, so that booked trucks don't have to wait for days in the factory's yard, if the production is running late. I don't know how this would be possible to do from a centralized department." (Interviewee 5)

Another advantage of decentralization is faster reacting time to unexpected events according to Interviewees 1, 4 and 7. Schedulers, such as logistic coordinators, are often confronted with a variety of unexpected events which require quick decisions as well as ability to obtain correct information quickly (De Snoo et al. 2011). Interviewee 1 states that when the deliveries are booked from the plant, it is possible to react to unexpected events more quickly. Interviewee 4 says that urgent and fast-paced issues are easier to handle successfully in decentralization. Decentralization benefit is having problem-solving capabilities close to problems (Faes et al. 2000) and it enables better

use of employee abilities allowing faster adaptability to changes (Andrews et al. 2008). Interviewee 7 expresses that if suddenly phone and e-mail communication was rendered impossible due to e.g. technical failure, it would still be possible to take care of their work from on-plant because they know how things work around the plant.

“Decentralization allows faster reacting to possible unexpected events.”
(Interviewee 1)

“Decentralization gives us a possibility to take care of things better, and any urgent issues are easier to manage successfully in comparison to handling things from a central department.” (Interviewee 4)

Decentralization enables accumulating specialized knowledge on the plant itself, its products and the overall functioning according to Interviewees 1, 4, 5 and 7. When decision-related knowledge is at the lower levels of the organization, then decentralization will reduce knowledge transfer costs (Christie et al. 2003). Interviewee 1 states that employees on-plant know better about the products and the factors affecting deliveries. Interviewee 4 says that they know their plant very well and are familiar with e.g. different product factors, customers and warehouses and they have the knowledge needed in the factory. Interviewee 7 states that it is easier to handle logistics from nearby compared to handling things far away without actual knowledge or experience on the practical functions on the factory. According to Bernardes and Zsidisin (2008) direct experience of the supply chain and markets can be seen as the single most important learning process.

“We know and are familiar with our factory and how it works, and we have many different products, customers and warehouses and everything you can think about; we have the needed knowledge here, on location.” (Interviewee 4)

One advantage of decentralization mentioned by Interviewee 7 is easier communication and exchange of ideas. Decentralization allows better communication (Schminke et al. 2002) which leads to increase in overall efficiency of employees (Zheng et al. 2010; Schminke et al. 2002). Interviewee 7 states, that there are many things that can be handled just by walking in to a colleague’s office and talking things face-to-face, without having to use phone or e-mail. Close proximity of colleagues has been shown to affect cooperation, consensus, satisfaction and social commitment positively (De Snoo et al. 2011). Interviewee 7 says that informal communication allows

the employees to talk about things casually and exchange ideas, which would not happen to the same extent if employees would be physically far away from others. Effective communication requires sharing different perspectives, which is more versatile in face-to-face interactions (Yazici 2002). On the other hand, Interviewee 6 feels that communication would work the same even if the physical proximity between departments would be larger. Interviewee 6 states that as long as people know what and who they need to inform, everything works.

“Very often we just casually discuss on things and exchange ideas, which probably would not happen if employees would be located far away from each other, then people would call only if they had something important they needed to ask or discuss, and not to just exchange ideas.” (Interviewee 7)

“The communication between the warehouses and logistic coordinators has always worked, because we know what the other party needs to know and inform them accordingly. - - The warehouse workers work 24/7 and logistic coordinators work by day, the communication seems to work fine despite e-mail is used a lot.” (Interviewee 6)

Interviewee 7 points out that decentralization works better for complex factories with many different procedural models and special cases. Interviewee 5 also feels that due to the complexity of the decentralized factory’s logistics, it would be difficult to control logistics from outside the plant. Interviewee 4 also expresses that since the decentralized factory is so complex, it is better to handle the logistics from on-plant. Knowledge of local conditions, customs, regulations and preferences is usually difficult to acquire and costly to transfer to those not familiar with the conditions (Christie et al. 2003). Decentralization makes it easier to use local information more efficiently (Vagstad 2000), and decentralized organizations have better adaptability to local conditions, since the decisions are made usually by local managers, who have insight and the best information about current conditions (Alonso et al. 2008).

“Well I feel our logistics process is such a complex package, that it would be difficult to control from outside the plant. And in here you have to know more and consider a lot more factors than in other plants.” (Interviewee 5)

“At least for factories with many different products and many different places to deliver products, and many different procedural models, it is easier to handle things decentralized.” (Interviewee 7)

It is good to acknowledge that the decentralization benefits appointed by employees mainly stem from the need of close physical proximity between departments, which encourages communication, idea exchange and accumulation of specialized knowledge of the plant. The argument of physical proximity may lose its significance in the modern world, where communication is made easy and cheap by IT systems between divisions, but according to Alonso et al. (2008), the utilization of local information is still seen as a powerful reason for decentralization.

5.3.2. Disadvantages of decentralization

The disadvantages of decentralization based on the opinions presented in the interviews are 1) worse control and coordination of the company's logistics, 2) the lack of harmonization, 3) problems in the flow of information and 4) possibility of more costs. Many of the interviewees from decentralized factory interestingly had some difficulties in coming up with disadvantages of decentralization. It seems that in comparison to centralization, it is harder to think of possible disadvantages of decentralization. This may be due to the fact, that increased centralization will always partially diminish the employees' own autonomy and independence (Faes et al. 2000), which can lead to favoring of decentralization among employees.

One disadvantage of decentralization is worse control of the whole, presented by Interviewee 3. Interviewee 3 feels that decentralization prevents implementing procedural changes to the overall logistics of the company. Decentralization in fact has been found to prevent utilizing a real global sourcing strategy (Faes et al. 2000). Interviewee 3 also expresses that if every factory would continue to handle logistics by themselves, then the overall coordination of the whole would be hard. The risk in decentralization is that the decentralized departments are too small to purchase effectively and globally, and strategic orientation may be neglected (Arnold 1999). However, decentralization is not necessarily a barrier to coordination, since local division managers tend to recognize their interdependence and coordinate and communicate very well (Alonso et al. 2008).

“If we want to change the logistics of the company, then I see there is no possibility than to utilize centralization, or else the change is not possible to be implemented efficiently. If every unit would continue to handle their own logistics, we could

partially optimize and reach good results in some of the factories, but the whole would be poorly controlled and coordinated.” (Interviewee 3)

Lack of harmonization of the company’s logistics will propose problems in decentralization, as expressed by Interviewee 5. Interviewee 5 feels that the procedures of the company would be more unified if the logistics would be handled from one location. Lack of uniformity can lead to biased decisions in favor of the local supplier (Vagstad 2000) and duplicated work efforts (Karjalainen 2011). Decentralization can lessen uniformity in group purchasing strategy (Faes et al. 2000).

“Well I think that there would be more harmonization and a common way of working for all, if things were handled from a central department, but now I guess every factory seems to work as they please.” (Interviewee 5)

Another disadvantage of decentralization is problems in the flow of information, as expressed by Interviewees 6 and 7. Interviewee 6 feels that the biggest problem to be solved in any structure is the flow of information. Interviewee 7 feels that flow of information is hard to optimize, since there are many employees and it is sometimes hard to obtain information. Disadvantage of decentralization according to Alonso et al. (2008) is that the local manager in charge of one decision usually is uncertain about the decisions made by other managers, which can cause problems, if self-interested local managers do not internalize how their decisions affect others, and put excessive weight on adapting decisions to local conditions.

“Well, flow of information always presents problems, when there are many employees and large personnel, and there are a lot of different things to be informed. I can’t think of any other problem in decentralization.” (Interviewee 7)

There is a possibility that decentralization is more costly than centralization. Interviewees 1 and 3 feel that centralization allows the logistics personnel to focus merely on logistics issues to find the most cost-efficient solution, but it can be argued that in e.g. the decentralized factory the personnel is already focused on logistics issues due to the size and complexity of the plant’s logistics requirements. Overall, the quantification of cost savings can be difficult (Karjalainen 2011), and it can be extremely difficult to compare cost levels of centralization and decentralization.

Even though centralization seems to hamper communication and the flow of information, it is not easy to establish efficient information flow in decentralization either as pointed out by the interviewees. Choosing decentralization does not automatically lead to easier communication between the logistics and other departments found on-plant, but physical proximity and the availability of face-to-face communication may create more ease in e.g. idea exchange. It is good to notice though, that any of the advantages or disadvantages of centralization and decentralization presented earlier do not materialize automatically when choosing a certain structure, but achieving the benefits as well as avoiding the disadvantages requires hard work from the employees and the organization as well.

6. CONCLUSIONS

In this section, the summary of this study is presented along with the conclusions of this study. The results and analysis of this study are presented and the research questions are answered. Some future research suggests are also introduced.

6.1. Summary

The main focus of the analysis is to find the answer to the research questions of this study. The main research question is: “*What are the advantages and disadvantages of centralization and decentralization in logistics?*” Centralization seems to create cost savings and increase efficiency through creating synergies, and centralizing certain tasks to be handled from a single department will unify and harmonize the overall procedures and make logistics coordination easier. A centralized department tends to have a larger staff, which means that e.g. substitution is easier to handle, and certain employees can focus on specific tasks, allowing the accumulation of specialized knowledge. Centralization will increase communication between the logistics of the whole company, which allows e.g. the exploitation of joint transportations, but this is done with the cost of possibly worsening communication between the factory and logistics. Since transportations are eventually triggered by production, it is important to make sure the flow of information between these parties is fluent so that possible changes in production can be considered logistics-wise as well. Since a centralized department is fixed to a single location, the local information situated in the factories is harder to utilize which can lead to disconnects in the flow of information, which can eventually lead to slower reaction times and worse communication between logistics

department and the factory. Competent staff may be hard to hire to a central department, since not all current employees in a decentralized factory are able or willing to move to a new location to work. Problems will without a doubt occur in especially during the switch to centralization, since it takes time for inexperienced staff to learn and accumulate specialized knowledge about the plants. Knowing how the factories function is especially important in logistics, since it is necessary to know how transportation bookings are affected by certain things. The more complicated procedures in a factory, the harder it is to get familiar with how things work, and it can be relatively easier to learn if the factory's functioning can be seen first-hand by the employees.

Decentralization allows better communication between the logistics department and production, which allows being more up-to-date on production related issues which eventually leads to faster reaction times. Decentralization leads to having better knowledge on the factory, since employees can see first-hand how things work around the plant. Decentralization also allows more multilateral idea exchange between the factory and logistics, which can lead to innovating. On the other hand idea exchange between other logistics departments can get diminished since there is physical proximity between plants. Physical proximity between logistics departments can lessen the knowledge of other logistical departments' functions and possibility diminish the usage of e.g. joint transportations between plants. Decentralization makes the overall coordination of the company's logistics is harder compared to having a single department, and lack of coordination may result in different ways of working and lack of harmonization in procedures. There is a possibility that decentralization is more costly than centralization, but the quantification of cost differences is very difficult. Depending on the situation, a shift to centralization will not bring significant cost reductions e.g. personnel-wise if the decentralized departments have relatively large staff, where the employees' tasks are divided in a balanced manner.

A secondary research question of this study is: "*What factors or prerequisites need to be considered when implementing centralization and decentralization?*" Many factors need to be taken into consideration when choosing between centralization and decentralization, e.g. cost level, coordination, communication and idea exchange, personnel, customer and carrier satisfaction, human elements and employees'

knowledge. One of the most important factors is of course cost level. Centralization can bring cost savings through personnel savings, utilization of joint transportations and increase in efficiency, but on the other hand decentralization can bring costs down through employees having better knowledge and communication inside the factory resulting in faster reaction times to unexpected issues. Changing transportations accordingly to production changes will create savings. Establishing a central department can be costly at the beginning of the process, since staff incompetence as well as hiring new personnel can lead to costs. Overall, it is extremely difficult to decide which of these structures will be more cost-efficient, since it always depends on many factors.

Another factor that affects the choice between these structures is coordination. In centralization, it is reasonable to expect that coordination of the overall logistics of the company is easier, since the whole logistics is located in the same place. Harmonization of procedures is simply easier to realize in centralization. Centralization also allows implementing new procedure models faster, since implementation requires going through a change process in only one location. On the other hand, decentralization allows better coordination between logistics and the departments in plant. From communication's perspective, a choice between centralization and decentralization comes down to choosing between which parties communication and idea exchange should be the most fluent: between logistic function of the company, or between logistics and the plants' departments. Frequent face-to-face communication between employees can increase idea exchange and give better outlook on others' tasks which can lead to innovations. If the central unit is located in a different country than the factories, then language and cultural differences need to be considered in communication as well.

Personnel-wise centralization will bring cost savings only if centralization allows fewer people to do the same job as in decentralization. Centralization allows the employees to focus on a single task and gain specialized knowledge on that task to increase overall efficiency, but decentralization can be helpful in accumulating specialized knowledge since it allows the personnel to see first-hand the factory's functioning. Perhaps the most influential factor is the satisfaction of customers. In centralization, giving single point of contact and harmonized ways of working may improve

satisfaction, but in decentralization faster reaction times can lead to deliveries being more on-time, which is crucial to customer satisfaction. Costs have an effect on satisfaction as well in the long run, since choosing a less cost-efficient structure will eventually lead to the need of increasing prices in order to cover transportation costs, which without a doubt will not increase satisfaction or the commitment of the customers.

A decision between structures need to have analysis of the effects of a change as well. Human elements should be taken into consideration, as employees will show different emotions and reactions towards change, and resistance to change is one thing that can create barriers for successful implementation or at least slow down the overall change process. Employees will also have accumulated specialized knowledge on working that the headquarters simply can't have, and so employee's knowledge should be utilized in making decisions that affect working. Of course the managers need to keep decision-making powers to themselves at certain situations to avoid employees from pursuing personal gains, but this does not mean the employee's knowledge should not be exploited.

6.2. Conclusions

This study indicates that employees have knowledge that can be utilized in decision-making, and the employee's opinions should at least be heard when trying to find the optimal structure for a certain job, as also pointed out by Hernaus et al. (2013). The employee's opinions can provide important background knowledge on working, which is essential to know in order to make a comprehensive decision between organizational structures. This statement is also confirmed by Burgess (1998), who states that the employees' knowledge and skills should be utilized in trying to improve processes, since allowing the employee's to participate in a change process from early on will increase the commitment of the employees and give an outlet for negative feelings, which can be turned into improvements.

According to the findings of this study, the main advantages of centralization are cost savings, harmonization of procedures, increased efficiency, easier coordination, having a larger team, improved customer satisfaction and possibility of exploiting joint transportations between factories. Karjalainen (2011) also confirms, that it is

reasonable to expect cost savings from centralization. The studies of Faes et al. (2000) and Trautmann et al. (2009) both validate, that centralization leads to synergies, which will lead to cost savings, harmonization of procedures and reduction of duplicated work efforts thus increasing efficiency. The findings of Alonso et al. (2008) and Johnson & Leenders (2006) indicate, that centralization will result in lower coordination losses and more efficient coordination of policies and systems, thus backing up the finding of this study. Having a larger team will make sure the available purchasing skills are used effectively, as confirmed by Faes et al. (2000). Ellinger et al. (1997) suggests that centralized logistics may help firms cope with customer demands better thus increasing the satisfaction of customers.

The disadvantages of centralization, as presented in this study, are more complicated flow of information, communication problems, slower reaction times to unexpected issues, the difficulty of hiring competent staff and the scattering of the bigger picture to multiple units. Centralization can complicate the flow of information and make it harder for supply chain members to communicate as stated by Pagell (2004). De Snoo et al. (2011) also states that communication is more efficient face-to-face, and centralizing logistical tasks to be handled from a central unit away from the plant would significantly reduce the amount of face-to-face communication between these parties. Centralization can lead to lack of information and slow responses to divisional matters according to Karjalainen (2011) and Cousins & Spekman (2003). Vagstad (2000) confirms, that disadvantages of centralization are the costs of establishing a central unit and hiring competent staff. The scattering of the bigger picture is also confirmed to be a disadvantage of centralization, as Pagell (2004) reports that centralization does harm integration within the plant and make it harder to achieve consensus among various departments and employees.

This study shows that the advantages of decentralization are being more up-to-date on production and transportation, faster reacting time to unexpected events, employees have better knowledge of the factory's functioning, better communication and idea exchange and better adaptability to more complex factories. Decentralization will make it easier to efficiently utilize local information as Vagstad (2000) confirms. Thus decentralization enables being more up-to-date on production and transportation issues, as this study indicates. Faes et al. (2000) confirms that decentralization leads

to having problem-solving capabilities closer to problems resulting in faster reacting times, and Andrews et al. (2008) also states that decentralization permits faster adaptability to changes. Alonso et al. (2008) assures that decentralization leads to decisions being done by local managers, who have the best information and insight about local conditions and situations. Schminke et al. (2002) states that decentralization will allow better communication and idea exchange. Yazici (2002) also assures that allowing people from different departments with diverse knowledge to work together will lead to better performance, and according to Faes et al. (2000) department-crossing cooperation is easier in decentralized structures.

This study indicates that the disadvantages of decentralization are worse control and coordination of the company's logistics, problems in the flow of information, lack of harmonization and the possibility of decentralization being more costly. Alonso et al. (2008) also confirms that coordination of the company's logistics is in fact harder in decentralization, because the local manager in charge of one decision usually is uncertain about the decisions made by other managers, which can cause problems, if self-interested local managers put excessive weight on adapting decisions to local conditions. Efficient coordination in decentralization requires more effort, since local managers have to communicate actively and frequently between different departments and divisions (Alonso et al. 2008). According to Faes et al. (2000), decentralization can lead to differences in strategy execution and scattering of knowledge-relevant decisions, which will lead to problems in the flow of information. Karjalainen (2011) also points out that decentralization will lead to diminishment of knowledge sharing between units. Uva & Catalão-Lopes (2013) confirm that decentralization prevents the acquisition on synergies, which according to Karjalainen (2011) will lead to diverse ways of working, lack of harmonization and increase in duplication of work. Karjalainen (2011) confirms that decentralization will lead to higher costs. Decentralization will also require costly measuring and evaluating systems for the lower level manager's performance, as pointed out by Christie et al. (2003).

Centralization will be the best model for some situations, and decentralization will work better for other situations. As Rozemeijer (2000) similarly states, the context ultimately determines the best suitable structure. The key is to assess the benefits and disadvantages of both structures from the company's perspective, and decide which

factors are more important than others, e.g. is it better to have lower costs at the price of lower job satisfaction levels. Implementing a certain structure may create significant advantages in the long run, but a complete change in a structure may not be needed. Hybrid models between centralization and decentralization can be utilized to pursue advantages of both models, as Karjalainen (2011) also suggests. In addition, changing a structure for minimal gains may not be wise, since the change process will eventually take resources and require the employees to adjust to new situations, which can create dissatisfaction and lessen the overall commitment of the employees. Employees will become committed to the change only if the change can be justified, as also pointed out by Burgess (1998). Justification of change is relatively easier, if the advantages, disadvantages and results of implementing a certain structure can be presented from the company's and factory's perspective. A totally new structure should be implemented only when the gains outweigh both the advantages of the previous structure, as well as the disadvantages a change process will eventually bring.

6.3. Future research suggests

The issue of centralization versus decentralization should be investigated further in order to help companies choose the optimal structure for certain situations. The factors that are found as advantages or disadvantages of centralization or decentralization need to have a deeper examination. This study is somewhat superficial, since it focuses on presenting all of the advantages and disadvantages of both centralization and decentralization, rather than comparing these structures from only one perspective. For example centralization and decentralization could be compared from only one factor's perspective, e.g. communication or customer satisfaction, to find out the deeper effect these structures have.

There is still a need to investigate centralization versus decentralization from logistics perspective, since the literature on this subject is scarce. Studies could attempt to compare logistics structures from many different companies, in order to minimize the effect company culture and industry will have on estimating the advantages and disadvantages of centralization and decentralization. Optimization of logistics through structure is important aspect to study, since logistics is likely to become the main competitive differentiator and it provides a way to improve customer service. In order to improve logistical performance, all options must be considered to find out the most

suitable solution for a specific company. Other possible future research suggest are studying the reasons companies decide to implement centralization or decentralization in organization structure, the successfulness of changing the level of centralization to a different structural model and hybrid models between centralization and decentralization in logistics.

BIBLIOGRAPHY

Alonso, R., Dessein, W. & Matouschek, N. 2008, "When Does Coordination Require Centralization?", *The American Economic Review*, vol. 98, no. 1, pp. 145-179.

Andrews, M., Baker, T. & Hunt, T. 2008, "The Interactive Effects of Centralization on the Relationship Between Justice and Satisfaction", *Journal of Leadership & Organizational Studies*, vol. 15, no. 2, pp. 135-144.

Arnold, U. 1999, "Organization of global sourcing: ways towards an optimal degree of centralization", *European Journal of Purchasing & Supply Management*, vol. 5, no. 3-4, pp. 167-174.

Bernardes, E. & Zsidisin, G. 2008, "An examination of strategic supply management benefits and performance implications", *Journal of Purchasing and Supply Management*, vol. 14, no. 4, pp. 209-219.

Burgess, R. 1998, "Avoiding supply chain management failure: Lessons from business process re-engineering", *International Journal of Logistics Management*, vol. 9, no. 1, pp. 15-23.

Campion, M.A. & Berger, C.J. 1990, "Conceptual Integration and Empirical Test of Job Design and", *Personnel Psychology*, vol. 43, no. 3, pp. 525.

Caruana, A., Morris, M.H. & Vella, A.J. 1998, "The effect of centralization and formalization on entrepreneurship in export firms", *Journal of Small Business Management*, vol. 36, no. 1, pp. 16-29.

Christie, A., Joye, M. & Watts, R. 2003, "Decentralization of the firm: theory and evidence", *Journal of Corporate Finance*, vol. 9, no. 1, pp. 3-36.

Cousins, P. & Spekman, R. 2003, "Strategic supply and the management of inter- and intra-organisational relationships", *Journal of Purchasing and Supply Management*, vol. 9, no. 1, pp. 19-29.

Dent, E., Galloway S. 1999. Challenging "Resistance to Change". *The Journal of Applied Behavioral Science*, Vol. 35 No. 1, March 1999, p. 25-41.

De Snoo, C., W. Van Wezel & Wortmann, J.C. 2011, "Does location matter for a scheduling department?", *International Journal of Operations & Production Management*, vol. 31, no. 12, pp. 1332-1358.

Ellinger, A., Daugherty, P. & Gustin, C. 1997, "The relationship between integrated logistics and customer service", *Logistics and Transportation Review*, vol. 33, no. 2, pp. 129-138.

Eskola, J. & Suoranta, J. 2008. Johdatus laadulliseen tutkimukseen. 8. edition. Jyväskylä, Gummerus Kirjapaino Oy.

Faes, W., Matthyssens, P. & Vandenbempt, K. 2000, "The Pursuit of Global Purchasing Synergy", *Industrial Marketing Management*, vol. 29, no. 6, pp. 539-553.

Garg, P. & Rastogi, R. 2006, "New model of job design: motivating employees' performance", *The Journal of Management Development*, vol. 25, no. 6, pp. 572-587.

Griffin, R. 1993. Management. 4th edition. Boston, Houghton Mifflin.

Harris, M. & Raviv, A. 2002, "Organization design", *Management Science*, vol. 48, no. 7, pp. 852-865.

Hempel, P., Zhang, Z. & Han, Y. 2012, "Team Empowerment and the Organizational Context: Decentralization and the Contrasting Effects of Formalization", *Journal of Management*, vol. 38, no. 2, pp. 475-201.

Hernaus, T., Aleksic, A. & Klindzic, M. 2013, "Organizing for Competitiveness - Structural and Process Characteristics of Organizational Design", *Contemporary Economics*, vol. 7, no. 4, pp. 25-40.

Hirsjärvi, S., Remes, P. & Sajavaara, P. 2009. Tutki ja kirjoita. 15. edition. Helsinki, Tammi.

Johnson, P. & Leenders, M. 2006, "A longitudinal study of supply organizational change", *Journal of Purchasing and Supply Management*, vol. 12, no. 6, pp. 332-342.

Karjalainen, K. 2011, "Estimating the cost effects of purchasing centralization—Empirical evidence from framework agreements in the public sector", *Journal of Purchasing and Supply Management*, vol. 17, no. 2, pp. 87-87-97.

Klarner, P., Todnem, R. & Diefenbach, T. 2011, "Employee emotions during organizational change—Towards a new research agenda", *Scandinavian Journal of Management*, vol. 27, pp. 332-340.

Koberg, C., Uhlenbruck, N. & Sarason, Y. 1996, "Facilitators of organizational innovation: The role of life-cycle stage", *Journal of Business Venturing*, vol. 11, pp. 133-149.

Kohlbacher, M. & Reijers, H.A. 2013, "The effects of process-oriented organizational design on firm performance", *Business Process Management Journal*, vol. 19, no. 2, pp. 245-262.

Koskinen, I., Alasuutari, P. & Peltonen, T. 2005. Laadulliset menetelmät kauppätieteissä. Tampere, Osuuskunta Vastapaino.

Liang-Hung, L. & Iuan-Yuan Lu 2005, "Adoption of virtual organization by Taiwanese electronics firms: An empirical study of organization structure innovation", *Journal of Organizational Change Management*, vol. 18, no. 2, pp. 184-200.

Munson, C. & Hu, J. 2010, "Incorporating quantity discounts and their inventory impacts into the centralized purchasing decision", *European Journal of Operational Research*, vol. 201, no. 2, pp. 581-592.

Nahm, A., Vonderembse, M. & Koufteros, X. 2003, "The impact of organizational structure on time-based manufacturing and plant performance", *Journal of Operations Management*, vol. 21, pp. 281-306.

Pagell, M. 2004, "Understanding the factors that enable and inhibit the integration of operations, purchasing and logistics", *Journal of Operations Management*, vol. 22, no. 5, pp. 459-487.

Paulraj, A., Chen, I. & Flynn, J. 2006, "Levels of strategic purchasing: Impact on supply integration and performance", *Journal of Purchasing and Supply Management*, vol. 12, no. 3, pp. 107-122.

Rozemeijer, F. 2000, "How to manage corporate purchasing synergy in a decentralised company? Towards design rules for managing and organising purchasing synergy in decentralised companies", *European Journal of Purchasing & Supply Management*, vol. 6, no. 1, pp. 5-12.

Ruusuvuori, J. & Tiittula, L. 2005. Haastattelu: Tutkimus, tilanteet ja vuorovaikutus. Tampere, Vastapaino.

Schminke, M., Cropanzano, R. & Rupp, D. 2002, "Organization structure and fairness perceptions: The moderating effects of organizational level", *Organizational Behavior and Human Decision Processes*, vol. 89, no. 1, pp. 881-905.

Trautmann, G., Bals, L. & Hartmann, E. 2009, "Global sourcing in integrated network structures: The case of hybrid purchasing organizations", *Journal of International Management*, vol. 15, no. 2, pp. 194-208.

Uva, L.S. & Catalão-Lopes, M. 2013, "Centralization of Activities in Multinational Banks, with an Application to a European Banking Group", *International Journal of Economics and Finance*, vol. 5, no. 8, pp. 136-146.

Uusitalo, H. 1991. Tiede, tutkimus ja tutkielma. Johdatus tutkielman maailmaan. WSOY.

Vagstad, S. 2000, "Centralized vs. decentralized procurement: Does dispersed information call for decentralized decision-making?", *International Journal of Industrial Organization*, vol. 18, no. 6, pp. 949-963.

Wang, Y., Ma, X., Lao, Y. & Wang, Y. 2014, "A fuzzy-based customer clustering approach with hierarchical structure for logistics network optimization", *Expert Systems with Applications*, vol. 41, pp. 521-534.

Willem, A. & Buelens, M. 2009, "Knowledge sharing in inter-unit cooperative episodes: The impact of organizational structure dimensions", *International Journal of Information Management*, vol. 29, pp. 151-160.

Yazici, H. 2002, "The role of communication in organizational change: an empirical investigation", *Information & Management*, vol. 39, no. 7, pp. 539-552.

Zheng, W., Yang, B. & McLean, G. 2010, "Linking organizational culture, structure, strategy, and organizational effectiveness: Mediating role of knowledge management", *Journal of Business Research*, vol. 63, no. 7, pp. 763-771.

ATTACHMENTS

Attachment 1: Framework of the interview

At the beginning, theoretical concepts and utilized terms were explained in Finnish.

Background information:

- Job title
- Description of tasks

Questions on centralization:

- Centralization:
 - advantages
 - disadvantages
 - threats

- possibilities

Questions on decentralization:

- Decentralization:
 - advantages
 - disadvantages
 - threats
 - possibilities

Resistance to change:

- Observed resistance to change
- Likelihood of resistance in interviewer
- Likelihood of resistance overall

Questions for only centralized employees

- Experienced effects of centralization to working
- Effects of centralization to job satisfaction

Questions for only decentralized employees

- Preference of centralization or decentralization regarding your factory
- Do you feel that if something is successfully implemented in other factories that does not necessary mean, that those procedures or models are applicable to this factory straight-hand?

Free word:

- Anything else in mind regarding this subject?

Thank you!