

**IMPLEMENTATION AND FUTURE OF THE T7 MODEL IN
SERVICE CENTRES ACQUIRED BY CORPORATE
MERGER**

Case Outokumpu Ltd

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The aim of the thesis is to research the implementation process of a new, innovative supply chain management model in the new service centres that the case company acquired by a corporate merger. The research focuses on the challenges and difficulties that were caused by adapting a new operation procedure. The objective is to investigate how the implementation process was carried out and how the process can be improved and developed. Furthermore, the benefits that the implementation of the new supply chain model has brought about for the service centres are studied.

The research method is the qualitative case study method. The theoretical framework builds on books, articles and studies on supply chain management and network management. The empirical data was gathered by structured interviews in the spring of 2015, and through the researcher's own observations.

The results of this study indicate that there is a clear need to develop the implementation process of the new supply chain model. The competition in the global business has lead companies to seek new possibilities to create value to their customers. One solution is networking. The new supply chain model operates as a network of several teams. The teams are consisted of people with their own roles and responsibilities. As all the teams and team members' work towards common goal, the key factors of the success are knowledge, co-operation and commitment.

As a conclusion, there is a need to improve the supply chain model's way of operation as a network. The lack of required knowledge influences the whole network's operation ability. It has a negative impact on cooperation, customer value creation and the case company's profitability. The actions needed are active dissemination of knowledge and consistent introduction and orientation of the new stakeholders to the operation mode of the T7 network.

Chapters 2 and 4 are not published in their full length in the library version due to confidential information included.

Key words supply chain management, network management, customer satisfaction

SYMBOLS AND ABBREVIATIONS

ANs	Application nets
APAC	Asian Pacific Area Countries
BRNs	Business Renewal Nets
CSC	Coil Service Centre
CSNs	Customer Solution Nets
DDNs	Dominant Design Nets
HMNs	Horizontal Market Nets
HPSA	High Performance Stainless and Alloys
INs	Innovation Networks
PDD	Performance and Development Dialogue System
S&P	Stock and Process
VDNs	Vertical Demand Supply Nets

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TIIVISTELMÄ

ABSTRACT

ABBREVIATIONS

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1 INTRODUCTION

The background and motivation of the thesis, the research objectives and questions are introduced in this chapter. Additionally, the circumstances that set certain limitations to this research and the used research methodology are discussed. The description of the structure of the thesis concludes this chapter.

1.1 Background and Motivation

Due to continuous globalization, competition in international business has become challenging. The case company is the leader in its business area, however, the markets are demanding and very vulnerable to business fluctuations. Therefore, it is very significant that all the personnel are committed to working together for the common goal. The case company acquired one of its main competitors at the beginning of the year of 2013. The integration process of two different business cultures was not simple in the previous merger and this time the case company evidently must manage the procedure more efficiently. In the case company, internal customers as service centres are important and they are part of the mill. This is a new situation for new service centres. Efficient and good cooperation with the mill and the service centres can provide considerable savings and satisfied and committed customers.

The personal motivation of the researcher derives from more than 15 years' work experience in sales, production planning and supply chain in the case company. The researcher has participated in several commercial and supply chain development projects. She was working for the company when they acquired another competitor approximately ten years ago. The different business cultures that exist in some business units are still visible and notable. In the researcher's experience, the challenges as well as the differences and the difficulties in cooperating with new and well-known contact persons can be perceived. The researcher can readily recognize the necessity for common understanding and trust. She is motivated to see how the cooperation with the new service centres can be improved and developed and the advantages and

opportunities the case company's self-created, unique T7 supply chain model can provide to the service centres.

1.2 Research Objectives and Questions

The main objective of this thesis is to pinpoint the challenges and difficulties in adopting new company's working procedure, business culture and common goals. The facts that have influence on the integration process and how those should be taken into consideration are studied. It is crucial to examine these issues in order to be able to understand how the implementation process can be developed and improved.

The second objective is to research the possibilities to modify and develop the implementation process. When the T7 supply chain route model was implemented to the new service centres, the case company provided training courses in the mill, contact person's face-to-face meetings and written instruction manual of the T7 procedure. Nevertheless, all these functions were not available for all the new service centres. Therefore, it is evident that service centres experienced the implementation process to the T7 supply chain model dissimilar way. The aim is to locate value and usefulness of these activities and the possibilities to improve, modify or add new actions.

The third objective is to discover the advantages the new service centres have obtained from the special, unique T7 supply chain model provided by the case company. The general advantages are estimated to concern for instance the service centres' ability to keep their delivery promises, improved customer service and production planning and ability to operate smoothly with lower inventory levels.

The research questions addressed in this research are as follows:

1. What was the situation of the new service centres stock replenishment and communication with the mill before implementing the T7 supply chain model?

At the beginning of 2013 the case company and its competitor Inoxum merged. Due to the merger, the new service centres that were previously part of Inoxum mills supply procedure joined the T7 supply chain model. These service centres were not prioritized and any kind of extra service was not provided to them, before joining to the T7. Vice versa they were treated similarly to external customers. The focus of this question is to find out how the replenishment was made and how the daily business and connections with the mills were operated before the integration to the T7 had started.

2. How do the personnel perceive that the process of implementation of the case company's T7 supply chain model has been managed?

The aim of this research question is to find out how the personnel in the new service centres, who are responsible for replenishment and sales, have experienced the implementation to the T7 supply chain model. It is significant to receive feedback concerning those operations that have been good, what should have been done differently and what relevant issues were considered missing. This feedback is valuable and relevant when the company expands new units to the T7 and, as was stated previously, when the T7 operation model is introduced to another mill. That mill must perceive the importance of adopting this operation mode, not only to what the model can provide to service centres, but to the mill itself and to consolidated corporation of the case company.

3. What are the obtained benefits and how have they influenced the daily business?

The third research question provides information about the changes in the service centres in replenishment management, sales, customer service and stock inventory. The T7 supply chain model has a clear influence on all the mentioned processes. How these are changed will certainly vary due to the fact that the service centres are different sized and their customers and their demand are dissimilar.

4. How should the implementation be managed in the future? What are the suggested development ideas?

The aim of the last research question is to conclude the obtained information and based on that create a plan of how the process could be developed and improved. The operations that must be undertaken are known. However, there is no knowledge concerning what stages and what resources are required for instance time schedule and planning phase.

1.3 Limitations

There are some limitations in conducting this research. Global stainless steel business is continuously changing and market fluctuations have clear impact on the T7 model as well as attitudes and experiences of service centres the research concerns. When the demand is high, the advantages of the T7 are clearly visible and noticeable, on the one hand. On the other hand, in situations of low demand, the advantages may not be explicitly evident and the importance of the T7 membership can be considered as not significant. This is a limitation because of coil service centres' (hereinafter CSC), responses are connected to the present demand. Low demand responses are not suitable in high demand situation; thus, the case company may not be able to use the thesis research.

The arrangement of the data collection and interview can be considered as a limitation as well. The challenge was to find the method equal to every participant, the sufficient time to respond and the appropriate language. To avoid this kind of limitation, the possibility to send the structured interview questions beforehand to the participants to provide them with all the time to prepare for an interview session needed to be taken into consideration. This enabled lowering the possible problems caused by different English language skills. It was known that English was not actually the native language of any of the participants and, thus, the level of English skills varied remarkably. Therefore, the questions were formulated to be as simple as possible to be understood similarly.

The third limitation that needed to be taken into account was the possible lack of suitable literature. The supply chain processes is a widely researched topic, providing vast information. However, since the T7 is a new and customized supply chain model, it was not easy to find up-to-date literature. Consequently, the traditional supply chain literature that was not considered as relevant was not utilized.

1.4 Structure of Thesis

In chapter 1, the topic of the thesis research is introduced. Additionally, the motivation and research objectives are provided and discussed. Chapter 2 introduces the case company and chapter 3 concentrates on research methodology, applied research method and data collection and analysis are discussed. The focus of chapter 4 is on the case company's customized supply chain model T7. The chapter describes detailed information concerning the T7's background, the intention, and the method of operation.

Chapter 5 provides the literature review of supply chain management and the operation of business networks in international business. Firstly, the key concepts of the supply chain management are introduced. However, the main focus is on business networks and the management of those. In chapter 6 research results, including the challenges of integration process and benefits of the integration the service centres have experienced are discussed. The last chapter draws the conclusions of the research. In addition to that, in the last chapter development recommendations are provided.

2 CASE COMPANY

The case company of this study, Outokumpu Ltd (hereinafter the case company), can be stated as a leader in the stainless steel business with the most comprehensive product range and a global sales network. The case company has production plants in Finland, Germany, Mexico, Sweden, the United Kingdom and the United States. The case company's product folio covers all the stainless steel grade families. The company also produces ferrochrome and has its own chromite mine in Finland. Innovations and sustainable development are key factors to reach global success. The international stainless steel market is highly competed and therefore, continuous development of products and services is crucial. This enables the case company to serve wide range of different customers.

Sustainability and environmental issues are important especially due to climate change. Stainless steel is durable product. The recycled content of the product is approximately 80% and the products are 100% recyclable (Outokumpu 2014a). The case company's director of sustainability, Mr Tuomas Haikka states that sustainability has a strategic role in the company's business and it is one of the key factors that influence on the company's competitiveness and growth in long-term. The case company was recently recognized by CDP of the excellent quality of the climate change data disclosed to the investors and global marketplace. CDP is an international, non-profit organization that provides material for institutional investors. The aim is to enable improved possibility to understand better economic risks and opportunities that climate change presents to their portfolio companies. Stainless steel in itself is a sustainable product, however according to the director of sustainability the case company has in addition managed to increase the content of recycled material, improve energy efficiency and reduce the amount of waste. (Outokumpu 2014b.)

The case company obtained the market leader position by a corporate merger. It purchased one of its most significant competitors, Inoxum. The new company started to operate at the beginning of year 2013 and published a new case

company's strategy roadmap at the first day of the merge. The strategy roadmap presents actions and strategic operations that company's top management has established to maintain the position in the global market.

The case company has set performance target that consists of restructuring operations and seeking the growth possibilities. Restructuring is required to be able to respond to high competition. The methods to do that are defining the synergy saving possibilities, investing in efficiency projects, transforming company structure and ensuring the financial stability. Growth is considered to be reached by increasing the presence in US market, possibilities provided by expanded ferrochrome production, leveraging of HPSA i.e. high performance stainless and alloys, and developing APAC functions. The bottom line is the desired performance with full integration and new culture, advanced financial performance and a continuation of market leader strategy. (Outokumpu 2013b.)

The T7 supply chain model that is the focus of this thesis is one part of the announced efficiency programs. The aim of the customized T7 supply chain model is the improved capital efficiency by centralizing safety inventories in a one location. It provides better availability of fast moving and the most demanded products. Due to this, the sales of the CSCs can offer the T7 scope products before the material is arrived into local stock. (Outokumpu 2012a.) The T7 supply chain model is scrutinized more detailed in chapter 3.

2.1 Case Company Culture

As previously stated, the stainless steel business is a globally well-competed business. To be able to beat the competition and differentiate from the competitors the case company has created several other methods presented in the company's roadmap. Evidently the corporate merger has led on the need to create new common company culture. This way the case company aimed to establish stable and strong basis to be able to reach success. Therefore, Outokumpu Spirit was published (Figure 1.)

Outokumpu Spirit

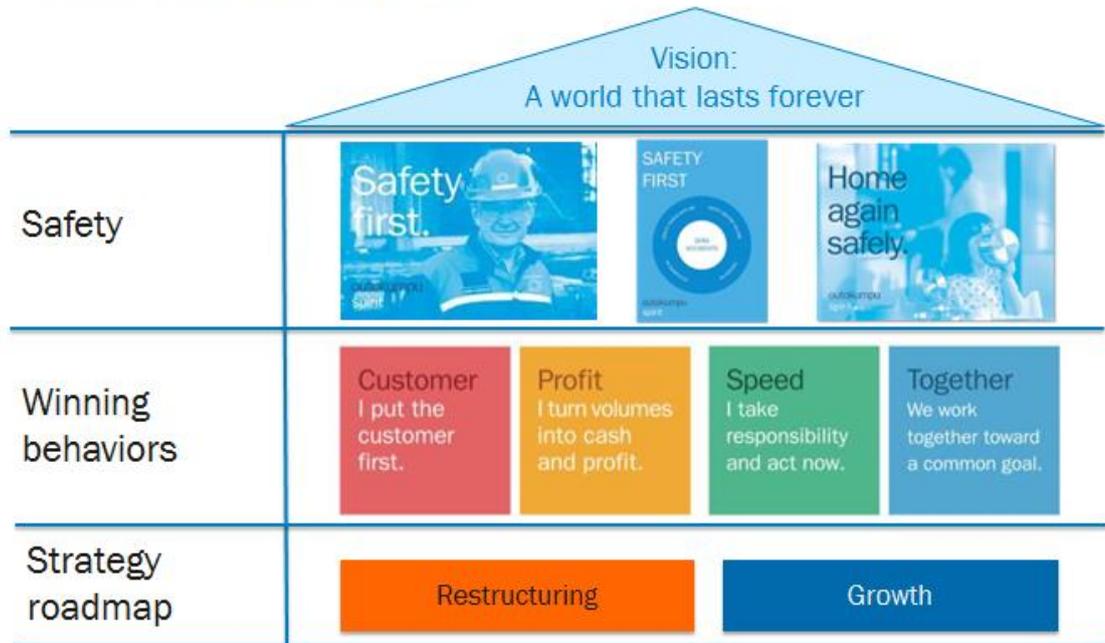


Figure 1. Outokumpu Spirit (Outokumpu 2013b)

The figure 1 shows how Outokumpu Spirit is built. The bottom line is *the strategy roadmap* presented in the previous chapter. *The strategy roadmap* simplifies the planned restructuring and growth actions that create the foundation of the case company's performance. The winning behaviors that the case company has determined to be the four principles of change, are defined in the second row. The four key elements disclose a simple method how the case company has evaluated to reach success.

The first principle is **the customer – I put the customer first**. The case company wants to understand the customer better and to be able to create more value to their business. The business starts from the customer. Therefore, the requirements of the customer need to be taken into consideration right from the beginning. The case company does not want to be just whatever steel producer, but a valuable partner, who is interested of the customers. Consequently, the case company needs to search for more information about the customers and disseminate the information within the company. The lack of dissemination of information must be avoided as it can cause the first principle to fail. (Outokumpu 2013b.)

The second principle is **the profit – I turn volumes into cash and profit**. It is not sufficient to understand only the requirements of the customers, but also the wide perspective of realization of the steel business markets. The stainless steel business is vulnerable to business fluctuations and changes in global economic situation have a clear influence on the case company's business. Therefore, to obtain the best possible profit, the awareness of economic situation is crucial. The flexibility is one of the important points, as with being flexible it is possible to improve cost-effectiveness. (Outokumpu 2013b.)

The third principle, **the speed – I take responsibility and act now** refers to importance of reacting on changes quickly in a continuously changing business environment. Additionally, it is significant to evaluate new business possibilities. The decisions that are made need to be finally implemented in the daily business. If the corrective activity is necessary, to ensure success, the company has to act immediately. (Outokumpu 2013b.)

The last principle **together – we work together toward a common goal** is definitely not the least important of the winning behavior principles. As a matter of fact the researcher considers this the most important principle due to the fact that the case company's merger with Inoxum occurred couple of years ago and the case company operates in the international business. To reach the success in a demanding global market is a challenge explicitly after the merger, where two international companies' business cultures have to affiliate. Therefore, it is highly important that everyone knows the common goals and work together towards them. This principle includes several functions concerning on how to work together as a team and for the common goal. The initiative and responsibility of own and colleagues' safety, working together to understand the set targets, building trust in own team and between the other teams is the only method to utilize the great variety of knowledge. (Outokumpu 2013b.)

These winning behavior features are notable in the T7 supply chain model. Actually, it can be stated that the winning behavior features constitute the basis of the T7. In the T7 the customer is put first and the quick and reliable deliveries

provide possibility to profit. Since the T7 timeline is tight, every stakeholder has to act quickly and take care of own responsibilities. Despite the fact that every stakeholder may not always consider responsibilities as positive, those are however, considered as vital element of the T7. Without those, the concept could not function. At the end, the importance of every stakeholder's willingness to work together is vital; without that the T7 could not function successfully. The stainless steel is very vulnerable to economic changes. Therefore, the relevancy of willingness to work together is pronounced especially in the situation of low demand, when every stakeholder has to do the utmost and be able to compromise. The similar situation is, when demand is very high and different kind of evaluations as prioritization and strengthening, are necessary to execute.

The third element whereof the Outokumpu Spirit consists is the safety. It can be stated that during the past few years the importance of safety has raised the most important issue. The case company displays that nothing is more important than the safety of its employees. The safety is evaluated as the most important issue. (Outokumpu 2014c.)

The case company has thousands of employees around the world in different functions in sales companies, service centers and mills. Every country tends to have dissimilar safety regulations to be followed and varied working circumstances and habits. The fact that the case company employs wide range of different kind of subcontractors cannot be ignored. However, in many cases the subcontractors operate in the case company's premises and mill areas. Therefore, also subcontractors' injuries are reported and possibilities to avoid those injuries are examined as well. In Tornio injuries happened during the year 2014 especially between May and September. The reason for that can be assumed, the summer workers in the mill and the traditional maintenance period in August and September, when exceptionally a large number of subcontractors operates in the mill. Therefore, the company's announced the goal of zero accidents can be stated as an exacting ambition.

The Outokumpu Spirit consists of three elements; Strategy roadmap that defines the strategy and the root for the business, the winning behaviors required to reach the success in the business and the safety that has to be taken into account in every function. All these elements lead to company's vision; a world that lasts forever. With all the activities and its vision the company communicates the importance of the employees' welfare and the global environment.

2.1.1 Key Priorities in Customer Satisfaction

Due to the fact that the competition in the stainless steel business is intense, the case company has put major efforts on differentiation from the competitors by searching possibilities to provide customers something unique that cannot be received from others. The case company has listed four global megatrends that have influence on stainless steel demand; population growth, urbanization, mobility and climate change including limited resources. The megatrends are viewed more detailed in picture 1.



Picture 1. The Global Megatrends. (Outokumpu 2014c)

Continuous population growth has an influence on demand of medical engineering, water demand and food industry. In all these areas stainless steel is observed as an excellent raw material. Due to urbanization, increasingly more people live in big towns and as stainless steel is evaluated as a good material for such purposes as architecture, interior fittings and escalators, the demand of it can be expected to increase. The mobility is also a significant worldwide trend. Stainless steel is valued material in public transport, airplane and automotive industry. All these trends have a genuine linkage with each other and especially with the last megatrend listed; the climate change and limited resources. The company has pointed out the importance of sustainable development, the concern of environmental values and durability and recyclability of the stainless steel. The stainless steel is a perfect material to be used in alternative energies as wind energy, solar energy and green technology. The constantly increased need of those has a clear and positive impact to stainless steel demand as well. (Outokumpu 2014c.)

The megatrends clearly have an effect on the customer satisfaction. The customer satisfaction drivers are presented and explained in the figure 2. The case company has divided the customer satisfaction drivers to four main, nearly equal sections.

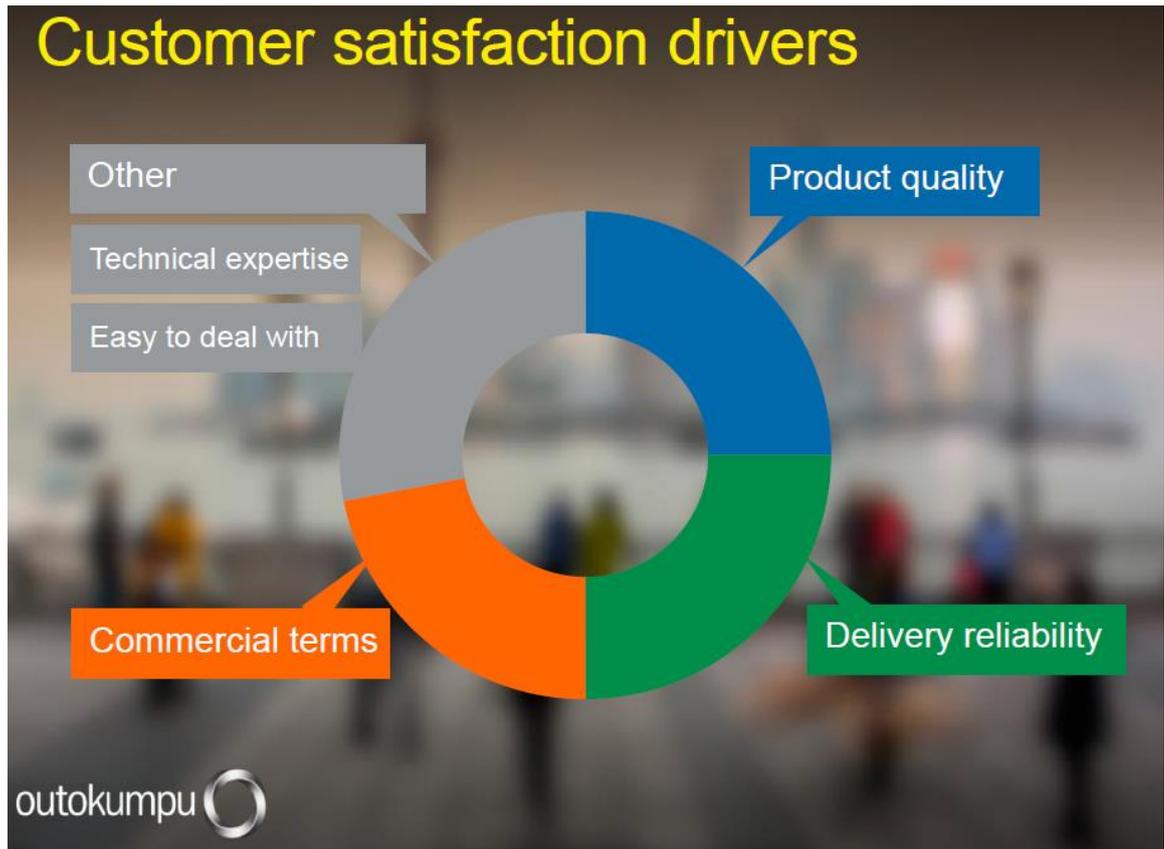


Figure 2. Customer Satisfaction Drivers (Outokumpu 2014c)

Quality of the product is one of the key drivers as can be seen in the figure 2. The case company provides to the customer remarkable variety of different stainless steel grades from where to find the product that fulfills the best possible way the purpose it is needed for. Therefore, quality of the product or service can be perceived differentially. Quality that is sufficient to automobile industry exhaust pipes may not be evaluated similarly to household machinery producers. The case company wants to provide high quality products to the customers. In the T7 supply chain model, the available product range is defined by the most selling products and the customers have the knowledge of what purposes the available products are suitable. Therefore, the CSCs are able to serve their customers efficiently. (Outokumpu 2014c.)

The stainless steel manufacturing process consists of several production phases and while the demand is high and the mills are operating in full power, the lead times become longer. The customers need to perceive the correct information concerning the delivery. The delivery performance is one of the

topics that the case company has managed to improve remarkably during the recent five years. But this is a matter that the case company continuously wants to improve; capabilities of each production stage are investigated and the corrective activities are searched. The delivery statistics and the reason for delays are checked on weekly, monthly and yearly level. The customer expects to receive the ordered material as confirmed. However, for some customers the delivery reliability is more important. Generally, it can be stated that the end users like automotive industry customers are more sensitive and the delivery accuracy is more crucial to their business than to the distributors. The delivery reliability is one of the main benefits provided by the T7. The T7 requires manual work and the timeline is very tight, but a chance to react on issues as for instance change of demand, is better than in normal production route. (Outokumpu 2014c.)

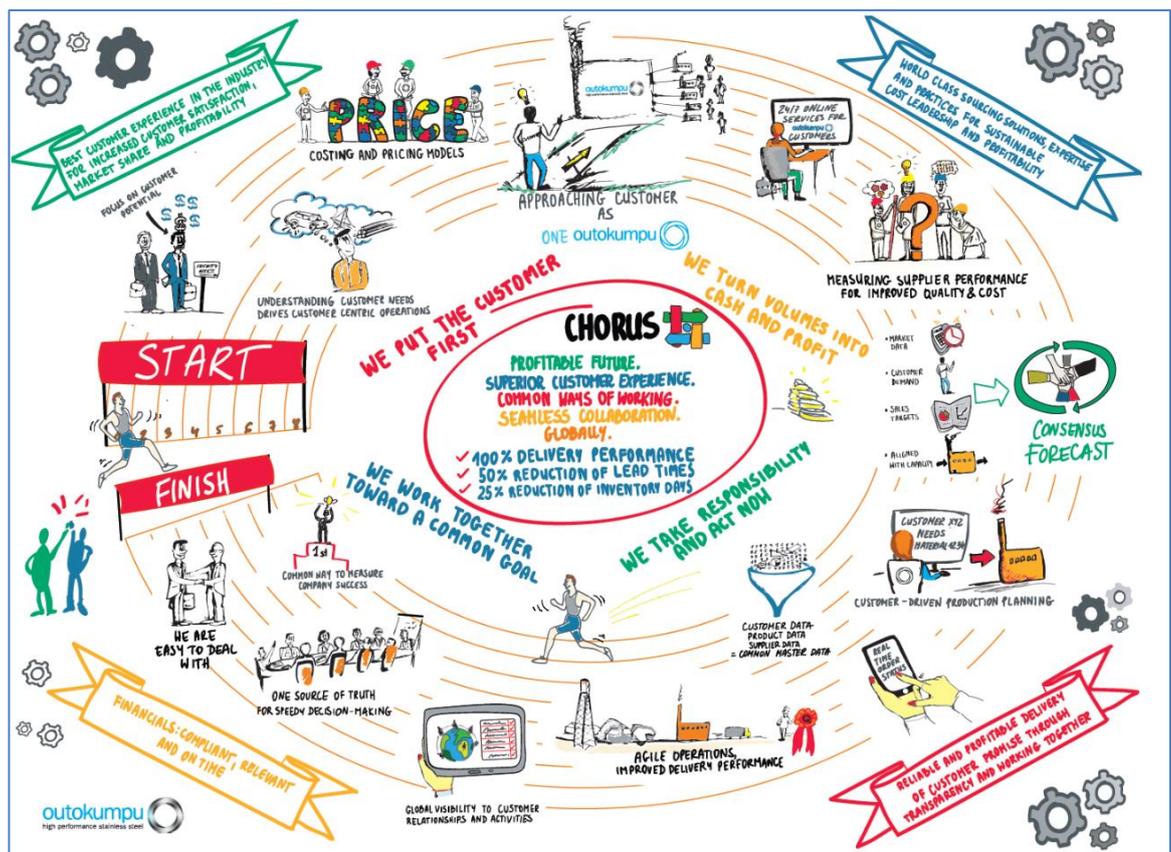
The third driver of the customer satisfaction is the commercial terms applied in the business. Differentiation of the competitors can be made by providing more attractive commercial terms as for instance payment terms and delivery terms. The importance of commercial terms has increased especially during the recent two years. The company has aimed to harmonization of the commercial terms. After the merger the company's different units have had in many cases different terms to same customer. That is one of the reasons why the harmonization of the commercial has been important to execute as immediately as possible. But the harmonization does not have negative impact on customer. The company has searched for the possibilities to provide commercial terms favourable not only to the company itself, but the customers. The T7 materials are supplied with the same commercial terms as the normal supply chain route orders. (Outokumpu 2014c.)

The fourth part of customer satisfaction driver is other factors as easy to deal with and technical expertise. These are increasingly more relevant issues to customers. A good and a proper technical expertise is valuable especially when seeking the new possibilities to utilize stainless steel or developing the existing product. The co-operation and chance for easy and prompt communication have a significant role. The timeline is tight and contacts between the mill and

CSCs are constant. Daily contacting is possible via email, lync chats and calls and normal phone discussions. Tele conversations can be held within a short notice. (Outokumpu 2014c.)

2.1.2 The Chorus Program

To improve and develop the business possibilities the company announced in the autumn 2014 a new program called Chorus. The Chorus is defined as “a transformation program with the target of developing and improving business capabilities for Outokumpu” (Outokumpu 2015a). The Chorus has a wide effect on the company’s core business processes as for instance in customer relationships, purchasing, financing, accounting and supply chain. The harmonization is the key word. Picture 2 visualizes the wide effect of the Chorus.



Picture 2. The Chorus. (Outokumpu 2015a)

The winning behaviors presented in chapter 2.1 are found from the center of the Chorus. Beside those, there are four core business processes of the Chorus program called Customer to Cash, Forecast to Fulfill, Procure to Pay and Record to Report.

3 METHODOLOGY

As Ghauri and Grønhaug (2005, 3) state, “Research is a process of planning, executing and investigating in order to find answers to our specific questions”. To be able to obtain reliable answers, it is vital to conduct the study in a systematic way. Therefore, it can be stated that the methodology is of a great importance in completing a research systematically and reliably. This chapter focuses on the research methods, data collection and data analysis.

3.1 Qualitative Case Study Method

The case study is defined by Yin (2009, 18) as “an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident.” This means that the case study method is used when the intention is to understand certain real world actions. Therefore, case study was chosen to be the appropriate method to conduct this research. This is because the aim is to discover how the new service centres, inherited from the corporate merger have perceived the integration process to the case company’s specific, tailor-made supply chain route T7. The focus of this research is to discover perceived knowledge and experience of a specific subject. Therefore, the case study method is the only possibly method.

The research relies on the qualitative research method. Qualitative research is an appropriate method when certain insight or explanation of a phenomenon is examined. Generally it can be stated that qualitative research is explorative, flexible and unformed (Ghauri & Grønhaug 2005, 202). The aim of this research is to generate qualitative information and obtain relevant data to understand how the implementation process of the T7 supply chain model was managed. The research required empirical data collection since it is practical and concerns a single case.

3.2 Data Collection

The data for this research was collected from various sources. According to Ghauri and Grønhaug (2005, 202-204), in qualitative research the collection and analysis of the data are executed at the same time. In other words there is continuous interaction during data collection and analysis that easily causes that new questions rise and more data is gathered. Actually this process is very beneficial because the more data is collected and analysed the faster the problem will be understood and solved.

Yin (2009, 99,102) states that in the case study method the data can be collected with six different ways. These sources are documentation, archival records, interviews, direct observations, participant observation and physical artefacts. This research was to be conducted by interviewing the service centre personnel responsible for inventory replenishment and sales. Nevertheless, it is obligatory that interviewees have experience of the T7 supply chain model. The service centre personnel have a key role since they have the best possible knowledge on how replenishment of inventories was managed before integration to the T7 and how the T7 influenced on it. The service centre personnel can explain and describe the potential changes the T7 caused to the working procedure and what were the challenges and conceivable benefits of it. The sales people have the experience in how the T7 has affected on their daily work by enabling them to offer products with a short lead time and excellent delivery accuracy. It is evident that the sales persons had to change way of working due to the fact that inventories were lowered remarkably because of the T7 and the person had to trust that requested product will be available in local stock on time with quick lead time.

However, the original research plan was changed due to the fact that it was not possible to interview personnel, whose participation researcher perceived vital. There were not enough time in the two days training session and all the interviewees did not participate the training. Therefore, all the interviewees who joined the training received the form with structured questions at the end of the training. The form was named as questionnaire explicitly to ensure that every

interviewee understood to fill the answers to questions. The purpose of the research was explained and the questions were reviewed. The original intention was that everyone would answer the structured questions within a few minutes. However, it was not considered reasonable since the training day had been long and to a certain extent heavy due to a significant amount of new information, numerous questions, discussions and case studies. The researcher wanted to provide interviewees time and possibility to scrutinize the relevant issues and get acquainted with the structured interview. The researcher was aware that this could have negative influence on respond rate, but she also considered the importance of thoroughly made responses that was more valuable than high respond rate.

The structured interview questions were in English and conducted unambiguous. The interviewees in service centres in Hungary, Poland and France were contacted by telephone and email, since they did not participate the training. They had had the training session during spring 2013. It was agreed that they send their responses to structured questions similarly by email.

At the beginning of the T7 supply chain model, when it was created, the customers were few case company's main European service centres. These service centres had been part of the case company for several years. After corporate merger the potentiality to integrate new service centres to the T7 supply chain model was evaluated urgently. The units, whose product demand suited the T7 product assortment and whose consumption was reasonable high were able to join T7. There are over twenty service centres that belong to the T7 supply chain model around the world. Therefore, it was decided that a few of the new service centres were included into this thesis research. The selection criteria were differential demand structure, size of the service centre and the service centres' customers. The service centres are in Hungary, Poland, France and Germany.

The theory of this study is based on supply chain management literature and especially on customer satisfaction in supply chain management. The reason for this is that the T7 is a tailor made, unique supply chain model and supply

chain management literature is vital. The literature data is gathered from libraries including the company's own library. The case company's extensive variety of publications concerning supply chain management, inventory management and strategic management objectives constitute a significant part of theoretical framework.

3.3 Data Analysis

The analysis is one of the most difficult stages in conducting the case study. Several kinds of techniques and strategies exist, but to find the most suitable one is a challenge. According to Yin (2009, 126), the possible techniques in analysing the case studies are pattern matching, explanation building, time-series analysis, logic models, and cross-case synthesis. Nevertheless the aim is to achieve high-quality analysis.

Due to the fact that the structured interview questions were open-ended it was not possible to use computer-assisted tools. Therefore, it was obligatory to handle and interpret the data manually. The open-ended questions were preferred because the researcher appreciated the possibility to receive versatile responses. Since only fourteen persons were invited to join to research from which eleven joined, the usage of open-ended questions were perceived as reasonable. In the research analysis, she/he term is used in order to keep the research confidential.

The research was conducted in March and April 2015. Due to the fact that finally eleven interviewees representing all four countries joined, the respond rate can be indicated as good. The structured interview questions were provided either after the training session or by email with the short explanation of the objective of the research. The training session was held in a one of the case company's German location. The questions were carefully formulated for clarity to avoid misinterpretation. This was managed well and all questions were answered. The reliability of the research can be stated to be good.

4 THE T7 SUPPLY CHAIN MODEL

Chapter 4 provides a detailed description of the case company's self-invented and customized supply chain process model T7. First the background and functionality of the T7 are examined. Additionally, the T7 network is studied and some of the existing initial feedback and experiences of the T7 are presented.

4.1 Background of the T7

The T7 supply chain model was created on basis of former M6 pilot project. The general aim was to provide better service to the company's own CSCs by shorter lead time and improved delivery accuracy. In addition, the T7 supply chain model is modified, improved and extended version of the M6. From the beginning of year 2012 General Stainless business area became responsible for sheet service centres operation. (Outokumpu 2012b.) This created an idea how to improve supply chain to be able to create significant cost efficiency savings. The T7 is a part of cost efficiency project called P250. The aim of the project was to reduce working capital by 250 million. During year 2012 it was evaluated that implementation of the T7 decreases the total inventories of General Stainless business area with approximately 4000 tons. This was to be achieved by centralizing safety stock to a one location and the possible extra potential with more efficient optimization of coordinated sheet and coil production. (Outokumpu 2012b.)

The T7 is a high performance concept to source the case company's Tornio Works material for the case company's European service centres including approximately 70 high volume products distributed to the CSC in an effective manner. (Outokumpu 2012a.) The Tornio Works consists of chrome mine located in Kemi, Ferrochrome works, steel melting shop, hot rolling and cold rolling mills in Tornio and the finishing plant in Terneuzen, the Netherlands. After the business merger during year 2013 also Indian, Chinese and at the beginning of year 2014 Australian CSCs were admitted to join the T7 with certain requirements. (Outokumpu 2012a.)

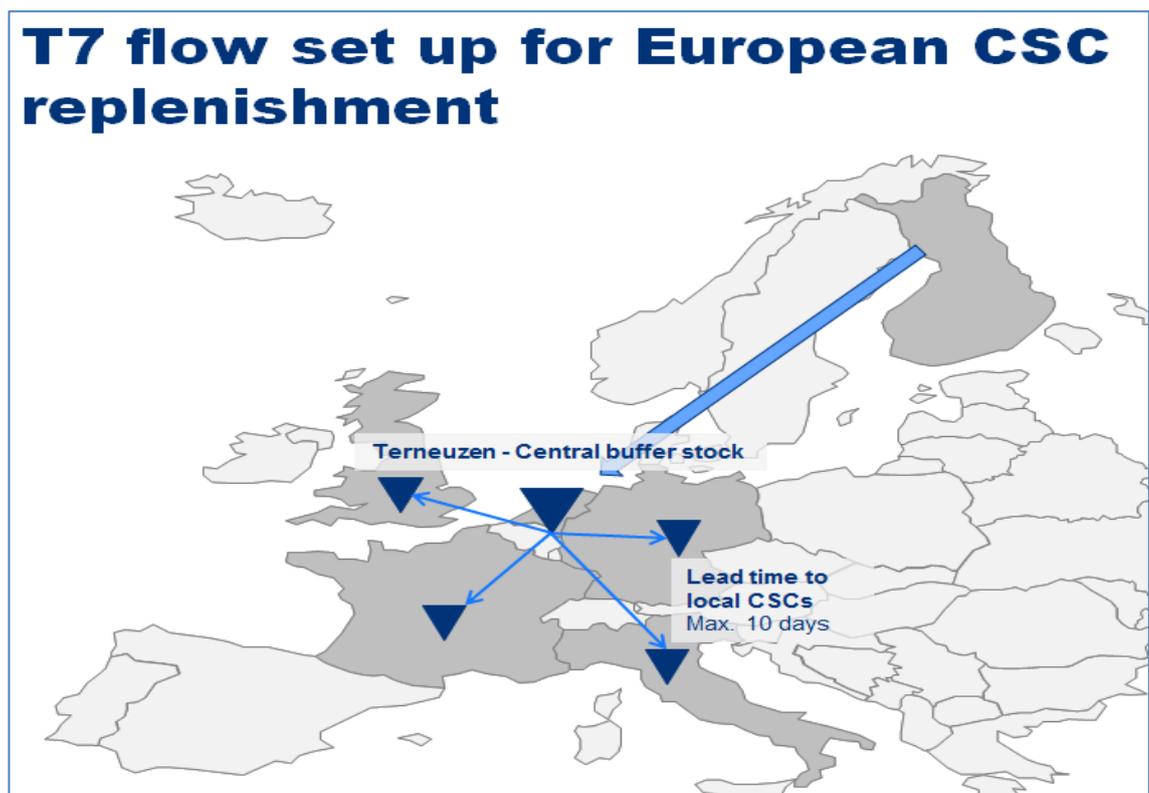
The benefits, the T7 supply chain model provides are excellent product availability with the short lead time, a consumption controlled supply of products, the right products in the right stock locations and the substantial savings through optimized tied-up capital. (Outokumpu 2012a.) As previously stated, the stainless steel business is vulnerable on economical fluctuations. In a strong market situation the fixed lead time, which is offered by the T7, prevents uncontrolled increase of sales stocks and enables more sales to Tornio Work's direct customers. One of the biggest advantages of the T7 to service centres is the remarkably improved service level to their customers and ability to sell more. The fact that optimization of sheet and strip production is made in a one location, releases production capacity of service centres, reduces the operations in whole chain and decreases process and packing costs. (Outokumpu 2012b.)

The case company has clearly stated the four success criteria of the T7. The first effect is the improvement of capital efficiency. Overlapping safety stocks in CSCs are not needed since upstream has a consolidated inventory. The stock level of the T7 buffer stock and CSC stock of products is followed and certain target value that stock can all together be, is settled. The second effect is improved product offering. The T7 products are available with high delivery reliability and the short lead time. In addition, sales can start offering product despite the fact that product is not at that time in their stock. This effect can be viewed as successful when the delivery performance is 96% or higher. The third criterion is the improved logistics efficiency. This includes the ability to minimize admin times between Terneuzen production plant and CSC transportation. The set target to this is the fact that all deliveries to CSC are managed within ten days from order entry. The last effect is improved cost efficiency. The aim is to maximize low cost of CTL i.e. cut-to-length processing at Terneuzen and benefit from the short lead time to CSC sales stock. This is measured by a set target and therefore, the certain percentage of sales stock sheets in CSC stock has to be replenished in sheet from Terneuzen. (Outokumpu 2013a.)

4.2 T7 Supply Chain Model

The T7 scope is the tailor-made and specific supply chain route to the service centres. It provides quick and accurate deliveries from the production plant in the Netherlands. Production planning and commercial issues are taken care of in the case company's Tornio Works mill by the T7 team.

The functionality of the T7 supply chain process is presented in the picture 3. The picture shows the general idea of the T7. The T7 buffer material is produced in the case company's mill in Tornio. The full mother coils are transferred with a line vessel to the production plant in Terneuzen. The service centres place their orders and the Tornio works T7 team gathers the orders and plans the production with most efficient and cost saving mode. The lead time from the order placement to the delivery to the service centre warehouse is maximum ten days.



Picture 3. The T7 Flow Set Up for European CSC Replenishment (Outokumpu 2012a)

The aim of the T7 is, to enable service centres with quick and reliable deliveries improve their customer service, strengthen customer relationships and lower local inventory levels in the service centres. The new service centres were integrated gradually to the T7 supply chain route. The new service centres are located in France, Poland, Hungary, together with two locations in Germany. The T7 working procedure requires learning from both the mill and the service centres. For the new service centres several facts, as for instance products, production possibilities, delivery possibilities, and delivery conditions were new. The committed personnel, effective teamwork and communication have the major role in the T7. Both the mill and the service centres have their own responsibilities in order to make the process successful. The trust between the service centres and the mill is a relevant factor.

The T7 supply chain model includes approximately 70 different stainless steel products. The products are distinguished by steel grade, width, surface and thickness. Due to wide range of products available, the order handling is divided to two different days (A and B products). The timeline is tight and the time to react on possible mistakes and problems is narrow. That causes an extra challenge, as well as the exceptional amount of manual work since certain specific automation tools cannot be used. Therefore, the good cooperation between the mill, service centres and Terneuzen plant operations is necessary. The time line is challenging to all stakeholders, therefore, it was created together to meet every stakeholders requirements the best possible way.

4.3 Case Company Network

The case company's strategic network includes several stakeholders. Customers, suppliers, employees, owners, insurers and authority all have their own requirements and expectations. The linkage and connections of the stakeholders are presented in the figure 3. One of the major advantages of the new organization was considered to be the improved ability to take into consideration all the different stakeholders. It is not sufficient to be aware of their requirements, but especially to keep them satisfied. Whenever the

company is faced with new order changed requirements, it applies the so called principle of PDCA (Plan-Do-Check-Act) in its all operations. The company seeks actively for improvements in its processes, products and services. Before a change is implemented, the outcome is verified and a process or a procedure is validated. The company identifies its stakeholders to be able to systematically and continuously monitor and address their requirements. However, sometimes in case if stakeholder requirements do not exist or are not applicable, the company applies its own governing principle and best practises. (Outokumpu 2014a.)

When the case company can respond to different stakeholders' requirements, they will be satisfied. The company understands that focused and consistent communication promotes its stakeholders' understanding of the company's vision and strategy. The company's aim is to communicate in a credible, proactive, unbiased and timely manner in order to enhance and protect its reputation both internally and externally. The company's communication requirements are specified in the Communication Policy of Outokumpu. The main channel for communication for all employees of the case company is the intranet called O'net. All employees have a personal user profile, which defines the internal content visible to user. (Outokumpu 2014a.)

Stakeholders' satisfaction is very vital for Outokumpu due to continuously increasingly challenging competition in the global stainless steel business. However, the issues that make stakeholders satisfied are dissimilar and making them satisfied may not necessarily mean responding to their requirements, but ability to fulfil their expectations and even provide more. In the following paragraph, the key stakeholders and their expectations are explained in detail.

It is often announced that a company is nothing without its customers. As CEO Mika Seitovirta states "We aim to excel on performance as we want to be the industry leader in customer satisfaction. To drive performance improvement, we continuously seek new Outokumpu best practises in our business processes. Our excellence programs aim to always prioritize direct or indirect value for our customers" (Outokumpu 2014a). The company has received feedback from its

customers. The received feedback is valuable to the company, because the company can use it to develop the services and provide something innovative and unique. It is a dynamic exchange between the company and its customers. The business strategy change is supported by the change of culture. The focus is shifting from product to the customer.

Quality of Outokumpu's products and services is recognized to respond the expectations of and to satisfy its customers. This recognition is contributed with the knowledge, experience and competence together with customer engagement. Different customer segments prioritize dissimilar features of the products or the services. That is also valid with stainless steel business. There is a wide range of customers, who appreciate dissimilar features or services and due to hard competition the company invests on research and development, to find new possibilities to utilize stainless steel and that way also finding new customers. Evidently, the case company's products or services has to meet their requirements, but it must be done with competitive terms such as for instance payment terms, delivery terms, delivery performance and quality.

The interest of shareholders is clearly not the same as customers' interest. To keep shareholders satisfied, the company needs to be able to show profitability and accountability. Shareholders want to be aware of the company's economic status and key figures, as return on investment are relevant to them. The significance of shareholders trust and commitment, as well as the company's attraction to new possible shareholders is crucial for instance when emission share issue is made. Satisfied and committed shareholders' investments were vital also when Outokumpu made the business merger in 2013. However, shareholders expect also to receive something against their investments. Therefore, it occurs that they are obtained dividends despite the poor economic status of the company.

The third stakeholder, i.e. network partner, whose satisfaction is also relevant, is the employees of the company. They also have a great variety of expectations on company depending on their position and job description in the company. Some of the main expectations can be stated as responsibility,

challenging tasks, competence development, recognition and well-being in a safe and secure working environment acknowledged by the spirit of winning behaviours that are explained more detailed in chapter 2.

One tool to recognize, how these expectations are achieved is Performance and Development Dialogue system (PDD). The PDD-discussions are held at least once a year and in PDD, the performance of an employee with regard to targets is reviewed and the strengths, weaknesses and development needs are openly communicated between the employee and the foreman. In the PDD-discussions competence is assessed, gaps and training needs are identified and new targets and improvement plans are drawn up. Sometimes employees perceive the PDD-discussion unnecessary and waste of time despite the fact that the aim is to encourage and activate two-way dialogue in order that managers and employees can understand each other better and work against common goals smoothly. The outcome of the PDD is documented and quality, completion and effectiveness of the PDDs are monitored as part of Performance Management. (Outokumpu 2014a.)

The main expectations of suppliers of goods and services are responsibility, partnership, clear service or product specification and expected performance (Outokumpu 2014a). The importance of good partnership can be noticed especially for instance when there is a lack of raw material. As one of the examples of supplier partnership importance, can be mentioned the partnerships with forwarder agencies. When there is a lack of transport capacity, the forwarder agencies have the bargaining power. About a year ago the company's Dutch production plant had difficulties to reach delivery targets. The products were produced and packed on time, but the deliveries were delayed, because of the lack of available transportation equipment. This clearly has been an indication of not working network connection. In researcher's opinion this kind of behaviour is clearly understandable. The researcher thinks that with a good and a reliable strategic network cooperation and partnership such a problematic situation that has clearly influence on customer satisfaction, can be prevented.

The other stakeholders, lenders and insurance companies, national and international industry and business associations and federations as well as local communities may be easily forgotten. Lenders and insurers expect the company to execute prudent management with controlled risk. The case company participates actively and joins different kind of efforts, to promote stainless steel industry's interests that are coordinated by national and international industry and business associations and federations. (Outokumpu 2014a.) The companies must interact with local and global communities. This way they build wider networks and systems. The companies are aware of the fact that their operations have an influence on society and environment (Allee 2003, 162). Local communities expect the company's active participation, interaction, support, accountability, job opportunities and involvement in environmental issues (Outokumpu 2014a).

Based on researcher's observations, the case company has clearly understood the importance of a good relationship with the communities. The case company has cooperation for instance with Tornio municipality. This is really visible and it can be easily stated that Outokumpu Tornio Works mill is the biggest employer in Tornio municipality area. From time to time, there is news about the environmental issues such as pollution of air and water systems. The researcher knows that the case company is responsible and aware of risks that stainless steel production can cause to the environment. The case company is actively participating on sustainable environmental work and the company's research and development department is continuously working towards decreasing the environmental impacts more and more. The stakeholders, i.e. the strategic network partners, create value for the company by providing feedback and workforce. The municipalities are significant strategic network partner for the case company. As an example of value creation, Tornio municipality has recommended employees and arranged suitable education for the company's needs.

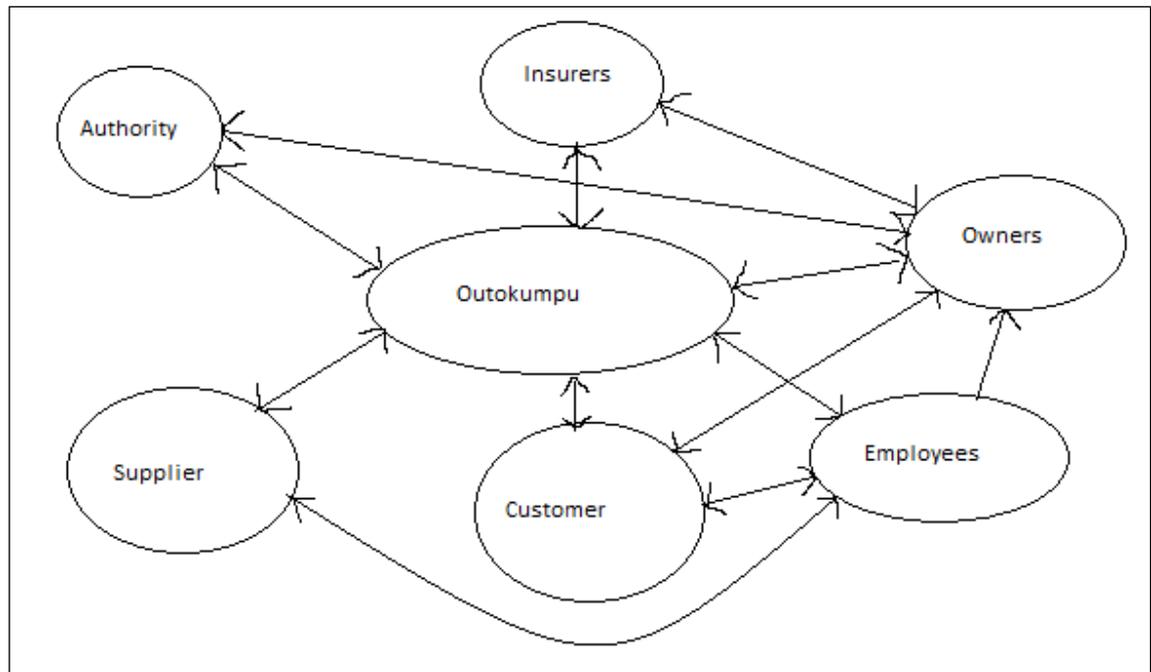


Figure 3. Outokumpu's Strategic Network.

The stakeholders are all necessary and bring benefits for the company. Therefore, it can be stated that the stakeholders add value to the company. Thus, it is important that the case company takes care of the stakeholders with its best ability. The figure 3 above visualizes the relationship linkages and the value exchanges between the network actors.

4.4 T7 Network

In the previous chapter the case company's complex strategic network was examined. In this chapter, the network of the T7 supply chain route and the responsibilities each stakeholder have, are presented

The T7 team of Tornio Works includes the team working in the mill at Tornio and a team in the production plant in the Netherlands. The T7 team in the mill included first few people each belonging to production planning department. However, later on, after the amount of the customers in the T7 route enlarged, there was a need to change the functionality of the team. In order to be able to function better with increased amount of work, it was decided that three persons have the responsibility to schedule production pipeline, monitor the buffer, planning the shipping and managing the cutting programs. The team got new

member, since also the commercial duties such as creating, checking and confirming the orders required more time and effort. These two commercial coordinators are able to fluently replace each other in case of necessary. The T7 team in Terneuzen plant includes two persons, who are mainly responsible of production planning, but has the linkage to logistics. The two teams work very closely that is according to the researcher mandatory especially in the challenging situations as for instance when production lines in Terneuzen have technical problems. Similarly, the importance of good cooperation is vital when the demand is remarkably high and there is a challenge to be able to produce all the orders within time. This kind of cooperation may be time-consuming, but it clearly brings benefits not only to the teams and the customers, but also to the company itself. Lack of cooperation would easily create unnecessary misunderstandings, production problems and failed promises to the customers.

The second party is the teams in CSCs. In each unit there is a team of normally two persons, who take care of the required activities at their site. They check the replenishment need and make orders, take care of stock matrix management and in some units they can also have production related tasks. The researcher's opinion is that on the one hand one person responsible of all the previously mentioned T7 tasks is a clear weakness. The reason is that when this person is absent not only the unit suffers, but the whole T7 flow as well. On the other hand it is understandable that all the units do not have the equal resources and possibility to have several persons working only for the T7. The importance of the T7 varies depending on the size of the CSC and the fact how well the T7 product range matches to CSCs demand.

The third party is the team responsible of CSC and mill coordination and development. This team consists of people from the mill, Terneuzen production plant and CSCs. In the weekly telephone conferences they check the situation in the CSCs and in the mill, take care of forecasting and capacity reservations.

All these three parties work together and the common benefits are simplified forecasting and since no general sales involvement is required, the discussions and decisions can be made more feasibly. The T7 statistics are followed and

analysed weekly. These statistics are discussed thoroughly. Therefore, it can be stated that reporting is transparent. According to the researcher, this kind of cooperation assists every party in reacting more feasible changes of global demand of stainless steel. That is, at the end significant advantage for the whole company.

As previously stated, the T7 is a customized supply chain route. However, how it differs from the normal supply chain route not discussed yet. According to researcher, when ordering via normal supply chain route, the involvement of sales is required more and the production planning has a smaller role. Normal route orders are not handled similarly, the production lead times are longer and there is no need for the T7 kind of teams and fixed timelines. Therefore, sales and purchasing people in the CSCs as well as production and commercial department in the mill have more time to operate. Since the lead times vary from normal route generally from 4 weeks to high demand period to 12 weeks, the possibilities to modify the orders are better than in the T7, where orders need to be produced within few days. The researcher foresees this clearly not only a challenge, but a great opportunity to every stakeholder.

4.5 Experiences and Initial Feedback of the T7

This chapter focuses on the creation and the implementation of the T7 supply chain model. Before the T7 supply chain model was established, the case company had a pilot project called the M6. The M6 was the first step to create a new supply chain model and according to researcher, the M6 provided good basis to learn new working method and the implementation of the T7.

In the first phase the T7 case company's four main European CSCs joined the model. They all had their own challenges in their business and expectations of the T7. The implementation process of these CSCs and their initial feedback are discussed in brief in this chapter. Lastly, the recognition the T7 model has received, is presented.

4.5.1 Experiences of the T7

When the M6 was established, it was clear that in order to obtain reliable and sufficient results and experience, the participants of the project had to fulfil certain criteria. The main criteria was the consumption level, since it was necessary to have adequate consumption of the products explicitly the model could have best possibility to function. The consumption statistics of the CSCs were examined and based on that data; the first twelve products were decided.

Due to the fact that the four CSCs that joined the T7 had an experience of the M6 pilot project, the implementation process of the T7 was rather simple. The representatives of the CSCs and the mill had experience of the close cooperation and the compromises that had been necessary to make already in the M6. The participants had possibilities to know each other better, to visit the Terneuzen production plant, to disseminate the experiences with each other and to visit the Tornio Works mill. This enabled parties to understand each other and create a good communication and confidence that the researcher values the most important factor of success.

When the new service centres joined the T7 model, their circumstances were totally different. Immediately after the merger of the competitor was finalized, the case company evaluated that the new service centres business had to be developed. The network of new service centres in Europe was comprehensive and the case company observed the need to enhance their businesses. Therefore, two service centres, in Germany and France, were integrated to the T7 supply chain model. They established own teams to the T7 and the team from the mill visited the units, got familiar with their business and their production capabilities and the T7 instructions and product range were presented. The first trial orders were placed only approximately three months after the merger. The experience was encouraging despite the early challenges and only two months later, two other service centres located in Poland and Hungary joined the T7. Now the representatives of all these four new service centres visited the Tornio Works mill and got the official training not only concerning the T7 but how to place the orders to new sap system themselves.

Before that, the only possibility was to send the orders by email to the T7 team in the mill.

Joining the T7 supply chain certainly was different than the first CSCs, who had several years' experience of the case company's products, the objectives and the vision. They knew the supply chain route and the case company's culture. The new service centres had functioned differentially and they had more to learn and adopt than just new supply chain model. The case company's culture, the products, the function of the business was totally different. In addition to this, the service centres had a pressure to improve their business for instance by reducing the inventory levels to the case company's set limits. The T7 supply chain membership provided a good possibility for that, but the people had to admit new working model efficiently in the short notice.

Later on more new service centres joined to the T7, but then it was not possible to arrange specific training sessions and meetings, in some cases the service centre representatives learned the T7 from a third person, a T7 team member of another service centres. The mill team provided the T7 instruction document and telephone meetings were held. In the researcher's experience, this led several kind of operational problems and a face-to-face meeting was necessary. During the spring 2015 two members of the T7 team in the mill held two days training in one of the case company's main location in Germany. The participants were requested to think questions and issues they want to settle beforehand and based on that feedback and the approach and the experiences the team in the mill had the training was designed. The training material is attached as appendix 2.

4.5.2 Initial Feedback

The T7 supply chain model started with the company's four European service centres in Germany, France, Italy and UK. Therefore, these units have most experience of the T7. Some of these people in different service centres dissimilated their experiences in the company's intranet. The local supply chain manager in Germany commented the T7 in the case company's intranet on May

2012 by stating that “I have appreciated the improved ability across units and functions to solve the operational problems that emerge with fast decision making. T7 provides me with a tool that I can use in daily operations. The short lead time means that I can now replenish these items based on demand. It supports sales by giving them material availability without building unnecessary stocks.” (Outokumpu 2012c.)

The Italian service centre had a challenge to reduce the inventory level defined by the case company. They also confronted the problem of too many inventory days. They understood that the only possibility to reach the set targets was the change of the strategy. One main operation was the change of the replenishment that is now based on a regular consumption. The service centre was able to reduce inventories remarkably without any kind of harm to sales. The Italian Supply chain and stock and processing Manager states that lowered inventory level was obtained by excellent work of the local teams in purchase and sales and the constant support of the case company’s supply chain. He highlights that success was reached by the created communication, cooperation and synergy between the CSC and the supply chain of the mill. With working together the targets can be reached and this will lead to a team spirit and continuously improved results. (Outokumpu 2012d.)

The section manager of production planning in Tornio Works disseminated the positive experiences in the case company’s intranet in May 2012. She commented that despite the tight schedule and challenging targets, the project was successful. All the parties, in the CSCs, Terneuzen production plant and the team in the mill were enthusiastic and open-minded. The development work and cooperation were rewarding since everyone were motivated and committed. (Outokumpu 2012c.)

The case company’s sales managers gather together in monthly sales meetings to discuss for instance current market situations. In November 2014 the meeting was held in Tornio. The sales managers from Italy and Germany were interviewed. Both highlighted the importance of quality and the delivery accuracy in a challenging market situation. The special thanks they wanted to

give to the T7 route. They commented that the T7 is one of the most important components of delivery accuracy and a good customer service. (Outokumpu 2014d.)

In the case company's intranet Mr Olli-Matti Saksi, the head of stainless EMEA, was interviewed of his reflections on sales and customers and how to put the customer first. He emphasizes the development of the customer service, delivery reliability and logistics to provide the competitive advantage. Mr Saksi states that "Our short lead time T7 supply route is one example of this. By working together, becoming even more customer orientated, making faster and better decision we can definitely turn our volumes to profit. Then we shall unbeatable." (Outokumpu 2014e.)

The researcher of this thesis agrees on the opinion of the section manager of production planning. She was working in the T7 from the beginning. She got the first experiences of co-operation with Terneuzen and CSCs teams, when the pilot project M6 started. The project planning discussions were not always simple and everyone had to compromise. The most important matter was to understand each other and to create the good and trustworthy atmosphere, where everyone worked together towards the common goals. Additionally, the achieved cooperation was successful. It was remarkable to notice, how each team were really enthusiastic to work together to create an own, customized supply chain model, the T7. The significance of the good cooperation is reflected on daily work that the researcher highlights as a vital element. Without that success is not be possible.

4.5.3 Sales Excellence Award 2014

The spirit of innovation and continuous development are valuable to the case company. The case company seeks continuously methods to improve the business and ability to provide its customers something special that competitors do not have. The case company encourages employees for innovativeness and gives the credit of the achievements.

The case company's global sales meeting in January 2014 had a theme "Putting the customer first". In this meeting the case company gave two Sales Excellence Awards for stainless coil EMEA area. The recognition criteria were the sales performance, profitability improvement and successful cooperation through the business areas and regions. The inventory efficiency improvement in CSCs was one of the awarded. The improvement achieved was based on the T7 supply chain model. All teams in the CSCs and the mill were praised. The case company's recognition was announced as follows: "Achieved and even exceeded very challenging targets in both timing and a very high positive cash impact. Clear target setting and follow-up combined with effective communications at all levels of organization. Working together: despite the demanding and partially conflicting targets (sales volume vs. inventory) teams were able to achieve targets with excellent co-operation and spirit". (Outokumpu 2014f.)

The researcher highlights the importance of co-operation with different organization levels and the transparency. She has perceived that the lack of co-operation and dissimulation of the information are challenging to manage in big projects. Too often the people, whom it concern have not received the required information due to problems to understand, what information every stakeholder needs. The unnecessary lack of disseminating the knowledge leads readily to misunderstandings and degrades the collaboration and eventually the achievement of the defined targets.

5 SUPPLY CHAIN MANAGEMENT AND BUSINESS NETWORK MANAGEMENT IN INTERNATIONAL BUSINESS

The theory of the supply chain management and its key elements are studied here. The T7 supply chain route is the model that the case company has created based on its own innovation and perception. Therefore, it is vital to examine the supply chain in detail in order to understand its importance in the international business. Intensive globalization has a crucial influence on business and companies have started to create networks that enable them to improve the productivity and profitability, to find new business opportunities and create value. (Valkokari, Hyötyläinen, Kulmala, Malinen, Möller & Vesalainen, 2009, 9.) Therefore, the role of networks in the supply chain management is discussed elaborately.

The supply chain is generally comprehended as a chain to produce and deliver material or service to the customer. However, it is a co-operation and a flow of different actors and not just set of actions to make a business. Perhaps the most common idea of the supply chain is that it is set of departments as a production planning, sales and logistics actions. In researches experience, in some cases supply chain is even understood as same as logistics, but it is important to comprehend that logistics is only one part of the supply chain. Supply chain management does not mean only delivering the material or the service to customer.

According to Hugos (2011, 3), supply chain management was invented on 1980s and stabilized as a common term during 1990s. Before that, the concepts of logistics and operations management were used. The concept of supply chain management has various definitions. Hugos (2011,4 citing Mentzer et al.) describes supply chain management as follows "The systematic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across business within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole."

However, Hugos (2011, 4) summarizes the concept of supply chain even more efficiently and clearly: "Supply chain management is the coordination of production, inventory, location, and transportation among the participants in a supply chain to achieve the best mix of responsiveness and efficiency for the market being served." In addition Schary and Skjott-Larsen (2001, 22) define the supply chain as a linear sequence of operations organized around the flow of materials from source of supply to their final distribution as finished products to ultimate users.

5.1 Key Concepts

As previously defined, supply chain management is a complex coordination of several actions to achieve desired outcome. It can be stated that supply chain is a net of different actions that work against common target. To comprehend and embrace this system some key concepts are now introduced. These concepts are logistics management, supply management, value chain, and value innovation.

Logistics management can be comprehended as an exhaustive set of chain processes that facilitates the demand consummation. The aim is to supply the correct product or service at the right time and at the right place (Chen, Defee, Gibson & Hanna, 2014, 2). However, Christopher (1998,4) defines logistic management as a process of strategically managing the procurement, movement and storage of materials, parts and finished inventory through the organization and its marketing channels in such mode that current and future profitability are maximized through the cost-effective fulfilment of orders.

Supply management can be defined as a significant business function that makes input to every level of the organization. Chen et al. (2014, 2) state that the supply management focuses on identification, merger, access, positioning, management of resources, and related capabilities the organization needs or potentially needs in the attainment of its strategic objectives. Whereas logistics is generally comprehended as a control of product, distribution supply management is viewed as controlling the strategic sourcing of direct materials,

finished goods, services, capital equipment, and indirect materials. Both are needed to ensure optimal performance of the supply chain. (Chen et al. 2014, 2.)

According to Shary and Skjott-Larsen (2001, 49), the concept of a value chain was originally invented by Porter as a tool for competitive analysis and strategy. It is composed of stages that each has their own value-adding activities. These activities are inbound logistics, operations, outbound logistics, marketing and sales, and service. As a result of these activities the final product is more worth and valuable to the customer. Christopher (2005, 13) state that inbound logistics, operations, outbound logistics, marketing and sales, and service are the primary activities, whereas support activities are infrastructure, human resource management, technology development, and procurement. Together these both activities provide strategic value. In addition to that, the objective is to eliminate the redundant activities that evidently increase the costs, but do not add value to customers. The objective is value creation.

Hoover, Eloranta, Holmström and Huttunen, (2001, 38) define the concept of value innovation as follows: "A value innovation is a distinct offering that makes it possible for the customer to change the way he operates". The concept of value innovation is concerned, when a company changes the strategy from competition to the customer. The company wants to differentiate by improving the offered value to customer. The customer relationship has a key role.

5.2 Business Networks

Close co-operation and networking of companies is considered in the global business continuously vital. As a phenomenon, networking is multidimensional. Therefore, management of the companies must be capable to identify different type of networks and partnerships as well as the available benefits that can be perceived. However, the situation is challenging since networking possibilities and management systems are hardly known. (Valkokari et al. 2009, 11, 13) According to Möller and Rajala (2007, 895), business networks are widely used to achieve several different kind of benefits. Networks can include distribution

channels, brand networks, technological innovation and product development networks. In addition, network can be a competitive coalition of companies to create for instances an industry standard.

Firstly it is essential to differentiate the concepts of a net, a network and networking. Valkokari et al. (2009, 13) define the concept of a net as an organization that is composed by certain group of companies or organization that is built purposefully and goal targeted. Net has an objective that determines its operation and development. Every member of net has her or his own specified targets and roles that define the responsibilities. As an example of nets can be stated business nets and strategic nets. Network is a kind of limitless network tissue, constructed by companies' and other organizations' relationships. (Valkokari et al. 2009, 13.) Networking can be easily comprehended as the same as cooperation. However, the difference is the commitment to common objectives that is required in networking. This requires the communion of essential information and knowledge. (Valkokari et al. 2009, 59.)

5.3 Strategic Business Networks

Strategy in the business networks cannot be comprehended only as a process of analysis, development and implementation. In networks strategy is not a buildup of the companies' own decisions, but other parties as well. Therefore, it can be stated that strategy in network requires action, reaction and re-reaction. (Ford, Gadde, Håkansson & Snehota 2003, 191.)

The aim of business is to provide continuously better value to customers and that way achieve increased profitability. Networks are an essential part of companies' strategic management. Generally, it can be stated that strategic networks are network organizations developed by certain companies. The objective of network organizations is to obtain results, market position or other benefits impossible to reach otherwise. Therefore, it is vital that the members of network have each specific roles and responsibilities. (Valkokari et al. 2009, 59, 63.)

However, the management should have a clear vision of the possible benefits and risks that different kinds of cooperation models can bring. The required procedures and knowledge must be taken into account as well. (Valkokari et al. 2009, 59, 63.) Möller and Rajala (2007, 895-896) state that high-performance management of different kind of networks depends on the value creation logic in other words what is the value the network performs. Therefore, it is important to recognize the three main nets: current business nets, business renewal nets and emerging new business nets. These nets were studied more precisely in chapter 4.3.1. In addition, different types of networks cannot be managed similarly. Therefore, suitable governance of management must be identified.

5.4 Strategic Business Networks as a Value Creation System

The current business nets are divided into two categories: vertical demand-supply nets (hereinafter VDNs) and horizontal market nets (hereinafter HMNs). The objective of VDNs is to create stable transactional efficiency. In addition, it is possible to provide integrated customer offerings due to joined resources. In the management of VDNs, a strong correlation between the actors exists and the controlling and coordination is managed efficiently. Generally it can be stated that the HNMNs are established when companies operating in the same business confront intense competition. In the HNMNs the autonomy is high, but the operation principles are shared. In addition, the customer and market information is shared as well. (Möller & Rajala 2007, 899-902.)

The business renewal nets can be divided into the following two categories based on its function: business renewal nets (hereinafter BRNs) and customer solution nets (hereinafter CSNs). The objective of BRNs is to improve the existing offerings and business processes of the value-production system. Typically, the BRNs have detailed objectives and timelines and the aim is the renewal and development of the basic business. It can be noted that the BRNs are often development projects to which each partner brings its own special knowledge. The common development work strengthens trust and possibility to cooperate. Despite the fact that there are several same features in CSNs as in

BRNs, the major difference is the objective to provide customer-driven solutions on a project basis. (Möller & Rajala 2007, 899, 902-904.)

Valkokari et al. (2009, 75) state that the emerging new business nets create the world of future. According to Möller and Rajala (2007, 899, 904-905), the emerging new business nets are consisted of actors specialized in developing new technologies, products or business concepts. An uncertainty of emerging knowledge and value activities can be noted. The emerging new business nets can be divided to three different nets: innovation networks (hereinafter INs), dominant design nets (hereinafter DDNs) and application nets (hereinafter ANs). INs are quite loose science and technology based networks, typically built by universities and companies. DDNs have more sense of direction aiming to create new technology solutions. The strong vision of the future is relevant. The research indicates that ANs networked development and the aim is to create successful commercial applications before the competitors.

5.5 Management of Networks

Management of different kind of nets is an exigent challenge. However, networking is a strategic decision and a function of a company in its operational environment, needs to be recognized. Operation in a changing global business environment as itself is demanding. It can be stated that one reason that leads companies to networking is the changes in the business environment. (Valkokari et al. 2009, 15-16.) However, Valkokari et al. (2009, 17) remind that networks are not necessarily always the best operating model, sometimes another operating model is more inexpensive. Valkokari et al. also pinpoint the importance of management's capability to perceive a company's status and the most suitable operation model in rapidly changing business nets. Ability to operate in a several network and build partner and network relationships are essential requirements to achieve success in the future. (Valkokari et al. 2009, 17.)

Managing in networks of is complicated and difficult. Companies in network are related to each other. Generally that means that the reacting to others actions is

needed. Therefore, it can be stated that the continuous interaction and interconnected communication in networking is crucial. Furthermore, companies tend to act simultaneously in several different networks that make managing even more challenging. In network of different companies it is evitable that each company attempts to prioritize its own interests and manage own relationships. However, this is not the correct operation method. The interpersonal communication is required and the importance of a good relationship is noted especially when problems occur. When the relationship in network is good and solid trust exists, the problems can be solved. (Ford et al. 2003, 188-190.)

According to Möller and Halinen (1999, 417-418), the capabilities of network management can be divided to the following four main frameworks: network visioning, net management, portfolio management and relationship management. Network visioning is an essential strategic capability that indicates management's skills and competencies in creating qualified views of networks and evolution possibilities. The second capability is net management capability that indicates the ability to mobilize and coordinate the resources and activities of the other partners of network. Especially this capability is required when value-creating nets and customer nets are established and managed. Portfolio management capability concerns a company's capability to manage customer and supplier portfolios. The analytical aspects as competencies in creating and using databases are included. A company's competence in handling individual exchange relationships is indicated by relationship management capability. Both analytical and organizational competences are required.

Management of network differs from traditional management. According to Valkokari et al. (2009, 155), management of networks is implicit operation and focuses mainly on data collection, affection of the network actors, management of social and structural issues and management of business. The operation in networks necessitates often consolidation of interests of several actors. Therefore, it is clear that new management methods are required.

Valkokari et al. (2009, 156- 159) present four different fields of network management: affection, integration, coordination and direction. Generally, affection is influencing to other actors of the network. Affection can be also a way to motivate, activate and direct others. The common objectives lead affection. The most important affection modes are connected to informing, communication, persuasion and assure. In network management concerns also integration of resources that typically concerns combination of strategy and procedures. To ensure that the cooperation in network is efficient, the coordination of resources and value creation functions is essential. The aim of the coordination is optimized utilization of resources and value creation functions. The direction can be easily comprehended similar as management. However, in network, the direction means one actor's ability to follow other actors and lead other actors' value creation functions. How the direction is divided between the actors, depends on networks. In innovative networks the direction can be more equally divided than for instance in supplier networks, where one actor may have more power to lead others.

5.6 Requirements and Challenges of Networks

The continuously more challenging and demanding competition in the global business has led to an era, where the operation in traditional markets are substituted by networks consisted of companies and other operators as for instance research agencies. Due to the global competition, companies are forced to improve their operational efficiency; customers require short lead-times, flexible delivery times and competitive prices. Therefore, it can be stated that the ability to contact the end-user has become more difficult than earlier. (Möller & Halinen 1999, 414-415.) However, Valkokari et al. (2009, 94) remark that networking as itself does not bring profitability, renewal, growth or internationalization.

According to Valkokari et al. (2009, 95), there are certain prerequisites for a company's business in order to be able to benefit networks. Firstly, it has to be noted that different kinds of objectives require dissimilar cooperation models. Management of a company has to be able to identify its ability to improve

networking readiness and classify the strategic objectives. In networks commitment is the key factor. Therefore, it is essential that companies can comprehend the significance and the benefits of the cooperation to each actor of network. In order to be able to develop and renew the networks, the actors need to accept the different kind of working procedures and cultures. (Valkokari et al. 2009, 95-96.)

As previously stated, networking has become an increasingly common mode to operate in a global business. What the challenges and possibilities are, depend on the type of network. If network is a tight partnership, then mutual learning can be perceived as a remarkable possibility to improve the effectiveness of the partnership. When the actors of network integrate and develop their resources and knowledge, the new wider customer based solutions can be created. The outcome of multidimensional network can be for instance innovations or new business concepts. In the future, the ability to organize value creation processes among the other actors of network and ability to recognize new business operation opportunities are important. The relevant issues are anticipation of the future opportunities, strengthened understanding of customer and adjustment of operation procedures. In the future the importance of dissemination and creating the information in network is increasingly more essential. The wide and effective interaction between the actors is required. (Valkokari et al. 2009, 224-226.)

6 RESEARCH ANALYSIS

The objective of the research was to recognize the challenges and difficulties during the adaptation process of the case company's self-created, unique T7 supply chain model. The participants of the research were encouraged to participate and thus they could assist the case company to develop the implementation process. All the interviewees of the research were in the new service centres in four different European countries. Some of the interviewees were informed about the research in the T7 training session in Germany March 2015. They were explained the objective of the study and the structured interview questions were provided. To be able to concentrate on filling in the structured interviews questions it was agreed that interviewees were to return the structured interview questions by email to the researcher. Due to the fact that the training session participants were from the case company's different locations in Germany, the structured interview questions were sent by email to chosen interviewees in Poland, Hungary and France. The objective of the research was explained to them during telephone discussions as well as in the short introduction included within the structured questions section in the questionnaire.

Positive feedback concerning the study was obtained. For instance, in Hungary there were more people willing to participate in the research than the researcher had originally expected. The first responses were received only a few days after the training session and the last responses within a month. Totally fourteen persons were invited to participate in the research, from which eleven participated the research. Due to the fact that there were interviewees from all four countries involved, i.e. France, Germany, Hungary and Poland, both the response rate and sample are evaluated as comprehensive.

The structured interview questions were divided into four sections: interviewee's background data, initial experience, the changes the T7 has caused and finally the development ideas. The background data provides knowledge of the respondent's experience of the stainless steel business, the operation location and the responsibilities. These questions are necessary to be able to

understand the starting point. The second part gathers the information on how interviewees have perceived integration process to the T7. The third section's focus is on changes. It is evident that to participate in the T7 model has affected to normal daily working regardless of what the respondent's responsibilities are. What the changes have been and how those have affected on daily work is studied. In the last section the interviewee is asked about the customer satisfaction. Lastly feedback and development ideas of the implementation process are inquired.

6.1 Background Data

The interviewees were divided as follows; five German, three Hungarian, two Polish and one French. Despite the fact that German interviewees were in the majority, it is not perceived as a problem since the interviewees were from three different service centres. Vice versa this enabled an excellent possibility to compare the differences within German service centres. Therefore, it was not sufficient to find out only the country the interviewee works, but also the location. Consequently, it can be stated that the sample was comprehensive and versatile.

Next, experience of the stainless steel business was inquired. That is among the key information. The stainless steel business is a special industry area and the best way to obtain knowledge is the experience of a daily work in the business. Four interviewees had operated in the stainless business approximately twenty-five to thirty-four years, whereas one person had only three years working experience. The general working experience time was eight to nine years. This kind of variety brings great value to the research. The significance of working experience for the research is highlighted, due to the fact that integration to the T7 supply chain model requires ability to change the present operation mode. However, generally it is evaluated that the change of the working procedure and to adopt new is easier when the firm routines do not exist. Therefore, it is interesting to compare if the person with few years' working history embraces the new procedure more feasible than person over twenty years of experience.

The T7 supply chain model influences on several business functions. Therefore, it was important to study, in which positions interviewees operate in their own units. Interviewees were asked to choose from the following options: stock replenishment, sales, purchase, production planning or other. The last option was added to ensure that every interviewee was able to answer correctly. It was not forbidden to choose more than one option since it was known that in some units the interviewees may be responsible for more than one field. The majority of the interviewees informed stock replenishment as an area of the expertise. However, few of them were equally in charge of either production planning, purchase or sales. This type of versatile expertise is seen as a valuable asset to the research. Nevertheless, the responses of an interviewee with one area of expertise are not subordinated. The small units may not have equal resources as big units and therefore, wider job descriptions are necessary. A person with long work experience may have been evaluated to be able to manage several areas of expertise. Nonetheless, the responsibility of several areas can be seen as negative aspect. The reason is the uncertainty, if the person has a comprehensive knowledge of all the areas or is it merely limited expertise. In case of limited expertise the wide responsibility are can be seen as weakness for the research. Consequently, the interviewees' expertise of one or several field can be observed especially in continuation questions concerning the T7 impact on daily work. It can be assumed the T7 has influenced more to them, who are responsible of more than one expertise area than persons with one specific area of expertise

6.2 Initial Experiences

After the background information was inquired, the interviewees were asked to answer to open questions concerning their initial experiences of the T7. As stated previously, there were differences in the T7 integration processes. Therefore, the interviewees were asked to describe the initiation process to the T7. The possible ways to learn about the T7 were provided as follows: face-to-face meetings, visit to the mill, written manual, or third person who shared his/her knowledge of the process. This question is considered as one of the

most relevant questions. It is reasonable to assume that with comprehensive information and training, the interviewees have had better possibility to adopt the new way of working compared to a person with less information.

It was known that some interviewees were provided more versatile information of the T7 than some others were. That was clearly shown in the responses as well. Five interviewees disclosed that they had had face-to-face meetings, a visit to the mill, and they had received the written T7 instruction document. Some of them also mentioned that they were provided with the training to the case company's order entry system, SAP. The SAP system is used in the T7 supply chain orders. Therefore, it is understandable that the integration process was more feasible when the interviewees had the access to the SAP system, possibility to book orders of their own unit and perceive herself/himself as a real member of the team and the feeling of cooperation. One interviewee commented that she had a meeting not only in the mill, but in her own unit, where two persons from the T7 team from the mill visited. This was also a significant advantage. In this meeting, the persons from the mill T7 team had a plant tour and a possibility to learn to know how the plant operates. This interviewee pointed out that she received the support of the T7 team.

However, the majority of the interviewees' initial process to the T7 supply chain was not comprehensive. Two of the interviewees mentioned that they learned about the T7 from a third person and one noted that she/he only obtained the written manual from a third person. It is not known how much relevant information about the T7 a third person was able to give. One interviewee commented as follows: "Third person shared his knowledge". This comment reflects that information was actually shared and some kind of training had been conducted. One interviewee commented that she/he received the information of the T7 by email and tried to understand the route by reading the instruction document. There was training before the structured interviews were carried out. This training was perceived very valuable. Especially one comment that the learning was conducted by doing was perceived as interesting feedback. Despite the fact that there was a remarkable difference in the initial process between the interviewees, the dissatisfaction was not distinctly shown.

In addition, the interviewees were asked to evaluate if they had the sufficient knowledge of the T7 working process at the time when they joined the T7. Despite the fact that there were remarkable differences in the initiation process majority of interviewees i.e. eight in all, perceived they had had sufficient knowledge. It was pointed out that there was knowledge from where to ask if something was unclear. One interviewee commented that she/he was employed after the T7 process was implemented, and therefore, she/he had had to gather the information on her/his own. However, one interviewee informed that she/he received the basic data of the T7, but not really know-how and one interviewee informed as her opinion did not have the sufficient information. Therefore, it has to be considered how to avoid this kind of negative affection.

In the last initial experience question the interviewees were asked to describe the possible benefits of the T7 and the suitability of the T7's product range. The T7 success criteria are stated as improved capital efficiency, product offering, logistics efficiency and cost efficiency. Therefore, it was interesting to find out if the interviewees of the research would agree on the success criteria. It was assumed by the researcher that interviewees with dissimilar responsibilities would reply differently. However, the differences were not remarkable. This may be because some interviewees were responsible for more than one area of expertise. The stock replenishment interviewees appreciated the short lead time and the ability to decrease stock level rapidly and re-adjust it well. The better turnover was also mentioned as a positive aspect.

Before joining the T7 the stock replenishment was generally made on a monthly basis and the change to a weekly basis was necessary because of the T7. Especially sales people were pleased with that due to the fact that it enabled them specify the exact need more feasible than earlier. One interviewee commented that before the T7 they had to order material approximately three to four months before the requested delivery time. However in the T7 they are able to get the material within two weeks. This enables them to do planning better, react quicker to market situation and be more flexible to their customers than in the past. The ability to serve customers more flexibly and increase sales despite

the lower stock level was stated as a significant benefit. Therefore, it can be extrapolated that the success criteria set to the T7 were explicit in the responses by the interviewees.

The T7 product range was briefly commented. Most of the interviewees were satisfied with it, but one interviewee requested for the possibility to evaluate the product range for instance once a year. The re-evaluation is at the moment made occasionally, but not with constant frequency. However, the market situations change and due to continuous search for finding new functions to stainless steel, the regular re-evaluation could be reasonable to conduct. Some interviewees requested for adding to the product range new steel grade and some suggested bringing back some dimensions that were omitted from the T7 supply chain model away. The tight T7 rules and timelines impose their own challenges and perhaps even pressure to interviewees. However, on the whole, the comments concerning the benefits and the product range were very positive.

6.3 Changes to Daily Work

The objective of the third section's questions was to scrutinize, how the participation to the T7 supply chain route has affected on the interviewees' daily work. The interviewees commented in previous questions how they learned about the T7, how the commencement was and the experienced benefits. However, it was perceived as valuable to study if the interviewees had changed their daily routines. Likewise, the interviewees were asked to explain, if the T7 had influenced on their unit's daily business. These questions were considered significant in order to find out the changes the T7 supply chain had caused and how those changes were perceived.

It was inevitable that nearly every interviewee would mention the changed weekly routines. The fact that the timeline of the T7 route is strict and the orders must be ready to handle in the mill in a certain day of the week affected on interviewees' routines. Several commented that the days in the beginning of the week are very busy and it is difficult to be absent of the work then. Some of the

interviewees mentioned that even extra working hours are required. It is not only placing the orders, but checking and calculation of the inventories that has to be done. However, one interviewee commented that the stock replenishment must be done more precisely than before joining to the T7. That obviously requires more time, but this can be seen as a positive point of view due to the fact that the amount of unnecessary replenishment can be avoided and inventory levels can stay low. It was stated that due to the T7 route it is not necessary anymore to guess the required replenishment need for three or four months forehand and the planning is needed to be done only for the becoming two to three weeks. Consequently, it can be comprehended that despite the strict timeline of the T7 has caused notable changes to daily work, perhaps even stress or evident challenges, it has a positive effect because of the need to execute certain tasks as for instance replenishment more accurately.

To the question concerning on how the T7 has influenced on the interviewee's own unit, several comments were rather similarly as previous questions concerning the benefits. Nearly everyone mentioned the lowered stock level in their unit. The units have strict inventory level targets and the achievement of that is followed carefully. This was clearly shown in the responses. The sales department's better ability to make offers for big projects without keeping the material in their own stock was also mentioned. The reason for that is that from the T7 route they can supply the requested material smoothly with the short lead time. One interviewee commented that the short lead time had actually even helped them to know the customers and their demand better. Consequently, this enabled the more precise replenishment and the diminished amount of unneeded materials that would stay in stock long time.

Based on the responses it can be stated that the units have had to adopt their new routines for purchase, replenishment, sales and production planning. The interviewees commented about new procedures such as for instance modified monitoring of statistics, changes in sales possibilities, customer service, production planning and purchasing. It was discovered that the people with different area of expertise share the information and work together more closely

than earlier. As stated, the key element for success of the T7 supply chain is working together.

6.4 Customer Satisfaction and Development Ideas for the Future Management of the T7

The last two questions of the research focused on customer satisfaction and interviewees' own development or improvement ideas. These aspects can be utilized by the future management of the T7. The case company has highlighted the importance of the customer. Focus on customer satisfaction is conceived by the management of the case company to have vital element of success. The T7 likewise aims to improved customer service. Therefore, the interviewees' observations if the T7 has actually managed on that, was studied.

It was interesting to discover interviewees' opinions concerning on how the T7 had influenced the customer satisfaction. Most of the interviewees commented that customers are satisfied because of the short lead time. One interviewee pointed out that the customers that purchase T7 products are distinctly more satisfied than before. However, several commented about the positive feedback received from customers concerning the delivery reliability and the high quality of the products and the provided service. This information is appreciated, since the aim of the T7 is to provide customer more than only fast deliveries. The fast delivery alone is clearly not sufficient to the customers.

Last, the interviewees were requested to comment on how the T7 supply chain could be developed. Generally this kind of question is often ignored. However, this was chosen as the last question of the research. From the eleven interviewees only two commented that they had no development ideas and they were satisfied with the T7 as it is. Of course the satisfied feedback is pleasant to receive, but when the objective is to improve the model, the development ideas are appreciated. The most significant improvement request concerned transportation. Some interviewees were confused of the fact that the order handling and the production is very fast and timeline is tight, but the transportation takes time. This precisely concerned the planning of the

transportation. The urgent dispatch of the ready material was requested. Another development request concerned the product range available in the T7. Possibility to add new grades or dimensions and possibility to place non-standard narrow strip orders were urged. The suggestion, to be more flexible with deadlines was also presented. The possibility to place orders similarly, as in the normal production route was requested as well. However, it is clear that added flexibility to deadlines would cause longer lead time. Therefore, it cannot be considered at least at the moment. Thus, the possibility to make changes to the T7 product range might be reasonable to evaluate. Consequently, the interviewees' willingness to provide improvement and development ideas was considered extremely positive.

7 CONCLUSIONS

The conclusions of the research are drawn in this chapter. Chapter 7.1 deals with the T7 supply chain function as a strategic network. Chapter 7.2 puts forward and discusses development recommendations obtained from the structured interviews. Lastly, the future research needs are presented.

7.1 T7 Supply Chain as a Strategic Network

The challenging situation in global business has forced companies to seek new possibilities to achieve the success and profitability and to be able provide value to customers. Companies have noticed that one possibility is the networking. Therefore, it is clear that the value of the strategic networks to companies is increased. This has occurred also in the case company's business area. Networking is appreciated and development ideas are searched.

It can be stated that the T7 supply chain model operates as a unique, strategic network. The network consists of different stakeholders that each have their own roles and responsibilities as presented in chapter 3.4. As was previously stated, The T7 supply chain model has clear, measurable objectives that each members of the network must be aware of. Therefore, it can be stated that everyone knows why the network has to operate as it does and why the certain rules, procedures and directives are obligatory. It is significant to be aware of the possible consequences to the network if one member neglects his or her responsibilities. As an example can be mentioned the impact of a delayed order entry: the Tornio mill team is not able to do the order handling and programming as scheduled. That will cause inefficient usage of working time, handling of other customers' orders will be postponed as well, Terneuzen production will have less time to produce the materials and lastly the logistics department will have insufficient time to arrange the deliveries on time. The final consequence is the delayed deliveries to several customers and lowered delivery performance and customer satisfaction.

In the T7 supply chain network the co-operation is one of the key elements. The importance of good relationships and interconnected communication between the stakeholders of the network is vital. When the relationship is good, the trust among the stakeholders exists. The trust builds the basis for success of the whole network. Opportunism does not create trust and harms the co-operation. In the T7 supply chain model, any kind of opportunism is not possible. In a problematic situation, as for instance, when there is a lowered level of material available, opportunism might be requested; however, there is no possibility to that.

Despite the fact that the T7 supply chain network objectives are known and there are agreed procedures for instance for problematic situations, it can be stated that the need to improve the network management exists. The teams in the T7 network are aware of the common goals that the whole network together aims at. In addition, each team has its own goals. Generally, all the goals of the teams direct towards the common goal, but in some cases, the conflict of interests occurs. As an example of possible conflict can be mentioned the challenge of inventory level control at the end of the year. Each stakeholder's inventory levels are scrutinized then carefully. Therefore, if there is a pressure to keep the inventory level within the target, the coil service centres may try to neglect the responsibility to order the forecasted volumes. This would be favourable to the coil service centres, but causes negative outcome to the mill that had then too high a material level in the T7 flow. Therefore, it can be stated that the management of the T7 supply chain network should be developed by straightforward and effective coordination.

7.2 Development Recommendations

The objective of this research was to find out how the implementation process of the T7 supply chain model was managed and how the adaption process was perceived. Based on the analysis of the research, the researcher recommends how to develop the T7 supply chain model. There were no specific procedure on how new customers can join the T7. Instead of that, the participation was done in several differential ways. That can be comprehended as a clear

weakness. Everyone should have been provided equal guidance and knowledge not only concerning the timelines, but why the T7 work is reasonable and what the objectives and the benefits are that every stakeholder can receive. Some interviewees had learned the T7 procedures from a third person. This can easily cause problems since there is a risk, if the third persons had remembered to explain everything or if they had forgotten to tell something essential. There is also a risk that the third persons' own experiences of the T7 had affected on their opinion and the information shared to others. The T7 instruction document is available to everyone, but as an only guidance it cannot be considered as sufficient. There is a clear demand for a simplified guidance kit to the T7 for future members.

Nearly every respondent's development requests concerned transportation, i.e. delivery of the materials from the Terneuzen production plant. The reasons why ready materials were not delivered to customers urgently were under criticism. The timelines concerning booking the orders and handling, programming and confirming the orders are very tight. However, deliveries do not occur similarly. As previously stated in chapter 4.4 there is a T7 team also in the Terneuzen plant. As stated earlier, two of the team members are responsible for the production planning and other team members are logistics persons. The logistics personnel have their own responsibility areas and they are urged to arrange deliveries as per confirmed delivery time. All the stakeholders of the T7 network should have the knowledge of timelines. The customers expect that the ready materials will be dispatched as soon as possible. This means that if the material is ready in Terneuzen stock on Monday, they assume that the loads will be planned and the material delivered soonest. If it is dispatched only on Friday, the confusion is created. The reason for this is unclear to customers. However, the planning must be done as efficiently as possible with the aim to dispatch full truck loads and it is clear that certain transportation capacity is not always available as quickly as needed. However, in case of limited transportation capacity the T7 orders should be prioritized.

The turnover level of personnel in Terneuzen logistics has been high during the few years. Therefore, it is reasonable to dispute if the Terneuzen logistic T7

members have the required knowledge of the T7. Is it possible that they know the timelines? In other words, they know when it is the last day to dispatch the material in order to manage to do it on time, but they may be not aware of what customers expect and what the objective of the T7 supply chain model is. It may also be unclear for them why the strict timelines are required and what the benefits obtained of the successfully operated T7 model are. If this kind of relevant knowledge is missing, it is assumable that it has an influence on commitment on common goals. The most efficient and quick deliveries lower the inventory levels. In other words the less days the material is maintained in stock and the sooner the invoices are issued, the faster revenue is created and profitability improved.

As a conclusion, it can be stated that it would be reasonable to conduct further research of the T7, after the development and improvement ideas obtained from this research are utilized. On the basis of the experience gained, it is possible to analyze how the function of the T7 supply chain model has changed. In addition, the analysis of how the management of the network is changed would be valuable. Furthermore, it is important to research, if there is potentiality to still develop, optimize and improve the operation and profitability of the network.

BIBLIOGRAPHY

Allee, V. 2003 *The Future of Knowledge: Increasing Prosperity through Value Networks*. San Diego: Butterworth-Heinemann.

Christopher, M. 2005. *Logistics and Supply Chain Management: Creating Value-Adding Networks*. 3rd edition. Harlow: Pearson Education.

Christopher, M. 1998. *Logistics and Supply Chain Management: Strategies for Reducing Cost and Improving Service*. 2nd edition. Harlow: Pearson Education.

Chen H., Defee C.C., Gibson, B. & Hanna, J.B. 2014. *Defining the Supply Chain*. Accessed 20th March 2016.
<http://www.informit.com/articles/article.aspx?p=2166717&seqNum=2>

Ford, D., Gadde, L-E., Håkansson, H. & Snehota, I. 2003. *Managing Business Relationships*. Second Edition. Chichester: Wiley cop.

Ghauri, P. & Grønhaug, K 2005. *Research Methods in Business Studies. A practical guide*. Harlow : Financial Times Prentice Hall.

Ghauri, P. 2004. *Designing and Conducting Case Studies in International Business Research*. In R. Marschan-Piekkari, and C. Welch (eds.) *Handbook of Qualitative Research Methods for International Business*. Cheltenham, UK, North Hampton, MA, USA: Edward Elgar 109 – 124.

Hoover, W.E. Jr, Eloranta, E., Holmström, J. & Huttunen, K., 2001. *Managing the Demand Supply Chain; Value Innovations for Customer Satisfaction*. New York: John Wiley & Sons cop.

Hugos, M. H. 2011. *Essentials of Supply Chain Management*. Third Edition. New Jersey: John Wiley & Sons cop.

Möller, K. & Halinen, A., 1999. *Business Relationships and Networks: Managerial Challenge of Network Era*. *Industrial Marketing Management* 28, 413 – 427.

Möller K. & Rajala, A., 2007. *Rise of strategic nets – New modes of value creation*. *Industrial Marketing Management* 36, 895 – 908.

Outokumpu 2012a. T7 – the new supply chain concept. Internal material.

Outokumpu 2012b. T7 – Tornio Works ja palvelukeskusyhteistyö. Internal material.

Outokumpu 2012c. *Improving Capital Invested by 10 MEUR while Supporting Sales*. Internal material. Accessed 14th January 2014, Outokumpu O-net (intranet)

Outokumpu 2012d. Reduction of 13,000 tons of Inventory for CSC Italy since one year ago! Internal material. Accessed 14th January 2014. Outokumpu O-net (intranet).

Outokumpu 2013a. T7 Expansion. Internal material.

Outokumpu 2013b. Outokumpu internal material. Accessed 20th December 2013. Outokumpu O-net (Intranet).

Outokumpu 2013c. We are the new Outokumpu. Internal material.

Outokumpu 2014a. EHSQ Manual. Requirements on Management System for Environment including energy efficiency, Health, Safety and Quality January 2014. Internal material.

Outokumpu 2014b. Outokumpu recognized again in Nordic Climate Disclosure Leadership Index. Accessed 6th November 2014. Outokumpu O-net (Intranet).

Outokumpu 2014c. CEO all staff info call October 14, 2014. Accessed 20th November 2014. Outokumpu O-net (intranet)

Outokumpu 2014d. Sales meeting Torniossa. Internal material. Accessed 14th January 2016. Outokumpu O-net (intranet).

Outokumpu 2014e. Putting the customer first – Olli-Matti Saksi's reflections on sales & customers. Internal material. Accessed 26th December 2014. Outokumpu O-net (intranet).

Outokumpu 2014f. Sales Excellence Awards 2014 announce at the global sales meeting. Internal material. Accessed 14th January 2014. Outokumpu O-net (intranet).

Outokumpu 2015a. Chorus program. Accessed 29th December 2015. Outokumpu O-net (intranet).

Schary, P. B. & Skjott-Larsen T. 2001. Managing the Global Supply Chain. Copenhagen: Copenhagen Business School Press.

Valkokari, K., Hyötyläinen, R., Kulmala, H.I., Malinen, P., Möller, K. & Vesalainen, J. 2009. Verkostot liiketoiminnan kehittämisessä. Helsinki: WSOYpro

Yin, R. K. 2009. Case Study Research: Design and Methods. 4th edition. Los Angeles: Sage cop.

APPENDICES

Appendix 1. Questionnaire

Appendix 2. T7 Training Material (not published in the library version)

QUESTIONNAIRE

This research questionnaire is made for Outokumpu by Mari Siikavirta as part of her Master's thesis for Lapland University of Applied Sciences. The objective of this research is to identify the challenges and difficulties in adapting to Outokumpu's self-manufactured, unique T7 supply chain model.

By answering these questions, you will give vital information to help the company to develop the implementation process. This research is qualitative, so kindly feel free to answer and write as much as you like. The answers will be handled anonymously and confidentially.

Background information

1. Which country are you from? _____
2. Where your unit is located (the name of the town)?

3. How many years have you worked for steel industry?

4. What is your area of expertise? Choose one of the following options:
 - a. stock replenishment
 - b. sales
 - c. purchase
 - d. production planning
 - e. other, where? _____

Questions

1. Describe the initiation process to the T7 supply chain route. How did you learn about the T7? (for example did you have face-to-face meetings, visit to the mill, written manual or third person who shared his/her knowledge of the process?)

2. When you joined the T7 supply chain route, did you have sufficient knowhow of the T7 working process and readiness to join the route? (for example knowledge of your responsibilities and the T7 rules)

3. Describe your experience of the T7 supply chain model. What are the received benefits? Do you think that product range is suitable for your customers' needs?

4. How the T7 supply chain model has changed your daily work? Have you changed your daily routines? If yes, then how?

5. Describe how the T7 supply chain model has influenced on your unit's daily business? (for example changes to sales, replenishment management, stock inventory management)

6. The satisfied customer in one of Outokumpu's main priorities. Has the T7 supply chain model changed the customer satisfaction?

7. Based on your own experience of the T7 supply chain model, what development ideas do you have?
