

LAPPEENRANTA UNIVERSITY OF TECHNOLOGY
School of Business and Management
International Marketing Management

Ann-Elisabeth Vuorinen

**PRODUCT RECALL PROCESS DEVELOPMENT FOR EXPORTED
NONFOOD CONSUMER PRODUCTS**

Supervisor / Examiner:

Professor Olli Kuivalainen

Examiner:

Professor Sami Saarenketo

ABSTRACT

Author	Vuorinen, Ann-Elisabeth
Title	Product recall process development for exported non-food consumer products
Faculty	LUT School of Business and Management
Master's Programme	International Marketing Management
Year	2016
Master's Thesis	Lappeenranta University of Technology 86 pages, 3 figures, 0 tables and 0 appendixes
Examiners	Professor Olli Kuivalainen, Professor Sami Saarenketo
Keywords	returns management, product recall, reverse logistics, retailing

The purpose of this research is to examine the different opportunities that companies operating on international level has for conducting a product recall. The main subject of the research is strategic decision-making of recall and product recall process. The theoretical framework, core of the research, is based on research questions.

The research is performed as qualitative case study and the material has been collected by combining results of previous studies and by observing the case company. Different opportunities for conducting a recall are examined in the empirical part of this study.

As a result, different product recall models have been created, which all require deep cooperation between different entities of the supply chain.

TIIVISTELMÄ

Tekijä	Vuorinen, Ann-Elisabeth
Tutkielman nimi	Vientitavaran takaisinvetoprosessin kehittäminen käyttötavaroille
Tiedekunta	School of Business and Management
Pääaine	International Marketing Management
Vuosi	2016
Pro gradu – tutkielma	Lappeenrannan teknillinen yliopisto 86 sivua, 3 kuvaa, 0 taulukkoa ja 0 liitettä.
Tarkastajat	Professori Olli Kuivalainen, Professori Sami Saarenketo
Hakusanat	palautusten hallinta, tuotteen takaisinvento, käänteinen logistiikka, vähittäiskauppa

Tämän tutkimuksen tavoitteena on tutkia kuinka kansainvälisesti toimivien yritysten on mahdollista toteuttaa tuotteiden takaisinvento. Tutkimuksen pääkohteena ovat takaisinvetoihin liittyvä strateginen päätöksenteko ja takaisinvetoprosessi. Tutkimuskysymysten pohjalta on luotu työn teoreettinen viitekehys, jonka ympärille tutkimus rakentuu.

Tutkimus on laadullinen tapaustutkimus ja käytetty aineisto on kerätty yhdistelemällä aikaisempien tutkimusten tuloksia ja havainnoimalla kohdeyritystä. Työn empiirisessä osuudessa on tarkasteltu erilaisia mahdollisuuksia liittyen takaisinventojen suorittamiseen.

Työn lopputuloksena on luotu erilaisia takaisinvetomalleja, jotka kaikki vaativat eri toimijoiden yhteistyötä läpi tuotteiden toimitusketjun.

ACKNOWLEDGEMENTS

I appreciate the help and support received from all people throughout my studies in LUT. I would like to especially thank Professor Olli Kuivalainen for all the feedbacks and helps especially during the last few weeks of the writing process.

I also would especially thank SOK and Inex for first of all giving me the topic for this research and helping to executing the research. Especially A. Nikkinen from Inex and the whole personnel of SOK quality department.

I also would like to especially thank Jukka for commenting and correcting this thesis. Special thanks for my family and friends for supporting me during my studies in Lappeenranta.

Helsinki, 16 May, 2016

Ann-Elisabeth Vuorinen

TABLE OF CONTENTS

1 INTRODUCTION	1
1.1 Background	3
1.2 Research questions and delimitations	3
1.3 Research framework and key concepts	6
1.4 Literature review	7
1.5 Research methods	10
1.6 Structure of the research	13
2 PRODUCT RECALL MANAGEMENT	15
2.1 Recalls as part of returns management	17
2.2 Recall strategy	20
2.2.1 Proactive and preventive strategy	21
2.2.2 Passive and reactive strategy	24
2.2 Product recall process	25
2.2.1 Identification of the defect	26
2.2.2 Notification to customers	30
2.2.3 Corrective action	32
2.2.4 Monitoring the process	40
3 PRODUCT RECALL PROCESS IN THE LOGISTICS COMPANY	42
3.1 Overview of S Group and Inex Partners Oy	42
3.2 Product recalls in SOK	45
3.3 Present stage of Baltic area operations	56
4 PRODUCT RECALL OPPORTUNITIES IN BALTIC AREA	59
4.1 Recall strategy in Baltic area	61
4.2 Recall process in Baltic area	63
5 CONCLUSIONS AND SUMMARY	74
5.1 The main results of the study	74
5.2 Theoretical contribution and managerial implications	78
5.3 Limitations and suggestions for future research	79
REFERENCES	81

1 INTRODUCTION

When product is being recognized as hazardous, companies must decide what actions to take to ensure consumer safety and to protect company and/or brand value. Defective and especially hazardous products affect every consumer and company in the market, including manufacturing companies, retailers and their competitors.

The growing, more complex supply chains have increased the number of participants and changed the different failures products may face. In the past, product defects were mainly results of errors in product design, errors in the manufacturing process or errors in content information labelling. The product failures also used to have only limited impact on the people and the companies involved. Today, a single product defect can have a significant impact on global scale, as globalization has increased awareness of the risks and vulnerabilities that globally manufactured products are exposed in supply chains. (Marucheck et al, 2011). Product recalls are likely to occur more often in the future due to increased complexity of products, more restrictive product-safety measures and more demanding customers (Dawar & Pillutla, 2000).

In 2014 the European Commission distributed through the RAPEX (the European Union rapid alert system for all dangerous consumer products, with the exception of food, pharmaceutical and medical devices) over 2 400 notifications on consumer products posing serious risks to health and safety. Most of the notifications concerned faults on clothing, textiles, fashion items and toys, and the most common notified risks included injuries, chemical risk and strangulation. As a sign of the globalization, most of the products reported originated from the emerging economies. Over 60 per cent of all reported products originated from China. (RAPEX, 2015).

In 2015, Tukes – the Finnish Safety and Chemicals Agency required 158 products to be removed from the market. Altogether 77 products were

instructed to be recalled from the consumers. According to Tukes, there were multiple faults found in led-lightning products, chargers, machines, toys, clothes and protective devices such as fire alarms. (Tukes, 2016). The most important reasons for the growing number of products required to be removed or repaired is better market control and more effective information sharing system between EU countries.

Recalls and product failures present major risks for companies involved, for companies working in the same industry and for investors, including adverse media publicity and negative effect on stock price. Product recalls may also result permanent damage on the product or company brand, reduced profits and loss of reputation and goodwill with consumers. (Kumar & Schmitz, 2011). Because of the increased frequency and the potential consequences for the companies involved, managing the product recall crises have become a top priority for many companies (Chen et al, 2009). Besides the companies, also regulatory officials, investors and, most importantly, consumers are recognizing that recalls are a necessary part of conducting business (Hora et al, 2011).

For minimizing the risks involved recalls the entire supply chain should have clear plans to ensure that defective products will be quickly removed from the marketplace and other parts of the supply chain. Product recalls influence all actors in the supply chain and ensuring product quality does not rest within manufacturing. (Kumar & Schmitz, 2011).

The aim of this research is to provide insights on product recalls and offer an overview of the best practices among the field of product recall management and returns management. Every recall is an individual case affected by the defective product, fault detected, the companies involved and the policy chosen. It is not possible to create a process that suits every company and every individual case, but a process model can be created to help if and when the recall situation occurs.

1.1 Background

This study is carried out as an assignment for the logistics company Inex Partners Oy (hereafter Inex), owned by the SOK Corporation (hereafter SOK). Inex and SOK are both part of the Finland's largest grocery retail group, S Group. There has been rapid expansion on the S Group's Baltic area operations, which has created a need to have formal procedures for recall management (Nikkinen, 2011).

In order to create recall management guidelines for Baltic area operations, information about the recall management and the recall process is required. The theoretical part of the study is an overview of recall management literature, including different recall strategies and the different parts of recall process. The empirical part of the study covers these same subjects, set in the case company's point of view.

The practical contribution for both Inex and SOK is to increase the knowledge about recalls and recall management in both national and international scale. By increasing the knowledge, Inex and SOK can develop more appropriate formal procedures for recalls.

1.2 Research questions and delimitations

This research examines the product recall management including recall strategy selection and recall process formation. Based on the literature and followed by the empirical study the main objective of this thesis is to explore the different possibilities companies have for implementing a product recall. The aim of this thesis is to explore the different recall opinions in order to develop and expand SOK's current procedures and create a recall process model for exported products.

Prior to the literature review and empirical study the research questions are formulated. Research questions in qualitative research could transform as

the research progress (Hirsjärvi et al, 119-120, 1997), so after multiple modifications the main research question is formed:

What are the different possibilities for a company to implement a recall for exported non-food products?

Before implementing a product recall the company should choose a recall strategy, which describes the desirable approach and actions that the company takes in the recall situation. The first sub-question covers the different recall strategies:

What kind of product recall strategies can companies adopt?

After choosing a desirable recall strategy, the company should ensure that it has the policies ready for recall situations. In order to design the recall process, the factors affecting the planning and implementation of the recall process and the possible outcomes of the recall process must be defined. The second sub-question covers the planning of recall process:

What are the most important factors impacting the planning and implementation of a product recall process?

The export-dimension is one important consideration when designing a recall process. The dimension has impacts on the reverse logistics, as it requires more resources to return defective products over a national border. The third sub-question address a special case of exported products:

How does the requirements of implementing international product recall differ from the requirements of implementing national product recall?

This thesis describes the product recall management. However, the whole recall management field cannot be covered and the study objective must be delimited. Some delimitations that have been made, are based on the

features of the case company, such as choosing the consumer products over industrial products.

A delimitation was also made in terms of the product categories covered and only non-food consumer products are covered in this thesis. This delimitation was made mainly because of the different, more strict legislation and supervision of food compared to the non-food products. Food also requires more complex logistics and defective food usually does not require reverse logistics because it cannot be repaired or capitalized. However, as stated before, some of the practicalities can be transferred and adjusted for the food retailing industry.

The financial aspect of recalls was left outside of the scope of this thesis because the strategic views and processes was chosen as the core subject. This delimitation is based on the unstable nature of the cost of a recall, as the cost is always alternating based on for example the features of the product, the amount of products affected by the recall and the amount of people and companies involved in the process. A separate research could be made to cover the financial dimensions of product recalls and this research would require studying the already existing recalls and their cost accruals.

Other delimitations were made in terms of the case company and its business area. SOK has subsidiaries in both Baltic countries and Russia, but Baltic area was chosen for this thesis as the researched area. Russia was left out based on the different business model used in Russia compared to the domestic or Baltic area operations. The biggest reason for leaving Russia out of the empirical study is that Russia is not part of European Union (EU), which affects the legislation and the formalities needed for exporting and importing products. Although SOK is investing heavily into Russian operations and the expansion has been rapid, the percent of products distributed outside of Russia compared to the total sales has not increased equally.

1.3 Research framework and key concepts

The structure of this thesis is following: introduction, theory part, empirical study and conclusions. The research framework, including key concepts returns management and product recall, is presented in the figure 1. In order to understand the concepts, their background and connections must be examined.

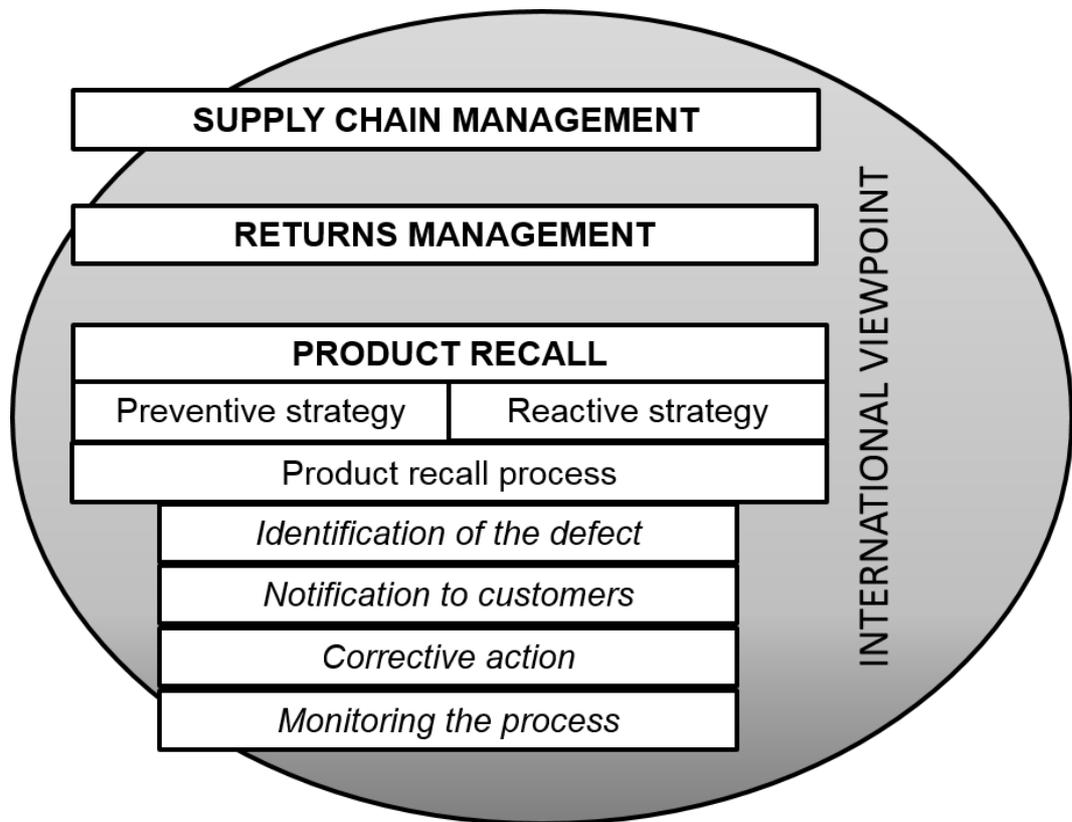


Figure 1. Research framework

Supply chain management is the integration of key business process across the supply chain defined as “the integration of key business process from end-users through original suppliers that provides products, services, and information that add value for customers and stakeholders”. Supply chain management can be divided into smaller sub-areas, including customer relationship management, demand management, order fulfillment and returns management, to name a few of the sub-areas. (Rogers et al, 2002).

Returns management includes all activities related to returns: avoidance, gatekeeping, reverse logistics and disposal (Rogers et al, 2002). Like supply chain management, returns management can also be divided into smaller parts. These parts are divided based on the type of return flow, including assets returns, consumer returns and product recalls.

Product recall is the most important key concept of this research. There are multiple partly overlapping definitions for product recall management and for this thesis a combination of different definitions will be used. A new definition was formed to ensure that the definition takes also into account the Finnish legislation and supervisory authorities' regulation. Product recall is defined for this thesis as 'any corrective actions taken to remove or remediate all defective products regardless of their positions in the supply chain' (adopted from Damary & Hurst, 1982; CPSC, 2012). The formation of this definition is described in the chapter 3.

Two different strategies for product recall management have been detected: preventive and reactive strategy. These strategies and the product recall process, including identification of the defect, notification to customers, corrective action and monitoring of the process, will be examined in the theoretical part of this thesis.

All above mentioned concepts will be examined on international viewpoint in both theoretical and empirical part of this research.

1.4 Literature review

Several researchers representing different fields have researched product recall management. Product recall has been a study subject in crisis management, public relations and corporate reputation management, supply chain management and quality management to name a few of the main research areas.

The recall management process analysis in this thesis is based on the works of Siomkos & Shrivastava (1993), Siomkos and Kurzbard (1994), Chen et al. (2009) and Hora et al. (2011). Siomkos and Shrivastava (1993) and Siomkos and Kurzbard (1994) have studied the product crisis management and company responses to product liability crises. Based on these studies, they have presented the model of “company response continuum” that describes the possible responses that companies may have when facing a product related crisis. Based on this company response continuum and a study by Chen et al. (2009) about the different response strategies, Hora et al. (2011) have distinguished two different product recall strategies: preventive and reactive strategy, which are used in this thesis as the base of recall strategy.

Some elements of recalls have attracted more interest in researchers than others, including the impact of the recalls towards consumers (Siomkos & Shrivastava, 1993; Siomkos & Kurzbard, 1994; Dawar & Pillutla, 2000; Grundwald & Hempelmann, 2010; Souiden & Pons, 2009) and towards the companies involved (Chen et al, 2009; Standop & Grunwald, 2009). According to these studies, the impact of recall has been detected to be negative towards both consumers and companies involved. The proportion of the impact is found to be affected by the value of the company and brand prior the recall, to name a few examples.

Also some product categories have been researched more than other based on their special features and larger vulnerability for recalls. These categories include food (Kumar & Budin, 2006; Miller & Littlefield, 2010), pharmaceuticals (Kumar et al, 2009), cars (Souiden & Pons, 2009) and toys (Hora et al, 2011). In these categories, defective and hazardous products usually pose bigger risk to the consumers than in other categories.

Only a little academic research has been made to study the different recall processes. Berman (1999) and Grabowski & Hertzberg (2007) have

introduced lists of different activities that need to be planned prior to issuing the recall. Much of the study is concentrated on avoiding the recalls (Kumar & Budin, 2006) rather than actually managing the recall. Riswadkar (1988) and Ledbetter (1989) have introduced models for planning the recall, including product traceability plan, recall decision-making model and a list of activities for implementing a recall. The basic recall process model is adapted from the study by Damary & Hurst (1982), who has simplified the recall process as: identification of defect, notification to customers, corrective action and monitoring the process.

Much of the recall research is based on the idea that the recall is issued by the manufacturing company. However, especially in retailing the recall might be issued by other supply chain parties including the importers and retailers. Kumar & Budin (2006) have taken another perspective and approached the recalls in the exporter's point of view. Standop & Grunwald (2009) on the other hand have been studying how the recalls affect the retailers.

Returns management also has an important role in this thesis. A significant theoretical contribution for returns management is adopted from Rogers et al. (Rogers et al, 2002; Tibben-Lembke & Rogers, 2002), who have researched the returns management process in the retail environment. A synthesis of empirical findings of retail reverse logistics by Bernon et al. (2010) was used as a base of studying the management of reverse logistics and moreover exploring the reverse logistics in retail environment. However, most of the studies in retail logistics are concentrated on managing the returns of non-defective and end-of-life products (including Mollenkopf et al, 2007; Lau & Wang, 2009; Bernon et al, 2011) and not the returns of recalled defective products.

1.5 Research methods

This chapter describes the research method and strategy used to conduct this research. The research is qualitative by nature and conducted as a case study, which is widely used in business research. The core of the study is built around the research questions described in the earlier subchapter. The aim is to find relevant answers for the research questions from theoretical and empirical level. This research can be considered to be normative rather than descriptive, as the aim is to find and describe the best practices in product recall management, rather than just describe what recall management is.

Qualitative research usually answers questions 'what', 'how' and 'why' and is concerned with the quality or nature of human interactions and experiences. It is usually compared to the quantitative research and defined as opposite of quantitative research. Usually the differences are being presented with the help of different kind of lists and tables to compare the most typical features of both research methods. One common list is made by researcher Halfpenny (1979, in Hirsjärvi et al, 131, 1997), who describes qualitative as soft, flexible, subjective and inductive research method and quantitative as hard, stiff, objective and deductive research method. These lists and the whole confrontation are being criticized as the research methods are not really opposites, have multiple similarities and can be complementary research methods. (Hirsjärvi et al, 131-132, 1997) One method cannot be presented without also presenting the other.

The data in qualitative research represents the relevant features of the subject and is usually presented in verbal or visual form, as the data in quantitative research is in numerical form and represents statistically the whole population (Uusitalo, 1997, 79-80). Qualitative data cannot be collected in equally standardized way as quantitative data, and in order to analyze the data, it will probably need to be classified into categories. The most likely model and model also used in this research for analyzing the

data gathered is through a creation of a conceptual framework. (Saunders et al, 2003, 378)

Qualitative and quantitative research differ in terms of the nature of the researched phenomenon. Qualitative research can be used when researching singular phenomenon, which means that the researched phenomenon or series of phenomena's can be individualized. Opposite of singular phenomenon is a generic phenomenon, usually used in quantitative researches. (Uusitalo, 1997, 79-80)

Yin (1989) has defined case study as an empirical study, where a phenomenon is researched in its natural environment by using multiple different empirical sources (Uusitalo, 1991, 75-78). "The essence of case study is to illuminate a decision or set of decisions: why they were taken, how they were implemented and with what results" (Schramm, 1971 in Yin, 2009). Case study has also been defined as "a research strategy which focuses on understanding the dynamics present within single settings" (Eisenhardt, 1989).

Case study is usually used to solve problems that are exploratory or descriptive by nature (Uusitalo, 1991, 75-78) and preferred when the researcher has little control over events and the focus is on a contemporary phenomenon within some real-life context (Yin, 1984 in Patton & Appelbaum, 2003). The aim of a case study can be to prove a description, to test theories or to generate a theory (Eisenhardt, 1989).

One important consideration in case studies is the focus of the study and the research question. Without focus the data needed to be processed may be too overwhelming for the researcher. Case study can involve either single or multiple cases and have multiple levels of analysis within a single study. (Eisenhardt, 1989) The sampling applied in case study is usually information oriented sampling, rather than random sampling. This means

that the researcher has more power in choosing the case or cases to research than in the random sampling (Uusitalo, 1991, 75-78).

The data-collection used for a case study is usually a combination of different collection methods like archival search, interviews and observation (Eisenhardt, 1989). The data used for a case study is usually qualitative, but also quantitative data is used to study the phenomenon (Patton & Appelbaum, 2003). The aim of the data-collection is to create a diverse understanding of the case or cases researched (Metsämuuronen, 2000).

Generalization is a critical feature of case study. According to Yin (1989) generalization can be divided into statistical and analytical generalization. Statistical generalization answers to the question: what kind of conclusions can be made on the researched case compared to all similar cases? This refers to the question used in quantitative research: how well does the sample represent the whole population? However, qualitative research usually does not try to compete with statistical generalization, instead it aims for the analytical generalization. Analytical generalization means that theoretical or analytical generalizations, which apply over the researched case, have been created in the research. (Uusitalo, 1991, 75-78)

There has been strong critique faced by the case study as a research method. One question related to the critique is “what can be learned from one case?” Researchers argue whether the generalization should be the purpose of the study itself or not. Cohen and Manoin (1995, in Metsämuuronen, 2000) suggest that by observing a case researchers aim to create an intensive and deep analysis of the researched phenomenon. Stake (1994, in Metsämuuronen, 2000) suggests that case study is based on learning from a selected case and not to create a generalization out of the case.

Case study was a logical preference for this research. The research is qualitative by nature and the data collection was information oriented. The

study is carried out as an assignment for case companies, where the researcher was working at the time of the research. Working in the case company and collecting data from other similar companies could be considered to be unethical and other companies could have resisted taking part in the research. Based on these reasons Inex and SOK were chosen as the case companies and the aim was to provide a deep analysis of the recall management phenomenon in terms of the case companies.

The data collected for this research consists of different articles, books and other relevant written material, which together creates the core of the theoretical background. Much of the written material is from different academic journals, including research papers and journal articles. The material used in the empirical part consists of various material gathered from the Inex/SOK Intra network, the information systems and software's used by Inex/SOK, the internal magazines and multiple meetings and interviews with different personnel in SOK. Most of the interviews and short discussions were made with the personnel of SOK quality department which holds the responsibility over product safety related questions in SOK. Quality department is in charge of managing the whole product recall process. Research material was also gathered via the researcher's own experiences and observations while working in the case company.

1.6 Structure of the research

In the next chapter we will take a closer look at returns management and product recall management in order to create a theoretical background for the research. The emphasis is on recall management and the phases of recall process will be examined carefully. Also the relationships between returns, supply chain and recall management are examined. The aim is to illustrate the whole recall management process including the reverse logistics needed in the process.

The next two chapters provide the empirical part of the research. In the third chapter the case company and its current strategies and processes are examined. The analysis of current processes is needed for creating the base to formulate the new strategy and processes. The fourth chapter introduces the possible strategies and processes by using imaginary recall situations as a tool for evaluating different options.

Conclusions and summary are provided in the fifth and also the last chapter to tie the whole research together. Also the main results and limitations of the study as well as some suggestions for future research are being presented in the last chapter.

2 PRODUCT RECALL MANAGEMENT

When a product is detected to be faulty and needs to be removed from the market, a product recall is performed. It has been recognized that “product recall is a situation that nearly every manufacturer will probably face at some time or another no matter how meticulous its quality control procedures” (McGuire, 1974 in Gibson, 1995).

Defining the recall is not simple, because the definition has been changed over time and the word ‘recall’ is used to refer different processes depending on the association used. The earliest definition is made by the US Consumer Products Safety Commission, which has defined product recalls as: *“any attempt to remedy a hazardous product already in consumer’s hands whether or not it involves returning the product to a retailer or manufacturer”* (Damary & Hurst, 1982). According to another, more recent, definition product recall is *“the action taken to prevent the distribution, sales and use or consumption of the product, which may pose a safety hazard to the consumers”* (ICCC, 2005). However, both of these definitions ignore the fact that not all recalled products pose a risk of hazard to the consumers, but might be removed based on their poor performance or other quality related problems.

One opportunity to explore the definition of a product recall is to recognize different terms that are used as complementary or sometimes also as substitutive terms. According to Copeland et al (2004) a distinction can be made among product recalls, product withdrawals and stock recoveries. Product withdrawals usually refers to the total withdrawal of a product from the market. Product recall covers the removal of a specific batch or batches from the market. Stock recovery may refer to the removal or correction of a product that has not yet been distributed into public. (Damary & Hurst, 1982; Copeland et al, 2004) The main difference between product recalls, product withdrawals and stock recoveries is that recalls and withdrawals usually involve dealing with the public and consumers, as stock recoveries involves

dealing with the different levels of supply chain actors (Copeland et al, 2004).

The term 'recall' is currently used to refer any corrective action that a company may carry out to remove faulty products from market. This remedial action can be for example repairing or replacing the faulty products, returning the products to the manufacturer or retailer for a cash refund or executing a notice or warning program. (CPSC, 2012).

In Finland, the legislation guides how and when a recall must be conducted. Multiple authorities supervise that the legislation is obeyed and defective products are removed from market. In non-food area the main authority is Tukes, who supervises product safety in multiple product categories, including toys and clothing. Tukes also provides companies support in recall situations and executes independent product safety testing in multiple product categories. Tukes can either obligate products to be removed entirely from the market or to be repaired to a condition in which they may be sold onward or used safely. Tukes may also ban the products prior to their launch based on obscurities in testing or in reports. (Tukes, 2016). In addition to Tukes, the Finnish customs also tests and supervise imported products and their safety. The customs laboratories tested 2447 product shipments in 2014, in which almost 10 percent were detected to not to conform to the legislation (Tulli, 2015).

Based on the Finnish legislation and the currently used definitions, no distinction has been made between product recalls, product withdrawals or stock recoveries in this thesis. No distinction has either been made whether the product removal concerns an entire product or just a batch that is removed or repaired, as long as all defective products are being taken care of. It must also be noticed that products can be removed from any part of the supply chain, not just after they have reached the consumers. Based on these special features, the term recall is used in this thesis when referring any corrective actions used to remove a faulty product from market. Product

recall is defined for this thesis as **‘any corrective actions taken to remove or remediate all defective products regardless of their position in the supply chain’** (adopted from Damary & Hurst, 1982; CPSC, 2012).

In the next chapter returns management field and where the recall management stands compared to the other supply chain management and returns management research areas will be examined.

2.1 Recalls as part of returns management

Supply chain management, “the integration of key business process from end-users through original suppliers that provides products, services, and information that add value for customers and stakeholders” (Rogers et al, 2002) can be considered to the broad study area including recall management. Supply chain management consists altogether of six different processes, which can be divided into smaller and smaller processes (presented in the figure 2). The most important process in relation to this research is the returns management, including also recalls.

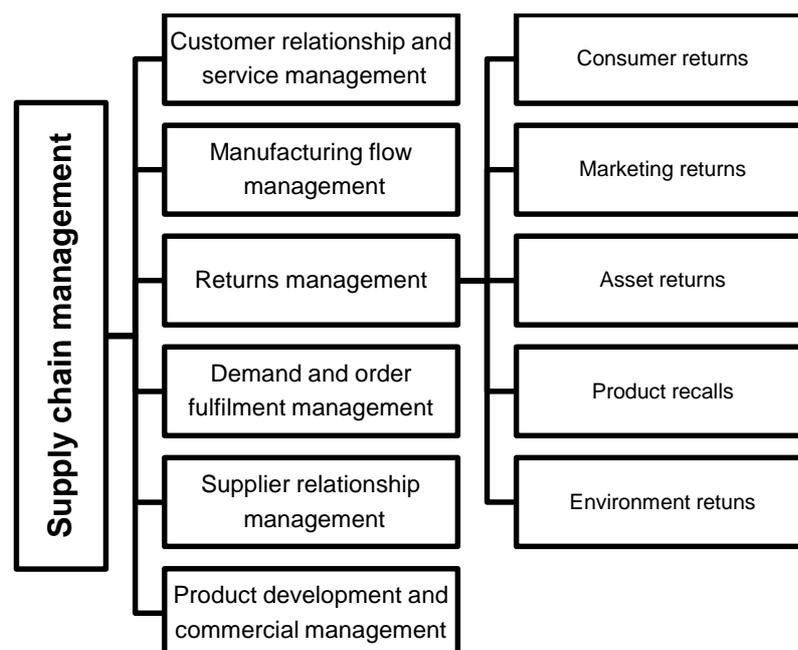


Figure 2. Returns management in supply chain management (Rogers et al, 2002).

The roots of returns management research are in the 1970-1980s, when it became an issue related to the sustainable development due to the new environmental legislation (Mollenkopf et al, 2007). Today, returns management is about broader issues than just the environmental, even though more coherent EU-legislation and environmental concerns have increased the need for companies to work towards more environmentally friendly methods. In Finland, legislation has been regenerated to improve the sustainable development (VNA 519, 2014). Returns management is considered important in companies, as it affects the profitability of a company and can impact the customer relationship and company reputation with stakeholders (Mollenkopf et al, 2007). More and more companies adopt liberal return policies to gain competitive advantage through customer satisfaction and loyalty (Hora et al, 2011).

Returns management can be defined as all activities critical to supply chain management which are related to returns: avoidance, gatekeeping, reverse logistics and disposal (Rogers et al, 2002). Avoidance of returns aims to minimize the number of return requests and includes processes like ensuring quality of products. By improving the avoidance of returns companies can save resources and improve their carbon footprint (Bernon et al, 2011). Gatekeeping aims to reduce the cost of returns by limiting the number of returned items that are returned through reverse flow. Successful gatekeeping allows management to control and reduce the returns without damaging the customer service (Rogers et al, 2002).

The different types of return flows include return of defective products, return for maintenance and repair of products, and return of excess products (Bernon et al, 2011). The returns can be divided based on the motive behind the return into five main categories: consumer returns, environmental returns, marketing returns, assets returns and product recalls (Rogers et al, 2002). These different returns may also be categorized based on the source of return request. Products may be either pulled or pushed upstream. If products are being pulled downstream, there might not be that much

variability in quality compared to the products pushed upstream. Consumer returns and recalls can be considered as being pushed upstream, while the end-of-life and end-of-use returns are mainly pulled upstream. (Hora et al, 2011)

Consumer returns are the biggest category due to consumer's dissatisfaction or product defects. They are also unpredictable and therefore difficult to anticipate, which affects the execution of the return. One factor that has affected the number of consumer returns is the rise of e-commerce. In many countries the customer has the right to return a product that has been acquired through mail sales, including catalogues and internet sales, and the retailer is obliged to accept the return if the product is in good condition and can be resold. The return flows in these situations can be as high as 35 % of the initial orders. (Rogers et al, 2002; Vlachos & Dekker, 2003)

Environmental or end-of life returns are often directed by environmental regulations, such as take-back laws. These returns include the disposal of products containing hazardous material or waste. (Rogers et al, 2002). The products are returned after consumer usage, but the product or its components may still have remaining economic value (Hora et al, 2011).

In Finland, one example of environmental regulation coming directly from the EU, is the SER-regulation, concerning proper disposal of end-of-life products and other waste (VNA 519, 2014). According to EU the responsibility of disposing packaging material and other product related material lies with the manufacturing company or with the company which has imported the product into EU. The Finnish waste act legislation is based on the EU legislation. This means that for example the importer or manufacturer of electronic devices must pay for collecting and recycling the products after usage (VNA 519, 2014).

Marketing returns are products returned from a position downstream in the supply chain due to for slow sales for example: excess seasonal products might be returned due to end of season or first quality products due to end of agreement with the retailer (Rogers et al, 2002). Marketing returns mainly consist of products that are or may easily be sold as-good-as-new condition (Vlachos & Dekker, 2003).

Marketing returns are usually driven by market issues, including low sales and insufficient marketing or management practices, including inappropriate sales incentive systems (Rogers et al, 2002). Biggest reason for marketing returns of seasonal products, including rapidly changing fashion, is the classical newsboy problem: how to set the initial order quantity for a product so that it incorporates returns (Vlachos & Dekker, 2003).

Assets returns are attached with the recapture and repositioning of an asset, such as reusable containers (Rogers et al, 2002). Many companies use their own cage trolleys, collapsible boxes and other reusable packing materials, which they want to be returned.

2.2 Recall strategy

In order to manage the recalls, a recall strategy is needed for creating a base for the recall decisions. Company's response to product related crisis could be considered as a continuum. According to Siomkos & Kurzbard (1994) the 'company response continuum' can be divided to four different response models: denial, involuntary recall, voluntary recall and "super-effort". The unambiguous support or the supper-effort means that the company tries to actively respond to the product fault, i.e. apologize consumers and other affected constituencies and offer some remedy. Stonewalling or denial means that the company tries to escape the responsibilities, delay the recall process and refuse to offer remedy to consumers and other affected constituencies. (Siomkos & Kurzbard, 1994; Dawar & Pillutla, 2000).

The underlying, major difference between these strategies is “whether the company acts passively and defensively or proactively and responsibly” (Siomkos & Kurzbard, 1994). Based on this difference, two strategic options have been distinguished. Hora et al (2011) suggest that a company can either adopt preventive or reactive recall strategy. The fundamental question in choosing the right strategy, still lacking theoretical and empirical evidence, is whether the proactive or preventive strategy helps to reduce the effects that the recalls have on the company value (Chen et al, 2009).

Choosing the right strategy is not a straightforward decision, because both strategies have different signals to the market. In the other hand, these strategies cannot be considered to be excluding each other. There might be overlapping as the company shifts its position on the response continuum. In some cases the preventive strategy could be the best and in other cases the reactive strategy could be the only possible solution. Both preventive and reactive strategies and the possible outcomes of these strategies are presented in the next chapters.

2.1.1 Proactive and preventive strategy

A company adopting preventive or proactive strategy tries to issue a recall before an actual safety hazard occurs. Companies are performing quality checks and inspections in order to discover potential defects. If defects are found the company can interfere in the defect and possibly issue a recall. Proactive companies have developed a wide range of different recall prevention initiatives, which are becoming more important as more products are manufactured in different legal, business and regulatory environments. (Hora et al, 2011; Grabowski & Hertzberg, 2007)

Prevention initiatives vary over companies, including planned inspections, reliability testing, continuous monitoring, supplier feedback, failure modes and effect analysis, fault tree analysis and event tree analysis which can be

performed by the company itself or by an independent research company (Kumar & Schmitz, 2011; Grabowski & Hertzberg, 2007).

In addition to the risk analyses and failures modes, companies working with the manufacturing and design must consider conducting different scenario analyses in order to ensure consumer safety. These analyses could include thinking like the consumer and analyzing the different ways that consumers might interact with the product. These questions are crucial in evaluating whether the warnings and user instructions are clear and sufficient enough. (Grabowski & Hertzberg, 2007)

For effective preventive approach the companies involved must first ensure that their products comply with the national product safety measurements and the recall process standards, typically guidelines and checklists of actions to be performed (Wynn et al, 2011). Preventive approach requires that all companies on the supply chain have accurate and sufficient documentation about products, so that traceability through the supply chain is ensured (Grabowski & Hertzberg, 2007). Defective products have to be able to track down even on international scale.

A study by Chen et al. (2009) has shown that companies implementing proactive strategies are more likely to work with different authorities and issue voluntary recalls compared to the reactive companies. Voluntary recalls are conducted when products in the market threaten the liability or may follow liability claims or losses and the recall is not mandated (Copeland et al, 2004), however it is always possible that the authorities recommend companies to issue recall. Recalls are widely voluntary by nature since they are obtained by regulators through the cooperation between companies in the supply chain (Hora et al, 2011).

Hora et al. (2011) have revealed that companies might take more time to issue a recall when using a proactive strategy because the lack of incentives and threat of losses followed by the recall. It is also possible that companies

might not issue a recall even when they are aware of the defective product. However, these companies are likely to recall after incidents of potential harm.

As mentioned earlier one opportunity for companies adopting the proactive or preventive strategy is to conduct a super-effort by offering parties including additional compensations beyond the legal requirements. The aim in super-effort is to act early in the phase and communicate extensively with consumers and other parties involved, including stakeholders, in order to avoid any negative consequences (Siomkos & Kurzbard, 1994).

Researchers argue the effects that preventive strategy has on a company. Siomkos and Kurzbard (1994) have studied the effects that the different strategies have on consumer perspective, i.e. consumer purchasing intentions and consumers' attitude towards the company after the recall. Their study shows that when a company is more responsive to the recall the negative affect that the recall has towards consumer purchasing intentions decreases. Also the harm perceived from the defect is likely to be smaller when adopting preventive strategy. Hora et al. (2011) support this view by stating that companies using preventive strategy send the consumers and other stakeholder a signal that the company cares for quality issues and also media and officials may see the company in a more positive light.

On the other hand, Chen et al. (2009) argue that the proactive strategy has more negative impact to the company stock returns than passive strategies. Investors may see the proactive strategy as an alert of severe product hazard and financial damage to the company. It has also been detected that conducting a recall is expensive and consumers might not be willing to return the defective products as requested because injuries or other accidents have not been reported (Hora et al, 2011).

2.1.2 Passive and reactive strategy

A company implementing a passive or reactive strategy starts the investigation process after a hazard has already taken place. It is also possible that consumers or other parties report the potential defect to the company and the recall is issued based on the complaints rather than testing (Chen et al, 2009). Studies suggest that the passive strategy may entail delaying the recall process to protect their market value rather than ensuring consumer safety (Chen et al, 2009; Hora et al, 2011). According to Chen et al. (2009) delaying might be done in order to shift the responsibility to other companies such as subcontractors. Besides denying the problem, companies might also try to hide the problem in the first place (Siomkos & Kurzbard, 1994).

On the other hand, Hora et al, (2011) suggest that companies following a reactive strategy might however take less time to recall than companies following a preventive strategy. This is based on companies need to try to avoid adverse publicity and to reduce the profitability of liability claims. As mentioned earlier, there is also empirical evidence that companies may not necessarily issue product recalls even if they are aware of product defects (Hora et al, 2011).

Passive strategy is found to be less harmful to the company value (Chen et al, 2009), but the effects following the strategy to company reputation could be devastating (Simkos & Kurzbard, 1994; Dawar & Pillutla, 2000). As stated, preventive strategy sends negative signals to market (Chen et al, 2009) that affect stock prices more negatively than adopting the passive strategy. However, if the company is using passive strategy or shows lack of commitment towards responsibility, consumers buying intentions towards the products decreases (Siomkos & Kurzbard, 1994).

Denial and also delaying can lead the company to conduct involuntary recalls, when the government or other authority mandates the company to

conduct a recall. Delaying the process may lead to liability claims and make restoring its reputation challenging for a company (Hora et al, 2011).

2.2 Product recall process

Product recall seeks to withdraw a faulty product from the market as it was sold (Hora et al, 2011). The product recall process is every time a unique endeavor based on the product features and the defect detected. The basic product recall process contains at least four stages: identification of the defect, notification to customers, corrective action and monitoring of the process (European Commission, 2004; Damary & Hurst, 1982).

An important consideration in recall management is defining the company bearing the responsibility for the defective products. Sharing different responsibilities between the companies involved in the process is not an easy task. First of all, a product might have multiple legal owners in different points of the supply chain. Especially in consumer goods industry, the products are not solely owned by the manufacturing company, but products might also be owned by the retailers and suppliers. The multiple owners means that there are also multiple companies involved in the recall process, which may affect the execution of the different stages of the process. (Hora et al, 2011). These multiple owners or actors included in the recall process may be located all over the world.

The responsibilities of different entities, including manufacturing companies, retailers and suppliers, vary depending on the circumstances. Companies need to have agreements with their suppliers and customers that define their respective for recalls and corrective actions. The EU suggests that the organization that takes the main responsibility for a recall should be determined based on the manufacturer and distributor and their locations. When products are manufactured in EU and branded by the manufacturer, the manufacturer has the responsibility over the product. If a product is made in EU and branded by the distributor, the responsibilities should be

shared between the distributor and the manufacturer. If a product is manufactured outside the EU and branded by the manufacturer the responsibilities should lie within the company importing the products into the EU. When a product is manufactured outside the EU and branded by the distributor, the distributor should accept the responsibilities. In the two last cases the manufacturing company is usually still involved in recalls, even though the main responsibility lies in the importing company or the distributor. (European Commission, 2004).

Whether or not the distributor or retailer has the main responsibility over the recall process, the distributor should still accept some responsibilities for recalls. The distributor should collect information about defective products and pass the information to the manufacturer and authorities. The distributor should also provide information to help tracing the defective products, provide information about the purchases of products if possible and cooperate with manufacturer and the authorities with the recalls. The cooperation can include carrying out corrective actions on behalf of the manufacturer, isolating and withdrawing products and returning them to the manufacturer, cooperating in publishing the notice to consumers, contacting the customers that have purchased the products at the request of the manufacturer and cooperating in collecting products and returning them to the manufacturer. (European Commission, 2004)

In the next chapters the different stages of product recall process including identification of the defect, notification to customers, corrective action and monitoring the process, are being examined.

2.2.1 Identification of the defect

The first stage of recall is always the identification of the defect. Defect can be noticed by several instances, including the manufacturer, retailers and consumers. Companies, including retailers and manufacturing companies may find product defects while testing or selling the product. Consumers

might report the potential safety hazard or incidents caused by the product to either companies involved, including the retailer and the manufacturer, or straight to the supervisory authorities. Even competitors may be the source of product defect reporting. (Hora et al. 2011)

Defects might also be found in audits or inspections conducted by the company itself, by an external research company, by authorities or by all these in cooperation. The research methods that can be used include planned inspections, reliability or life testing, continuous process monitoring, trend analysis and supplier feedback (Kumar & Schmitz, 2011). Regardless of the method used and the company performing the inspection, the hazard should be eliminated either by the company or in cooperation with authorities (Hora et al, 2011).

The cause of product defect is often important and needs to be examined thoroughly in order to avoid any further damage (Damary & Hurst, 1982). Besides identifying the nature and cause of the defect, it is important to identify the whole range of products and people affected by the defect. This is important especially when the product detected faulty is used as raw material or component of other products. (European Commission, 2004)

Recalls are usually issued based on lacks in product quality. The quality problems include lack of effectiveness, lack of durability and lack of safety. The most severe of these problems is lack of safety, which implies that the product poses a potential harm to its users and the use of the recalled product should be stopped immediately. The lack in product quality usually rises from different product defects. In management and product liability studies these defects have been categorized as manufacturing defects, design flaws and inadequate instructions and warnings. (Hora et al, 2011)

Manufacturing defects include all failures related to the manufacturing process of the product, including for example the use of toxic or otherwise banned materials and the use of material not suited for the purpose. Design

defects are related to the design prior to the manufacturing and are usually related to the structure of the product. Design flaws include for example children toys that have too easily loosen parts. Problems related to the raw materials can be either manufacturing or design defects based on the selection of raw material (design fault), or a problem with the raw material itself (manufacturing fault). Studies have shown that most recalls occur due the problems in design or manufacturing, because inadequate instructions and warning defects are informational problems and may be corrected without recalling the product. The inadequate instructions include for example misleading care instructions that can cause product defects. (Hora et al, 2011)

The defects might be caused by human error, such as accidental manufacturing faults and accidental contamination or they might as well be caused intentionally, in the case of product tampering. The reasons also include unforeseen misuse, failure to comply with safety standards or new scientific evidence concerning a product previously thought to be safe. (Berman, 1999) It must be remembered that not all these human or intentionally caused product faults are originated in the manufacturing or design, but also the supply chain entities can be responsible for causing product defects. Product risks related to the supply chain include improper storage, handling and distribution of the product, which may all lead to product defects. Supply chain risks can also be security risk, where the delivery of a product is uncompromised by intentional contamination, damage or diversion. Security risks include for example altering or misrepresenting an individual product for economic gain, as is the case in contamination. (Marucheck et al, 2011.)

It must be remembered that not all products recalled are hazardous, but a product might be removed from the market also for example, when the product does not meet the given performance standard, i.e. lack of effectiveness or durability (Berman, 1999). The non-safety-based recall can be issued only in the supply chain level without requesting the consumers

to return the products. However, usually the initial motivation for a product recall is consumer safety, in other words a lack concerning safety.

When the defect has been noticed and evaluated, companies involved must decide what actions to take and in what pace (Berman, 1999). European Commission (2004) suggests that when deciding what actions need to be taken, the decision should mainly be based on the overall risk that the defective product poses. However, if the product does not pose risk, but is otherwise defective, other measures must be utilized. These measures include the total number of products or consumers that are affected by the product, the practicalities of taking actions and anticipated success of taking actions. These decisions can be categorized to four different fundamental decisions that create the base for recalls: legal requirements, moral and ethical considerations, financial considerations and technical considerations (Ledbetter, 1989).

Also the risks and consequences of issuing a recall must be considered prior to deciding what actions to take. Product related crisis, such as product recalls usually have negative results for both the company and the product, based on the negative media reports related to the crisis. These reports might have significant effect on the consumer response, including intention to purchase (Siomkos & Kurzbard, 1994), and the company can be left with damaged reputation and less consumer trust (Dawar & Pillutla, 2000). Despite the negative consequence a company might still make the decision to recall products voluntarily in fear of regulatory action, liability and adverse publicity (Miller & Littlefield, 2010).

Besides of the lost reputation, companies are faced with external and internal, direct and indirect costs that arise from product recalls. Direct costs might include the communication costs, loss of sales, cost of maintaining business interruption, inventory losses, costs of compensations, managing the reverse flow, disposal costs and fines or lawsuits followed by the recall. Indirect costs might include in addition to the negative impact on brand

image, the loss of market share, erosion of market value, cost to rehabilitate image and reputation, collapse of organization and negative impact on morale. There is empirical evidence that the indirect costs may even be higher than the direct costs. (Kumar & Smith, 2011; Hora et al, 2011)

The magnitude of recalls negative impact on performance varies by recall severity, company size and remedy to recall (Hora et al, 2011). A study has revealed that companies with stronger reputation and larger company size may have better buffer from negative events (Chen et al, 2009). However, it has also been revealed that companies with stronger reputation experience a higher reduction in their market value compared to companies with a weaker reputation. (Hora et al, 2011).

2.2.2 Notification to customers

After the defect has been detected and the management or other unit has made the decision to remove the defective products from the market, the next step is to notify the customers. The consumers using the products, the retailers selling the products or other supply chain entities that are distributing or storing the products can all be considered to be customers. Because of this, the first thing is to identify all the different locations where the products can be located and all the customers need to be informed.

To identify the customers and other entities need to be informed, the company in charge needs to be able to track down all products. This tracking is referred to as traceability and can be divided into forward traceability and backward traceability. When performing forward traceability, also referred to as product or ingredient tracking, the company is tracing end products that are defective or might contain ingredients defective originated from a particular supplier through the production process and the delivery network. Backward traceability, referred to as tracing, is tracing the supplier and the production process used for a particular product. (Wynn, et al., 2011).

Traceability can also be performed through the chain or internally. Chain traceability refers to the ability to track a product batch and its history through the whole supply chain from manufacturing through transport, storage, processing, distribution and sales. Internal traceability refers to the ability to follow an object through an individual internal process of the chain, for example manufacturing. (Jansen-Vullers et al, 2003)

The complexity of the traceability may vary depending on the features of the supply chain and the product. For some products this identification is easier than for others, for example it is often possible to identify individual owners of certain large or expensive items like cars. But as the value of products decreases also the ability to identify the owners becomes more difficult. (Damary & Hurst, 1982). Also the scope of the market area affects to the complexity of traceability. Product sold internationally are usually harder track than product sold only nationally.

The announcement or request sent to the needed customers should at least have a detailed description of the defective product with relevant model, serial or batch numbers, a description of the defect and the potential hazard and the instructions concerning the possible return, exchange, repair, modification or refund of purchase price (Damary & Hurst, 1982). If the recalled product poses potential harm to the users, the recall announcement should also advise consumers to terminate the use of the product (Hora et al, 2011).

The motive for recall should be communicated effectively, especially when the recall is performed voluntary. If the motive is not communicated effectively the recall might be even more damaging for the company. On the other hand, if the company has an explanation for the recall and it is communicated with a justification for why the company handled the crisis as it did, the consumer purchasing intention may again improve. (Miller & Littlefield, 2010).

If all the owners can be tracked down the recall announcement can be sent straight to the consumers. However, if the owners of the defective product cannot be identified the only possibility is to contact all consumers that might have purchased the product through the media (Damary & Hurst, 1982).

2.2.3 Corrective action

According to the European Commission (2004), corrective action can be changing the design of products, withdrawing the defective products from the distribution chain, sending information and warnings about correct use of products to consumers, modifying products at the customer's premises or elsewhere and recalling products from consumers for replacement or refund. The corrective action process may also include steps such as: taking the products back from consumers, refunding the purchase price either partially or fully and replacing, repairing or modifying the defective products (Damary & Hurst, 1982). Corrective action process can require logistical planning if the products are returned (Hora et al, 2011). This logistical planning is related to the return supply chain, referred to as reverse logistics. In order to understand the return process work, the reverse logistics must be carefully examined.

Reverse logistics is usually compared to the forward logistics (referred generally as "logistics"). Logistics can be defined as "that part of the supply chain process that plans, implements and controls the efficient, effective flow and storage of goods, services and related information from the point-of-origin to the point-of-consumption in order to meet customers' requirements" (Tibben-Lembke & Rogers, 2002). With effective supply chain management customer value can be increased and operation costs reduced (Bernon et al, 2011).

Reverse logistics is not directly opposite to forward logistics, and can be defined as "the process of planning, implementing and controlling the

efficient, cost effective flow of raw materials, in-process inventory, finished goods and related information from the point of consumption to the point of origin for the purpose of recapturing value, or proper disposal" (Rogers et al, 2002). However, not all products are being returned to the point of origin, but instead to the point of recovery (Bernon et al, 2011).

Recent concerns towards environmental issues state that reverse logistics can also prevent pollution by reducing the environmental burden of end-of-life products at their source (Lambert et al, 2011). Fewer disposed products can benefit both companies and the environment, so the use of reverse logistics can promote alternative uses of resources that can be cost effective and ecologically friendly by extending product's normal life cycles (Dowlatshahi, 2000). Based on this environmental viewpoint, reverse logistics may also be defined as "all activity associated with a product/service after the point of sale, the ultimate goal to optimize or make more efficient aftermarket activity, thus saving money and environmental resources". (The Reverse Logistic Association, 2009 in Bernon et al, 2011) For this research, as a combination of the ones mentioned above, reverse logistics is defined as the process of planning, implementing and controlling the efficient, cost effective flow of raw materials, products and related information after the point of sale for optimizing the aftermarket activity (Rogers et al, 2002; Bernon et al, 2011).

Researchers suggest that the value of reverse logistics has not yet been recognized as widely as the value of effective forward logistics and only few companies have created formal policies for dealing reverse logistics. Various factors lead to the return of a product and researchers states that many of the causes are result of problems in the forward supply chain. These causes include poor forecast accuracy, purchasing policies, high on-shelf availability and liberal returns policies. (Tibben-Lembke & Rogers, 2002; Bernon et al, 2011)

The differences between forward and reverse logistics include the ability to forecast volumes, transport systems being “many to one” rather than “one to many”, product quality not uniform, cost not directly visible and speed not considered as priority. Also the lack of standardization and lack of customized technology affect the reverse logistics. Differences also exist based on the destination where the returned items are sent. Compared to the forward flow, a reverse logistics flow is much more reactive, with much less visibility. Companies usually initiate reverse logistics activity as response to actions by either consumers or downstream channel members. Reverse logistics networks may be classified into categories based on the source of the reverse flow or the destination to which the items will be sent to. (Bernon et al, 2011; Tibben-Lembke & Rogers, 2002)

The position in the supply chain and the distance to the end-user impacts the size and scope of reverse logistics issues that the company is facing. Retailers usually have to deal with a larger number of returned items than the manufacturers, as the retailers usually deal directly with the end-users, the consumers. The amount decreases between the retailer and manufacturer, because not all returned items that retailers receive are passed on to the suppliers, but the retailer deals with these returns by itself. (Tibben-Lembke & Rogers, 2002)

The unique nature of reverse logistics causes the costs to be higher than in forward logistics. The asset value of a returned product is normally lower than the original cost of the product; returns stay in the warehouse longer and take more space than outbound inventory (Bernon et al, 2011).

Normal retail return supply chains usually include three to five key processes: product acquisition, return request (sometimes also referred to as reverse logistics), inspection and disposition or remanufacturing and post-return actions (Blackburn et al, 2004; Rogers et al, 2002). The reverse supply chain for product recalls differs from the normal returns supply chain, because of following reasons: the recall process usually entails an official

announcement outlining the reason for the recall and a remedy offered for the consumer and the recall process starts before the products are returned. Still, the initial trigger for product recall can also be previous, already processed consumer return (Hora et al, 2011).

The return process starts from **product acquisition**, which includes taking back the product returned by the end-user. Regardless of the company bearing the liability, defective products are usually returned to the point where it was originally purchased, which in many instances is the retailer (Hora et al, 2011). However, returns may originate also from retailers or distributors, who return the unsold defective products (Rogers et al, 2002).

In terms of effective return management, the product acquisition is the first place where the gatekeeping can and should occur. The receiver of the return should be able to identify the items that should not be returned. When a consumer or other entity in a supply chain seeks for authorization of the return, it should be determined if an option other than a return may be acceptable. (Rogers et al, 2002)

The gatekeeping and multiple other steps of the recall can be performed by the retailer, in cases for example where private label products are being owned by the retailer or in cases where the manufacturer or other owner and the retailer have made an agreement on the steps to be performed. However, usually the steps after the return are performed by the owner of the products, in many instances the distributor or the manufacturing company. (Hora et al, 2011)

There may be need for specifying the terms under which the customer may return the product instead of applying liberal return policies. For gatekeeping, the information about the item and its condition may be entered into retailer's information system and sent forward into return process center or manufacturer if needed (Tibben-Lembke & Rogers, 2002). This point can include gathering information about a return to

improve the information regarding the customer purchasing habits (Bernon et al, 2011).

The product acquisition can also include the evaluation of the product's condition for deciding the proper return process. The product can be fit for re-sale or it can be defective or damaged and undergo a repair or a refurbishment. In consumer returns, when the retailer has acquired the product, the retailer's first preference is usually to sell the item as new, if possible. If the reselling is possible the reverse supply chain may not be needed. However if the resell is not possible a full refund from the supplier is the next most profitable option for the retailer. (Tibben-Lembke & Rogers, 2002).

Usually the supplier and the retailer make agreements about whether the product can be returned to the vendor and under what conditions, at the point where the products are being sold to the retailers. The supplier may give full or partial refund of the product to retailer and may or may not request the product to be returned to the supplier or manufacturer. Some suppliers use "zero returns" policy, meaning that the retailer is credited for the consumer return, but the product is never returned to the supplier. Also quality of the returned product has impact on reverse operations and by effective gatekeeping additional logistics costs will be avoided. If the quality of a returned item is poor, there is no point in sending it back. One opportunity is to set a price limit for products that need to be returned. In these cases the retailer may dispose the products at its own facilities. Studies have however proven that there is lack of trust between the retailers and suppliers and often products are being returned to the supplier to prove that the product really exists. Also the brand equity concerns may lead to the need for products to be returned, to ensure that a company maintains the control for all returned products. (Tibben-Lembke & Rogers, 2002; Bernon et al, 2011)

In product recalls the product acquisition is performed based on the product recall notification. Because the customers, including consumers and retailers, are requested to return the product, no separate authorization for return is needed. However, gathering the information might be requested, not to improve the knowledge about customer purchasing habits, but to collect data for monitoring the process.

Recalled, returned products are not straight ready to be resold, but they need to be repaired or modified in order to be resellable. The price limit for products to be returned can be utilized in the recall returns. If the retail price of defective product is low, the retailer can dispose the products returned. Also the quality will affect the need to return the recalled products further. If the products cannot be repaired or otherwise utilized, the need of returning the product is low. In order to avoid additional recall costs, the company in charge of the recall may request all products to be destroyed and disposed rather than returned. However, it is also possible that returned products are being collected by the retailer to ensure that consumers actually terminate the use of defective products.

After the product or products have been acquired **the return request** is needed. Return request includes transporting of the products to a facility for inspecting, sorting and disposition. After the product has been acquired, the company holding the product sends a return request to the entity that is processing the return. Usually the return request comes from a company downstream in the supply chain. (Rogers et al, 2002) If products are owned by someone other than the manufacturer, for example by the retailer or the supplier, the return process can be performed by the owner rather than the manufacturer of the products (Hora et al, 2011). Many retail companies use centralized return centers to process returned products. The forward distribution centers could also be utilized to process returns, but the studies have revealed that there is great temptation to utilize the personnel of reverse logistics in the forward logistics every time there is high demand in the forward logistics. (Tibben-Lembke & Rogers, 2002)

The determination of routing for returned product is also part of reverse logistics. Usually the routing decision is made based on the guidelines and policies established in the agreement between the retailer and the supplier or in the retailer internal process. In the reverse logistics process the return material authorization (RMA) derived from the return request are generated and advanced ship notices are send. (Rogers et al, 2002). One opportunity is to collect the products using trucks making “milk runs”, which means that the trucks are always stopping at the same stores in the same order (Tibben-Lembke & Rogers, 2002).

The position in the supply chain affects the size and scope of returned products. Entities working close to the end-users receive small unorganized product returns on a daily basis, while entities working closer to the manufacturing receive usually larger and organized shipments of returned products on much wider time scope. (Tibben-Lembke & Rogers, 2002)

In recall situations the terms of return are agreed beforehand with the entities of the supply chain. Usually no individual return requests are given, but the return information is given to the entities beforehand. The distribution centers and “milk run” return models can be used in the recall situations. Products can be collected to the distribution centers either for processing the returned products or for collecting returns from multiple entities before shipping products forward to the manufacturing company or other entity.

Inspection and disposition in returns supply chain includes assessing the condition of the return in order to make the most profitable decisions of reuse. A company can use different diagnostic tests to determine the most valuable disposal action for returned products. Order fulfillment and manufacturing flow management are few processes that can assist returns management in determining what disposition or remanufacturing ways are executed and when. (Blackburn et al, 2004; Rogers et al, 2002)

The returned products can be remanufactured, returned forward on distribution channel, resold as is, resold through a secondary market, sold for scrap or destroyed. Products are remanufactured if the remanufacturing is cost effective, but some companies simply treat all product returns as defective, even though it is usually less expensive to remanufacture the product than to manufacture items from new materials. Remanufacturing has developed the secondary markets for recovered products, where remanufactured products or raw material from returned products is sold. (Blackburn et al, 2004; Rogers et al, 2002)

Timing is important when making the decision about the returned product. The longer it takes to make the decision and to send the product to right disposal; the lower is the likelihood of economically viable reuse options. Previous studies suggest that significant economical values can be gained if the reverse supply chain is redesigned to be faster. The size of gained value depends on the industry and product in question. The gained value is higher in the clock speed industries such as consumer electronics, where the average lifecycle of product is short. (Blackburn et al, 2004)

Recalled products are usually destroyed in order to make sure that the defective products are not sold forward and used again. However, it is also possible to sell the defective products to be used as a raw material for manufacturing other products.

Post-return actions are the last step of the return supply chain. These actions include crediting the consumer or supplier and performance analyzing. After the product return has been fully processed credit needs to be given to the appropriate consumer, customer or supplier. This process usually requires negotiations between the members of the supply chain, but once the guidelines and contractions between the members of supply chain has once been settled they can be used if similar return cases arise. (Rogers et al, 2002). These guidelines and contractions can also be part of the purchase agreement.

Every process must be monitored and also analyzed for continuous improvement and organizational learning. An important component of analysis is to use the data on returns to identify opportunities for avoidance of such errors in the future and for making improvements to the product and other processes. The rates of defective products can be given to supplier for to identify the problems in the quality and improvement of product development. Other important measurements that can be used in analysis are return rates, disposition cycle and cost related to the returned products. (Rogers et al, 2002). The cost of return is defined as “the value of the return plus all reverse logistics costs minus revenue recovered from the product” (Blackburn et al, 2004). The overall cost of the returns operation and the asset recovery levels obtained from returned products are identified to be important in the performance measurement (Bernon et al, 2011).

Post-return actions of recalls are discussed further in the next chapter as they are part of monitoring the whole recall process.

2.2.4 Monitoring the process

The idea of monitoring is to ensure that everything runs smoothly, but also to ensure that similar product defect does not occur in the future and to prevent future recalls. Auditions should be made to evaluate the recall process and the company’s preparedness for recalls (Copeland et al, 2004).

One opportunity to monitor the process is to measure the recall effectiveness by measuring completion rate and customer satisfaction (Copeland et al, 2004). Recall can be considered to be ineffective when consumers continue to purchase and use defective products, while retailers continue to sell them (Gibson, 1995).

Measuring the completion rate requires that the company has a system for counting all the returned products and the amount of total products that

need to be recalled. This is essential especially when the products are not required to be returned, but when customers are advised to destroy the defective products. (Copeland et al, 2004) In order for the recall to be effective measured by the completion rates, publicity is needed, however publicity alone is not always sufficient (Gibson, 1995). Three barriers have been detected to limit the efficiency of recall. These barriers include “inconsistent media coverage, cost and difficulty of informing consumers about recalls that receive little media coverage and low response rates of even informed consumers to many recalls” (Seltzer, 1990 in Gibson, 1995).

It has been revealed that it is not possible to recover all the products in the markets, even with a thorough recall program. A certain percentage of consumers simply do not return the defective products even if they have received the information about recall (Juran, 1988 in Gibson 1995).

Customer satisfaction could be measured by variables that indicate the effectiveness of the recall. These variables include customer satisfaction with the product recall process and satisfaction with the replaced or repaired product (Copeland et al, 2004).

It is also important that the company has the procedures for the recall in place before there is any need for the recall. Unless the procedures are not ready, valuable time might be lost in making the recall. (Juran, 1988 in Gibson, 1995) Preparation for the recall is important also in terms of minimizing the costs caused by the recall. Planning may include “designating responsibilities, instituting safety planning, developing and maintaining effective communication channels and designing and maintaining effective product and customer databases” (Berman, 1999).

The number of different companies involved in the process can affect the recall performance, as this may lead to a situation where products are removed from some points of supply chain and still remain in other points. (Hora et al, 2011)

3 PRODUCT RECALL PROCESS IN THE LOGISTICS COMPANY

In this chapter the aim is to provide introduction of the case company and its present strategies and process for handling recalls.

3.1 Overview of S Group and Inex Partners Oy

S Group is a Finnish cooperative group of companies operating in the retail sector. It consists of SOK (Suomen Osuuskauppojen Keskuskunta) and 28 regional and local cooperatives as well as their subsidiaries. The cooperational members own the cooperatives, which in turn own SOK. The main purpose of S Group is to provide the cooperational members competitive services and benefits. The main purpose of SOK is to produce procurements, expert and support services for the cooperatives. SOK is also responsible for the strategic guidance of the whole group and the development of the business chains. (S Group, 2015). The business model and purpose of the S-Group's operations is presented in the figure 3.

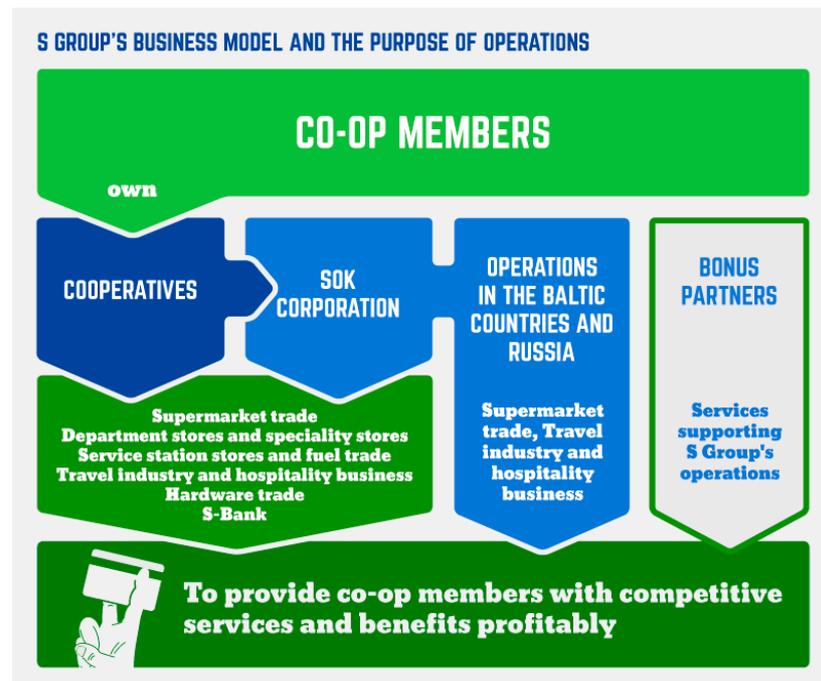


Figure 3. S Group's business model and the purpose of operations (S Group, 2015)

S Group's key business areas are supermarket trade, department stores and speciality stores, hardware stores, service station stores and fuel sales as well as travel industry and hospitality business. In 2014 S Group had altogether over 1000 stores and other retail outlets including three webstores. These stores and other retail outlets are organized as retail chains and together they form a service network. (S Group, 2015).

S Group's supermarket trade consists of five different chains. The biggest chain in term of sales is Prisma hypermarket chain with over 60 stores all over Finland and also in Estonia (8 stores), Lithuania (4), Latvia (5) and Russia (19). The other supermarket chains are S-Market grocery store chain, Alepa and Sale small grocery store chains and ABC market grocery store chain. Altogether there are 920 supermarket and other grocery stores. (S Group, 2015).

The department and speciality store chains include Sokos department store chain and Emotion beauty and well-being department store chain as well as few Marks & Spencer franchising stores and few other speciality store trade chains. Altogether there were 76 department and speciality stores in 2014. S Group also has Kodin Terra and S-Rauta hardware trade chains, whose 25 stores offer consumers building, renovation, interior decoration, yard and gardening related products and services. (S Group, 2015).

S Groups service station brand ABC was ranked as Finland's most valued service station brand. The services that ABC service stations offer include fuel and restaurant services, grocery stores and consumer goods selection aimed for the motorist and mobile customers. There were 238 service stations and other fuel trade locations in 2014. S Group also offers hotel and restaurant services in 319 different locations. The hotel chains Sokos Hotels and Radisson Blu are located all over Finland as well as in Tallinn Estonia (2 hotels) and St. Petersburg Russia (3 hotels). (S Group, 2015).

In addition to the different retail store chains S Group partially owns S-Bank together with LocalTapiola. S-Bank has approximately 2.7 million customers and it offers services for daily banking, savings, investing and financing of purchases. (S Group, 2015).

S Group is market leader in the Finnish grocery market, with an over 40 per cent market share. The overall retail sales of the S Group was over 11 billion euros in 2014 from which over 10.5 billion came from the domestic market. There were over 2 million cooperative members and 40 thousand employees working in the S Group chain stores and in the management in 2014. (S Group, 2015).

One reason for S Group's success in the grocery market is the loyalty card system, S-Etukortti bonus card. Every co-operational member is part of the loyalty card system and receives their own bonus card. Several studies have revealed that the S-Etukortti offers cooperation members the best financial benefits and is the most valued consumer relationship program in Finland. S-Bank has also begun to offer S-Etukortti Visa card, which has made it possible to use the bonus card as a credit and a debit card. There are over one million S-Etukortti Visa card holders and altogether two million cooperation members in Finland. (S Group, 2013)

The chain stores sell both brand products as well as private label products. Kotimaista, Rainbow and House are the three biggest private labels owned by S Group. Kotimaista private product line was launched 2014 and all products sold under Kotimaista brand are groceries produced in Finland from Finnish raw materials. Rainbow product line consists of different grocery products that do not meet the requirements of Kotimaista line and are partly or solely produced outside of Finland. House is S Group's most known non-food consumer goods private brand, which includes for example clothes, kitchen utilities and household textiles. (S Group, 2015).

Inex Partners Oy (Inex) is the logistics provider for the S Group, owned by SOK Corporation. Inex distributes a large proportion of S Group stores grocery and consumer goods supplies. In 2010 Inex (responsible for the procurement and logistics of grocery goods and the logistics of consumer goods) merged with Intrade Partners (responsible for the procurement of consumer goods) in order to improve efficiency of both procurement and logistics of grocery and consumer goods. Couple years later, in 2012, Inex was faced with yet another reorganization and all purchasing operations were moved from Inex to SOK as part of a company transfer. At the moment Inex has full responsibility of providing and developing logistics including warehousing and transportation services and SOK Corporation takes care of all purchasing operations including the development of the assortment sold in the different chains. Also, all the agreements with suppliers and the corporation were transferred to SOK. (S Group, 2015)

Inex has been developing the logistics operations by opening new, more efficient logistics center of non-food consumer goods in the spring of 2012. A new, half-automatic logistics center provides chain stores deliveries of products prepared for selling in order to reduce the time needed in the stores to prepare the goods and allocate more time into customer service. Similar logistics center for groceries is scheduled to open in 2016 right next to the operating one. At the moment the logistics center for groceries is operating in Kilo, Espoo. (S Group, 2015)

3.2 Product recalls in SOK

Product recalls are quite common in S Group due to the variety of both food and non-food products offered by the chain stores. While reviewing the previous recalls made in SOK during few last years, it was found that in the grocery section most of the recalls have been resulted of incorrect packaging information or contaminated ingredients and in the non-food section most recalls have been resulted of different quality problems, usually related to the durability or appearance of the products. In addition to

quality problems, trademark violations and product counterfeits suspects have also been the cause for product recalls over the past few years. Fortunately only few products are being recalled in the non-food area based on being dangerous to the consumers. In 2014 there were over 60 product recall cases in the non-food area and in only few cases the product was suspected to be dangerous and around 10 % of recalls were conducted as a request of different authorities, including Tukes and Evira.

SOK have multiple departments and employees whose tasks are to ensure that the products provided to consumers are safe. SOK's quality department is continuously monitoring the quality of the private label products sold in the different chains. The quality department uses external research institutes for testing private label products to ensure that the test results are neutral. The tests are usually done prior the products are launched to the market, but testing is also done on the later phases if there is need for testing product safety. If the testing results are alarming, actions will be taken to ensure the product safety. Quality department also maintains product quality standards for all product categories, especially for the vulnerable areas such as toys and chemicals (Index, 2016).

SOK also have different claim services for both non-food and grocery products. The claim service working for grocery products receives complaints and inquiries both from the chain stores and straight from the consumers via multiple channels including letters, e-mails and phone calls. Personnel in the claim service handle the complaints together with suppliers or manufacturing companies and refunds the consumers.

There are two claim service for non-food products: the claim service for Sokos and Emotion department stores and the claim service for Prisma, Kodin Terra, S-Market and other small size market stores. In the non-food area, the chain stores process the refund for the consumers and fill in an online claim form. Claim services work together with the chain stores, the suppliers and warehouses and other internal departments of SOK and Inex

in order to process incoming product, delivery and invoice claims and refund the chain stores.

Non-food claim services can also provide internal departments and supplier reports about claims, including return rates per product or product categories. Claim service also provides other departments part of supplier evaluation in terms of supplier claim percentages and claim processing.

The strategy which SOK is implementing in terms of recalls is neither totally proactive nor totally reactive, but a combination of these. SOK is actively testing the private label products that are sold in the chain stores and working closely with both the suppliers and the public authorities in order to avoid and manage recalls. The authorities that can obligate both the suppliers and SOK as a retailer include Tukes – Finnish Safety and Chemicals Agency, Valvira – National Supervisory Authority for Welfare and Health, Trafi – Finnish Transport Safety Agency, Evira – Finnish Food Safety Authority, FIMEA - Finnish Medicines Agency and the Customs.

Tukes is the most important cooperation authority in the non-food area as it maintains a list for defective and dangerous products and organizes tests to ensure product safety in product categories such as toys, electronic devices and textiles. Tukes and other authorities can order companies to recall products, ban the selling of products and request the products to be repaired. The method Tukes is requiring the company to use is defined by the defect of the product and the damage that the defective product may cause. (Tukes, 2013)

Despite testing the products and having product quality standards, it has been noticed that not all defects can be detected in advance. There might be difference between single products or product batches and not all products can be individually tested because of the massive amount of different products. It is always possible that the product might be defective even when it has gone through intensive testing methods. SOK is therefore

also implementing reactive strategy and reacting to the feedback that can come either from consumers, suppliers or other entities.

The companies involved in the recall processes have different responsibilities. SOK has full responsibility over all private label products manufactured outside of EU and a shared responsibility with the manufacturing company when private label products are manufactured in EU. SOK is responsible in one way or another for all the private label products imported, owned and distributed via the chain stores, including Baltic area and Russia. The responsibility over brand products lies always within either the supplier or the manufacturing company, but as a retailer SOK still has some responsibility over these products towards the chain stores and consumers. In the end SOK is responsible for all the products offered to the consumers in the chain stores. The responsibilities in recall situations as well as other terms of the cooperation are agreed between SOK and the supplier in the contract of purchase agreement (Index, 2016).

In case of defective products SOK has developed written recall process description that includes main guidelines for recall process (Index, 2016). Both food and non-food products have their own descriptions, because of the different distribution channels, legislation and supervisory authorities. The written process description for non-food products includes a flow chart of the different responsibilities and tasks that the different departments in SOK, warehouses, suppliers and the chain stores have in recall situations. SOK also has separate a written process description for recalling potentially dangerous product and recalling defective product from consumers. All these process descriptions and guidelines for recalls are created and maintained by the SOK quality department.

These recall process descriptions however do not include any general risk assessing guidelines and there is no general recall decision making model available. The recall decision is always made individually case by case by the people in charge.

Identification of the defect

The recall process always starts from the identification of the defect. SOK may receive request from the supplier of manufacturing company to remove the defective products or product batches from the market. The impulse for recall may also come either from the chain stores selling the products or from the consumers that have purchased them, in which case there might already be a liability case. Also the authorities, other distributors or even competitor as well as the personnel in SOK can detect the defective product.

It can be either individual case of defective product or multiple cases where the product is detected defective that triggers the need for a recall. The claim percent of products is monitored in SOK to ensure that the return rate does not grow. The trigger of the recall is not as essential as the need for proper investigation of the defect itself and the actions taken to ensure that the products are being removed from the market. It must also be remembered throughout the evaluation process that not all product defects require a recall.

The evaluation of the defect and the potential risks involved is an important part of identification. As stated before there is no general risk assessing guidelines nor recall decision making model available in SOK. The lack of risk assessing guidelines is based on the wide assortment of non-coherent products which makes it impossible to create such a common guidelines. The lack of recall decision making model is based on this same reason.

Still, some common evaluating rules or guidelines can be identified. The evaluation process could start from identifying the potential effects that defective products have or may cause. These effects may vary from serious health risks to bad mood caused by the broken or inoperative product. Also the number of defective products and the number of people potentially affected by the defect must be taken into consideration. This can be done by examining the return rate (products purchased compared to defective

products returned) and the overall number of products purchased. Also the defect itself must be examined. Questions such as how the defect was noticed and when the defect was noticed could help to decide whether or not the defect is indeed a result of misuse rather than actual faulty product.

This evaluation process helps to decide whether to take actions and what kind of actions to take. When the amount of products is wide and the risk posed by the defect is serious some action must be taken. However, when only few defective products are found and the potential risk is not serious, the recall decision is more challenging.

The decision to make actions to remove the defective products can be made by the supplier, by SOK or by these two together with or without request from the authorities. Based on observations of earlier recall cases, the supplier can request SOK to recall the product or product batch based on their own evaluation of the situation. Supplier may want to protect their company or brand image or the image of the product and request product recall. SOK may require the products to be recalled from stores even when the supplier does not agree with the approach, if SOK or the stores have fear that the defect will have negative impact towards the company and store chains.

Authorities may be involved in the recall decision process and obligate the supplier and SOK either to recall or to repair defective products. When the recall is mandated SOK will work together with the authorities and supplier to ensure that the process runs smoothly between the parties involved. SOK has chosen always to obey the requests made by the authorities and can make a product recall whether or not the supplier makes a recall request to SOK (Luoma, 2016).

If the recall decision is made by SOK it can be made either by the sourcing manager responsible for the product assortment in the chain stores or by the quality manager responsible for the quality of the products sold in chain

stores. The role of claim service in recall decision making is to ensure sufficient information about the return rates and other claim related questions to assist the sourcing manager and quality manager to make the decision. According to the process description of recalls it is always the sourcing manager that makes the final recall decision (Index, 2016). While some decisions are just approvals of the demands of authorities, other may require more consideration and conversation with the supplier and quality department.

Notification to customers

The second step of the recall process is sending notifications to the customers, which in SOK's perspective consists of different chain stores and possible also consumers.

Prior to making recall notification the purchase department together with the quality department and supplier must gather request information and agree upon what actions to take. Information required includes product related information (name, product codes, possible batch codes and other additional information needed to identify the products recalled), chain related information (for example when and when the products have been sold) and other additional information (for example the number of products on stock) needed to ensure all products to be removed from the chain stores. The sourcing manager and supplier must also agree whether the products are being recalled from the consumers that have already purchased the product or just from the stores and stock.

Besides the gathering of the required information SOK and the supplier have to agree upon what actions to take with the recalled products prior to sending the recall notification to stores. Based on earlier recall cases, desirable actions taken depend on the characteristics of the product (size, materials used, price, etc.), the amount of defective products, type of defect and other variables including the supplier's location and cost of transport.

Based on observations there are basically three action opinions: returning the products, destroying the products or repairing the products.

When the product is removed from stock and stores SOK will notify all required departments and people involved. When however the product need to be removed from consumers, SOK, supplier and possibly also the authority work together to choose the actions to take to inform the consumers. In case of defective private label brands the quality, purchasing and marketing departments work together to launch a separate notification to be published in the magazines and internet to reach all consumers that have purchased the products. When a product is not private label, the supplier takes care of informing the consumers by launching their own notification. In these cases SOK works together with the supplier to remove the unsold products from stores and warehouses. In both situations the consumers are usually advised to return the product to the point of purchase in other words the store where it was originally purchased.

SOK has the opportunity to track down and contact individual consumers that have purchased products that pose serious risk of injury or other damage. Tracking individual consumers is possible when consumers have used their S-group loyalty card and the purchase has been registered in the data base. This tracking may however be used only with separate request and permission by the authorities in situation where products pose serious risk to consumers (Luoma, 2016).

Tracking has been used couple times when products have posed serious risk to consumers. In summer 2013 SOK made a recall for private label frozen pan vegetables because one of the ingredients was faulty and posed risk of serious food poisoning. Contact information was collected through the loyalty card system by a request of authority. Consumers, whose contact information could be gathered, were informed by mail, e-mail and text message for the dangerous product. However, all consumers that had purchased faulty products either didn't use or didn't own loyalty card.

Because not all consumers could be individually informed the recall was also communicated through media to contact the rest of consumers. (Skanava, 2013).

SOK has developed model documents for recall notification with basic guidelines for stores in recall situations. This model document is modified in each individual case and all required information is added, including product information and possible return request. Claim service creates individual recall claim number for each case in order to track all returns, claims and other data needed in the process.

Recall notification is send either by the claim service or the sourcing manager to all parties involved in the recall process including stores, warehouses and internal department of SOK. After receiving the notification stores and warehouses act according to the guidelines given.

Corrective action

Corrective action depends on the actions agreed between SOK and the supplier and informed to the stores and other parties in the recall notification. As mentioned corrective actions include destroying the defective products, returning the defective products or repairing the defective products. As the sourcing manager and quality department had bigger role in the earlier stages of the recall process, the corrective action and monitoring the process are almost solely managed by claim service. Claim service makes sure that all defective products are being removed and that all chain stores get refund for defective products.

When stores are requested to destroy faulty products at stores, stores have to inform claim service the amount of defective products in order to receive a refund. Claim service collects all claims made by chain stores related to the recall case and makes credit note request to the supplier. The supplier can also request that the products are returned to desired destroying

location for destroying. This is however very rare in the retail business because the stores usually have efficient destroying equipment and recycling the destroyed products is not difficult. In the non-food area returning the products to desired destroying location has not been used in SOK.

Based on the observations and individual work-load evaluations returning the defective products involves more time and effort than destroying them. Usually SOK and the supplier has agreed that the supplier is accountable over all costs related to the recall and recalled products are returned only by separate request (Index, 2016). In these cases the stores receive return instructions and are requested to inform the claim service about the amount of products returned. Products might be returned either straight to supplier's desired location, for example warehouse or distribution center, or they can be returned via the SOKs logistics centers.

When defective products are returned to SOK's logistics center they move through the reverse logistics flow. The reverse flow from stores to logistics centers include the return of hangers, boxes and trolleys used in the outbound logistics and owned by Inex. When products are returned straight to the supplier, the supplier must provide essential return information including the address and method of transportation used. Based on observations, in most cases the products are being returned to supplier either via postal service or via pick-up arranged by the supplier. When products are returned to supplier the claim service once again collects all claims related to the recall and makes a credit note request to the supplier.

Third option is to repair the products either at stores or in a location appointed by the supplier. Repair can include for example adding needed instructions for use, removing or replacing defective parts and revising wrong product related information. From the store's point of view this may include adding stickers or other components to the products or packages or removing some parts of the products or packages. If the repair includes

more challenging remodeling or altering the product requires special skills the products might need to be sent to some location for repair or suppliers designated personnel might visit the stores to repair the products.

For efficient processing the chain stores are given a time limit for destroying and returning the defective product and informing claim service of the amount of defective items. Usually the given time frame is something between one to two weeks, during which the products should be returned and the amount of defective products announced.

In cases where the products have been recalled all the way from consumers the stores will also receive instructions on how to act with the returned products. Usually the instructions also include additional poster or copy of the recall announcement published in media that can be placed on store to inform consumers. The time frame for returning does not apply to products that are being removed from the consumers, because the consumers may return the defective products many weeks, even months after the request have been send.

Monitoring the process

Claim service has the main responsibility of monitoring the recall process after the recall request has been sent. Claim service receives claims from stores informing the amount of defective products destroyed or returned and supervises that the products are being returned. After receiving claims from different stores claim service combines individual claims into one credit note request send to the supplier or manufacturing company. Claim service supervises that this request is processed and that the stores receive compensation for the recalled products.

When products are returned to Inex logistics center the employees inspect and count all returned products. The amount of returned products is then compared to the amount of products informed by the stores. If there are any

differences the claim service will investigate the difference with the stores and logistics center. When the number of products returned and claims received match up the claim service will make a credit note request to the supplier. If products are returned straight to the supplier, the supplier has to make the comparison between returned and informed amount.

Based on experience, the concentrated claims management procedure helps both the chain stores and the supplier. Chain stores don't have to deal with the supplier individually and request compensation and the supervision of receiving compensation can be outsourced to the claim service. The supplier can make single credit note for compensating defective products instead of sending individual credit notes for each stores. Supplier also benefits for the concentrated return via warehouse as the return can be picked up from just one location.

3.3 Present stage of Baltic area operations

S Groups international business operations in Baltic area and in Russia have been rapidly expanding. In 2014, a combined sale of all supermarket trade in neighboring countries was 583 million Euros. The expansion and annual growth has slowed down after rapidly growing years. In 2014 there were total of eight supermarkets in Estonia, 19 supermarkets in Russia, five supermarkets in Latvia and four in Lithuania. In addition of the supermarket industry, SOK has also three Sokos Hotels in St. Petersburg, Russia and two in Tallinn, Estonia. (S Group, 2015)

The aim of the expansion is growing purchase volumes in order to get volume discounts and that way having the most competitive consumer prices in both Finland and neighboring countries. Expansion to Baltic area and Russia is needed in order to maintain and increase the purchase power because the growth in Finnish market has been slowing down. S Group has been reaching the limits of growth in Finnish market, especially competition in the supermarket area has slowed down the growth. (S Group, 2015)

Expansion in Baltic area and Russia requires high investments, but the future profits are also expected to be high. Investments made in the Baltic area and Russia are funded by loans given by SOK to the foreign subsidiaries. In the long run the aim is to turn the cash flow positive in all neighboring countries, in order to make investments without loans from SOK in the future. (S Group, 2015)

Prisma chain stores in Finland and neighboring countries share some features, for example the external appearance of all stores is the same and the product assortment has similarities. However the business model is different in Baltic area: the S-Etukortti owners in Baltic area are not co-operational members, but part of the loyalty program of the co-operatives. The number of loyalty card customers in Baltic area and Russia is over 700 000. (S Group, 2015)

The products in Prisma stores in Baltic area is partly Finnish and partly domestic, the product assortment is partly similar, but partly it differs between Finland and Baltic area. One driver of the difference is the different legislation in countries which determines what products can and cannot be sold in supermarkets. One example of such cases is the strong alcohol, which is sold in every Prisma store outside Finland, but not in Finland because Alko has the monopoly of strong alcohol sold in Finland (Riihivaara, 2013).

SOK exports private label products as well as brand labels into Baltic area and Russia (Riihivaara, 2013). The biggest non-food product area exported is women's, men's and children's clothes, but also household appliances and other household accessories as well as tools and sporting equipment are being exported (Index, 2016). All products exported to the Baltic countries are delivered through Baltic terminal in Tallinn, Estonia.

Currently the recall management for Baltic area operations is not straightforward. Products that are recalled from the Finnish chain stores are

not always recalled from the Baltic area chain stores. Dangerous products and products recalled all the way from the consumers are always removed from all chain stores including the Baltic area stores. As a growing concern of product safety and the expanding business in Baltic area, the current situation has been found to be insufficient and new procedures are needed (Nikkinen, 2011).

4 PRODUCT RECALL OPPORTUNITIES IN BALTIC AREA

As presented in the theoretical part of the research there are two different strategies for product recalls: the reactive and the proactive strategy (Hora et al, 2011). As mentioned, the strategies do not exclude one other, but they are rather overlapping: one of the strategies is chosen to be the main strategy, complemented by the other if needed. Especially the retailers must consider both strategies, because of the wide range of different products from different suppliers. In order to choose the right strategy a company should have enough information about the strategies and the possible outcomes for each strategy.

In addition to choosing the strategy the company should also be prepared for the recall situations by creating a recall process plan. As mentioned earlier the basic product recall process contains at least four stages: identification of the defect, notification to customers, corrective action and monitoring of the process (European Commission, 2004; Damary & Hurst, 1982). However, how these four steps are executed is based on for example on the product features (including size and price), the companies involved and source and features of the defect.

Before analyzing the different strategies in the Baltic area point of view and developing the recall process model to the Baltic area operations, the special features of the area must be taken into consideration. The first feature to be observed is language. Usually all documents and recall requests sent to the chain stores are in Finnish. The return request published to the consumers in newspapers and on the internet is written in Finnish and Swedish. When the process is expanded to the Baltic countries the request sent to the stores should be at least in English to assure that the information is comprehended. If however the products are needed to be removed from the consumers in the Baltic countries the documents and request should not only be in Finnish and in English, but also in Estonian,

in Latvian, in Lithuanian and perhaps also in Russian to ensure that the request is comprehend in all Baltic countries.

The second special demand that needs to be analyzed is the transportation. Even though the costs of recalls are not discussed in this research, costs need to be taken into consideration when addressing the transportation. At the moment products are being returned to Finland only in special cases, because of the high transportation costs, which in some cases might exceed the value of the products returned. It is important to take the transportation costs account when designing the model for recalls. However, the total cost of return depends for example on the features of the product (size and weight), on the special needs regarding the return (for example special packaging), on the total number of products returned and on the number of locations where the product is returned from. Different transfer possibilities are considered more extensively in the recall process part.

One difference between the national and international recall is the time frame. When products are returned through national border the return takes more time than return inside the border. International recall can also require more cooperation between the different supply chain entities in order to minimize the timeframe and cost of the recall.

It also has to be taken into consideration that there are supervisory authorities in all Baltic countries who may request products to be recalled in the same way as the Finnish authorities. In Estonia there is supervisory authority Consumer Protection Board, working under the Health Board working to ensure the product safety. This authority is aiming to improve the market surveillance and the level of awareness of the consumers and companies working in the Estonian market. The protection board has developed a strategy for following years, in which ensuring product safety, labeling requirements and co-operations with companies has been introduced as the priorities for the board. (Tarbijakaitseamet, 2012)

The local authorities may also have some additional requirements in recall cases. The local authorities can order for example different product inspections for the stores or require to fill in different reports and self-supervisory documents.

4.1 Recall strategy in Baltic area

When choosing the strategy to be implemented when recalling products in Baltic area, both preventive and reactive strategies should be examined. The analysis on this situation includes addressing the requirements that these strategies have and the results that the decision making bears in terms of recalling the products.

In the **preventive strategy** the company is working continuously to ensure that the product meets the safety requirements. The strengths of this approach is that the company can conduct voluntary recall prior to the hazard when defective products are found. However in order to ensure that the product meets the requirements, quality checks and testing is needed. These tests and checks can generate extra costs for the company, but they can also generate competitive advantage for the company. The competitive advantage can be created for example through marketing the product as being tested throughout the supply chain.

The preventive strategy requires that all products are traceable throughout the supply chain and that there is cooperation between the different supply chain members in case of a recall. Because no hazard has occurred the consumers may be unwilling to return the defective products and the companies might also take longer to conduct the recall because there has not been any incidents. However, this approach also makes it possible to remove products prior to the launch when products have not yet reached the consumers.

In the **reactive strategy** companies do not test the quality of the products systematically. The biggest weakness of the reactive strategy is that the hazard has usually already taken place before the recall is made. Compared to the preventive strategy more marketing is required in order to keep the consumers satisfied. However the company can spend the money saved from testing to compensate the consumers beyond the legal requirements, i.e. the super-effort is possible.

When using the reactive strategy companies might find it tempting to hide or deny the problem when it arises. This however can have significant effect on the customer satisfaction and company value if this comes into the public. What needs to be remembered is that the timetable for the recall in a reactive strategy is usually tight and the products need to be removed immediately after the fault has been noticed.

When considering the recall strategy for the Baltic area, the chosen strategy could be a combination of both proactive and reactive strategies. There are cases in which the fault is noticed prior to the launch and the products are removed from the warehouse before even getting to the stores. There might also be cases where the defect is noticed by a consumer or multiple consumers after purchasing the product. The recall can be conducted before there is a single product claim or the recall can be based on the high amount of such product claims. It must be noticed that also the individual chain stores can choose to remove a product from shelf when the store finds the products to be defective and does not want to continue selling the products. This can happen even though SOK and/or the supplier does not see the recall to be mandatory.

All companies involved should be prepared for implementing a recall in all cases, whether or not having a recall strategy planned beforehand.

4.2 Recall process in Baltic area

In addition to choosing the recall strategy, also the recall process plan should be created. As mentioned earlier the basic recall process involves four steps: identification of the product defect, notification to customers, corrective action and monitoring of the recall process (Damary & Hurst, 1982). However, how these four steps are being performed is based on for example the product features (including size and price), the companies involved and features of the defect. The aim of this chapter is to examine the stages and identify the possible scenarios for product recall in Baltic area.

In order to make more accurate recall scenarios, two imaginary recall situations have been generated:

Imaginary recall situation no 1. Coffee maker "ABC"

Coffee maker "ABC" can overheat.

Imaginary recall situation no. 2 T-shirt "DEF"

The t-shirt "DEF" may lose color while it is being washed.

Identification of the defect

The recall process always starts from the identification of the defect. As mentioned earlier there is no difference on how and by whom the defect is noticed, as long as the defect is examined. It must be also noticed that not all defective products are further examined by SOK or the supplier, and not all products that are further examined need to be recalled.

One important thing in identification of the defect in terms of Baltic area is the identification of the supplier. Not all products sold in the Baltic area chain stores are administrated by SOK and there are many other suppliers delivering to the Baltic chain stores as well. If the products are not delivered

and administrated by SOK the Baltic area chain stores and subsidiaries must organize the recall straight with the supplier.

Because most of the products distributed via SOK are sold in the Finnish market it is more likely that the product defect is detected by the Finnish consumers. However, also the consumers in Baltic countries may detect faults and report them as well as the authorities in Baltic countries.

In both imaginary cases the defect could have been detected by the supplier that has noticed the defect for example during testing of the product. The defect may also have been noticed by the consumer, who has then returned the products to the initial point of purchase or and/or informed the authorities or the supplier. When the product is returned to one of the chain stores, the personnel on site created a product claim to SOK. This is the most common way in which the SOK claim departments receive information about defective products. In the t-shirt case it is possible that SOK has received a claim about the defective product, but no further actions have yet been taken because the defect is not considered to be serious enough. In cases where the defect is considered to be serious or the return rate of product is high, the examination of the defect is initiated. In the coffeemaker case it is also possible that the consumer who has founded the coffeemaker to be defective has informed Tukes or other authorities about hazardous product. One opportunity in both imaginary cases is that a consumer has reported the defect straight to the supplier. No matter when and by whom the defect is detected, the case has to be examined by SOK, the supplier and possibly by the authorities as well.

One opportunity to begin the examination of a product defect is to define the scope and seriousness of the defect. The scope of product defect can be defined as the number of consumers or products affected by the defect. The seriousness of the defect can be something between causing displeasure towards the product or manufacturer of the product to serious accidents caused by the defect. Fortunately, most product defects do not

cause severe harm to the users and displeasure is more likely to occur than accidents.

When codirecting the imaginary case, the overheating coffeemakers can cause both serious health and property related accidents including burn injuries and fires. Further along these accidents, when actualized, can cause the manufacturing company significant liability related claims. The dyeing problem with the t-shirt is less likely to cause health related issues, but the loose color may cause property related issues like dyeing of other clothes and possessions. The main disadvantage may be just the displeasure of the ruined t-shirt, but it can still have negative impact to the brand or manufacturing company. These extra claims and impacts, that the defective products have, must be taken into account when deciding whether or not to conduct a recall.

While defining the scope of specific product defect it can be possible to delimit the defect to a specific batch of products being manufactured or assembled in certain places or during certain time frame. The question that follows, is whether it is possible to itemize the products that belong to the batch detected to be defective? In some cases, including for example most of small household appliances and most of the cosmetics, the product itself can include serial number, date of manufacturing, batch code or some other individual coding system that can be linked to the manufacturing date or place. In these cases, only the products belonging to the defective batch can be recalled. However, if there is no individualization data available, all items must be recalled. Based on this, we can assume that the imaginary defective coffeemakers have most likely a serial number or other individualization data printed in the products type plate. The defective t-shirt however, most likely does not have any identification numbers.

When examining the scope of these cases there could be situations where the recall is justifiable and other cases where there is no need for recalling products. One possibility to examine the scope of defect is to go over the

overall number of products manufactured, overall number of products sold and the return rate of the product. The return rate includes all products returned due to different defects, not just products that have been returned due to the same defect.

Assume that the overall amount of products manufactured in both imaginary cases is 5 000 pieces and the total amount of products sold could be 3 000 coffee makers and 1 000 t-shirts. Assume that only one coffee maker has been returned faulty as there have been altogether 110 t-shirts returned based on different faults. Based on this the return rate of coffee makers is under one percent and the return rate of t-shirts is over 10 percent of products sold. When the number of products sold and products returned are altered also the return rate alters. For example, if the total number of the coffee makers manufactured is only 500 pieces, the number of products sold is 450 pieces and 26 coffeemakers have been returned due to defect, the percentage of coffeemakers returned rises to over five percent.

The last number that should be taken into account is the number of products still on sale. The amount of products still on sale will affect the total number of products to be returned. In the case described the amount of coffee makers still on sale is 2 000 and the amount of t-shirts still on sale is 4 000. If the return rate stays stable, there might be one or less defective coffee makers and over 400 defective t-shirts still on sale. However, also the life span of product will affect the total return rate. For a t-shirt the normal life span is usually way shorter than the life span of a coffee maker. A t-shirt is most likely to be returned shortly after purchase if the product is found to be defective. On the other hand, the life span of the coffee maker is long and they can be returned years after purchase depending on the expected life span and guarantee that the manufacturing company has given for the product.

One more thing to consider before making a recall is the cost of recalling products. The overall cost of recalling a product might rise higher than the

value of the recalled products. And in some cases, the cost of recalling a product might be higher than the cost of possible extra liability claims caused by the defective product. The overall cost of recalling the product includes for example the cost of compensating consumers and the stores for the defective products, the cost of notifications send to the stores, consumers and other entities, the possible return cost of unsold products and the labor cost of people involved in the recall process. The overall cost of recall varies based on the features of the product and the recall process.

As a summary, a list of questions that can be answered before making the recall decision can be created:

- What is the total amount of products? How many of the products might be defective? How many products might be affected by the defect?
- What is the overall return rate of the product?
- How many products have been sold and how many products are still on sale?
- What is the expected life span of the product?
- How serious is the defect? And what issues can the defect cause? Is there an opportunity for extra liability claims?
- How much could the recall cost to the companies involved?

Based on these questions the company or companies in charge must make the recall decision. In some cases the recall can be required, but in some case the companies may be able to correct the fault without recalling the product or choose not to recall because of the narrow scope of the defect or non-serious defect.

In the imaginary coffeemaker case, the defect can be detected to be serious enough that the recall must be made, regardless on the other factors. On the other hand, if only one consumer has noticed overheating problem with the product and while testing the product no defect can be found, the companies involved can make no-recall decision, if the authorities do not

force the recall. Products that pose serious risk to consumers are always recalled through an obligation by the authorities. In the imaginary t-shirt case, the recall decision is not straightforward. On one hand, the defect is not serious and does not pose a risk to the consumers. On the other hand, the company might want to recall the products in order to protect the brand or company value.

The last issue to take into consideration before the recall decision is to decide the scope of the recall: whether to recall the product from the consumers or whether to recall just the products on stocks and stores. The number of products sold, the number of products still at stores and stocks and the number of products returned can be used to evaluate the scope of recall. If only few products have been sold and the defect is not serious, the company can recall just the products not yet sold in order to avoid any further complaints and choose to accept any consumer complaints from the products that have already been sold to consumers. When considering the imaginary t-shirt case, the companies involved could make the decision to recall the products not yet sold to the consumers at the stores and stocks depending on the amount of products sold.

Notification to customers

After noticing the defect and making the recall decision the second step of the recall process is to notify the customers, including the retailers, stores and possibly consumers. When the product is recalled all the way from the consumers there are usually two different notifications needed: one for the consumers and one for the stores and other entities. Depending on whether the products have been sold in Baltic and/or in Russia as well as in Finland, the notification must be sent to the Baltic area and/or Russia as well.

The notification sent to the consumers should include at least the product information like name, product number, picture of the product and possibly the serial numbers or batch codes, the way the consumers are requested

to return the defective product, a clear description of why the product needs to be returned and contact information if the consumers have additional questions regarding the recall. The notification is usually published in few of the biggest newspapers in order to reach as many people as possible if the people purchased the defective products cannot be reached through other means. The notification sent to the retailers and stores should include the same information as the request sent to the consumers and also guidelines on what to do with the products returned by the consumers and the yet unsold products.

To the Baltic consumers the notification must be in at least on English or in Estonian, Lithuanian and Latvian. In cases where SOK acts as manufacturer of a private label product, SOK has the responsibility over publishing the notification and contacting the consumers. In these cases SOK has agreed with the local subsidiaries that the translations and media selections are made by the local subsidiaries. Other possibilities could be that the notification is translated to Estonian, Lithuanian and Latvian by a translating service on behalf of SOK. In this case, the stores could receive the request in their own language to minimize the risks of not understanding the request. However, making the translation is not cheap and therefore it should be considered if the translation services is needed in all cases or just in cases in which the recalls goes all the way to the consumers.

In cases where the product is not private label and the supplier bears the responsibility to contact the consumers, it is also the supplier's responsibility to contact the consumers in the Baltic area if required. In these cases SOK can contact the Baltic stores and give the guidelines to the stores. If the product is only removed from stores and stock, SOK can contact all stores and give the guidelines whether or not the product is a private label.

Because the notification should include the guidelines on what to do with the defective products, the corrective action must be agreed before the notification can be send to the consumers and stores. The guidelines can

be different for the consumers and retailers. Usually the consumers are advised to return the defective products to the initial point-of-sale and the retailers are advised to either return the products to the supplier or to destroy the products on location.

Corrective action

After the defect has been detected and the notification to the stores and possibly to the consumers have been sent it is time for corrective action. As stated before the corrective action can include for example withdrawing the defective products from the distribution chain, modifying the products or recalling the products (European Commission, 2004).

When considering the assortment in SOK chain stores, most of the non-food products are low-value consumables with limited life span including household products, clothes and toys. These kinds of products are usually not repaired, but the products are being withdrawn from the distribution chain and recalled from the consumers if needed. There might be cases in which the product is easily modified or repaired for example by changing or adding operating instructions or warning labels, and the products can be refurbished either by the supplier's representative or maybe even by the store personnel. It must be remembered that even though the store personnel can be used as a help for repairing the products, the supplier or manufacturing company still bears the responsibility over the repaired products.

The consumers are usually advised to return defective products to the point-of-purchase in cases where the product defect may be dangerous and cause accidents. Only a small part of all detected faults are communicated to the consumers. In the imaginary coffeemaker case we can assume that the fault and instructions have been communicated all the way to the consumers. And the consumers have been advised to return the defective products to the initial point-of-purchase. In the t-shirt case we can assume

that the fault has not been communicated through to the consumers and only consumers who find the t-shirt to be defective can return the product to the point-of-purchase if wanted.

In most cases the defective products are removed from the shelves and either destroyed or returned. In both imaginary cases we can assume that the products are withdrawn from the shelves and stock in order to avoid any further claims. The withdrawn products might be asked to be return or be destroyed depending on the value of the products and the cost of returning the products. There can also be different guidelines for unsold products and products returned by the consumers. For example the retailers can be requested to return all unsold products, but to destroy any products returned by the consumers. The guidelines can also be different for products located in Finland and for products located in Estonian, Lithuanian or Latvian stores.

Destroying the defective products is the most common, because of the high returning costs. Returning the items to Finland is usually very expensive, although the price per returned unit depends on the products size and weight, the packaging material and the returning method utilized. There can be cases in which the cost of return can exceed or even be double compared to the value of returned products. Due to expensive transportation cost the defective products are usually not returned to Finland, but are either disposed or repaired in the Baltic countries. If however the products are returned to Finland the costs of transportation should be directed to the supplier or another party who has caused the defect if possible.

The returning method used can be either that all stores collect their faulty products and return the products straight to Finland either to SOK or to the manufacturing company bearing the responsibility for the product. Stores can also collect all faulty items to one location and return all them at once. This method takes more time, but the cost per returned item stays lower. In Finland the stores usually collect all faulty items and return them back to the

logistics company Inex Partners Oy. This method is cheaper because the stores can use the same delivery method for returns as they use for incoming products. The delivery trucks do not have to drive the return trip empty so the cost is lower than it would be when using a different delivery method for incoming and outbound logistics.

Collecting the products from the stores in Baltic area is not carried out in the same way as in Finland. There is a possibility to collect all the faulty products to the Baltic operations terminal situated in Tallinn and return them further to Finland. Problem is, that there is not such similar “milk run” –model operated in the Baltic countries because there are no similar assets (pallets, boxes or trolleys) in returns as in Finnish stores. This makes it difficult to collect all the defective products from the stores. Also the fact that the stores are located in three different countries must be considered, even though there is no customs between the countries based on the EU legislation.

Monitoring the process

As mentioned, one opportunity to monitor the process is to measure the effectiveness of the recall. SOK has the opportunity to monitor the number of products in chain stores and compare the amount to the amount of products returned or informed to SOK. However, SOK cannot force the stores to return the defective products and if the stores do not act according to the given guidelines, the responsibility over defective products sold transfers from SOK to the chain store.

Customer satisfaction may be hard and expensive to measure after each individual recall, but recalls can be one part of the customer satisfaction research when it is done. This customer satisfaction research can also be carried out by the supplier, especially in cases which products have been removed from other stores than S group chain stores as well.

As a part of monitoring the process, the companies involved should have clear procedures ready for each recall situation, which can be compared to the actual actions in each recall situation. This learning cycle can help the companies to develop the recall procedures and actions taken.

5 CONCLUSIONS AND SUMMARY

The aim of the whole research was to provide insights on product recalls and offer an overview of best practices among the field of product recall management and returns management. The main objective was to explore all the different opinions that the case company has for implementing a recall.

In the previous chapters the product recall management was presented first from a theoretical standpoint and after that the theory was reflected to the case. The aim of this chapter is to collect and outline the theory presented and present the main results of this research.

5.1 The main results of the study

The main results of this study can be approached by answering the research questions. The main research question was divided into three sub-questions that must be answered before the main question can be explored.

The first sub-research question concerned the different recall strategies:

What kind of product recall strategies can companies adopt?

Two different strategic options were presented: the preventive and reactive recall strategy. However, these strategies are not exclusive but the companies involved with recalls must consider both options when preparing for the recall situations in advance. There is also always the opportunity to try to deny the product defect and avoid the recall. However, as there are authorities that supervise product safety in Finland and Baltic countries as well as in the whole EU, denying the product defect and avoiding the recall especially in cases which the product is hazardous is rather impossible.

When adopting the preventive strategy companies aim to detect and correct the possible faults in the early stages of the product life cycle by monitoring and inspecting the products. Companies that adopt the reactive strategy

more start the investigation and recall process after the hazard has already taken place. It must be remembered that different actors in the supply chain may use different approaches to product defects and recalls. Retailers and stores may use the reactive strategy as suppliers and manufactures try to use the preventive strategy.

For the case companies the selection of one strategy is not possible, but the chosen strategy could be a combination of both strategies. The case companies must be prepared to implement a recall in all situations, no matter how, when and where the defective products were found.

The second sub-question presented in the introduction part was:

What are the most important factors impacting the planning and implementation of a product recall process?

First of all, planning and implementing recalls requires high cooperation between the supply chain entities involved. Entities must work together in order to remove all defective products and ensure the consumer safety. Entities might need to share information regarding the products position on the supply chain and the amount of products concerned with other entities involved. This information is needed for tracking and collecting all defective products as well as contacting the consumers if needed.

The different responsibilities that supply chain entities might have during the recall are defined by the ownership of the product and the brand. The EU has given clear guidelines on in which situations the retailer or supplier are responsible over products and their defects. The responsibilities define for example who takes care of noticing the consumers in cases in which the product is found to be hazardous.

The whole recall process is also influenced by the preparation done prior to recalling products. Companies must have clear procedures for recalling

products set up prior to making a recall. Preparation and planning the actions is crucial for conducting an effective recall.

The third sub-question delimits the recall process planning for the research case and concerns the export scope:

How does the requirements of implementing international product recall differ from the requirements of implementing national product recall?

In EU the guidelines for recall management have been standardized for all member countries. This standardization removes much of the different requirements between national and international product recalls. However, some important issues were discovered: the language and the transportation between countries.

The recall notification must be translated in order to reach the different supply chain entities, including at least the stores and consumers. Also the demands of local authorities must be fulfilled. The local authorities may require for example different reports to be filled in recall cases for supervising the process.

The international recall also requires more time than the national recall as there are more entities involved. When products are returned through national border the return takes more time than return inside the boarder. International recall can also require more cooperation between the different supply chain entities in order to minimize the timeframe and cost of the recall.

The main research question of this study was formed as:

What are the different possibilities for a company to implement a recall for exported non-food products?

The recall model for exported non-food products was discussed in the fifth chapter. The main recall process includes four steps: identification of the

product defect, notification to customers, corrective action and monitoring of the recall process.

The identification process is somewhat similar in all cases and the most important is aspect that the defect is examined no matter where and by whom the defect was detected. The identification process includes also the decision making part and the most important questions are whether or not to recall and whether or not to contact the consumers as well or just recall the unsold products. A list of questions which can be used as a foundation for the recall decision making was introduced in the chapter presenting the case.

The notification process includes sending recall notification to the needed supply chain entities and possibly to consumers as well. The supply chain entities should have agreed upon the guidelines for handling the defective products prior of sending the notifications. These guidelines can include for example the return address and contact person for the recall.

Corrective action includes for example withdrawing the defective products from the distribution chain, recalling the products from consumers and/or repairing the defective products (European Commission, 2004). Low-value consumables with limited life span are usually not repaired or returned to the supplier, but as the life span and value increases the products might be repaired for the consumers rather than disposing them. One big issue in the corrective action process particularly for exported products is the transportation and notably the cost of transportation. The main question is whether there is actual need to transport defective items or can the products be disposed locally.

Last, but not least, of the recall process is monitoring the process and ensuring that all requirements are achieved. This monitoring is needed especially for developing more efficient procedures and for making sure that all defective products are removed from the market.

5.2 Theoretical contribution and managerial implications

As mentioned earlier multiple times, product recalls are inevitable part of retailing. All companies operating in retailing must have plans on how to conduct a recall in a situation where product is founded to be defective or even hazardous. As growing complexity and international working environment companies must also be ready to conduct an international product recall cross national borders.

The main result of this study suggest that companies involved in the product recall process must work together to ensure consumer safety. Cooperation between the entities working on different levels of the supply chain is needed to make sure that all products are being removed in all parts of the supply chain and no products are to be sold anymore. As the consumer safety is growing concern in the retailing companies acting responsible may even gain competitive advantage when dealing right in the recall situations.

According to a company response continuum presented by Siomkos and Kurzbard (1994) companies have four different response models for product faults and recalls: denial, involuntary recall, voluntary recall and “super-effort”. However, as stated before companies working especially in retailing cannot deny or hide product defects, at least not without facing negative publicity. Actually, many companies try to use the super-effort in order to avoid negative publicity.

As mentioned, the product defect can be noticed by different instances including supply chain members, distributors and consumers (Hora et al. 2011). This requires that all companies working in the supply chain must have some feedback channel in use to be able to manage the incoming feedbacks. One opportunity is to have a quality management and claim processing systems set up.

Hora et al (2011) suggest that most recalls occur due problems in design or manufacturing. This statement is supported by this study as most product recalls made in the research company during few last years were conducted because of manufacturing related faults. As stated by Berman (1999) products can be removed from the market when they do not meet the given performance standard. This statement is also being supported by this study, as growing number of products are being removed due to not meeting the performance standards of the manufacturing companies even though the product is not being hazardous.

The scenario analysis used in the empirical part of this study is practical tool for companies setting up recall process plan and for companies already facing with recall decision making. Also the question list presented in the scenario analysis can be used and developed among companies working in the retailing.

5.3 Limitations and suggestions for future research

The data collection was made inside one major Finnish retail organization, which clearly effects the results, but which also gives the subject more deeper understanding within this organization. Limited time and effort were the main drivers for choosing only one company. However, the overall generalization could have been better, if multiple companies could have been studied simultaneously. In this case, the case company selection could have been hard, because the retail market in Finland is narrow, with only few big companies controlling large market share. However, with the delimitations made, the case company selection would be almost impossible, because not many large retail companies import to the Baltic countries and moreover own stores operating in the area. However, the theoretical contribution of this research can be used in following studies of recall management in Finland, in Baltic area and in the EU as well.

Some suggestions for future research topics in recall management can be made. One possibility could be to examine more thoroughly the different causes for recalls: when the recall should be made and when the recall is not required.

Another research area could be to explore the financial aspect of the recalls: for example what is the median cost of recall in particular product category. The cost of recall depends for example the amount of products, the features of the product and the entities involved in the process, but a research could be made for a product category as many suppliers deal with particularly narrow product categories.

One opportunity for future research could be to compare the different recall possibilities in Finnish companies, in order to collect a body of best management practices of recall management. This research could be made within one market area because of the different requirements of different market areas. Another research could be made to explore the differences in the recall management between a country that is part member of the EU and a country that is not member of the EU.

REFERENCES

Berman, B. (1999). Planning for the Inevitable Product Recall. *Business Horizons* 42 (March/April), pp. 69–78.

Bernon, M., Rossi, S. & Cullen, J. (2011). Retail reverse logistics: a call and grounding framework for research. *International Journal of Physical Distribution & Logistics Management*, Vol. 41, N. 5, pp. 484-510.

Blackburn, J. D., Guide, V. D., Souza, G. C. & Van Wassenhove, L. N. (2004). Reverse Supply Chain for Commercial Returns. *California Management Review*, Vo. 46, No. 2, pp. 6-22.

Consumer Product Safety Commission, CPSC (2012). Recall Handbook. [e-document]. [retrieved November 19, 2013]. From: <http://www.cpsc.gov/PageFiles/106141/8002.pdf>

Copeland, T., Jackson, G. & Morgan, F. (2004). An Update on Product Recalls. *Journal of Marketing Channels*, Vol. 11, No. 2/3. pp. 103-121.

Damary, R. & Hurst, G.A.S. (1982). A Study of Recall Practices Among Manufacturers of Consumer Products. *The Geneva Papers on Risk and Insurance*, Vol. 7, No. 22, pp. 27-66.

Dawar, N. & Pillutla, M. N. (2000). Impact of Product-Harm Crises on Brand Equity: The Moderating Role of Consumer Expectations. *Journal of Marketing Research*, Vol. 37, pp. 215-226.

Dowlatshahi, S. (2000). Developing a Theory of Reverse Logistics. *Interfaces*, Vol. 30, No. 3, pp. 143-155.

Eisenhardt, K. M. (1989). Building Theories form Case Study Research. *Academy of Management Review*, Vol. 14, No. 4, pp. 532-550.

European Comission (2004). Product Safety in Europe: A Guide to corrective action including recalls – helping businesses to protect consumers from unsafe products. [guide]. [retrieved January 20, 2013]. From: http://ec.europa.eu/consumers/cons_safe/action_guide_en.pdf

Gibson, D. C. (1995). Public relations considerations of consumer product recall. *Public relations review*, Vol. 21, No. 3, pp. 225-240.

Grabowski, G. & Hertzberg, J. L. (2007). Avoiding and Managing Product Recalls. *Risk Management*; Vol. 54, pp. 12-17

Grundwald, G. & Hempelmann, B. (2010). Impacts of Reputation for Quality on Perceptions of Company Responsibility and Product-related Danger in times of Product-recall and Product Complaints Crises: Results from an Empirical Investigation. *Corporate Reputation Review*, Vol. 13, No. 4, pp. 264-283

Hora, M., Bapuji, H. & Roth, A. V. (2011). Safety Hazard and Time to Recall: The Role of Recall Strategy, Product Defect Type, and Supply Chain Player in the U.S. Toy Industry. *Journal of Operations Management*, No. 29, pp. 766–777

Independent Consumer and Competition Commission, ICCC (2005). Voluntary product recall guide for industries. CPD – TMQCS 12, September 2005. [e-document]. [retrieved November 19, 2013]. From: <http://www.iccc.gov.pg/docs/PRODUCT%20RECALL%20GUIDE%20UC2.pdf>

Index-portal (2016). [SOK Intranet].

- Jansen-Vullersa, M. H., van Dorpd, C. A. & Beulensb, A. J. M. (2003). Managing traceability information in manufacture. *International Journal of Information Management*, Vol. 23, pp. 395-413.
- Kumar, S. & Budin, E. M. (2006). Prevention and Management of Product Recalls in the Processed Food Industry: a Case Study Based on an Exporter's Perspective. *Technovation*, No. 26, pp. 739–750
- Kumar, S. & Schmitz, S. (2011). Managing Recalls in a Consumer Product Supply Chain – Root Cause Analysis and Measures to Mitigate Risks. *International Journal of Production Research*, Vol. 49, No. 1, pp. 235-253.
- Kumar, S., Dieveney, E. & Dieveney, A. (2009). Reverse Logistics Process Control Measurements for the Pharmaceutical Industry Supply Chain. *International Journal of Productivity and Performance Management*, Vol. 58, No. 2, pp. 188-204
- Lambert, S., Riopel, D. & Abdul-Kader, W. (2011). A Reverse Logistics Decisions Conceptual Framework. *Computer & Industrial Engineering*, Vol. 61, pp. 561-581.
- Lau, K. & Wang, Y. (2009). Reverse Logistics in the Electronic Industry of China: a Case Study. *Supply Chain Management: An International Journal*, Vol. 16, No. 6, pp. 447-465
- Ledbetter, L. A. (1989). Product recall plan Guidelines for Manufacturers and Sellers of Industrial Products. *Professional Safety*, Vol. 34, No. 3, pp 18-23.
- Metsämuuronen, J. (2000). Laadullisen tutkimuksen perusteet. Metodologia-sarja 4. Helsinki: International Methelp

Miller, A., N. & Littlefield, R., S. (2010). Product recalls and organizational learning: ConAgra's responses to the peanut butter and pot pie crises. *Public Relations Review*, Vol. 36, pp. 361–366.

Mollenkopf, D., Russo, I., & Frankel, R. (2007). The Returns Management Process in Supply Chain Strategy. *International Journal of Physical Distribution & Logistics Management*, Vol. 37 No. 7, pp. 568-592.

Patton, E. & Appelbaum, S. H. (2003). The Case for Case Studies in Management Research. *Management Research News*, Vol. 26, No. 5, pp. 60-71.

RAPEX (2013). 2012 Annual Report on the operation of the Rapid Alert System for non-food consumer products. [e-document]. [retrieved November 5, 2013]. From:
http://ec.europa.eu/consumers/safety/rapex/docs/2012_rapex_report_en.pdf.

Riihivaara, K. (2013). Rainbow'ta ruplilla. Teema: S-ryhmä lähialueilla. *Ässä* (S Group's private internal magazine), No. 10 / 2013.

Riswadkar, A. (1988). Product Recall Program. *Professional Safety*, Vol. 33, No. 8, pp. 19-22

Rogers, D.S., Lambert, D.M., Croxton, K.L. & Garcia-Dastugue, S.J. (2002). The returns management process, *The International Journal of Logistics Management*, Vol. 13 No. 2, pp. 1-18.

Saunders, M., Lewis, P. & Thornhill, A. (2003). *Research Methods for Business Students*. 3rd edition. Essex: Prentice Hall

Siomkos, G. & Shrivastava, P. (1993). Responding to Product Liability Crises. *Long Range Planning*, Vol. 26, No. 5, pp. 72-79

Siomkos, G. J. & Kurzbard, G. (1994). The Hidden Crisis in Product-harm Crisis Management. *European Journal of Marketing*, Vol. 28, No. 2, pp. 30-41

S-Kanava (2013). SOK tiedottaa asiakkaita tuotevirheestä. [bulletin]. [retrieved November 4, 2013]. From: https://www.s-kanava.fi/uutinen/sok-tiedottaa-asiakkaita-tuotevirheesta/626309_384136.

S Group - SOK Corporation (2015). Annual report 2014. Available: <http://vuosikatsaus.s-ryhma.fi/en/s-group#s-group-in-brief>

Souiden, N. & Pons, F. (2009). Product recall crisis management: the impact on manufacturer's image, consumer loyalty and purchase intention. *Journal of Product & Brand Management*, Vol. 2, No. 18, pp. 106-114.

Standop, D. & Grunwald, G. (2009). How to solve product-harm crises in retailing? Empirical insights from service recovery and negative publicity research. *International Journal of Retail & Distribution Management*, Vol. 37, No. 11, pp. 915-932

Tarbijakaitseamet (2012). Consumer Protection Board strategy 2012-2016. Available: http://www.tarbijakaitseamet.ee/public/toimENG_final_TARBIJA_EST-ENG_TKA_strateegia_2012-2016_FINAL02_02_2012_uus.pdf

Tibben-Lembke, R., S. & Rogers, D., S. (2002). Differences between forward and reverse logistics in a retail environment. *Supply Chain Management: An International Journal*, Vol. 7, No. 5, pp. 271-282.

Tukes (2013). Consumer safety. [web page]. [retrieved November 4, 2013]. From: <http://www.tukes.fi/en/Branches/consumer-safety/>

Tukes (2016). Tukes poisti viime vuonna markkinoilta 158 vaarallista tuotetta. [e-document]. [retrieved April 17, 2016]. Available: <http://www.tukes.fi/fi/Ajankohtaista/Tiedotteet/Yleiset/Tukes-poisti-viime-vuonna-markkinoilta-158-vaarallista-tuotetta/>

Tulli (2015). Kulutustavaroiden turvallisuustutkimukset 2014. [e-document]. [retrieved April 8, 2015]. Available: http://www.tulli.fi/fi/suomen_tulli/tullilaboratorio/toiminta_2014/tiedostot/kulutustavaratutkimukset_2014.pdf

Uusitalo, H. (1991). Tiede, tutkimus ja tutkielma – Johdatus tutkielman maailmaan. WSOY Oppimateriaalit. Juva: WSOY - Kirjapainoyksikkö

Valtioneuvoston asetus sähkö- ja elektroniikkalaiteromusta (VNA 519, 2014). Ympäristöministeriö.

Vlachos, D. & Dekker, R. (2003). Return handling options and order quantities for single period products. *European Journal of Operational Research* No. 15, pp. 38–52

Wynn, M.T., Ouyang, C., ter Hofstede, A.H.M. & Fidge, C.J. (2011). Data and Process Requirements for Product Recall Coordination. *Computers in Industry*, Vol. 62, pp. 776-786.

Interviews

T. Luoma, SOK, Interview, February 2016, Helsinki.

A. Nikkinen, Inex Partners Oy, Interview, October 2012, Helsinki.

Multiple short interviews / discussions with personnel of SOK Quality Department, 2011-2016, Helsinki