Reducing Supplier Lead Time

- A case study on Supplier Lead Time at purchasing companies
Abstract

Title: Reducing Supplier Lead time – a case study on Supplier Lead Time at purchasing companies
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Research questions:
● How are companies working with and defining Supplier Lead Time?
● What activities are included to reduce Supplier Lead Time?
● How can companies further develop their work to reduce Supplier Lead Time?

Purpose:
The purpose of this Master Thesis is to describe and explain how purchasing companies are working to reduce Supplier Lead Time, in order to maintain or achieve an efficient and flexible supply chain. Moreover the study aims to recommend what approaches companies could further use to reduce Supplier Lead time.

Method:
To answer these research questions the authors have done two case studies. The theoretical material has been collected and processed, which has formed the basis for the semi-structured interview guide that was answered by the interviewees. The authors also attended meetings to get other inputs about the subject.

Conclusion:
IKEA Components are today taking different actions to improve the SLT but can improve their volume agreements (AGV) by aligning all involved parts and have a functional leader that makes sure that they follow it up. At IKEA IMS the authors recommend them to work with volume commitments with suppliers and develop a clearer structure for who is responsible for improving the SLT and evaluating it.

Keywords
Supply chain management, Supplier Lead Time, Reducing Supplier Lead Time, Organization management, Performance evaluation
Acknowledgements

In this Master Thesis the authors chose to study how the two case companies IKEA IMS and IKEA Components are working with “Supplier Lead Time” and how they can develop this work. The authors are aware of that it is not only the Supplier Lead Time that affects the total lead time but the authors chose this subject since the authors wanted to look at a specific part of the supply chain. Further the conclusion and recommendations are only a selection of what could be done to improve the work with Supplier Lead Time.

To be able to write a Master Thesis it demands support and guidance from many directions. During this process the authors have received help and inspiration from our tutor Åsa Gustafsson, our examiner Lars-Olof Rask and our opponents, many thanks to you! The authors would also like give a big thank you to our interviewees for providing us with valuable information and setting of time to participate in our study. The final thanks goes to our managers for support and inputs to this thesis.

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1. Introduction

Essential concepts for this study are presented in the introduction chapter from a broad point of view. The background and discussion of the problem will culminate into the chosen research question and purpose. Further the limitations of the thesis is presented and an outline of the thesis for the reader to get an overview of the structure for the thesis.

1.1 Background

Grant, Traut and Wong (2013) describe that most companies today face consistent changes and increased competition in their business environments. This creates challenges for companies who need to take action and be proactive in order to stay competitive and survive. Johnson (2001) expresses that the increase in competition comes from an evolving business climate where efficiency, flexibility and increased customer power is behind the changes. It has become more important to create customer value and being able to deliver the product/service at the right place in the right time. Rachan (2012) agrees and states that what is “right” refer to the customers demand. It is important for companies to achieve “operational excellence” which is achieved by performing similar activities better than the competitors.

Chan and Chong (2013) mean that for companies to be more competitive they need to develop their supply chain management. When companies implement a strategy for supply chain management they can be more efficient and flexible to reduce costs and make sure that customer value is created. Glock (2011) explains that an efficient supply chain means to have a supply chain process that uses the lowest amount of input to create the greatest amount of output. To have flexibility in the supply chain means how fast a supply chain can discover and respond to troubles and opportunities in short term (current operational issues) and also in long term (new strategies etc). To have both an efficient and flexible supply chain leads according to Forslund (2007) to a higher delivery performance which is one of the most important things in supply chain management to achieve customer satisfaction. Godinho and Veloso (2012) especially emphasize the importance of reducing lead times in order for companies to have an efficient and flexible supply chain that better achieve operational excellence and customer satisfaction. Glock (2011) explains that lead time is defined as the
time it takes from the moment the order is placed to the receipt of the order into inventory. Godinho and Veloso (2012) further interpret that this is an area that has been developed the last 20 years and affects the entire supply chain. Chan and Chong (2013) state that manufacturing companies should have more focus on making their supply chain more efficient and flexible. In addition to this Luman and Cunliffe (2013) mean that to be able to set goals of having more efficient and flexible supply chains, the companies should be designed to encourage all to work toward these goals. In organizational theory they explain that it also is important that these goals are aligned and understandable to all.

1.2 Problem discussion

Godinho and Veloso (2012) clarify that the market has become more demanding and the delivery of products with better time intervals to a low cost has become more important. Glock and Reis (2013) explain that it is important for companies to reduce its vulnerability to potential disruptions. From an organizational perspective it is shown in empirical studies that companies can face a significant fall in operational performance as well as lower stock returns when not developing their supply chain to be efficient and flexible. This indicates the need of controlling the efficiency and flexibility in the supply chain and can partially be done by improving the “Supplier Lead Time (SLT)” which reduces the entire lead time. SLT is defined as the time from a purchasing company’s order proposal is confirmed until the product is sent out from the supplier. Godinho and Veloso (2012) state that reducing SLT plays a more important role in today’s logistics management. Companies that cannot adjust and make their supply chain more efficient, flexible and customer oriented will have a hard time to survive. Further Glock (2011) points out that there are several problems that can occur when companies neglect the importance of efficiency and flexibility in supply chain. When the demand is uncertain SLT is even more significant, as Jamshidi and Ghomi (2015) stress the effect of demand uncertainty can be decreased with efficient and flexible lead time management. This means that if a company has a long SLT it is a bigger risk for the product to go out of stock or respond to a fluctuating demand.

Seen from a logistic perspective Jamshidi and Ghomi (2015) mean that shortening the SLT can imply a decrease in safety stock and out of stock situations, since the uncertainty in SLT
is one reason to have safety stock. Another factor that motivates safety stock is according to J. van Kampen, van Donk and van der Zee (2010) the uncertainty in demand. The authors argue that if the demand information is more reliable or the supply variability is reduced, the delivery performance will improve and the safety stock can be decreased. Moreover it can result in an increased service level and competitive ability. Johnson (2001) also emphasizes the importance of adapting a specific SLT for a specific product. For some products it is more important to have shorter SLT if they e.g are a “best selling” product and for some products the impact of going into shortage is less important. This needs to be carefully evaluated and compared to, for example, eventual increased costs for shortening SLT (e.g cost of bigger stock). Chan and Chong (2013) further explain that if this is not evaluated correctly it could lead to decreased SLT but a big increase in costs for the supply chain without the company benefitting from it. Jamshidi and Ghomi (2015) report that in supply chains there are many different actors and Luman and Cunliffe (2013) stress the importance of everyone being aligned towards the same goals to be able to get an efficient and flexible supply chain with a shorter SLT. Chan and Chong (2013) specify that in big corporations this is even harder if the different actors are working far away from each other. Carrol (2011) adds that an alignment can be achieved if the different actors create a better understanding for each other's work. Many researchers study the effect of what a shorter lead time have on costs, delivery performance and more (Glock & Reis 2013, Annadurai & Uthayakumar 2010) and how manufacturing lead time can be improved at the suppliers by developing the manufacturing process (Samaranayake, 2013). The authors of this thesis find that the research do not cover how purchasing companies are working to reduce the lead time by reducing the SLT at their suppliers to achieve a more efficient and flexible supply chain, that is why the authors questions culminated to:

1.3 Research questions

- How are companies working with and defining Supplier Lead Time?
- What activities are included to reduce Supplier Lead Time?
- How can companies further develop their work to reduce Supplier Lead Time?

1.4 Purpose
The purpose of this Master Thesis is to describe and explain how purchasing companies are working to reduce Supplier Lead Time, in order to maintain or achieve an efficient and flexible supply chain. Moreover the study aims to recommend what approaches companies could further use to reduce Supplier Lead time.

1.5 Limitations

The study is focused on “Supplier Lead Time” which is defined as the time from an order proposal is confirmed until the product is sent out from the supplier. The authors of this thesis intend to only investigate how the purchasing companies are working with reducing Supplier Lead Time at their suppliers, not how the suppliers themselves are working with it. Due to this the authors have further decided to not take manufacturing operations, product structure or choice of materials/components into account. Neither does this thesis aim to measure efficiency or flexibility in supply chain, it is instead described as an outcome of reducing Supplier Lead Time.
2 Methodology

This chapter explains the methodology path that was followed in order to collect the right type of data. It presents different research approaches and data collection methods possible to use and moreover justifying why certain methods were chosen for this research. Data analyzing methods is presented, quality criteria of validity and reliability is described and what the implications that is performed to reach the requirements. Also the ethical considerations for this thesis are added.

2.1 Scientific approach

The scientific approach is according to Alvesson and Sköldberg (2008) techniques for investigating a phenomenon, gaining new knowledge or changing previous knowledge. In this, Bryman and Bell (2011) mean that there are different ways to create relations between empirical data and theory that are called induction, deduction and abduction. Induction is when the researcher is conducting a study without having grounded the study in generally accepted theory. Deduction is when the researcher bases the study on existing theories. Abduction is the “middle path” of induction and deduction and was used for this Master Thesis.

2.1.1 Abduction

Bryman and Bell (2011) outline that abduction is when the researcher goes back and forward between theory and empirical data. It is a combination of induction and deduction. Alvesson and Sköldberg (2008) describe that abduction is the most common method for case study (see explanation about case studies in chapter 2.5). Patel and Davidson (2003) interpret that the advantage of using an abductive method is that the researcher do not get as restrained as when using pure inductive or deductive research. This because in abduction both the empirical data and the theoretical data is developing during the work progress.

In our study the authors started by discussing topics that the authors wanted to write about without reading any theories, which means that the authors started our study empirically. The
authors also thought about what kind of projects that could be good for IKEA IMS and IKEA Components to create a win-win situation. The topic of “Supplier Lead Times” was chosen for different reasons. At IKEA Components this was something that author Jönsson is working with when signing volume agreements. She wanted to learn more about how IKEA Components used these agreements for lowering SLT, other ways of doing it and how this could be improved. At IKEA IMS, where author Luong is working, a lot of her range had very long SLT and in consultation with her manager they decided that this topic was good to see how they could improve the SLT. Then the authors started to search for more information about the subject to get more understanding, so the authors could develop research questions and a purpose. After that the authors wrote the theory chapter and created an interview guide with topics for our interviews at IKEA IMS and IKEA Components.

During the interviews the authors found new topics to fill in our theory chapter, from the beginning the authors had the topics: supply chain management, lead times, reducing lead times, risk management and organization theory. The topics the authors found after the authors had done the interviews where: forecast, leadership, agreements, supply chain integration, service levels and performance measurements. The authors needed to ask some follow up questions after this but since the authors both work with the interviewees the authors could just ask them directly without booking a meeting.

2.2 Choice of research method

Jacobsen (2002) describes that a qualitative study is suitable when the researcher wants clarity in an unclear subject. He also mean that in qualitative methods the researchers can investigate human’s perceptions about a subject. Since the authors wanted to learn more about how IKEA IMS and IKEA Components are working with SLT and how to improve this the authors chose a qualitative method. This allowed us as researchers to investigate different perceptions about the subject, and also Bryman and Bell (2011) communicate that a qualitative method allows the individuals to have a perception about reality. One of the advantages with a qualitative method is the transparency in the approach. The researchers have not decided what to look for in advance, instead it is decided by the interviewees. Since the authors did not have as much knowledge about the subject as the interviewees, the authors had to choose a transparent
approach. The authors also wanted to see how they perceive how the organization and themselves are working with SLT.

2.2.1 Reservation against chosen Research Method
When using only a few interview companies it does not provide a broad empirical basis in the data, according to Alvesson and Sköldberg (2008), as they criticize the method. Despite Alvesson and Sköldberg’s (2008) statement on qualitative research method the authors still believe that this type of method is most applicable to our thesis. Furthermore the authors have deliberately chosen to avail ourselves of two interview companies as the authors argue that this gives us a broader empirical basis than using a one case study.

2.3 Choice of research philosophy
Since the purpose of this paper is to examine how IKEA IMS and IKEA Components are working with SLT the authors have chosen to use a positivistic approach. The reason for this is that positivism allows the theoretical basis that case studies requires, as various interviewees perceive the same situation in different ways, namely based on their previous knowledge. Bryman and Bell (2011) describe that “ontology” is about “what it is to be” and it has two directions that is called objectivism and constructivism. In objectivism the researcher see the human in an objective way, which means that the human is an objective unit that for the social actors (humans) have an external reality. In objectivism the reality is absolute and measurable. In constructivism the researcher see humans as a construction that is built on the social actors perceptions and actions. Lundahl and Skärvad (1999) consider that the use of an objective perspective is most appropriate as it gives a broader space for interpretation with basis in theory accompanied by analysis in empirical data collection. According to Bryman and Bell (2011) an objectivistic perspective allows the interviewees to be interested in the interviewees’ reality and then use the collected empirical data on the theory.

Merriam (2002) characterize encoding as when the authors make an interpretation of the interviewees’ responses. This is vital in order to get a well-based essay that may culminate in a relevant analysis. Furthermore, if a subjective perspective had been applied, Merriam (2002) emphasizes that the authors instead had been forced to have their starting point in the interviewees’ reality and then assume. Noren (1995) points out that an objective perspective is
the ultimate for qualitative interviews as it is a great addition to a positivistic approach. Bryman and Bell (2011) agrees and mean that both of these perspectives aims to analyze and interpret empirical data based on a theoretical basis. As the authors had decided to combine a qualitative research with an objective approach it implies that the authors will have flexibility in the analysis chapter, but also a certain influenced basic assumption from the collected theory.

2.3.1 Reservation against chosen Research Philosophy

Lundahl and Skärvad (1999) argue that criticism occurs against the use of a positivistic orientation in essay writing. If the theory base is incomplete, the collected primary data will be too subjective because of the interviewees’ individual part experiences. Further the authors mean that this can distort actual data given by the interviewee. Merriam (2002) and Bryman and Bell (2011) also clarify that there is criticism against the objectivistic approach as objectivism is considered to be too influenced by the researchers’ previous theory collection that further can affect interpretation and coding of the interviewees’ responses and in turn lead to misleading data. Despite the criticism the authors assert that a combination of a positivistic orientation and an objectivistic approach will be useful in this thesis as the authors use an abductive research method. This because the authors believe that any theoretical knowledge gaps at us as writers will be covered since the authors will be able to complement the theory depending on the answers from the interviewees. Also due to the fact that interview questions will be broad and not focused on specific theoretical terms.

2.4 Theory selection

Patel and Davidson (2003) explain that in the initial phase of a study the researchers can limit themselves in a certain area. The longer the research process goes the more specific the limitations should be. In this Master thesis the authors have chosen to study the subject from both an organizational perspective and a logistic perspective. This because it is considered by the authors that if only one perspective was chosen, necessary information that the other perspective offers could have been omitted. In the beginning of this Master thesis the authors searched for theories about supply chain management, lead time and how to reduce lead
times. The search keys used for literature where: Supply chain management, lead time, lead time in supply chain, reducing lead time, organization theory and risk management to cover both perspectives. After the interviews the authors reviewed our theory chapter and added sub headlines with new theory where the authors used the search words: trade offs, relationship management, commitments, volume commitments, service levels, performance measurements, leadership, evaluation in supply chain, supply chain integration, supply contacts and forecast. When searching for theories about methods for Master Thesis both of the authors had much knowledge before regarding how to write method and the authors used books and articles that was used before in other papers.

2.4.1 Source Criticism Theory

Patel and Davidson (203) express that it is important to evaluate the sources that are being used in a study. The researchers need to critically judge the sources and determine if the sources are reliable and if the research was conducted in a correct way. In this study the authors only used books from Linnaeus University library and peer-reviewed articles to ensure that the information given is reliable. Even if the authors used “reliable” sources the authors have also always tried to look at the information in a critical way since there are no guarantees for the sources to be completely reliable.

2.5 Case study

Yin (2007) mean that case studies are empirical research where phenomenon is studied in its real context, which is appropriate to use when, the line between phenomenon and real context are hard to divide. Yin (2014) illuminates that a case study is most useable when the research question is “how” or “why” in a study. Since there is a lack of empirical research of the how companies are working centrally to reduce SLT at their suppliers and the thesis have two “how” questions, it was appropriate to use case study as research design. The authors also have a “what” question in the middle to dig in deeper in specific activities companies is performing to reduce SLT. As Yin (2014) states, in cases the researchers have limited information about the subject and need to learn more you use “how” and that was what the authors wanted to do. Also due to Bryman and Bell's (2011) description that a case study can
be conducted at one company or department to get a deeper understanding, or at multiple companies/departments (two or more companies). Yin (2007) further describes that the researcher can choose between these two types of case studies and the one with multiple companies creates a broader empirical background that increases the possibility of the research questions to be answered with correct information. When having more companies to study the less deep will the analysis be since time can be an issue. The authors chose to do the studies at two different IKEA companies where the authors work and have good access to information. The reason for choosing these two where access to information, to get a broader empirical data collection and the limited time. Svenning (2003) specifies that case studies consist of several different investigations where different types of data are being collected. Yin (2007) means that interviews and observation are appropriate in a case study since the method gives a deeper understanding. The authors did both interviews and attend meeting about our subject to observe plus to get more knowledge and to use different types of data sources. Yin (2014) means that in case studies the researcher investigate different decisions where the researchers want to know more about how and why they were taken and also the result of the decision.

Bryman and Bell (2011) further explain that in a case study it is suitable to make unstructured and semi-structured interviews when the researcher wants to get deeper knowledge about a subject. Since the authors already had some knowledge about the subject at IKEA IMS and IKEA Components the authors decided to do semi-structured interviews and attend meetings that has to do about the subject.

2.6 Qualitative interviews, semi-structured

Semi-structured interviews are described by Bryman and Bell (2011) as less structured than interviews in quantitative research. In a qualitative interview the interview can move in different directions that gives the researcher information about what the interviewee think is important. To capture this the researcher can use unstructured or semi-structured interviews. Saunders, Lewis and Thornhill (2009) explain that semi-structured interviews are conducted by using different themes that is discussed instead of written questions. The list is called a interview-guide and the researcher need to ask about the different themes but it does not matter in which order. Bryman and Bell (2011) highlight that this makes the answers vary a
lot depending on how much the interviewee tells. The authors chose to use semi-structured interviews since the authors wanted to see what the interviewees think is important when it comes to SLT. During our interview with the companies the authors used an interview guide with the topics: supply chain, lead times, supplier lead time, organization and risk management.

Ekström and Larsson (2010) further explicate that interviews should be recorded to later be transcribed. This makes it easier for the researchers to use the material in the analysis and to remember what was said in the interview. When the authors did our interviews the authors asked about the interviewees permission to record the interview and then the authors transcribed all of them. During the meetings the authors attended the authors instead took notes about what had was said during the meeting.

### 2.6.1 Our Interview

We chose to do the interviews at IKEA IMS and IKEA Components since the authors wanted to make the interviewees feel that they were in their own environment. Jacobsen (2002) explains that there are no contexts that are completely neutral when interviewing, Ekström and Larsson (2010) instead emphasize that it is the actual meeting that plays the biggest role. In order to investigate humans own thoughts a personal meeting is required and it is important for the interviewee to feel comfortable. To further achieve this Jacobsen (2002) notifies that it is vital to give the interviewee space, not interrupt and for the researcher to look present. The researcher must sense the mode and adjust the interview after the interviewee.

The authors chose to interview each other’s companies in order to eliminate the effect of previous knowledge about the subject. The authors thought that if the interviewee needed to explain to someone that does not work at the company they would explain more thoroughly. So the one who did not do the interview stayed more in the background and took notes. The authors also wanted to exclude what Jacobsen (2002) describes as the “interview effect” that means that the interviewee answers differently depending on who is asking the question.

### 2.6.2 Interview Guide
Bryman and Bell (2011) bring up that an interview guide can help the researcher to do a semi-structured interview, which is a memory list over the different themes that the researcher wants to talk about. It does not need to be in a specific order but it is easier for the researcher if the themes are organized to follow each other in a good way. Jacobsen (2002) also explains that the questions need to be easy to understand, not leading the interviewee and easy for the interviewee to answer or develop the question. In our interviews the authors tried to ask open questions to give the interviewee room to answer more freely and being able to see what the interviewee thinks is important. The interview guide is presented in the annex.

2.7 Interview selection

Jacobsen (2002) reveals that there are different approaches in choosing who to interview and how to choose them. According to Bryman and Bell (2011) there are random selection and selective choices. In random selection there is a list of persons to interview and then some of them are randomly chosen, this is called probability selection and all have the same opportunities to be chosen. Svenning (2003) also means that the researcher can choose who to interview depending on different criteria and this mentioned as selective choice. It can be based on different attributes e.g. the status of the interviewee or knowledge. In our interviews the authors chose to interview people the authors knew worked with SLT to make sure they had the knowledge that was needed. The authors asked the managers of both companies who they recommend us to talk to and the interviewees are presented in chapter 4:3 and 4:4.

2.7.1 Source Criticism Interviews

Jacobsen (2002) stresses that researchers always need to question if the sources and information given is correct. There can be several issues with choosing interviewees, for instance if the persons the researcher wanted to interview was not available, if the interviewees have the right knowledge and more. If the sources have the ability to provide correct information depends on whether they are close to the subject the researcher are investigating or not. In our selection the authors got help from the managers to choose persons that work with SLT and these were available so the authors got to interview the one the
authors wanted. The authors did not only choose the persons that the managers suggested, the authors also choose the ones the authors knew had knowledge about the SLT.

2.8 Observation in meetings

The authors attended one meeting each at IKEA Components and IKEA IMS that had to do with our topic for the thesis to get different kinds of data. As Yin (2014) explains that it is important to collect different data when you do a case study. Bryman and Bell (2011) demonstrate that in an observation the researcher can study the interviewee without becoming dependent on the interviewees perceptions. Alvesson and Deetz (2000) further analyze that the researcher can discover aspects that the interviewee is unaware of or has not mentioned in the interview. Bryman and Bell (2011) adds that in observations the researcher can see if the reality is as the interviewee has explained it. Since observations and interviews give the researcher a deeper understanding the authors chose to do both. From the meetings the authors found interesting topics that the authors did not catch in the interviews, which gave us a richer result in the end. The observations were conducted at IKEA Components at a web meeting with Supply Planner Petra Kendikova and Need Planner Jessika Faeltenborg-Wallis. The authors chose to attend that meeting since it regarded SLT with volume agreements (further explained in the theory/empirical/analysis chapter). At IKEA IMS the observation was conducted at a meeting with the manager Fredrik Gunnarsson. The meeting regarded the situation of availability of clothes where IKEA IMS have very long SLT.

Bryman and Bell (2011) mention that in an observation the researchers role can be open or hidden so that the ones being observed is aware of it or not. In our case the attendants of the meetings knew that the authors were there to collect information to our thesis. Bryman and Bell (2011) also mean that in an observation the researcher can choose not having influence over the work or being more active. At IKEA IMS author Luong was a part of the meeting since it regarded her job duties but was also able to observe the meeting. Author Jönsson could observe more since it did not regard her range. The authors had not possibility to attend each other's meetings so author Luong went on the one at IKEA IMS and author Jönsson on the one at IKEA Components.
2.9 Quality metric

Quality metrics is essential according to Jacobsen (2002) for the researcher to minimize problems related to validity (how authentic the research is) and reliability (the accuracy of the research) but also the generalizability of the research. Patel and Davidson (2003) define that the researcher needs to consider these quality metrics throughout the entire process and the methods need to be critically audited to be able to judge if the conclusions are true.

2.9.1 Reliability

According to Bryman and Bell (2011) reliability is what describes how well the current study would be reprised with the same results. With that said it means that if the research would be subjected to random or temporary events, it will cause low reliability. Reliability is primarily used at quantitative research methods as it gets a different meaning in the qualitative method. Patel and Davidson (2011) stress that it is possible to raise the reliability if there are two or more interviews instead of one. The reason for this is that there are more people who can record the responses. If the responses in turn correspond to each other it indicates that the reliability is high. As previously mentioned the authors will secure the reliability with the use of sound recording. When using this method the authors can store the reality, which allows us to listen to the answers over and over again and thus avoid misperceptions. The authors will also give the interviewees a chance to look over the material to make sure that the authors have understood them correctly. Further Patel and Davidson (2011) pinpoint that reliability should be considered on the basis of the specific case at qualitative studies.

When the interviews are not carried out in exactly the same way and all the interviewees get the opportunity to speak and associate freely it is, as previously mentioned, the method of using open questions (Yin, 2009). The author recommend this method as it can result in more and deeper information compared to specific questions. In order to promote the reliability the authors have chosen to be two interviewers at each interview time to reduce the risk for misconceptions Except from the meetings where the authors were not able to be two to observe. Bryman and Bell (2011) explain that a well-done description of all the phases in the research process allows the to decide how reliable the research was. To secure reliability the
authors have been very careful in describing the process so it is easy for the reader to understand.

2.9.2 Validity

There are two forms of validity, internal and external. To objectively represent reality by drawing parallels between the empirical data and the theoretical framework is described by Bryman and Bell (2011) as the internal validity. Our study is based on abductive research approach where the authors have chosen to use mostly current sources, but also some original sources in order to obtain a more solid theoretical framework. The paper is structured with the aim of generating a corresponding study by combining theory with empirical data to create a comprehensive understanding of the research question.

Further the study’s external validity is designed to apply the conclusion into different contexts than the primary purpose (Merriam, 2002). However it is, according to Bryman and Bell (2011), essential that the empirical selection involve companies that cover a wide range of industries and organizational forms. In this study the authors have chosen two different organizations within IKEA, IKEA IMS and IKEA Components. The authors mean that even though both organizations belong to the same company, which is within the furniture industry, the authors do not believe that it will affect this paper significantly. This because IKEA IMS and IKEA Components, as organizations, differs from each other as their product range belong to different industries.

By recording the interviews so that the authors later can transcribe them, the authors mean that the authors have strengthened the thesis communicative validity. Furthermore the authors will be able to interpret, analyze and quote the interviewee’s answers. The authors have chosen to use a semi-structured interview form in combination with follow-up questions and had similar structure for the meetings. By doing this, the authors ensured that they have interpreted the interviewee’s responses the way they really intended. The authors mean that this method will reduce the risk that the interviewees float away from the topic, but in the same time they will be given space to speak freely.
2.9.3 Generalizability

Yin (2009) categorizes generalizability into statistical and analytical generalization. Random selection of a population is the description of a statistical generalization, while the analytical version is generalization of a theory from the phenomenon that is studied. An analytical generalization means that the authors make a well-considered judgment whether the result of a study can provide guidance for what may occur in a different situation (Kvale, 1996). Further Kvale (1996) highlights that the analytical generalization is based in the assertion logic. Thus the comparison bases on the different situations and not the researcher’s experience. An analytical generalization can, according to Fejes and Thornberg (2009), be interpreted as a perspective instead of pure truth. For us the analytical generalization method is the natural choice, as our study is based on two carefully selected organizations within IKEA, and not a randomly selected population. By implementing an analytical generalization our study can result in guidance for other companies that want to improve their supply chain by reducing SLT. Also when it comes to generalizability (just as of validity and reliability) Bryman and Bell (2011) stress that a well described method is critical to help the reader deciding if the result can be generalized to another environment. So the authors have throughout the entire method tried to carefully explain how and why the authors have made different decisions in order to secure generalizability of the thesis.

2.10 Analysis of interviews and data

Bryman and Bell (2011) interpret that when analyzing qualitative interviews the researchers often get an unstructured material to work with and analyze. That is why it is important to organize the material to be able to overlook it and analyze it. Jacobsen (2002) means that if the researchers divide the material in different themes it is easier to analyze the material. This is called “content analysis” and the method is described by Jacobsen (2002) in following steps:

1: Categorize

Jacobsen (2002) argues that the information from the interviews and data collection needs to be divided in categories to create order. Svenning (2003) agrees and continues with that
labeling the information leads to a simplification of the material and makes it easier to compare. Jacobsen (2002) further explains that the categories should have the base from the interview material and can start very wide and then be more specific in sub-categories. In our research the authors chose to divide the material according to our three research questions. This in order to divide the material from how they are working with SLT, how they are working to reduce SLT and how they can further develop.

2: Assigning material to the categories
When the categories are finished Jacobsen (2002) underlines that the material should be put into these categories and the information could be put into one or more categories. By doing this the researcher can see different interviewees view on the same subject. The authors followed this instruction and used the most important information to the different categories and leaved out things that were not relevant for the research.

3: Find similarities and differences
Jacobsen (2002) marks out that in this step the researcher gets possibility to see connections and differences between the different categories. Svenning (2003) also states that it always is important for the researcher to go back to the original material so that the analysis is in cyclic form. During our analysis the authors could summarize what the interviewees had said that was similar from the interviews and meetings but also found differences.

4: Describe the correlation between the categories
At last to analyze the categories and the correlations Jacobsen (2002) means is to get an understanding on how they are connected and to interpret the material. This can be made together with other data gathering. In the analysis the authors analysed the interviews and the notes from the meetings together with theory to interpret the material.

2.11 Ethical considerations
Bryman and Bell (2011) apparent that there are always ethical considerations to be made when conducting a research and the researchers must consider these. Ghauri and Grönhaug
(2005) convey that these considerations needs to come early in the research process and should not be forgotten. The authors agree and recognize that the authors can not ignore this and the authors needed to have a plan to make this research ethically defendable.

Jacobsen (2002) communicates that when doing research the researcher is going into a person's private area and the fundamental is for the interviewee to participate voluntarily. All of our interviewees have been given the option to participate and had the possibility to say no. One etic aspect that is hard to avoid is the fact that the authors were asking people that the authors had some connection to and it could be hard for them to say no to a colleague. But the authors tried to be very clear with the fact that they are allowed to refrain. Jacobsen (2002) also adds that for a person to evaluate if they want to participate or not is based on if they have enough information about the purpose of the research, the advantages/disadvantages this could bring them, how the information is being used and the possibility to be anonymous. For us to make sure that this was achieved the authors started the interviews and meetings with saying the purpose of the study, that they can be anonymous, that they can read everything and approve it and how the authors are going to use the material.
3 Presentation of the Companies and Interviewees

In this chapter the two case companies, IKEA IMS and IKEA Components, are described and the interviewees that participated in this thesis.

3.1 About IKEA IMS

IKEA indirect Material and Services (IKEA IMS) was established in 2004. The company’s main task is to globally supply the IKEA stores with non-home furnishing products and services, more specifically, products that will not be sold to the end customer but stay at the stores. Lighting, floors, and forklifts are examples of this kind of products. The organization has 375 co-workers worldwide and they work towards the common IKEA vision “Creating a better everyday life for the many people”. IKEA IMS has offices located in Älmhult, Helsingborg, Philadelphia, Wiesbaden and Shanghai and the company is represented in all countries where IKEA operates. Inter IKEA (holder of the intellectual property assets) is IKEA IMS’ biggest collaboration partner when it comes to product development. Usually an idea of a new product comes from retail when they desire something in their range. It goes further to Inter IKEA which gives the assignment to IKEA IMS. IKEA IMS develops the desired product, you will find a suitable supplier that can produce it and then sell the product further out to the stores.
IKEA IMS is a global organization taking an end-to-end responsibility from range management to the supply of products and services needed to operate the IKEA business. The contribution of IKEA IMS is improved quality at lower costs and more efficient ways of working. Suppliers are selected with sustainability in mind, reducing the impact on the environment and taking social responsibility for workers and co-workers in the production and the entire supply chain. Below figure shows IKEA IMS’ core process in commissions:

**Figure 1: IKEA IMS Value Chain, provided by IKEA IMS (2015)**

Below different roles are described that is involved in the thesis:

**Need- and Demand planning team:** Need Planners and Demand Planners. Responsible for planning how much that is needed to buy in order to secure availability in the warehouse. Also works with various of administrative tasks. Establishes forecast on an article level.
**Range and Category team:** Consists of Purchaser, Supply Planner and Technician. Work closely with suppliers and are responsible for development of new and existing businesses. Communicates updates and changes on articles to responsible functions.  

**User Support:** Work as sellers towards the customers and support them.  

(All information including figures are from IKEA IMS HR-department)

### 3.2 About IKEA Components

IKEA Components is a part of IKEA group and shares the same vision “to create a better everyday life for the many people”. IKEA Components is contributing to IKEA:s overall business idea to have “*A wide range of well-designed, functional home furnishing products at prices so low that as many people as possible will be able to afford them*. For IKEA Components they need to secure that components are adding to the design and secure a good function. IKEA Components grew from the need within IKEA to lower the cost of components to the right quality 30 years ago. First they only had fittings but now they have developed to work with other components e.g. float glass, mirrors, electrics and more. Today they work with delivering components to the IKEA suppliers and are also experts in packaging fitting bags. The IKEA suppliers does not have to choose IKEA Components’ as supplier so IKEA Components are competing with all other companies for components, the price steers a lot in choosing supplier and also the “IWAY” restrictions. IWAY are the IKEA Code of Conduct and explains what requests the supplies need to fulfill in terms of e.g. labor, safety with more.

IKEA Components has 1007 co-workers in China, Slovakia and Sweden. They also have trading offices in Shanghai, Shenzhen, Prague, Milano and more. All component development, after sales, business development etc. take place in Älmhult in Sweden. In China and Slovakia they have purchase departments, packaging of fitting bags, warehouses and market operators.

In IKEA Components value chain they have different departments that are explained in below picture (the general picture, the chain is described more in chapter 4.4.1):
**Figure 3: IKEA Components Value Chain, provided by IKEA Components (2015)**

**IKEA of Sweden:** Responsible for the development of new furniture.

**IKEA Trading:** Purchasing organization, responsible for the suppliers of IKEA Components.

**IKEA Components supplier:** IKEA Components own suppliers for fittings.

**IKEA supplier:** IKEA Components customers

**IKEA DC:** Warehouses of IKEA Components, located in Slovakia, Shanghai, Poland and more. Supplies IKEA store with furniture.

**IKEA store**

How the different departments are connected to each other is further described under chapter 4.1.2.

There are also a lot of different roles within IKEA Components and the ones that are most relevant for this thesis is described below:

**Purchasing team:** Consists of a Business development manager, Business developer, Supply planner and a Technician. This team is responsible for the operational perspective and the relationship with the IKEA Components supplier, they are highly involved in setting and developing the SLT.

**Task leader:** Responsible for the new projects with IOS.
**Demand planner:** Responsible for forecast and outgoing articles routine. Forecasting is one part of how to steer the SLT.

**Range and Category team:** Consists of a **Sourcing developer, Need planner** and **Component development engineers.** Responsible for the global and strategic perspective of IKEA Components. Sourcing Developer and Need Planner are responsible for the SLT for new items resp. running items.

### 3.3 Interviews at IKEA IMS

The interviewees at IKEA IMS are presented below:

**Marcus Moberg:** Is the need planner for all the white wracking (interior). He is also a key-user for the system M3 that the entire IKEA IMS works with. This responsibility means that he helps when the need- and demand planning group or the warehouse have problems with the system or want to develop something. His role as a Need Planner comprises planning and placing orders of indirect material to the warehouse, which is then sent out to the stores worldwide. His job also consists av various administrative tasks, such as open up new articles and connect stores to assortments.

**Michael Andreasson:** Is the global Purchaser for lighting at IKEA IMS, and is responsible for all lighting that sells to the stores and that is phased in the range. He is sitting in in a lighting council, meaning that he and people from Inter IKEA, the sustainability group, retail, construction, IKEA IMS, expand group, industry group and DC are together deciding what product that should be taken into the range. IKEA IMS’s turnover in lightning is approximately 45 million euro and that is the Purchaser responsible for.

**Fredrik Gunnarsson:** Is manager for the global Need- and Demand planning team at IKEA IMS that consists of 6 planners. He describes that tasks can vary a lot during a day. As a manager for the Need Planners and Demand Planners he steers the team towards common goals, makes the final decisions and has the staff responsibility. Gunnarsson is also managing IKEA IMS’s warehouse in Älmhult which is outsourced to the distribution center that runs the warehouse since a year back. Further IKEA IMS has a warehouse in Chicago that he also is responsible for. So he tries to spread the time between his responsible areas depending on what is happening and how the situation looks like.
3.4 Interviews at IKEA Components

The interviewees at IKEA Components are presented below:

Jessica Faeltenborg-Wallis: Is Need Planner for the plastics category. Faeltenborg-Wallis has worked at IKEA Components for about 15 years with different ranges. Her role is to secure availability for the plastic category, reduce scrap as much as possible and try to reduce overstock of items. Her role is also to work with deviations that concerns increased or decreased needs.

Marie Johnsson: Is Supply Development Manager. Johnsson’s responsibility is to secure that IKEA Components have methods and tools for controlling their flow from the market department to forecast, to a need calculation that is the purchasing prognosis that IKEA Components suppliers get. She also handles transports in her role.

Patrik Karlén: Is Business Development Manager (BDM) and during the interview also Sourcing Developer (SD). Karlén have currently two roles since the SD for category steel where on paternity leave. Karlén’s role as BDM consists of responsibility for a purchasing team for steel category in Europe that consists of a business developer, supply planner and a technician. He is responsible for the competence, the suppliers (18 suppliers), performance, follow up performance, action plans and more. This role is more operative. As SD Karlén is responsible for Range and Category which have a global and strategic perspective. The focus is on what IKEA Components needs, volume development, what suppliers IKEA Components need, news, product development etc. A SD work are deeper focused on IKEA:s needs (demand, needs, expectations).

Petra Kendikova: Works in Prague as Supply Planner for IKEA Components suppliers in the plastics range. Petra is a part of the purchasing team and is responsible for the logistic competence. The team as whole are responsible for securing that the suppliers have goods ready in time to fulfill customer needs, secure availability at lowest landed price and too look for improvements all the time. As Supply Planner Kendikova should also have the best knowledge of the supplier capacity, performance, forecast, order flow and more.
4 Theoretical Framework, Empirical Data and Analysis for respective research question

The theoretical framework will define and discuss the main concepts of this paper, found from academic articles and literature. The chapter will work as a foundation for the empirical analysis and final discussion to enable an understanding of the chosen problem. The empirical data is gathered from interviews and observations in meetings at IKEA IMS and IKEA Components. Important to notice here is that the authors do not have empirical data for both companies in all subheadings. The reason for this is because they are not working equally. Further the analysis brings up relevant theories from the previous chapters, in relation to the data collection from IKEA IMS and IKEA Components. The authors of this paper will contribute with reflections to support the answer of the research question.

4.1 How are Companies working with and defining Supplier Lead Time?

4.1.1 Theory

The theoretical framework for this chapter brings up the main concept Supplier Lead Time to give the reader the definition of it and theory on how it is used. The theoretical framework for this chapter also includes concepts related to SLT.

4.1.1.1 Supplier Lead Time

Lead time is defined by Storhagen (2003) as the total time elapsed from when an order has been made, until the date when the ordered materials arrive at the receiver. As mentioned, the authors have in this paper chose to focus on Supplier Lead Time (SLT), which is defined as the time from an order proposal is confirmed until the product is finished at the supplier.
Further Storhagen (2003) highlights that SLT include following; the time from when the components are taken out of the storage/buying and receiving raw materials from sub suppliers, until the finished produced items are placed in stock of finished goods. All intermediate storage during the production and the time that the finished products are in the finished goods inventory before dispatch is also included in the SLT. Glock and Ries (2013) explain that there are several reasons why companies measure SLT. For example, in order for a company to know what they can promise their customers in terms of delivery service, it can be interesting to know how long SLT they have.

Jonsson and Mattsson (2011) clarify that it is important for companies to have a flexible and efficient supply chain in an efficient logistics system because it creates customer value. It is vital for companies to be flexible in their delivery, production and volume in order to quickly adapt to customer requirements. Delivery capacity, production and tied up capital are target variables that are indirect impacted by flexibility. It is a profitability factor to be able to adapt to rapid changes and contribute to faster SLT in terms of better changeover times. Fawcett and Waller (2014) enlighten that there are a lot of actions to take with the aim of improving the entire supply chain. Since the definition of supply chain management is very broad it is good for companies to focus on one area at the time. SLT is one area where the companies can take actions to make the entire supply chain better and reduce stock. Stock in the supply chain is according to Muckstadt and Sapra (2010) there because of four reasons:

1: To cover the lead time from the supplier
2: To cover a future demand
3: To deliver orders that are already placed
4: To cover an uncertainty in need/demand, SLT and access to material (which is below further described as safety stock)

To avoid obsolete stock in the supply chain, Fawcett and Waller (2014) mean that companies can work with reducing SLT. When having a shorter SLT Muckstadt and Sapra (2010) underline that the total time to the customer decreases and companies can avoid keeping too much on stock. Moreover the authors mean that a long SLT leads to a big stock since the stock is dependent on the SLT. This because the stock must cover the expected sales during the time it takes before next order arrives. Muckstadt and Sapra (2010) further explain that the stocks can exist of raw material, articles in production and finished products.
Van Kampen (2010) et al. define safety stock as the average amount of inventory kept in hand to allow for short-term uncertainty in demand and variability in supply chain. The level of uncertainty experienced in a production unit, which could involve unpredictable sales or an unsecure SLT, influences the required amount of safety stock. An unsecure SLT may occur due to that the raw material does not arrive to the supplier in time, production is delayed or that the products do not go through quality testing for instance. In these cases a safety stock can counteract the risk of ending up in shortages. Moreover Van Kampen (2010) et al. mean that the delivery performance will be improved, or the safety stock decreased if the uncertainty in demand information or supply variability is reduced. This will contribute to a higher delivery capacity and timeliness. When companies want to reach a high delivery capacity, Mattsson and Jonsson (2013) point out that they need to ensure that they meet the agreed delivery notifications with the customer. Delivery accuracy is used as an efficiency measurement for companies when they want to satisfy their delivery capabilities. Oskarsson, Aronsson and Ekdahl (2013) further describe that these measurements show how well the suppliers delivers the products within that time that is agreed. Company's ability to keep the promised high delivery precision affects tied up capital and the costs incurred to achieve a desired delivery capacity. One part of the delivery capabilities is affected by the SLT since it is a part of the entire chain.

4.1.2 Empirical data

In this chapter empirical data from the interviews and observations in meetings are compiled and referred to SLT.

4.1.2.1 Supplier Lead Time

The Need- and Demand Manager at IKEA IMS (2015) defines SLT as the time it takes from when IKEA IMS has placed a purchase order until the order is ready for delivery at the supplier. This time includes for instance the supplier buying raw materials from their supplier, the transport of raw materials to the supplier, producing the products, quality tests and packaging. The Need Planner at IKEA IMS (2015) is not sure how or who at IKEA IMS that works with SLT, but he believes that it is the Supply Planners and Purchasers that are working with it. The Purchaser at IKEA IMS (2015) further describes that it is the Purchaser,
together with the suppliers that agree upon what SLT a product should have. But usually they have a template that they try to follow. When it comes to the clothing range the Need- and Demand Manager at IKEA IMS (2015) says that the SLT is very long. That means that the Need Planner who is buying the products must plan for a much bigger stock, since the Need- and Demand Manager at IKEA IMS (2015) stresses that “the longer SLT you have, the greater stock you need”. He develops this statement with that if the SLT is long, the order must be placed earlier to cover the SLT. The Need Planner plans for the total lead time plus extra safety stock to cover fluctuations in demand.

At IKEA Components the Need Planner, Sourcing developer and Supply Planner at the same way, describes the definition of SLT as it is described at IMS “the time it takes from IKEA Components have placed a purchase order until the order is ready for delivery at the supplier”. The Need Planner (2015) further explains that it is the Sourcing Developer who is involved in setting the SLT when an item is started and later when the item is running the Need Planner take over responsibility. The supplier in agreement with the Sourcing Developer in the beginning decides how long the SLT will be. The SLT is depending on many issues e.g. how much the capacity is used, if there is a new tool needed etc. Both the Supply planner (2015) and the Need Planner at IKEA Components (2015) mean that there are two different SLT:s, one for “first buy” which is the first produced batch and this takes longer since they often need to start new tools etc. Then there is a new SLT set for running range, which comes later in the process since in the beginning it is too soon to evaluate the SLT. The Business Development Manager at IKEA Components (2015) also agrees and illustrates that SLT is not very important in the beginning; it is later on that IKEA Components take actions on the SLT. The Need Planner (2015) and the Supply Development Manager at IKEA Components (2015) state that it is the Supply Planners that is most responsible for the SLT since they are closer to the supplier and have knowledge about them. But the Need Planner can also initiate a change if the Need Planner believes that IKEA Components need to have shorter SLT on certain items. The Supply Planner at IKEA Components (2015) argues that the Supply Planners does not concentrate on reducing the SLT. She agrees that having a short SLT raises the flexibility of the supply chain but for Supply Planners it is more important to have a balance between SLT and flexibility. So they do not strive to have the shortest SLT in all cases.

The Supply Development Manager at IKEA Components (2015) underlines that if IKEA Components are choosing between two suppliers the SLT can make a difference in which
they are choosing because they want to have a flexible supply chain. All suppliers strive towards having a short SLT and also need to manage the demands from IKEA with quality, sustainability, availability and price. These are four cornerstones that need to be fulfilled. The Need Planner (2015) and the Supply Development Manager at IKEA Components (2015) further describe that the SLT steers the risk of poor availability and scraping at IKEA Components, because having long SLT causes bigger stock and inflexible supply chain. Both the Need Planner (2015) and the Business Development Manager (2015) at IKEA Components mean that when the needs are fluctuating the items can be on sea and it can occur costs for airfreight if the demand fluctuates and they need the items faster.

The Purchaser at IKEA IMS (2015) explains that at IKEA IMS they are working towards shorten SLT from six weeks to four weeks for his range. According to the Purchaser at IKEA IMS (2015) the lighting range suppliers can already face those goals today, but they still have six weeks in the system. When a SLT is set or changed the Need Planner receives an email with the information so they can update the SLT in the systems and start planning. The Need Planner can also inform if he or she feels that the SLT is too long and should be shortened on an article. In that case it is up to the Purchaser and Supply planner to take this further. But according to the Need Planner at IKEA IMS (2015) the answer is normally “yes we know, but we can’t really do much about it”. T (2015) is aware that they want to reduce the SLT to four weeks, but he claims that there is no detailed study made on it. Instead he believes that in the perfect world a total- and cost calculation (analyze which is the best scenario) should be made where it indicates which business setup is the most profitable. At the moment there is no person calculating what would be best in the end, they work more with general requirements.

To evaluate how IKEA Component’s suppliers fulfills the orders he Supply Development Manager (2015) describes that IKEA Components measure Order Request Fulfillment (ORF) where time and quality in relation to what was requested is measured. In the ORF agreed lead time, requested lead time, delivery security and different lead time parameters as a package is measured. The Purchaser at IKEA IMS (2015) says that at IKEA IMS they measure just-in-time, which shows if the product were delivered as agreed from the supplier. He reveals that IKEA IMS results are pretty low on this measurement, as it shows that the products are not in time if they arrive either too early or too late. And according the Purchaser at IKEA IMS (2015) he sometimes feels that the numbers can be misleading, since he argues that if the
product arrives a little bit to early, IKEA IMS will have the products ready in time. However if it arrives too early it can increase inventory costs.

4.1.3 Analysis

In this chapter the main findings from the empirical data and theoretical framework together with the author's own reflections are analyzed to answer the first research question: How are companies working with and defining Supplier Lead Time?

To begin with the authors wanted to find out how IKEA Components and IKEA IMS are working with and defining SLT, since Glock and Ries (2013) mean that there are different reasons why companies works with SLT. The authors wanted to find a clear picture of who is working with SLT and how. At IKEA IMS it seems that it is not obvious for all who is responsible for the SLT since the Need Planner at IKEA IMS (2015), only thinks that it is the Supply Planner and Purchasers that are working with it. The Purchaser at IKEA IMS (2015) however states that it is the Purchaser in collaboration with the suppliers who is setting the SLT. The Need- and Demand Manager at IKEA IMS (2015) further explains that for some items the SLT is very long in order to ensure good planning for availability, based on the statement “the longer SLT you have, the greater stock you need” from the Need- and Demand Manager at IKEA IMS (2015). The authors believe that the Need Planner can be involved in setting the SLT for items since the Need Planner works with SLT on a daily basis, and must plan the stock after the SLT. This was also supported by Muckstadt and Sapra (2010), who explain that having a shorter SLT means a shorter total time to customer and companies can avoid keeping high stock levels.

At IKEA Components the Supply Development Manager (2015) and the Need Planner (2015) affirm that it is the Sourcing Developer together with the supplier that set the SLT. There is firstly one SLT for “first buy” (the first order the company places to the supplier), subsequently when the article is running an evaluation is made and the SLT is changed. When the article is running it is the Supply Planner that takes over responsibility to handle the SLT and in some cases the Need Planner is also involved. Mattsson and Jonsson (2013) clarify that it is important to have a high delivery capacity and to know if the companies have that they need to measure it. Based on Mattsson and Jonsson’s (2013) statement, the authors stress that
SLT is a part of delivery capacity from the supplier and also needs to be measured to know how the company is delivering and to be able to improve if they are failing. At IKEA Components the Supply Development Manager (2015) declares that they measure this by Order Request Fulfilment and at IKEA IMS, the Purchaser (2015) states that they measure Just-In-Time.

Johnsson and Mattsson (2011) note the importance of having a flexible supply chain because it creates customer value and having a shorter SLT makes the supply chain more flexible. The Supply Planner at IKEA Components (2015) agrees on that a shorter SLT results in a more flexible and efficient supply chain but adds that the Supply Planners also focus on other things. They want to have balance between SLT and flexibility and do not strive to have the shortest SLT in all cases. It has shown that there are other aspects of the supply chain that affects what SLT an item should have. But based on Johnsson and Mattson’s (2011) assertion of having a flexible supply chain it could benefit if the Supply Planner (most responsible for SLT at IKEA Components) looks into important items and see if there are actions that can be taken in order to improve the SLT. The Need Planner at IKEA Components (2015) further reasons that SLT steers the risk of scrap, poor availability and creates an inflexible supply chain, which is also stated by Muckstadt and Sapra (2010). The Business Development Manager at IKEA Components (2015) intends that working with SLT can be good to avoid costly airfreights when the demand is fluctuating and the need can come fast.

At IKEA IMS the Need- and Demand Manager (2015) describes that it is the Category Department’s task to work with their SLT and when a SLT is changed the Need Planner receives an email with the information and updates the system. The Need Planner can have opinions on the SLT but according to the Need Planner at IKEA IMS (2015) a common answer he gets when he for instance point out that a SLT is too long is; “Yes we know, but we can’t really do much about it”. Since Fawcett and Waller (2014) imply that the SLT is a part of how much safety stock a company needs the authors assert that the responsible person needs to take action if the Need Planner is requesting a change, in pursuit of a more effective supply chain.

To summarize the findings from the first research question see table below:
<table>
<thead>
<tr>
<th>Concept</th>
<th>Examples from literature</th>
<th>Examples from empirical findings IKEA IMS</th>
<th>Examples from empirical findings IKEA Components</th>
</tr>
</thead>
</table>
| Supplier Lead Times   | - Efficiency and flexibility  
                        - Definition                                                                                               | - Long SLT for many items  
                        - "The time it takes from when IKEA IMS has placed a purchase order until the order is ready for delivery at the supplier”  
                        - Important with organization aligned towards reducing SLT                                                                 | - Shortening the SLT to achieve flexible and efficient supply chain  
                        - “The time it takes from IKEA Components have placed a purchase order until the order is ready for delivery at the supplier”  
                        - Important with organization aligned towards reducing SLT                                                                 |
| Delivery performance  | - Measurements                                                                  | - Just-In-Time                                                                                               | - Order request fulfillment                                                                                                    |

The authors can see differences in working methods between IKEA Components and IKEA IMS when it comes to how they are working with SLT. Even if the companies are different the same facts remains that they both need to work with SLT to have a more flexible and efficient supply chain. That leads us into the next chapter of the analysis where the authors have investigated how they are working to reduce the SLT.
4.2 What activities are included to reduce Supplier Lead Time?

4.2.1 Theory

The theoretical framework for this chapter brings up the main concepts related to Sourcing Development, Forecasting, Agreement on Volumes and Supply Chain Integration. Sourcing Development is related to SLT by the companies choosing supplier, looking for new suppliers and negotiate the SLT. Forecasting means to predict the demand that in turn can reduce SLT since the suppliers can better plan for production. This can also be taken further to a volume commitment where the supplier promises to have articles ready for a certain part of the forecast in order to reduce SLT. Supply chain Integration contributes to closer relationship with the actors in the supply chain, this can lead to reduced SLT through increased trust between the actors.

4.2.1.1 Sourcing Development

Priyan and Uthayakumar (2015) highlight that by shorten the SLT, buyers can lower the stock, reduce the out-of-stock loss and improve the customer service level. Zhang, Tang and Hu (2015) elucidate that as soon as a product has been purchased from a particular supplier, the buying company has the opportunity to switch part or all of the product to an alternative supplier in order to get lower price, better quality or the focus of this thesis; a shorter SLT. These strategies maintain advantages to the company, as it becomes competition between the suppliers. Hedén & McAndrew (2005) explain the term sourcing development as the search for and selection of suppliers. Searching for suppliers is an activity that purchasing functions should constantly work on, according to van Weele (2012). By doing so the company creates new livelihoods and keeps more doors open, which is an important part of creating an effective and flexible supply chain (Brown et. al, 2008). van Weele (2012) continues with that it is about developing proposals on from what country and from which factory the products should be ordered. Due to this Zhang et.al (2015) stress that purchasing companies frequently need to work proactive and search for new possible suppliers that can result in new contracts with shorter SLT. However, what must be kept in mind is that the buying company needs to pay the cost of time and effort related to the search and analysis to make a switching decision.
4.2.1.2 Forecast

Blackburn, Lurz, Priese, Göb, and Darkow, (2015) explain that to manage supply chains forecasting demand is a critical competence. According to Lakhani and H. Kleiner (2014), forecast is a process that by using historical data or subjective assumptions will give companies a better idea of the future and make better decisions. Further the authors mean that the forecast affects decisions regarding how much material that is needed for production, how much staff will be needed to meet the future as well as projections of how much costs the company can handle in order to continue being profitable. Muckstadt and Sapra (2010) stress that companies need to use warehouses when there is an unbalance between need and demand. Being able to predict the forecast makes the stocks at the warehouse smaller and this saves money for the companies since it can be very costly to keep stocks. However Blackburn et.al (2015) mean that it is not possible to eliminate the uncertainty completely since forecast is not an answer key as it is only based on assumptions. Hence the uncertainty and ignorance will always remain, but hopefully to a lower level. Due to this Lakhani and Kleiner (2014) interpret that the forecast should only be seen as a means to make better decisions, why common sense should be included in the process so that the company does not trust blindly on the forecast.

Based on Schoenmeyer and Graves’ (2009) statement the forecast is a base for many companies when they plan their supply chain over a time horizon. It is important to continuously update and revise the forecast after observed sales, advanced orders and market intelligence. Every time a company updates its forecast the entire supply chain gets updated. The schedules for the production is changed and also procurement and transportation. That is why Blackburn et.al (2015) argue that a company can due to forecast have a better control over the SLT and reduce it as the suppliers knows ahead how their production will look like. This means that they can schedule in advance instead of waiting to receive an order from the buying company.

4.2.1.3 Agreements on Volume

Akillioglu, H., Ferreira, J. & Onori, M. (2013) and Mattson and Jonsson (2013) mention two strategies that the purchasing company can use with their suppliers as a solution to reduce SLT when the production time is very long:
1. **Make To Stock (MTS)** - Means that the products are made to stock at the supplier based on the purchasing companies forecasting of demand and future sales. Akillioglu et. al (2013) point out that a necessary requirement for this type of production is just forecasting. The production method is based on the forecasts to determine what should be produced, in what quantity and when. If the forecast is incorrect, then so will the production be comparatively to the actual demand.

2. **Assemble To Order (ATO)** - The implication of this is that there are finished parts and components at the supplier that are waiting for an order from the purchasing company for final assembly. Mattson and Jonsson (2013) mean that by using this method the production can start immediately when the supplier receives the order, because the basic structure is already completed and the other parts are in stock so that the items can be faster assembled as soon as the order comes in, which reduces the SLT.

In order to secure that these strategies are followed, the purchasing company can choose to sign contracts with the suppliers, which Durango-Cohen and Yano (2011) describe as a “volume commitment”. It is as a contract where the customer have a purchase commitment, provides a forecast to the supplier and the supplier commits to satisfy a part of this forecast by e.g. keeping stocks of finished goods. This method involves that the products are produced in advance by the supplier and are being held in stock in anticipation of orders. Here the production planning is instead run by forecast from the buying company that is send to the supplier. Gan, et.al (2010) mean that these commitments can also come with some kind of penalty for the supplier if the supplier fails to satisfy the minimum need that is agreed. Mattson and Jonsson (2013) argue that the forecast must be carefully designed and that it is important to consequently ensure stock levels at the supplier when using volume agreements. Because too low stock levels at the supplier ends up with shortages and delivery delays, while too high stock level will lead to unnecessarily much tied up capital at the supplier, and in worst case scrapping. Durango-Cohen and Yano (2011) agrees and explain that a commitment between the supplier and the customer on volumes cannot exist without a forecast. But it is of big importance that the forecast is somewhat accurate to be able to use efficiently.

Phusavat, Anussornnitisarn, Pongrakhananon and Pastuszak (2015) report that there is always a certain risk when making agreements. Companies need to evaluate the risks and what is most beneficial when taking a decision. Many times it needs to be a trade off where both parties benefit from making a commitment.
4.2.1.3 Supply Chain Integration

Companies are cooperating more closely now than ever to optimize their supply chains, according to Fang and Shou (2015). Cao, Huo, Li, and Zhao, (2015) mention supply chain integration (SCI) as an important strategy for companies to handle this competition. SCI is when a company strategically collaborates with its supply chain partners and manages intra- and inter-organization processes to achieve effective and efficient flows of products, with the aim of providing maximum value to its customers. More particularly meaning the integration of internal functions and external suppliers and customers. The authors’ stress that important activities in SCI are strategic alliances, information sharing, synchronized planning and working together. If these variables are being shared among the partners it creates trust between the different actors through the supply chain.

Prior (2012) agrees with previous author regarding trust and means that in order to develop a good working relationship between the customer and the supplier it requires trust and involvement in the relationship. By building trust between parties the likelihood of achieving a better and more frequent information flow increases, which also enables that customer’s quality requirements can be met. When both parties trust each other, it is easier to highlight problems and solve them in an early stage. Prior (2012) continues with that a developed business relationship based on trust and commitments has resulted in that business ventures make joint investments. This allows the parties to share knowledge and resources, which can lead to higher efficiency and product innovation. Further Cao et.al (2015) agree and argue that the market changes quickly, and in order to respond to these fluctuations firms can through SCI work closely with their customers and suppliers by providing innovative ideas and quality which can also lead to a reduced SLT.

4.2.2 Empirical data

In this chapter empirical data from the interviews and observations in meetings are compiled and referred to topics about Sourcing Development, Forecast, Volume Commitments and Supply Chain Integration.

4.2.2.1 Sourcing Development
At IKEA IMS the Purchaser (2015) describes that they frequently look for new potential suppliers that can offer lower prices and better match or exceed the needs of IKEA IMS business. When doing this they try to have SLT in mind. Moreover he describes that it is he as the Purchaser that has the responsibility to seek for new suppliers and negotiate new and more advantageous contracts for IKEA IMS. Both the Supply Development Manager (2015) and the Business Development Manager (2015) from IKEA Components say that it is hard competition and they regularly seek for new suppliers and deals in order to improve the supply chain. However they mean that long SLT is usually not a reason for supplier change, what mostly drives a supplier change is price or capacity issues. It is the Sourcing Developer at IKEA Components that decide from where they should purchase, how to divide the purchasing globally etc. For the steel range that the Sourcing Developer (who was interviewed) is responsible for, they have about 2 of 18 suppliers that actually cut the steel themselves and can be flexible. For the other suppliers the lead time for raw material is longer. He further explains that IKEA Components are always looking for new suppliers with better offers and the Supply Development Manager (2015) agrees.

4.2.2.2 Forecast

The Need- and Demand Manager at IKEA IMS (2015) describes that it is the Demand Planners at IKEA IMS that establishes the forecast. The Demand planner gets input from User Support regarding how much they believe that the stores will buy and also Demand Planners base their forecast on sales history. The Purchaser at IKEA IMS (2015) says that when new stores are opening and the Demand Planner gets forecast from the User Support ahead, IKEA IMS can plan for it and build up the stock in advance. This means that the new store can have the products ready at the opening day. However he believes that IKEA IMS should focus even more on forecast than they do now. The Need- and Demand Manager at IKEA IMS (2015) explained a scenario where the supplier was unhappy with the forecast from IKEA IMS so they decided that they should not give any forecast to them. But after a while the supplier asked for it again since they thought that a bad forecast was better than no forecast. However the Need Planner at IKEA IMS (2015) brings out that IKEA IMS does not give forecast to all suppliers but only to some of them.
The Supply Development Manager at IKEA Components (2015) describes that they always send forecast to their suppliers so they can plan for production and keep down SLT. The Supply Planner at IKEA Components (2015) agrees and means that it is also the Supply Planner’s job to make sure the suppliers get a reliable forecast. The Supply Development Manager at IKEA Components (2015) further explains that when there is stable demands the supplier can get the SLT down to 7 days and when the demand is more fluctuating it is harder for the supplier to keep it down without building stock. It costs more for the suppliers to produce smaller volumes if they need to put the items on stock and the suppliers pay for this themselves. The Need Planner at IKEA IMS (2015) expresses that IKEA IMS have started a program called “need forecast” where the aim is to look at the forecast and give input to suppliers to help them plan their production in time. Today IKEA IMS mainly work with historical data, which they compare with the forecast they get from the Demand planner when they plan for an order. Further the Need Planner at IKEA IMS (2015) means that the demand for some articles are really hard to plan as it can be big fluctuations. Sometimes if the sales has been bigger than forecasted and IKEA IMS has run out of stock, it can be necessary to fly the items home if it is not too big volumes, which costs a lot of money for IKEA IMS. The Purchaser at IKEA IMS (2015) agrees that a good forecast, that also the suppliers could take part of, will shortened SLT significantly.

4.2.2.3 Agreements on Volume

The Need Planner at IKEA Components (2015) describes that IKEA Components, and especially Need Planners/Supply Planners, work with reducing lead times by using Agreements on Volume (AGV). It is a contract with the supplier for items where IKEA Components promise to buy a certain quantity and gets a shorter SLT in return. The Business Development Manager at IKEA Components (2015) means that from China the transportation time is six weeks and for those items it does not make a big difference to change SLT from e.g 30 to 20 days. The Supply Planner at IKEA Components (2015) adds that some suppliers can keep a certain amount of stock based on experience without AGV and without being asked to do so.

With some suppliers, that they have a high level of trust with, the purchasing team can also make agreements with the supplier without AGV. The Need Planner at IKEA Components
(2015) continues to explain that having an AGV allows the suppliers to feel secure in having more stock, since IKEA Components guarantees to buy it even if the item goes out of range. The Business Development Manager at IKEA Components (2015) also adds that for many items it is not the production of the item that takes long time, it is getting home raw material. He further explains that it should be the Supply Planner that initiates the AGV since they have a lot of knowledge about the supplier and items. The Need Planner (2015) and the Business Development Manager at IKEA Components (2015) explain that when it comes to tradeoffs IKEA Components is working with the AGV:s to create a win-win situation. If IKEA Components is not taking any risks, the supplier will not take any risks. Furthermore if the supplier uses the agreement correctly they will be able to plan their production better and get more solid orders and can produce bigger batches.

The Purchaser at IKEA IMS (2015) says that his range is quite stable so the products can mostly be semi-finished at the supplier, which means that it can be assembled faster. He explains that these suppliers store finished components so when IMS places a purchase order, the supplier can start assembling the components right away to the finished product. That makes the SLT shorter as the supplier does not have to start the production from scratch when they receive an order. He outlines that it is something the suppliers have chosen to do themselves in order to stay on track, thus there is no contract written that the supplier must do so.

### 4.2.2.3 Supply Chain Integration

The Need Planner at IKEA Components (2015) describes that when the Need Planner gets an AGV from the supply planner they always look at it from a risk perspective. They examine how the future looks for the article, if the article goes to several furniture’s (less risk) or just to one (bigger risk). The risk of getting overstock/scrap is evaluated against the benefits of having an AGV, and decides how much that should be guaranteed. Both the Need Planner and the Supply Planner at IKEA Components (2015) mean that how much risk the suppliers are willing to take by building up stock without AGV, depends on how much they trust IKEA. The Supply Planner at IKEA Components (2015) underlines that the purchasing team can have agreements with the supplier without AGV which they keep a high level of trust with.
She also describes that the Supply Planners have close contact to many of their suppliers and can build up a relationship with them.

The Purchaser at IKEA IMS (2015) explains that he often travels to suppliers in Asia and has been in US a lot lately. He means that it is important to have a good relation to the suppliers and keep each other updated with good information sharing. It leads to a more sustainable collaboration. Further he argues that IKEA IMS does not work with active selling to their customer, but more as a call center. However at his range they have just made a new position where this person has started working more with project sales and acquire expertise knowledge about his range. He has big faith in this as he mean that it is very essential to come closer to the stores since it is not mandatory for them to buy from IKEA IMS. Moreover he stresses that it would be easier to make forecasts because it is easier to get a close contact and keep better track.

4.2.3 Analysis

In this chapter the main findings from the empirical data and theoretical framework together with the author's own reflections is analyzed to answer the second research question: What activities are included to reduce Supplier Lead Time?

The next step for us where to find out how IKEA IMS and IKEA Components are working today with reducing SLT, and to get an overview of this longer analyze the authors have chosen to divide it in different themes as it is previous chapter.

4.2.3.1 Sourcing Development

In order to reduce SLT there are several actions that companies can take and Zang and Tang (2015) reveal that companies have opportunities to look for alternative suppliers that can better fit their requirements. The authors pinpoint the importance of purchasing companies to do this, but also add that it is time consuming and costs money to make the investigation efforts. At both IKEA Components and IKEA IMS they are frequently looking for new suppliers. The Purchaser at IKEA IMS (2015) discloses that for IKEA IMS they look for suppliers with better prices, who also can better match or exceed the needs of IKEA IMS’
business. Here they try to have SLT in mind in the negotiation. At IKEA Components the
Supply Development Manager (2015) and the Business Development Manager (2015) also
seek for new suppliers but the SLT is usually not a reason for a change, it is the price or
capacity issues. The authors can see that for both IKEA Components and IKEA IMS it is the
price or capacity that steers the most, not the SLT. But from experience the SLT gets very
important when there are risk of shortages for an item, then there can be costly airfreights and
in the end the price gets very high.

4.2.3.2 Forecast

Kleiner (2014) describes that a forecast is used to give companies a better idea of the future
and also being able to take better decisions. This can for instance give them an idea of how
much material and staff that is needed for production. Having a forecast can reduce the SLT
since the suppliers can plan better for production. The Need- and Demand Manager at IKEA
IMS (2015) illustrates that the Demand Planners are working with the forecast so that Need
Planners can plan how much to buy and for the supplier to plan for production. Also at IKEA
Components the Supply Development Manager (2015) explains that it is the Demand
Planners that do the forecast and send it to the supplier.

The Purchaser at IKEA IMS (2015) maintains that IKEA IMS could focus even more on
forecasting then they are doing today. Some suppliers are not happy with the forecast but still
think that it is better to have a bad forecast than no forecast. But as Lakhani and Kleiner
(2014) state that companies must see a forecast as a mean to make better decisions and
include common sense in the process, the authors agree and understand that it is very difficult
to predict the future and that the forecast should be taken with a grain of salt. The authors
affirm that IKEA IMS is closer to the “reality” since they get orders directly from IKEA.
IKEA Components is further out in the supply chain due to that they are delivering for the
IKEA suppliers that in turn are delivering for IKEA, whereof there are a lot to take into
consideration when creating the forecast. But that does not take away the importance of
having a forecast for the suppliers, as Blackburn et.al (2015) ensure that it is a tool for
planning the production better and by that reducing the SLT.

4.2.3.3 Agreements on Volume
When it is hard to predict the forecast and there are fluctuations, Mattsson and Jonsson (2013) enlighten that the suppliers can produce items in advance and keep in stock, which the author name as MTS. This can be taken further as Durango-Cohen and Yano (2011) describe that a volume commitment is when the supplier promise to have a part of the forecast ready on stock to reduce the SLT. The Need Planner at IKEA Components (2015) clarifies that IKEA Components has these volume commitments that they call AGV, a contract between IKEA Components and the supplier where IKEA Component promise to buy a certain quantity and gets a shorter SLT in return, since the supplier have stock on the products. That implies that IKEA Components use MTS in order to reduce the SLT. The Supply Planner at IKEA Components (2015) contends that the supplier also can keep some stock without AGV when they have a high level of trust for IKEA Components. The Business Development Manager at IKEA Components (2015) adds that for many items it is not the production of the item itself that takes long time, it is getting home raw material and then the AGV can be a commitment from IKEA Components for the raw material.

Mattsson and Johnsson (2013) refer to how the SLT benefits from having semi-finished products, named ATO. This shortens the SLT since the item can be assembled faster when the customer order comes. The Purchaser at IKEA IMS (2015) emphasizes that his range at IKEA IMS can have semi-finished goods since the lighting range is quite stable. The authors see a clear parallel between what The Purchaser at IKEA IMS (2015) describes and ATO explained by Mattsson and Johnsson (2013). However this is chosen by the suppliers themselves and not steered from IKEA IMS. The authors debate, due to Mattsson and Johnsson’s (2013) theory about ATO, that IKEA IMS could steer more suppliers having semi-finished products to shorten the SLT, for example by promising them to buy the stocks if the item would be outgoing.

The Need Planner at IKEA Components (2015) underlines that they try to create a win-win situation where both the supplier and IKEA Components need to take risks and get benefits. The authors agree and mean that the situation is positive, both for the supplier and the company in order to make all parties satisfied. If, for instance, IKEA Components would demand that the supplier carries stock to be able to meet a fluctuating demand and not show that they also are willing to take risks, it would create a bad relationship to the supplier.
Having a good relationship with the supplier the authors believe is important, which is further analyzed in next chapter about supply chain integration.

4.2.3.3 Supply Chain Integration

Cao, Huo, Li, and Zhao (2015) claim that companies need to strategically collaborate with the suppliers in the supply chain to be more efficient and provide maximum value to the end customer. It can be for instance strategic alliances, information sharing and more that will lead to trust between the different actors in the supply chain. Cao et al (2015) also add that this leads to organizational learning. As the Need Planner at IKEA Components (2015) describes that; how much risk the suppliers at IKEA Components are willing to take when making commitments, depends on how much reliance they have for IKEA Components. The Supply Planner at IKEA Components (2015) likewise states what previous speaker said and means that if there is a high level of trust, the suppliers can even keep own stock without any agreements. At IKEA IMS the Purchaser (2015) remarks that they are visiting their suppliers and focus on having a good relationship with them by using information sharing etc. The authors also see a connection between trust and how much risk IKEA Components/IKEA IMS and the suppliers are willing to take. With Cao et al’s (2015) declaration in account, the authors believe that if the suppliers are more integrated in the supply chain and get information, meet with IKEA Components/IKEA IMS etc., they will feel more comfortable in evaluating the risk of for instance keeping a certain amount of stock. This indicates that IKEA Components does not need to make a formal commitment and follow ups, which involves less administrative work.
A compilation of the findings for research question according to below:

<table>
<thead>
<tr>
<th>Concept</th>
<th>Examples from literature</th>
<th>Examples from empirical findings IKEA IMS</th>
<th>Examples from empirical findings IKEA Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sourcing development</td>
<td>- Switch to different suppliers to reduce SLT</td>
<td>- Look for new suppliers mainly to decrease price, but also having SLT in mind.</td>
<td>- Looks for new suppliers mainly to decrease price or to increase capacity</td>
</tr>
<tr>
<td></td>
<td>- Increase competition between suppliers</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Forecast</td>
<td>- Forecast for production planning</td>
<td>- Forecast from history and information from demand planners, sends to suppliers</td>
<td>- Demand planner creates forecast from IKEA suppliers, history and IKEA</td>
</tr>
<tr>
<td></td>
<td>- Lower stock with forecast</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agreements on volume</td>
<td>- Production towards stock</td>
<td>- No volume commitments</td>
<td>- Works with AGV and supplier trust to keep stock of finished goods at supplier. Win-win situation is needed</td>
</tr>
<tr>
<td></td>
<td>- Volume commitments, supplier commits to satisfy a part of forecast by e.g. stocking finished goods</td>
<td>- Have some semi-finished products but is decided from suppliers side</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- MTS and ATO to reduce SLT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply chain integration</td>
<td>- Strategic collaboration with suppliers</td>
<td>- Visiting suppliers to get a closer connection</td>
<td>- High level of trust with some suppliers, benefits equals stock of finished goods at supplier</td>
</tr>
<tr>
<td></td>
<td>- Trust between purchasing company and suppliers</td>
<td>- Information sharing</td>
<td>- Information sharing</td>
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</tbody>
</table>
4.3 How can companies further develop their work to reduce Supplier Lead Time?

4.3.1 Theory

The theoretical framework for this chapter brings up the main concepts Supply Contracts and Service Levels, Volume Commitments, Organization Theory and Evaluation and Performance measurements. Supply Contracts can be setup to target a certain service level where SLT is one of them. Volume commitments is used to guarantee the supplier to buy a certain amount against the supplier promising to keep stock of semi- or finished goods, which already is mentioned in previous chapter, why the theory in this chapter about Volume Commitments is referred to 4.2.1.3. Organization theory decides how to group the resources in a company and is vital to how the steered work with reducing SLT is done. To know if the work that is performed to reduce the SLT is successful companies need to evaluate and measure it.

4.3.1.1 Supply Contracts and Service Levels

Kouvelis and Tang (2012) mean that in streamlining operations SLT are commonly used, as companies strive to get higher profits and increased effectiveness with shorter SLT. It also results in faster deliveries and can be seen as a competitive advantage in the hope of winning contracts. The authors distinguish that a company will have a clear competitive advantage in the market if they are able to quickly and flexibly meet the customer needs with a rapid and predictable SLT. By working with tools that reduce SLT these positive benefits can be achieved.

According to Johnsson and Mattsson (2011) delivery capability is a dependent variable and represents a company’s service level. By creating a good capacity to deliver products quickly to customer the delivery capability is raised. Additionally Johansson and Mattsson (2011) argue that a good delivery capability provides an increased competitive advantage that automatically increases revenues. Sieke, Seifert and Thonemann, (2012) stress that supply contracts controls the partners actions of a supply chain and can be an approach for companies to optimize their supply chains. One of the contracts that are mentioned is service
level contract. Here the supply chain partners agree on a target service level for the supplier. If the target service level is not achieved the supplier has contracted on a penalty payment. Further Sieke et.al (2012) mean that requiring penalty payments are vital factors in order to ensure high supply chain performance. However the authors admits that it can be a challenge when designing a service level contract that both parts are well agreed on the contract parameters, meaning the values of the target service level and the penalty payment.

4.3.1.2 Volume commitments

See chapter 4.2.1.3 about Agreements on Volume

4.3.1.3 Organization Theory

Hannan, Polos and Carrol (2011) describe that organization theory is the doctrine of organizations. It is how you describe, explain and change organizations. Cunliffe (2008) further explains that it is about how the company balances various elements of the organization's structure. Luman and Cunliffe (2013) picture organization structure with following citation: “It focuses on the most efficient way to group tasks, resources, and people to achieve organizational goals, optimize the performance of the organization, and meet the demands of a competitive environment” (Lunan and Cunliffe 2013 p. 105). Further Luman and Cunliffe (2013) highlight that in order to clarify the environment a company’s structure should be designed so that everyone knows who is to do what and who is responsible for what. This is a way to reduce hindrance in performance caused by confusion and uncertainties. It is also important that the company have the right people at the right place.

Hannan et.al (2011) further explain that for the company to create a good structure it is essential that the company have a “business culture” to support this. The business culture is according to Schein (2012) the norms and values the people in a company have. It becomes “the lifestyle” that tells how you should act and behave. Opengart (2015) further describes that for the companies to be able to develop their supply chain they need to be a learning organization where the members of the company needs to learn how they benefit from making the supply chain more efficient and flexible. To make the supply chain more efficient and
flexible by reducing the SLT in supply chain management should include the practices of learning and continuous growth.

Jonsson and Mattsson (2011) emphasize that a prerequisite for an efficient material flow is a properly functioning information system, which generates to effective resources that meet customer demand. Moreover it is crucial that the communication between the departments is transparent so that the recipient intercepts and understands the transferred information. Christopher (2011) agrees with Jonsson and Mattssons’ (2011) statement and ads that clear instructions are vital and structure for how to work so everyone in the organization have a common understanding. An information system shows information about future and existing demand, forecast, sales information and customer order information. The flow of information highlights sales and delivery statistics. In order to achieve details regarding stock levels, order confirmation and delivery notifications, the suppliers’ delivery capacity should be registered.

Christopher (2011) continues with that information flow is the mechanism that coordinates the complex flow of material and finished goods to reach a cost efficient service to the customers. When the supply chain is complex the information flow only increases in importance, and steering the information flow in a company is just as important as steering the material flow. Schein (2010) means that the managers of a company steer and affect the organization in different ways. What the managers draws attention to, measures, rewards and controls is a way of communicating what they believe in. This reflects back in the employee's’ actions since it gives them a clear picture of how they should act to make the manager satisfied. Hamrefors (2011) adds that there must be a common understanding of the different tasks in a company.

4.3.1.4 Evaluation and Performance Measurements

Russ-Eft and Preskill (2009) mean that the systematic and professional conduct of evaluation is undertaken when some decisions are made or when learning is needed for short or long term. The authors further describes that evaluation of performances are critical for organization members to learn, to increase quality, prioritize resources and more. Anthony and Govindarajan (2011) explain that performance measurements are used as tools for the managers and employees to be able to follow up and evaluate their performances. A performance measurement should provide managers with sufficient information to address
issues related to finance, customer internal process, innovation and improvements. Jones and Hill (2013) describe that a key for the company to be efficient is to have productive employees. It is the company’s responsibility to make sure that the employees have the tools to be able to be productive and help the company forward. Performance measurements help to achieve this and “forces” the managers and employees to follow up on how they are performing. This also according to Russ-Eft and Preskill (2009) creates a organizational learning for the employees. Gopal and Thakkar (2012) suggest seven points to look at when designing a performance measurement:

1. It should be directly related to the company’s strategy
2. Use also non-financial measurements
3. The measurements should vary between the departments
4. Measurements should change as the circumstances do
5. Should be simple and easy to use
6. Should provide fast feedback
7. Stimulate continuous improvements

Tajbakhsh and Hassini (2015) mean that to have performance measurements in supply chains can be difficult because of the complexity of the supply chain. Key Performance Indicators (KPI) needs to relate to the company’s goal, be usable for the employees and understandable. Jones and Hill (2013) also adds that when you have set a goal it needs to be followed up to be able to motivate the employees to work towards that goal and to see results, for instance reducing SLT. Russ-Eft and Preskill (2009) states that the evaluations that are being made at a company must be understandable and usable for more parties than the ones who are working with it. Then they can be used to create a common understanding of the business for the coworkers. Tajbakhsh and Hassini (2015) again stress that the complexity of the supply chain makes it hard to set goals that all parties in the chain have a similar view on.

4.3.2 Empirical data

In this chapter empirical data from the interviews and observations in meetings are compiled and referred to topics about Supply Contracts and Service Levels, Volume Commitments, Organization Theory and Evaluation and Performance measurements.
4.3.2.1 Supply Contracts and Service levels

At IKEA IMS the Need- and Demand Manager (2015) explains that they always want to have shorter SLT, but the question is how much it costs and what would be best in the end, and that deep they do not look. Further he emphasizes that IKEA IMS should be better to make claims on the suppliers, and when doing that they would receive counter claims that should be calculated in cost break down to find out the most successful alternative. But so far he means that the purchase price has been in focus and not the SLT. Additionally he states that it would be easier if there were SLT claims on IKEA IMS deliveries to the stores on for instance three weeks, which they do not have today. Because if so there would be no discussion whether there should be four or six weeks SLT as in that case three weeks would be the only option.

The Need- and Demand Manager at IKEA IMS (2015) underlines that IKEA IMS does not have a partner on the other side of the table when it comes to service level agreements, meaning agreements between the IKEA stores and IKEA IMS. He emphasizes that if it would exist it would be the guide of how long SLT it maximum can be. Because in that case IKEA IMS has a requirement to fulfill towards the stores and that would guideline what requirements IKEA IMS must have on their suppliers as well. But in the current situation it does not exist, why some cases ends up with situations where the SLT is doubled just to get a slightly cheaper price. Then it has not been calculated how much extra stock that is needed to be built up for this article due to the longer SLT (Need- and Demand Manager IKEA IMS, 2015). In conclusion, the Need- and Demand Manager at IKEA IMS (2015) states that it is difficult to set rules or direction when they do not have the ultimate service goal to reach.

4.3.2.2 Volume Commitments

According to the Need Planner (2015) IKEA IMS only have volume agreements with one supplier, meaning that it is agreed that the supplier has their own stock of the goods. He anticipates that if IKEA IMS would have agreements with more suppliers it would be easier for the Need Planner to know how much stock the supplier have and it would be easier to plan. That would lead to shorter SLT since the supplier does not need to wait with producing until IKEA IMS has placed an order. However the Need Planner at IKEA IMS (2015) does
not believe that it will happen since the price steers a lot, and if the supplier must store the goods the prices might increase.

Also the Need- and Demand Manager at IKEA IMS (2015) wishes that IKEA IMS takes the development further with suppliers regarding who takes the responsibility and that they get a greater competence when it comes to production and production batches so that they can cooperate deeper with the suppliers. The Purchaser at IKEA IMS (2015) likewise explains that IKEA IMS does not work with volume commitments, AGV, except from with the one supplier that the Need Planner at IKEA IMS (2015) also mentioned. He believes that for many articles it would be too risky to have AGV. He takes IKEA (direct materials) as an example, for them, when a product is decided to be outgoing IKEA can just sale it out to lower price. But for IKEA IMS it is more complex. If a product is outgoing and replaced by a new, stores does not want to buy the old one even though IKEA IMS lower the price. So if IKEA IMS has tied up an agreed volume at the supplier, the Purchaser at IKEA IMS (2015) believes that it could result in a lot of scrapping.

However the Need- and Demand Manager at IKEA IMS (2015) is positive to AGV and says that they are ongoing discussions whether IKEA IMS should, like the direct material, have the same claims on their suppliers when it comes to risks with pre producing. The Need- and Demand Manager at IKEA IMS (2015) means that risks are what volume agreements are about. Either IKEA IMS takes the risks and have big stocks at the warehouse and the supplier does not need to produce anything in advance, or the agreements says that they guarantee to always buy out an X number of weeks of sales. In that case the supplier dare to produce in advance and can optimize their production. The Need- and Demand Manager at IKEA IMS (2015) does not see any big risks with AGV compared to how the situation looks like today as he argues that IKEA IMS still makes buyouts now at the supplier when they have produced too much even though it is not written in the contract. Instead the Need- and Demand Manager at IKEA IMS (2015) believes that AGV only will take IKEA IMS closer to the supplier, and that it is up to IKEA IMS to deal with the risks by planning in- and out phasing of new articles better so they do not need to end up in those situations where they need to buyout the stock just to scrap it. The Need- and Demand Manager at IKEA IMS (2015) wishes that IKEA IMS took this question further regarding who should take the risk, and he also thinks that IKEA IMS needs a greater competence when it comes to cooperate with the supplier in the production and production batches and that it would lead to shorter SLT.
When it comes to AGV at IKEA Components the Business Development Manager (2015) means that the forecast needs to be more even to avoid “the hills and valleys” in demand or else the AGV could be useless. The Supply Planner at IKEA Components (2015) describes that there are many goals of having an AGV and the first is to secure availability. For example when they have a supplier that are using 70% of capacity on one tool and there are no plans on buying one more an AGV can be used. She agrees with the Business Development Manager at IKEA Components (2015) that it is also to cover the peaks of demand and forecast inaccuracy. The Supply Planner at IKEA Components (2015) further explains that an AGV can be used also to lower purchase agreement price, secure availability on articles with unique raw materials and also the AGV is used when IKEA Components requires it, for example on prioritized items to secure availability. She also means that there are not just advantages with having an AGV for the supplier to keep stock. In certain scenarios the supplier might need new premises for storing, which costs more for them. It can also mean additional work with the new stocks for the supplier and more work for the Supply Planner since they are physically checking the stocks at the supplier on a regular basis.

When they set AGV:s at IKEA Components the Need Planner (2015) thinks that it is important to set the agreement on time instead of quantity. The reason for that is when they set it on time it is more dynamic and follow the actual needs since the AGV follows the forecast. When they set it on quantity it can be wrong over time if it is not updated according to the needs, which involves more manual work for the supply planner and risk for scrap if they miss to update a dropping demand. The Need Planner at IKEA Components (2015) further explains that it sometimes can be hard for the supply planner to motivate the supplier to sign an AGV based on time rather than quantity since it is easier for the supplier to have an AGV based on a consistent quantity.

4.3.2.3 Organization Theory

When a new article is created at IKEA IMS, the Need Planner (2015) would like to join at the beginning and give input. For example if a forecast is low and the minimum order quantity is very high it could be important to have that in mind from the beginning so actions can be taken earlier. The Need Planner at IKEA IMS (2015) claims that there are many things that the Need Planner could look into and give input about, but at the moment the Need Planner is
not involved at all in the startup of new articles. Today Need Planners and Demand Planners are working a bit away from the Purchasers and Supply Planners at IKEA IMS. The Purchaser at IKEA IMS (2015) ensures that if he could change the way of working in the organization he would wish that the Need Planners and Demand Planners were sitting with the Purchasers, Supply Planners and Technicians as a team based on each range. By sitting together he stresses that it becomes easier to listen to one another, capture details and interpose with facts and thoughts, which would facilitate to improve the entire supply chain.

The Need- and Demand Manager at IKEA IMS’ (2015) opinion is that the different departments, such as logistics and purchasing, have become much closer in their ways of working. Especially during the last two years after they have developed the need and demand roles with forecasts, article process etc. Now IKEA IMS has different forums with different skills and departments, why the Need- and Demand Manager at IKEA IMS (2015) thinks that everyone comes closer and closer, even though there is still a lot left to do. The Purchaser at IKEA IMS (2015) discusses that the organization strives towards the same goal when it comes to reducing SLT. But many times the Need Planner are blamed if some articles run out of stock as they are responsible of the warehouse. The Need- and Demand Manager at IKEA IMS (2015) on the other hand does not agree that the organization always has the same goals.

At IKEA Components the Need Planner (2015) describes that the structure for how to work with SLT is unclear to many, the routine has changed for the AGV and is currently not followed. She further explains that there is no one that encourages the Need Planners to work with reducing SLT. The Need Planner at IKEA Components (2015) means that the routine itself for using AGV is good, so it is a management question. The Business Development Manager at IKEA Components (2015) states that there is a need for changing the working instructions and to look over SLT should be routine work. In the working instructions today it is stated what everyone is responsible for, but not HOW you should work with it. He thinks that it needs to be somebody that is responsible to initiate the work with SLT since “shared responsibility is nobody's responsibility” (Business Development Manager IKEA Components, 2015).

The Supply Planner at IKEA Components (2015) means that it needs to be a common understanding from all parties on what IKEA Components is using the AGV for and a goal to keep all parties satisfied. Today the needs and expectations differ from e.g. Need Planner and
Supply Planner. To have the AGV not just as a tool for only lowering SLT but also to secure availability where the supplier have a hard time doing it without AGV, to lower price, to cover peaks in demand and more. The work instruction that exists today is mainly focused on reducing SLT but the Need Planner at IKEA Components (2015) means that the instruction itself is good. She continues to describe that the AGV that the Need Planners get from the Supply Planner looks very different and can be hard to understand. This makes it hard for the Need Planner to evaluate if he/she should sign the AGV.

4.3.2.4 Evaluation and Performance Measurements

At IKEA Components the Need Planner at IKEA Components (2015) explains that there are routines for working with SLT by AGV:s but when no one follows up people forget to do it. Before Trading had a functional leader that followed up, but that function is now gone. In order to improve this the Need Planner at IKEA Components (2015) suggests that there needs to be more follow-ups so that someone checks that the work with reducing SLT is being done. The Need- and Demand Manager at IKEA IMS (2015) points out that as it is today at IKEA IMS, they do not have goals that are linked throughout the chain. They measure the availability of the stock, but since the Need- and Demand Manager at IKEA IMS (2015) argues that they do not measure supplier performance (if supplier delivers on the agreed lead time) or service level (if IKEA IMS delivers the desired products on time), the numbers on availability can show an inaccurate picture. He further explains that IKEA IMS does not promise to have 100 percent availability, but around 95 percent. So theoretically they can manage their availability goals, but then in reality it might turn out that the stores demands just what IKEA IMS does not have in stock. That is why the Need- and Demand Manager at IKEA IMS (2015) stresses that IKEA IMS should measure supplier performance, transport performance, availability at warehouse, how the warehouse manage picking on time and service level, and then count it from behind.

The Business Development Manager at IKEA Components (2015) means that they need to follow up the outcome of the forecast because sometimes it can cost more for the supplier if the forecast have been very fluctuating e.g if they have been forced to run lines in the weekend. He also states that if IKEA Components have demands on the supplier then the supplier should also be able to have demands on IKEA Components to e.g have a stable
forecast. Further the Supply Planner at IKEA Components (2015) mean that the AGV should be easy to follow up and understandable/clear to all parties. The Business Development Manager at IKEA Components (2015) explains that they do not follow up AGV:s to see if the agreement really made a difference. The Need Planner at IKEA Components (2015) also adds that there are no follow ups on the benefits of the AGV, nor comparisons are made whether AGV based on time or quantity are most sufficient, and she believes that a deeper investigation of it is necessary.

The Business Development Manager at IKEA Components (2015) points out that it is hard to know if it really was the AGV that made a difference since there could have been a lot of changes on the way that affected the SLT and order flow. The goal is to save costs, create better availability to lower cost for IKEA and to follow up the reason that created a better production flow. There is not a real work instruction on how, what and when they should do this. The Supply Planner at IKEA Components (2015) explains that one of the Supply Planners’ aims is to reduce SLT, but it is nothing that they work on in a daily basis, but more when they have extra time left. The Supply Development Manager at IKEA Components (2015) further describes that at IKEA Components it is hard for all people get a holistic view in the supply chain because there are many people involved in it and to understand why they are doing certain follow ups etc. People that are close to the suppliers see that perspective and can have a hard time to look all the way to the IKEA supplier and do not understand why the orders are fluctuating for instance. On the other hand it can be hard for the sales side (Market) to understand why the lead time is long and why they cannot always get their items on time.

4.3.3 Analysis

In this chapter the main findings from the empirical data and theoretical framework together with the author's own reflections analyzed to answer the third research question: How can Companies further develop to reduce Supplier Lead Time? When having information about how IKEA Components and IKEA IMS are working with, and trying to reduce, the SLT today the authors wanted to analyze if there are some further actions to take to improve this work. The authors saw possibilities in different areas and divided them under the subheadings below.
4.3.3.1 Supply Contracts and Service Levels

It has shown that all authors well agree on that having a shorter SLT creates a more flexible supply chain, which creates a competitive advantage. They assert that it is crucial for them to improve in all possible ways to survive the market. During the interviews the authors of this thesis often heard that it is the price that steers but based on mentioned theories the authors mean that it is also important to be able to be competitive at more levels. The Need- and Demand Manager at IKEA IMS (2015) wishes that IKEA IMS should have more claims on their suppliers so that they are forced to work with SLT. Sieke et.al (2012) explain that supply contracts can be one way of optimizing the supply chain where they can have service level contracts. The authors can see that for IKEA IMS’s this is something that should be considered to implement since the Need- and Demand Manager at IKEA IMS (2015) states that they do not have service level agreements today between the IKEA store and IKEA IMS. If they would have those agreements they could have a guide of how long the SLT can be and IKEA IMS will get a requirement that they need to fill. The Need- and Demand Manager at IKEA IMS (2015) expounds that it is difficult to set rules and directions when they do not have an ultimate service goal to reach. The authors agree and mean that working towards a specific goal is better because then all stakeholders are forced to work with this and it will be a part of the organization. This will also put some extra pressure on the supplier to really deliver as promised and the whole supply chain would be streamlined.

4.3.3.2 Volume Commitments

Gan et.al (2010) explains volume commitments as the supplier having finished stock of goods, which reduces the SLT because the supplier can send the products as soon as they receive an order. It appears that IKEA Components are today working with AGV:s with their suppliers and at IKEA IMS the Need Planner (2015) tells us that they have only one volume agreement with one supplier. Thus it is considered that IKEA IMS is missing out of the benefits that come with it. With benefits the authors mean a shorter SLT, lower stock in their own warehouse and a safety for the supplier that IKEA IMS will buy their finished goods, which the authors believe, creates better relations. The authors noted that both the Need Planner at IKEA IMS (2015) and the Need- and Demand Manager at IKEA IMS (2015) saw a need of volume agreements since they believe that the SLT would be shorter and that would bring IMS closer to the supplier.
The Purchaser at IKEA IMS (2015) on the other hand mentioned that it would be too risky to have volume agreements for many of the items. He bases this on the fact that when an item is outgoing the stores will not buy the old one since there is a new one to replace. However the authors argue, just as the Need- and Demand Manager at IKEA IMS (2015), that in that case it is up to IKEA IMS to carefully plan in- and out phasing of new articles better so they do not need to end up in those situations where they need to buyout the stock just to scrap it. The authors can moreover see similarities in his statements from how IKEA Components are working today. They are further in the process of using volume commitments, but as Durango-Cohen and Yano (2011) commented that this kind of commitment should not exist without a forecast, it is also important that the forecast is somewhat accurate to be able to use efficiently. This goes hand in hand with the Business Development Manager at IKEA Components’ (2015) statement that an AGV could be useless if the forecast is incorrect.

The authors anticipate, just as Phusavat et. al (2015), that there is always a risk and different things to take into consideration when making agreements. This is also confirmed by the Supply Planner at IKEA Components (2015) as she highlighted that there are not just advantages with having an AGV and that it can lead to more work for the supplier. So before an AGV is set it needs to be a close evaluation of the pros and cons. The Need Planner at IKEA Components (2015) also brings up an important aspect that the AGV should be set on time and not quantity. She also understands that it can be hard for the Supply Planner to motivate this for the supplier since it is easier for them to have a quantity based AGV instead. With an AGV based on time the supplier needs to produce according to a forecast, which is considered as a winning concept. Because if the item will be outgoing the forecast will also go down, meaning that the supplier will have less goods on stock and IKEA Components will have less to take responsibility for. When the agreement is set on quantity the Need Planner at IKEA Components (2015) pinpoints that the Supply Planner needs to adjust the agreement and this can be forgotten or too lately done since it takes much administration and checking. However, the authors understand that it can facilitate from a production point of view for the supplier to produce the same volume constantly.
4.3.3.3 Organization Theory

To clarify the environment in a company Luman and Cunliffe (2013) highlight that the structure should be designed so that everyone knows who does, and is responsible, for what. It is also important to have the right persons involved on the right places. At IKEA IMS the Need Planner (2015) feels that Need Planners that are actually working with it should be involved in setting the SLT. As previously mentioned the Need Planners are not sitting together with the Supply Planners and Purchasers that are setting the SLT, which the Purchaser at IKEA IMS (2015) would like to change so the Need Planner instead would work with them as a team. When sitting together they can capture details that would improve their entire supply chain. The authors agree on this and IKEA Components are today working in a similar way. By doing this they can get input from each other and also learn more about what the others in the team are working with.

Other important aspects in a company are, according to Christopher (2011), that clear instructions and structure for how to work is vital so that everyone in the organization have a common understanding. Jonsson and Mattson (2011) mean that the communication between the departments needs to be transparent so that the recipient intercepts and understands the transferred information. The authors have picked up an issue at IKEA Components when it comes to the communication around AGV, since the Need Planner at IKEA Components (2015) comprehends that the structure for how they are working with it is unclear and not really followed. She means that the instruction itself is good but the management needs to clarify and encourage the employees to work with it, which is agreed by the Business Development Manager at IKEA Components (2015) who also states that somebody needs to be responsible for following this up since “shared responsibility is nobody's responsibility”.

The Supply Planner at IKEA Components (2015) adds that it needs to be a common understanding for what the goal of the AGV is. As the authors have mentioned earlier the Supply Planners have a different view than the Need Planners. She also illustrates that the work instruction is too focused on reducing the SLT which makes us deliberate that the communication around the AGV:s need to be improved and the work instruction more aligned with the reality. For instance if the Need Planner believes that the aim of an AGV is to shorten SLT, but the Supply Planner sees it more as a mean to secure capacity issues they are
not aligned and does not really see the same goals with it. Maybe the work instruction needs to be changed or they can have two volume agreements where the other agreement focuses more on the availability and not reducing SLT. The Need Planner at IKEA Components (2015) further describes that the basis for the agreements that the Need Planner gets from the Supply Planner looks very different and can be hard to analyze. Based on Christopher’s (2011) opinion on clear instructions, the authors suggest that IKEA Components should make a standardized template that the Supply Planner can fill in so that the Need Planner easier can analyze it.

4.3.3.4 Evaluation and Performance Measurements

Russ-Eft and Preskill (2009) describes that companies need to do evaluations to create organizational learning, increase quality etc. The Need Planner at IKEA Components (2015) declares that they forget to evaluate and follow up the AGV:s, since they are missing a functional leader that can remind responsible person of this, which the authors brought up in the last chapter. The authors consider this to be consistent with Jones and Hill (2015) statement that all goals need to be followed up in order to motivate the employees to work towards them. The Business Development Manager at IKEA Components (2015) explains that if they do not follow up AGV they will not know if the agreement really made a difference. When taking mentioned above into account the authors agree and stress that if they do not follow up they in some cases might have unnecessary AGV:s. The Business Development Manager at IKEA Components (2015) further addresses a problem with a follow up and that is that it can be hard to evaluate if it really was the AGV that made the difference since it can be affected by other aspects during the time. The authors understand the complexity but still feel that it is important to measure it, because otherwise they cannot see the benefits of how it e.g. impacted the availability in the warehouse. If the AGV is not evaluated it means that IKEA Components might make unnecessary commitments that just will cost them money in the end.

Tajbakhsh and Hassini (2015) outline that the complexity of the supply chain makes it hard to set goals that all parties in the chain have a similar view on. For both IKEA IMS and IKEA Components the authors could see that it is hard for all in the supply chain to have a common view on the goals and how they see the goals for reducing SLT. Eft and Preskill (2009) report
that when creating a common view of the evaluations, it must be created so it is understandable for everyone in the company. The authors distinguish that if IKEA Components would follow up the AGV:s and can point out the difference it can open up the eyes for the stakeholders to realize the importance of it. As previously mentioned it differs today in terms of what AGV is used for and how. If IKEA Components would follow up and evaluate the outcome of AGV, the authors believe that they would have better understanding for each other and why for instance the Supply Planner and Need Planner have different demands when it comes to AGV based on time versus quantity.

Performance measurements are according to Anthony and Govindarajan (2011) tools for managers and employees helping them to follow up and evaluate their performances in the company. To do KPI:s Jones and Hill (2013) stress is key for helping the company forward and needs to relate to the company’s goal, be usable and understandable for the employees. As the Need- and Demand Manager at IKEA IMS (2015) defines that they do not have a common goal linked through the supply chain since they do not have service level requirements the authors conceive that this is something that IKEA IMS should put more effort in. Today they only measure the availability of the stock according to the Need- and Demand Manager at IKEA IMS (2015), and the authors consider just as the Need- and Demand Manager at IKEA IMS (2015) that they need to measure supplier performance, transport performance, availability at warehouse, how the warehouse manage picking on time and service level. It will determine the SLT and how it affects the supply chain.
The findings from theory, empirical data and analysis is summarized below:

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<tr>
<th>Concepts</th>
<th>Examples from Literature</th>
<th>Examples from Empirical findings IKEA IMS</th>
<th>Examples from Empirical findings IKEA Components</th>
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<tbody>
<tr>
<td>Supply contracts and service levels</td>
<td>- Supply contracts on service levels to optimize supply chain</td>
<td>- Develop claims on SLT</td>
<td>- Have service level contracts and measures it</td>
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<tr>
<td>Volume commitments</td>
<td>- Shorter SLT when supplier have finished goods, raw material pre-bought or semi-finished goods ready</td>
<td>- Develop volume commitments with suppliers</td>
<td>- Have today AGV:’s, requires correct forecast to use it correctly and base it on time</td>
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<tr>
<td>Organization theory</td>
<td>- Clear structure on who is responsible for what</td>
<td>- Involve correct persons in setting the SLT and goals of it</td>
<td>- Align the structure and goal of the AGV from Supply Planner and Need Planners perspectives</td>
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<td></td>
<td>- Clear instructions</td>
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<td>- Develop the follow up on the AGV:’s</td>
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<td>Evaluation and performance</td>
<td>- Evaluations for organizational</td>
<td>- Develop common views of the goal to reduce SLT</td>
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<td>measurements</td>
<td>- Common view on the evaluations</td>
<td>- Develop KPI:’s on several levels</td>
<td>- Develop common views of the goal to reduce SLT</td>
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<td>- KPI:’s</td>
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5 Conclusion and Recommendation

From the analysis in previous chapter conclusions about how IKEA IMS and IKEA Components are today working with SLT, how they are working to reduce it and recommendations on what approaches they could take to further reduce the SLT can be done. The main findings are presented below.

How are companies working with and defining Supplier Lead Time?

Both IKEA IMS and IKEA Components define SLT as “the time it takes from when IKEA IMS/IKEA Components have placed a purchase order until the order is ready for delivery at the supplier”. At IKEA IMS it is the Purchaser and the Supply Planner that in collaboration with the supplier set the SLT for a new product. When a SLT is decided, or changed, the Need Planner receives information in order for he or she to update it in the systems. Some articles have really long SLT, in those cases IKEA IMS plan for much bigger stock and safety stock in their warehouse in order to cover up for the long SLT. The authors stress that this makes the supply chain less flexible and IKEA IMS needs to take this into consideration when setting the SLT. The Sourcing Developer together with the supplier decides the SLT at IKEA Components. The SLT is in the beginning longer and then adjusted when the item is running; this can be predefined or negotiated later. For IKEA Components it is important to have a flexible supply chain and to have a shorter SLT means that the supply chain gets more flexible. The authors stress that SLT is a part of the delivery capacity at the supplier and should therefore be measured. At IKEA Components they measure SLT in their Order Request Fulfillments.

What activities do companies carry out to reduce Supplier Lead Time?

At IKEA IMS they look for new suppliers every now and then that can offer better deals, such as shorter SLT. Moreover some ranges at IKEA IMS works with semi-finished products which shortens the SLT since the items can be assembled faster when the supplier receives an order. They also send forecasts to their suppliers so they prepare their production after IKEA IMS’ forecasted sales. However there is no agreements that the suppliers should produce in
advance in order to reduce the SLT, this is up to the suppliers. IKEA Components are today taking different actions to improve the SLT and have in many cases succeeded in doing so. Often a reduction in SLT comes from an initiative to reduce price or increase capacity of the item that just happened to shorten the SLT as well. In other cases as the volume commitment, AGV, they take proactive actions to shorten SLT. Just as IKEA IMS they are sending a forecast to the supplier so their suppliers can plan for production, order home raw material in time etc which shortens the SLT. Further they also reduce the SLT by having a high level of trust with their suppliers. When the supplier trust IKEA Components they are more willing to keep their own stocks which lowers the SLT. The authors stress that this is a good approach and they could further develop the relationships with their suppliers to benefit more from this.

**How can companies further develop their work to reduce Supplier Lead Time?**

The authors perceive that IKEA IMS are aware of the importance of having short SLT and that they know some of their suppliers has too long. However the authors find that it is not clear within the organization who is responsible for reducing it and how to proceed. The authors recommend IKEA IMS to develop comprehensible structures for this so that everyone understands and that it reaches out to all parts involved. Also they should have a certain person or team that are working more proactively with SLT and evaluate the result when a SLT is reduced. The authors further argue that other parts in the organization, which are involved in SLT, should have more influence when they realize that a change is needed and that their opinions should be taken into consideration. Another aspect the authors recommend IKEA IMS to look into is, just like IKEA Components, sign AGV with more suppliers in order for the products to be sent faster when an order is received. The authors believe that it is not applicable on all products, but substantially more than what they have today. At last the authors recommend IKEA IMS to work more detailed with performance measurements, such as supplier performance and transport performance, in order to evaluate how long the SLT really is from case to case. This will give them a more apparent picture of which parts in the supply chain that requires extra focus. At IKEA Components the responsible persons for the AGV, Need Planners and Supply Planners, seem to have different views on what the goal is with the commitment. As it looks today Need Planners mean that a win-win situation occurs when the AGV result in shorter SLT and this is also stated in the work instruction. While the Supply Planner mean that SLT is not the main focus since the AGV can be used for other actions to secure capacity. The authors recommend that IKEA Components try to align the
goals of the AGV to be the same for everyone in the organization. The authors also recommend to put a functional leader to make sure they follow up the outcome of the AGV:s to evaluate if the AGV really have made a difference or if something needs to be changed. This also need to be specified in the work instruction for all to understand who is responsible, what they are supposed to do, how they should do it and when they should do it. The authors believe that this will make it more clearly for the responsible people involved and increase the benefits with having an AGV.
6 Consequences of the processed material

In this chapter the authors present the limitations and reflections about our Master Thesis, ethical considerations, criticism towards our Master Thesis and proposal for further research.

6.1 Ethical consideration

We have in this thesis taking ethical considerations into account by informing the interviewees about the purpose and approach of the study. Further it has been voluntarily to participate and the interviewees have been asked if they accepted recording of what has been said. The collected empirical data have been treated in the manner approved by the interviewees. The interviewees also only needed to share the information that they felt safe with sharing. Moreover no misleading information has been given the interviewees to influence the outcome of the interviews. Lastly, before publishing our thesis it will be sent to the interviewees so that they can read it through to ensure that no misinterpretation has occurred.

6.2 Societal aspects

The authors evaluated the potential societal impacts of our research throughout the research process. The thesis aims to make the reader feel encouraged to undertake or develop the different aspects of how to reduce SLT, but the authors want to emphasize that these are only suggestions and the reader should also be encouraged to look for more data. The suggestions from this thesis are not aiming to suggest that these are the only actions to take, rather to encourage taking actions and looking for more actions to take. This research is advised for two specific companies as a case study, why others to suit their specific company should modify the data. Even if the study was made on two companies in Sweden the authors believe that similarities can be found at other companies in different countries that can find inspiration from this thesis.
6.3 Contribution to theory and Criticism towards our Master Thesis

Since the authors of this thesis have based the empirical data on two case companies the authors have done an analytical generalization, which can be applicable on similar cases on other companies. But, the authors criticize that only one person of each range was interviewed. Since the person can interpret different roles it would have been more nuanced to interview more persons from each role. The authors have stated in this thesis that an accurate forecast can reduce SLT. However the authors have not focused more detailed on how a forecast could be created or improved which would further target the thesis. Further the authors emphasized that performance evaluation is a winning tool in order to have control over the SLT, but the authors have not studied deeper how they should be practice. Whether this strict theoretical focus has been to an advantage of the thesis can be discussed, but with the limitation of time that existed, the authors found that this was necessary.

This research has been focused on how companies are working to reduce SLT and how this can be developed. Previous research suggested that to achieve a flexible and efficient supply chain it helps to reduce the lead time (Glock 2011, Chan & Chong 2013). Also researchers have studied different ways to reduce lead time from a logistics perspective (Glock & Reis 2013, Annadurai & Uthayakumar 2010).

The contribution to theory is from this Master Thesis is how the organizational approach is contributing to the shortening of the SLT at purchasing companies suppliers. The findings show that the logistic approaches need to be supported by the organizational aspects to function. IKEA Components AGV:s can decrease SLT but the organization need to be aligned to have the same goal of the AGV. They also need a clear structure and a leader to coordinate the work with and follow up on the AGV:s. IKEA IMS also need a responsible person to make sure that the logistic changes are made to reduce the SLT.
7 Proposal for further research

In this chapter the authors present our proposal for further research.

A proposal for further research within this subject area could be to examine deeper how a reliable forecast is created that can be forwarded to the supplier, in order to reduce SLT. To be able to investigate more about reducing SLT more theories could be to recommend, for instance immerse in how business relations can affect the SLT. Moreover it would be interesting to follow one or more items from the time an order is placed until it is delivered from the supplier, to see the variations in SLT. The authors also think that it would be intriguing to take lead time to the next step and not only look at SLT, but the total lead time where both SLT and transport lead time are studied, with the purpose of streamlining the supply chain. Finally further research could be to include a wider empirically selection in the study since it would result in a more generalizable picture.
8 Reference List


Priyan, S. & Uthayakumar, R. (2015) Continuous review inventory model with controllable lead time, lost sales rate and order processing cost when the received quantity is uncertain. Journal of Manufacturing Systems. Volume 34, January 2015, Pages 23–33


**Electronic resources**
Appendix

Interview guide

We will first start with explaining what the interview will be about, why the authors are doing it and how the authors will use the material.

In all themes the authors will ask how the current situation is, why they are doing what they are, what they think is good/bad, how they would like to work, obstacles and possibilities for improvement.

Role description
Describe your position and responsibilities.

Supply chain
We will ask our interviewees to map for e.g. a shirt through the supply chain. Here the authors want them to describe who does what, who is in charge of what etc.

Lead times
Where in the map of the SC does the lead time exists for the interviewee?
Here the authors want to show what the authors mean that supplier lead times are in the SC that the interviewee mapped.
How are they working to reduce lead times? (product development, different suppliers, searching for new suppliers with better lead times etc)
Is there any proactive work?

Risk management
Does it exist any dual- or multiple sourcing (using more than one supplier for the same article)? If so, describe them.
Volume agreements, how can these be created? Should it be based on time, quantity etc?
What risks can occur in partnerships? (Not keeping what is promised, business relations?)
What do you do to prevent these risks?
In what way can different interest between IKEA IMS/IKEA Components and the supplier mean a risk?

**Organization theory**

How the organization is build up around the SC

How is the work with reducing supplier lead times evaluated or encouraged

Is the structure clear on who does what

Are everyone aligned and have the same goals

Information transfer