Developing Guidelines for Proactive Supply Chain Risk Management

A Case Study at IKEA Category Food Logistic Services

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Abstract

The number of supply chain disruptions has increased over the last couple of years. The Covid-19 Pandemic, blockage of the Suez Canal and Russian invasion of Ukraine are some well-known examples of disruptions. Academia seems to have noticed the increasing disruptions and has explored proactive Supply Chain Risk Management (SCRM) as an approach to address this. Consulting firms also suggest companies to work with proactive SCRM to make themselves a smaller target to the increasing supply chain disruptions. The proactive approach to SCRM means managing, planning as well as minimizing risks before they occur, i.e., addressing changes and risks before they are realized.

To respond to this, IKEA Category Food Logistics Services (CFLS) saw a need to investigate how SCRM can be managed proactively. The purpose of this thesis is therefore to understand what is needed to work with proactive SCRM as well as to create guidelines for IKEA CFLS. To fulfil this purpose, a design science approach is taken by iterating between the four phases *Framing, Creating, Validating* and *Theorizing*. Embedded in the design science approach is also a literature review and a multiple case study. The output of the literature review is a conceptual framework consisting of the setting of the food-retail industry, a proactive SCRM process and the organizational aspect of proactive SCRM. The multiple case study is performed through gathering empirical data in interviews, secondary data and observations at IKEA CFLS. The data is analysed in within-case and cross-case analyses by adapting a coding technique. The result of this is five dimensions summarizing the IKEA CFLS employees' perception of the current state. They are (1) Lack of resources is an obstacle to work proactively with SCRM, (2) Efforts to become more proactive are limited to projects or top management level, (3) Lack of communication, (4) Lessons learned are sometimes neglected, but there is a desire to improve and incorporate them, and (5) No "we" in the organization. Moreover, a gap analysis is performed to identify gaps between IKEA CFLS and literature. The dimensions and gaps are laying the foundation to the content of the guidelines by translating the gaps and needs into proposals supported by the literature review.

Three guidelines are proposed to IKEA CFLS. Two common themes of the guidelines are that they all require a cross-functional effort from the organization and that IKEA CFLS needs to expand their work with proactive SCRM beyond projects. Guideline 1 is named *Create a common starting point & Develop a Risk Culture* and puts emphasis on the need to form a common understanding of risks and a common ground to stand upon when implementing the other two guidelines. It consists of two parts; diagnose the current state and develop a risk culture. Guideline 2 is named *Implement a 4-step proactive SCRM process* and proposes an iterative process to be implemented at IKEA CFLS. The process consists of the four steps *Identification, Assessment, Mitigation* and *Monitoring*. Each step is described in terms of importance, instructions on how it can be conducted, which tools can facilitate it, and what is required from the organization to perform it. Guideline 3 is named *Expand & Formalize the Lessons Learned Process* and proposes a formal process for generating, sharing, and implementing changes based on learnings. The learnings can derive from projects or the daily business.

The thesis applies existing theory in a new setting by applying literature on proactive SCRM in IKEA CFLS's setting. By confirming the theories in a new setting, they are further strengthened which is one theoretical contribution of the thesis. A practical contribution for companies in general is that the thesis emphasizes the importance of the organizational aspect of proactive SCRM. Moreover, for IKEA CFLS, the thesis can act as a pre-study as it examines the current state and how to move forward in terms of proactive SCRM. From the process of conducting the thesis, the authors have reflected upon some future research areas. For example, how environmental and sustainability risks can be integrated in proactive SCRM.

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Abbreviations

BBD	Best Before Date
BCP	Business Continuity Planning
BCM	Business Continuity Management
CFLS	Category Food Logistics Services
DC	Distribution Centre
DS	Design Science
EDI	Electronic Data Interchange
IFSAG	IKEA Food Supply AG
ISAG	IKEA Supply AG
KPI	Key Performance Indicators
LSP	Logistics Service Provider
PD	Product Development
RM	Risk Management
RQ	Research Question
SC	Supply Chain
SCM	Supply Chain Management
SCRM	Supply Chain Risk Management
SP	Service Provider
SPOD	Service Provider Operations Developer

1 Introduction

The first chapter provides the reader with a context through presenting a background on the topic of the thesis as well as stating its relevance. This then leads to a problem definition as well as clearly stated research purpose and objectives. Furthermore, the delimitations of the study are presented. The introductory chapter ends with presenting the structure of the remaining chapters of the thesis, so the reader knows what to expect.

1.1 Background

The business landscape is fast changing and complex which results in many uncertainties for global supply chains (Hohenstein et al., 2015). Companies and their supply chains are prone to many types of disruptions, both man-made and natural (Smart Industry, 2022). The number of supply chain disruptions has reached a high level the last couple of years (Kumar et al., 2018), where the blockage of the Suez Canal (Wieland et al., 2023), the Covid-19 Pandemic (Helper & Soltas, 2021; Hohenstein, 2022; Kumar et al., 2018), and the Russian invasion of Ukraine (Alicke et al., 2022) are just a few examples. The blockage of the Suez Canal made it apparent that a local incident can have effects on a global scale (Wieland et al., 2023). The Covid-19 pandemic was difficult for companies with complex supply chains as it came with a shortage of inputs from other businesses which resulted in disruptions in their supply chains (Helper & Soltas, 2021). Helper & Soltas (2021) discuss that during the first period of the pandemic, many companies were left with unsold goods which later were liquidated. However, when society started to recover and the demand increased to normal levels, companies could not refill their inventories to normal levels, this resulted in delays of supplies but also increased prices. Another major supply chain disruption began in February 2022 as Russia invaded Ukraine. This caused many companies to announce withdrawn operations in-, and renounce collaboration and relationships with Russia. Even though this is a self-made disruption, it can have a huge effect on supply chains (Alicke et al., 2022). The Russian-Ukrainian conflict also impacted the transportation of goods as Russian air space or rails no longer could be used (JP Morgan, 2022). According to Todd (2022), an unexpected effect of the conflict was the shortage of pallets and packaging. Normally many countries in Europe would source their pallets from both countries but sanctions towards Russia put an end to it (Todd, 2022). Moreover, Ukraine is one of the largest exporters of cereals and sunflower oil (Landguiden, 2022). Therefore, the conflict affected the global availability of those food products. Altogether, these three events have disrupted global supply chains in many ways and called attention to how fragile they are.

Besides the highly discussed disruptions such as the blockage of the Suez Canal, the Covid-19 Pandemic and the Russian-Ukrainian conflict, companies are also exposed to other risks. As companies start to adapt new technologies in manufacturing it increases the exposure to cybercrime. Research shows that 42% of Britain's manufacturers have been a victim of cybercrime during the last year which resulted in financial losses ranging from £50,000-£250,000 (The Manufacturer, 2022). In February 2023, Swedish infrastructure was targeted by hacker attacks (Dagens Industri, 2023) where several companies and organizations such as the Swedish Security Service (SÄPO), SOS Alarm, Saab, and The Swedish Civil Contingencies Agency (MSB) were affected. Additionally, during 2021 the grocery chain Coop's sales system was hacked which forced Coop to keep the stores closed for days (SVT, 2021), highlighting that a disruption to a business partner can be harmful as well.

The Covid-19 Pandemic, the Russian invasion of Ukraine and the cyber-attacks are somewhat sudden disruptions. In addition to this, there are several slow emerging disruptions that gradually force supply chains to change. One example is climate change, which will likely impact how it is possible to

operate and will require changes in the way supply chains are being managed and designed (Swaroop, 2022). Swansroop (2022) means that weather events such as storms, flooding and temperature related events will impact crops which will influence the agricultural sector and will impact where crops can be sourced from. Another slow approaching disruption mentioned was the probable upcoming restrictions of freshwater modes of transport. Today, almost 90% of the world's freight is shipped by sea and as the ocean levels are rising, even if it only is by a few centimetres, many ports will be affected (Swaroop, 2022). Because of this, the landscape of how we operate may change soon.

Even though the number of disruptions has increased in recent years, and even though companies have knowledge about them, many do not take actions on how to mitigate disruptions, especially when it comes to cybercrime (The Manufacturer, 2022). Neither were companies prepared to handle a major disruption like the Russian-Ukrainian conflict, even though having experienced the major disruption caused by the pandemic. However, even if prepared, it is not possible to remove all potential disrupting events. Although, it is possible to influence the amount that affects your specific company if by working proactively with the goal to minimize the target (Kranish & Petrusic, 2022). This is done through addressing changes and disruptions before they are critical (Smart Industry, 2022). Due to a large amount of highly visible supply chain disruptions, Supply Chain Risk Management (SCRM) has gathered much attention and interest from researchers (Sodhi et al., 2012). Norrman and Jansson (2004, p.436) discussed SCRM already in 2004 and defined SCRM as *"Supply chain risk management is to [collaborate] with partners in a supply chain apply risk management process tools to deal with risks and uncertainties caused by, or impacting on, logistics related activities or resources"*. Furthermore, Grötsch et al. (2013), divides SCRM into two approaches; *proactive SCRM* and *reactive SCRM* where the proactive approach is managing, planning, and minimizing risks before they occur (Grötsch et al., 2013). The definition of proactive SCRM that will be used throughout the thesis is a combination of the two mentioned definitions (Norrman & Jansson, 2004; Grötsch et al. 2013):

> *Proactive SCRM is the collaboration with supply chain partners regarding risk management activities to manage, plan and minimize risks before they occur.*

It is easy to quickly enumerate various disruptions that affect supply chains and companies in general, and considering the state of the world, it is not likely to be fewer in the future either. The proactive approach to SCRM is one way of addressing this harmful trend.

1.2 Problem Formulation

A proactive approach to SCRM has been explored by academia who seems to have noticed the increasing disruptions (see e.g., Fan & Stevenson 2018; Barroso et al., 2009; Manuj & Mentzer 2008a). Also consulting firms, like McKinsey & Gartner, suggest companies should work with it to make themselves a smaller target to supply chain disruptions (Alicke et al., 2022; Kranish & Petrusic, 2022). However, the study by The Manufacturer (2022) points at an issue of practitioners not taking actions on working proactively even though they seem to experience the increase of disruptions and even though it is proposed by researchers.

IKEA Category Food Logistics Services (CFLS) has seen an increase of disruptions in their supply chain and do not currently have functioning practices on how to decrease the exposure. They mainly have a reactive approach to handle disruptions that impact their operations. As IKEA has a global supply chain with many nodes, it makes them vulnerable to disrupting events all over the world. Having experienced a number of disruptions with different causes and seeing the effect it has on the business, not least due to the sensitive characteristics their food goods behold, IKEA CFLS sees the

need of working more proactively with risk management, (RM). However, to improve, IKEA CFLS needs help with what is lacking and what should be done. The need for help with proactive SCRM initiated this thesis.

1.3 Purpose & Research Objectives

The purpose of the thesis is to understand what is needed to work with proactive SCRM and utilize this to create guidelines for IKEA CFLS. To fulfil the purpose, the following Research Questions (RQs) will be investigated.

RQ1: *How can companies work with proactive SCRM according to literature?*

Before being able to provide IKEA CFLS with guidelines, it is important to understand the concept of proactive SCRM as well as what the existing literature suggests it should include. A literature review will be conducted to get an overview of the current knowledge on the subject. The findings will be presented in a conceptual framework.

RQ2: *How can guidelines be designed to improve IKEA CFLS current work with proactive SCRM?*

A Design Science (DS) approach will be taken to develop guidelines for IKEA CFLS. To understand how IKEA CFLS is currently working with SCRM, two case studies will be conducted. The findings will be compared with the conceptual framework from RQ1 to identify gaps and opportunities for improvement.

1.4 Focus & Delimitations

The following delimitations have been made:
- Directives from the company are limiting the scope of the organization to IKEA CFLS. Therefore, the focus will be on this business unit and the guidelines will be designed for IKEA CFLS.
- The thesis will only focus on recommending guidelines and not investigating a potential implementation.
- The guidelines provided are limited to *proactive* SCRM, thus *reactive* SCRM is excluded.

1.5 Structure of Thesis

Except for the introductory chapter, the thesis report is structured in eight chapters. Each chapter represents a research phase providing necessary output to arrive at the final findings and fulfil the purpose of the thesis. This is illustrated in Figure 1.1.

CHAPTER	RESEARCH PHASE	OUTPUT
2	Introduction to the Case Company	Overview of the case company
3	Literature Review	Conceptual framework and answer to RQ1
4	Methodology	Research design and interview guide
5	Empirics	Qualitative data from the cases
6	Analysis	3rd Order Dimensions
7	Developing Guidelines	Developed guidelines
8	Conclusion and Discussion	Answer to RQ2 and contribution to theoretical and practical application

Figure 1.1: Structure of thesis outlined with the output from each chapter.

Chapter 2: Introduction to the Case Company
The second chapter provides a brief overview of the case company IKEA. The organizational setting of IKEA is described and the history and characteristics for IKEA Food and its supply chain. Lastly, a thorough presentation of IKEA CFLS is provided.

Chapter 3: Literature Review
The third chapter reviews existing literature and paints a picture of the case company setting. A theoretical baseline and literature on SCRM are presented to give background to the proactive approach. Then, tools, processes, and the organizational aspect of proactive SCRM are presented. The output of this chapter is a conceptual framework.

Chapter 4: Methodology
The fourth chapter aims to address the chosen method and approach of the thesis. A Design Science Approach is chosen as a method, which is motivated and outlined throughout the chapter. The phases, and the application for this thesis, of the Design Science Approach are discussed and lastly, measures taken to assure the quality of the thesis are addressed. The output of this chapter is a research design as well as an interview guide.

Chapter 5: Empirics
The fifth chapter presents the collected empirical data. The organizational structure and general way of working is described. The two cases are presented individually describing the timeline and actions taken. Additionally, the interviewee's perception of the maturity in IKEA CFLS' SCRM work is included.

Chapter 6: Analysis
The sixth chapter describes the analysis conducted. The analysis consists of three within-case analyses, one for each area of which interviews were conducted, a cross-case analysis to compare the

cases and a gap analysis to compare IKEA CFLS to the conceptual framework from the literature review. The output from this chapter are dimensions describing issues and/or improvement areas found through the analysis.

Chapter 7: Developing Guidelines

The seventh chapter describes the process of developing the guidelines. Input is taken from the literature review and data analysis and the output is the final guidelines. For each area the analysis revealed a need for a guideline, a gap analysis is first conducted. From the identified gaps, a first draft of the guidelines could be developed. With input from the validation phase, the final guidelines are presented in this chapter as well.

Chapter 8: Conclusion & Discussion

The eighth chapter provides a discussion of the fulfilment of the thesis's purpose and an answer to the RQs. Moreover, a discussion about the findings as well as how they can contribute to both theory and practice is found in this chapter. Lastly, some suggestions for future research for academia as well as IKEA CFLS are presented

2 Introduction to the Case Company

The second chapter provides a brief overview of the case company IKEA. In Section 2.1, the organizational setting of IKEA is described. Section 2.2 presents the history and characteristics of IKEA Food as well as introduces IKEA CFLS in which the thesis is focused on.

2.1 The IKEA Organization

IKEA is a global retailer, mainly known for its home furniture, consisting of Inter IKEA and IKEA franchisees, where the latter ones are managing the stores. As seen in Figure 2.1, Inter IKEA consists of Inter IKEA Systems owning the IKEA concept, IKEA of Sweden responsible for design, IKEA Marketing & Communication responsible for communication content, IKEA Supply is sourcing what has been designed and IKEA Industry manufacturing what has been designed. The IKEA franchisees are twelve independent franchises operating in different markets where Ingka is the largest (IKEA CFLS, 2023c).
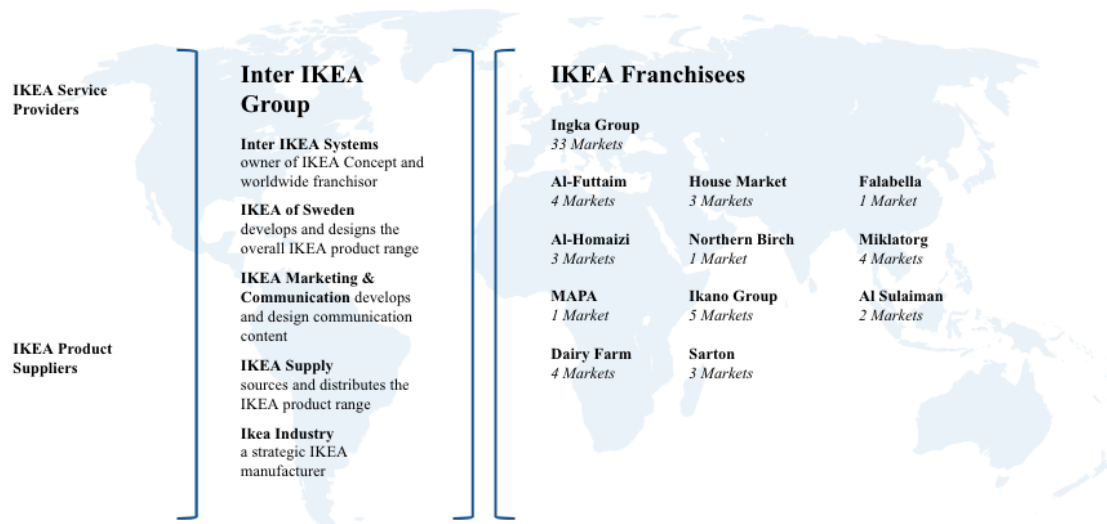
Figure 2.1: Organizational structure of IKEA (IKEA CFLS, 2023c).

The holding company of the Inter IKEA Group is Inter IKEA Holding B.V. which can be divided into three core business areas; Franchise, Range and Supply illustrated in Figure 2.2. The franchise area consists of Inter IKEA Systems B.V. which, except for being the owner of the IKEA brand and concept, are also responsible for the development of these as well as implementation of these to the markets. The range area includes IKEA of Sweden AB and the subsidiaries which are responsible to maintain, improve as well as develop the product offer, both furniture and food. The supply area includes IKEA Supply AG, IKEA Industry AB, and their subsidiaries. IKEA Industry is a strategic manufacturer. IKEA Supply AG (ISAG) is responsible for sourcing, producing, and supplying IKEA products, both furniture and food, through a network of 1 600 partners (IKEA CFLS, 2023b).
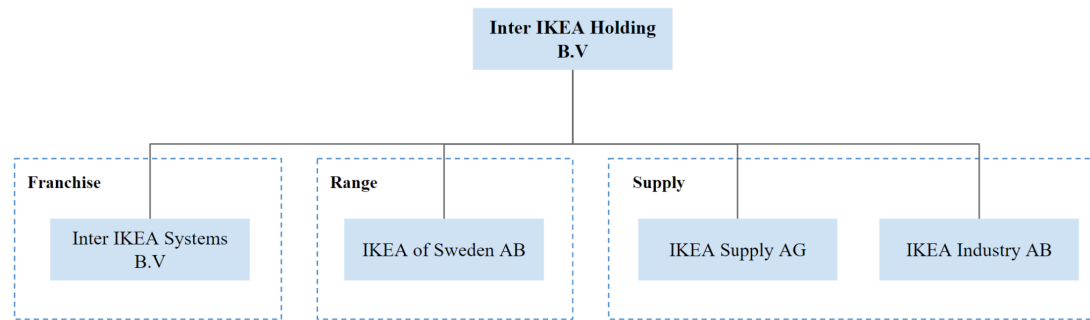
Figure 2.2: Organizational structure of Inter IKEA (IKEA CFLS 2023b; IKEA CFLS, 2023c).

2.2 IKEA Food

The part of IKEA handling the food related business consists of several organizations belonging to different parts of the company. These organizations are together referred to by the collective name IKEA Food. There is a clear division of responsibilities between the food and home furniture business. In this Section an introduction to IKEA Food will be provided. First, the history of IKEA Food will be presented, and the organizational structure will be outlined. IKEA Category Food Logistics Services, CFLS, is then presented in more detail with role descriptions, areas of responsibility and how these are responsible for the various parts of the supply chain.

2.2.1 Introduction to IKEA Food

IKEA Food is part of the Inter IKEA organization and handles everything related to IKEA's food products. IKEA Food is the largest food exporter in Sweden and counts as the sixth biggest restaurant business in the world providing customers with food through IKEA's restaurants, bistro, and Swedish Food Market (IKEA CFLS, 2023a). One billion meatballs are sold each year globally and can be found in every IKEA restaurant around the globe (IKEA CFLS, 2023b). IKEA was founded in 1943, and the first department store opened in 1958 in Älmhult. As the founder Ingvar Kamprad believed that *"it's tough to do business with a hungry stomach",* the first restaurant opened shortly after, in 1959. The first bistro opened in 1976, and the Swedish Food Market was launched in 1983 (IKEA CFLS, 2023b). Since then, IKEA Food has experienced a rapid growth reaching a turnover of one billion Euro in 2006. In mid-2020, there were 444 IKEA restaurants in 53 markets (IKEA CFLS, 2023b), but is continuously expanding (IKEA CFLS, 2023a).

What makes the supply chain for IKEA Food different from the home furniture, is the characteristics and requirements of the goods. IKEA describes five aspects that make operating the supply chain complex. First, IKEA Food operates in four different temperature zones: ambient, chilled, frozen, and dry (IKEA CFLS, 2023a). Some goods require a cold chain, meaning all activities such as sourcing, procurement and operations are handled after this requirement. Moreover, aspects such as Best Before Date (BBD) and Shelf-life rotation are increasing the complexity in the handling of the goods (IKEA CFLS, 2023a). As food products come with special laws and regulations, importing food to the receiving market can require lots of documents (IKEA CFLS, 2023a). Lastly, since IKEA Food is distributing its goods all over the world, information on leaflets, artworks and so on must be provided in many different languages. Because of this, IKEA Food uses different language clusters and therefore also different article numbers for the same product (IKEA CFLS, 2023a).

IKEA Food is not a specific part that can be found in the organizational structure, but a grouping of different functions that report to and belong to different parts of IKEA. As an example, the Product Development unit is a part of Range (and IKEA of Sweden in Figure 2.2) The part representing food in the Supply part of IKEA and a part of ISAG, see Figure 2.2, is IKEA Food Supply AG (IFSAG).

They are replicating the setup for home furniture for its global food supply chain. It means that IFSAG acts as one single buyer and owner of goods, as well as the only seller to IKEA retailers (IKEA CFLS, 2023b). Also, part of IFSAG belonging to Supply Chain Operations, is Category Food Logistics Services (CFLS) which the scope of this thesis is limited to.

2.2.2 IKEA Category Food Logistics Services (CFLS)

IKEA CFLS was previously outsourced to another company but has been a part of IKEA since 2019. IKEA CFLS has around 90 workers who together are responsible for the following things (IKEA CFLS, 2023a):

- Transportation of goods
- Warehousing services
- Sourcing of logistical services and traders
- Business development

- SC planning and operations
- Retail order coordination and operations
- Project management

The goods are stored in 25 Distribution Centres (DCs) around the globe supplying IKEA stores with food products. An average delivery contains nine cubic meters of goods and to manage the food supply chain, IKEA CFLS is collaborating with 23 service providers, SPs, and several traders. The management of flow of goods from the suppliers to the stores are managed by IKEA CFLS through several roles with individual responsibilities as illustrated in Figure 2.3. Currently, there are a number of challenges related to their operations such as container availability, port congestion and increasing rates connected to sea freight (IKEA CFLS, 2023a) Every now and then, challenges become significant risks or actual disruptions. Two such examples are investigated and analysed through the two case studies conducted and presented in chapter five.
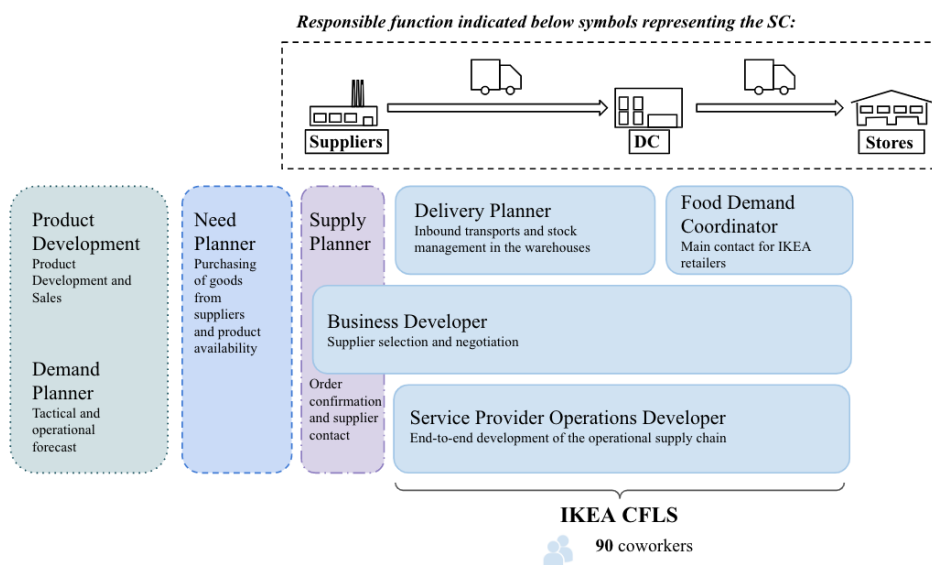
Figure 2.3: The supply chain and the different roles at IKEA Food and their responsibilities (IKEA CFLS, 2023a; IKEA CFLS, 2023b).

3　Literature Review

The third chapter is reviewing existing literature covering the areas presented in Figure 3.1. Section 3.1 paints the setting the case company is operating in. Then, Section 3.2 provides a theoretical baseline important to understand prior to investigating proactive SCRM which is described in 3.3. It is followed by a presentation of tools for proactive SCRM suggested by researchers or practitioners in Section 3.4. Moreover, the organizational aspect of RM is discussed together with some evaluating tools in Section 3.5. Section 3.6 ties all described tools and aspects of proactive SCRM together in a summarizing table. Lastly, Section 3.7 provides the output of this chapter which is the conceptual framework.
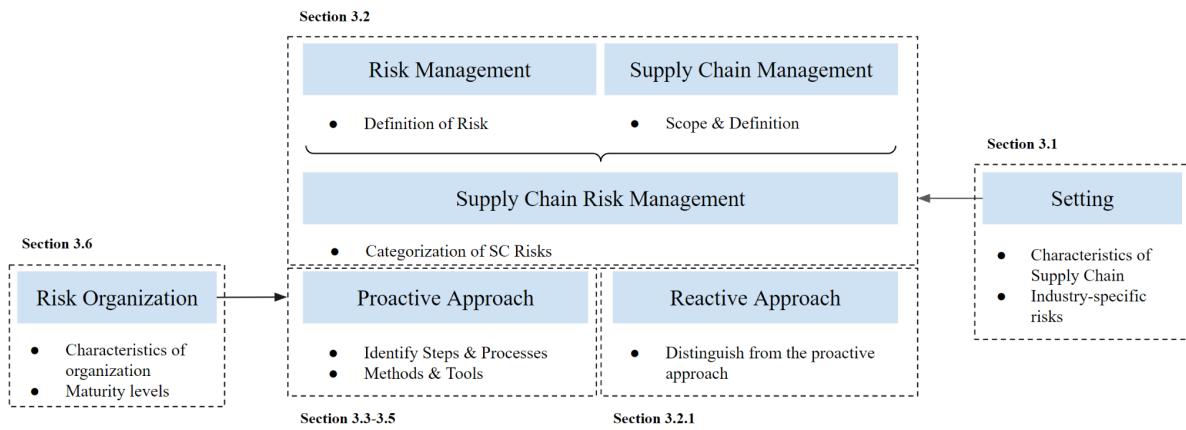
Figure 3.1:Main areas covered in the literature review and in which Section they are described.

3.1 Setting the Setting

The case company IKEA Food handles the supply chain for the food found in the restaurants, bistros, and the Swedish food market, as previously introduced in Chapter two. To understand the specific setting found in this supply chain (SC) compared to the home furniture SC, it is relevant to investigate the setup, characteristics and requirements in the food and grocery retail SC. This is discussed by several researchers (e.g., Eriksson, 2019; Eriksson et al., 2019 and Sashi et al., 2018). Eriksson (2019) specifically investigated the E-grocery retailers, but as they are still grocery retailers, many of the findings are considered relevant for this thesis. From reviewing the different articles, several characteristics and requirements were found, which are displayed and explained in Table 3.1.

Table 3.1: A summary of characteristics of the goods in food SCs.

Characteristics	Explanation	Author(s)
Temperature Control	There are three different temperature zones required for handling food: *Frozen*, *Fresh* and *Ambient*. Can be defined by law or to increase/maintain the quality of the goods.	*Prataviera & Melacini, (2023); Kumar et al. (2021); Eriksson (2019); Eriksson et al. (2019); Sashi et al. (2018); Robertson (2012); Smith & Sparks, (2009)*
Shelf Life/BBD	Perishable goods, like fresh vegetables, can have a short shelf life requiring a high frequency in deliveries. Other ambient products have longer shelf-life and don't require the same frequency.	*Prataviera & Melacini, (2023); Eriksson (2019); Eriksson et al., (2019); Smith & Sparks, (2009)*
Varying weight, size, and fragility	Makes storage and transportation more complex.	*Eriksson (2019); Eriksson et al. (2019)*

The very specific requirements on the goods presented in Table 3.1 leads to special requirements in the handling of the goods which differentiates the SC. One type of food SC, and an example of how it differentiates, is the food cold chain (Sashi et al., 2018). It refers to the handling of goods where a temperature control is required, also referred to as perishable goods such as medicines, blood, flowers, or food (Sashi et al., 2018; Kumar et al. 2021). The temperature-controlled environment is important to preserve the quality and guarantee shelf life of the goods (Robertson, 2012). However, even if stored in the right temperature, perishable goods typically have a shorter shelf life and must therefore be delivered to stores with a higher frequency than slow moving ambient products to not risk going past its BBD (Eriksson, 2019; Kumar et al. 2021). This creates a difficult task to balance the waste and customer service levels (Eriksson, 2019).

Both the goods requirements and the competitiveness make it important to run the food SC with minimal interruptions as simple disruptions such as a delay can be very harmful for the goods (Sashi et al., 2018). To reach the stores without contamination, there are some requirements on the infrastructure of the SC. For example, refrigerated carriers and containers as well as cold warehouses (Sashi et al., 2018). Eriksson (2019) describes a grocery retail DC must manage cold, frozen as well as ambient goods and that the warehouse and handling cost of the cold and frozen goods are much higher than for ambient goods.

Kumar et al. (2021) describe food security as having four pillars named availability, accessibility, utilization, and stability. It shows food SCs have specific risks they can be prone to that might not be significant for other industries. Diabat et al. (2012) categorize food industry specific risks into the five categories macro-, demand management-, supply management-, product/service management- and information management risks as characteristics for a food SC. More specifically it is risks such as the bird flu, poor quality and demand volatility. Oke & Gopalakrishnan (2009) studied the risk categorization for the retail industry and found three categories; supply-, demand- and miscellaneous risks, where the latter one includes the risks where the cost of doing business is affected. One example of a miscellaneous risk affecting both industries, and many more, is the Covid-19 pandemic as many retailers were left with supply shortages and demand pikes (Alikhani et al., 2021). However, this type of disruption is unique in terms of timing and scale but leaves a good example of unexpected business

disruption with great effects on food SCs. Early during the Covid-19 pandemic, the range of food products as well as available products changed quickly, driving customers into panic mode buying more than required (Ozdemir et al., 2022). At the same time, international transportation was disrupted, and borders closed, customers were left with shortages of imported food (Ozdemir et al., 2012). Ozdemir et al. (2022) describes that especially perishable food like fruit and vegetables are the most sensitive to crises like the pandemic as they require harvesting and other handling within a specific period to not get wasted. Also, as food is essential for human survival, the food SCs need to stay functioning even during a pandemic (Kumar et al., 2021; Ozdemir et al., 2022).

3.2 Theoretical Baseline

Apart from the setting of the case company, knowledge about proactive SCRM is required to answer the RQs. To understand proactive SCRM, an overall understanding of RM and SCRM is necessary. It is also interesting to understand the impact that the organization will have on RM and how this affects to what extent it facilitates the proactive approach. However, RM and supply chain management (SCM) must first be understood before SCRM can be discussed. To understand the phrase RM, the definition of a risk must first be clear. Different risk definitions can be found in existing literature. However, Manuj & Mentzer (2008a) found three components present in all conceptualizations of risk: (1) The potential losses if the risk happens to be realized, (2) The likelihood of the occurrence of the risk and, (3) The consequences of the losses. SC risks specifically, can according to Knemeyer et al. (2009) be described through the probability of an event as well as the business impact of it. RM is the process that focuses on understanding and assessing risks as well as minimizing the impact of these by implementing actions (Norrman & Jansson, 2004; Norrman & Lindroth, 2004). Proença et al., (2017) and the ISO31000 standard, defines RM as an iterative process of coordinating activities in an organization to handle risks and describe that organizations often have RM practices, but not always in a systematic way.

There are several different definitions to SCM found, but Mentzer et al. (2001, p.4) defines SCM as "*a set of three or more entities (organizations or individuals) directly involved in the upstream and downstream flows of products, services, finances, and/or information from a source to a customer*". As SCM aims at managing the SC, it is affected by risks threatening the SC. A SC risk is the likelihood and impact of unexpected events that influence any part of a SC leading to failures or irregularities (Ho et al., 2015). Due to increased outsourcing of manufacturing and globalizations of SCs (Norrman & Jansson, 2004) along with highly visible SC disruptions, SCRM has received attention by many researchers (Sodhi et al., 2012). Fan & Stevenson (2018) mean that if a firm is better able to manage risks than their competitors, it can lead to an improved market position as the goal of SCRM not only is to reduce costs and vulnerability but also to ensure profitability and business continuity.

When RM and SCM are clearly defined, SCRM can be discussed. There are many definitions for SCRM found in the literature. Norrman & Lindroth (2004, p.14) means that it can be defined as: "*Supply chain risk management is to [collaborate] with partners in a supply chain apply risk management process tools to deal with risks and uncertainties caused by, or impacting on, logistics related activities or resources*". This definition is adapted by Norrman & Jansson (2004). Tang (2006, p.453) defines SCRM as '*the management of supply chain risks through coordination or collaboration among the supply chain partners so as to ensure profitability and continuity*". The definition proposed by Ho et al. (2015, p.5) is "*an inter-organisational collaborative endeavor utilizing quantitative and qualitative risk management methodologies to identify, evaluate, mitigate and monitor unexpected macro and micro level events or conditions, which might adversely impact any part of a supply chain*". Fan & Stevenson (2018, p.210) defines SCRM as "*The identification, assessment, treatment, and monitoring of supply chain risks, with the aid of the internal*

*implementation of tools, techniques and strategies and of external coordination and collaboration with supply chain members so as to reduce vulnerability and ensure continuity coupled with profitability, leading to competitive advantag*e". Sodhi et al. (2012) means that there is no real consensus about the definition of SCRM as their literature review showed many definitions and a lack of common understanding of what is included. However, according to Sodhi et al. (2012) most believe that it is used to deal with disruptions or the unknown in the SC. Although, the definitions proposed by Norrman & Linderoth (2004), Tang (2006), Ho et al. (2015) and Fan & Stevenson (2018) are similar in the sense that all highlight the importance of collaborating with the partners in the SC. Fan & Stevenson (2018) also include the steps that should be performed, which the other authors did not describe in depth. However, the following definition of SCRM is used in this thesis:

> *Proactive SCRM is the collaboration with supply chain partners regarding risk management activities to manage, plan and minimize risks before they occur.*

Another term commonly used to describe SCRM is Resilience, which is defined as the ability to prepare for unexpected risk events but also respond and recover if they occur (Hohenstein et al., 2015). Pettit et al., (2019) define resilience as the capacity for an enterprise to survive, adapt and grow in a turbulent change. Similarly, Wieland et al. (2023) defined resilience as the level of disturbance that can be absorbed without losing important functions and structures. Both definitions relate resilience to RM as it handles turbulent changes and unexpected events. Ozdemir et al. (2022) found organizations that were effective in building resilience, also were less impacted by disruptions. Most descriptions on SC resilience connected to a disruption contain the four phases readiness, response, recovery, and growth (Hohenstein et al., 2015). It relates to proactive SCRM in the sense that the two phases of readiness and growth require a proactive approach and proactive capabilities (Hohenstein et al., 2015; Alikhani et al., 2021; Ozdemir et al., 2022). Moreover, Hohenstein et al. (2015) describe that readiness is the foundation to reducing the probability and impact of SC disruptions. However, it should be noted that SC resilience also needs reactive capabilities, especially in the phases of response and recovery (Hohenstein et al., 2015).

3.2.1 Reactive SCRM

Reactive SCRM means actions are taken after an incident already happened (Grötsch et al., 2013). This approach is required as some risks and the potential impact are difficult to forecast (Norrman & Wieland, 2020), one recent example is the Covid-19 pandemic as the market was disrupted very fast (Ozdemir et al., 2022). Ozdemir et al. (2022) means that the Covid-19 Pandemic did not leave any room for companies to develop strategies on how to mitigate the possible effect before it occurred which forced them to make real-time decisions. Companies are however recommended to have an action plan ready to deal with all disruptions affecting them as this will make the response easier and faster (Grötsch et al., 2013). Hopp et al. (2012) suggest that an action plan can consist of five basic steps, (see Figure 3.2) that can be applied after a SC disruption occurs. The first step is to recognize that a disruption occurred and act in terms of initiation of a response. Secondly, it is of importance to communicate with all involved parties and put a management team in place and put together an action plan. Third, this management team should develop an initial plan and start to handle the disruption and distribute responsibilities. Fourth, the plan should be revised as soon as new information becomes available to have an updated plan and mitigation actions. Lastly, the response including decisions and actions should be evaluated to learn from success and mistakes and improve in the future. Cagliano et al. (2012) suggest that can be done by studying performance indicators and to compare these with set target values. Since the reactive SCRM process is limited to actions taken after a disruption, companies cannot make themselves a smaller target to disruptions through a reactive approach. Therefore, actions must be taken prior to the occurrence of a disruption.
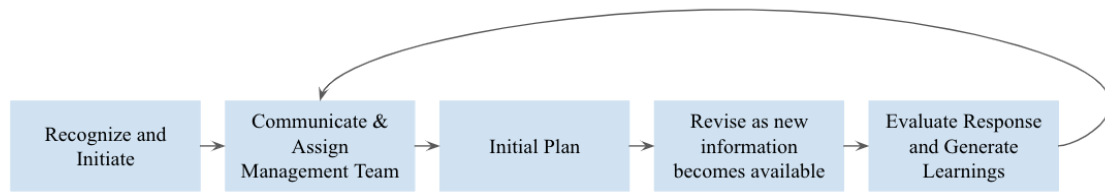
Figure 3.2: Reactive management steps by Hopp et al. (2012)

3.3 Proactive SCRM

Proactive SCRM is a concept discussed by many researchers who have given it almost as many definitions. In this thesis the definition presented in Section 1.1 is used. It is a combination from Norrman & Jansson (2004) and Grötsch et al. (2013): *"Proactive SCRM is the collaboration with supply chain partners regarding RM activities to manage, plan and minimize risks before they occur"*. Both researchers and practitioners show that it is beneficial to work with proactive SCRM. Ericsson is one highly mentioned example, as their SC got disrupted when a microchip supplier was hit by lightning (Chopra & Sodhi, 2004; Norrman & Jansson, 2004). Chopra & Sodhi (2004) describe that Ericsson was one of two major customers of the plant. Nokia, the second customer, was multi-sourcing, so they could be responsive and quickly place orders of microchips from other places. Therefore, they were mildly affected. Ericsson, however, did not have any other supplier for microchips at the time and the fire ended up affecting their production of mobile phones for months causing $400 million lost sales. This is an example of how different firms can be affected by the same disruption. After the heavy disruption in Ericsson's production, they developed formalized learning processes and introduced different functions and capabilities to work proactively. As a result, Ericsson became smoother on reactive responses (Norrman & Wieland, 2020). This was proved after an earthquake that occurred in Japan, as Ericsson during only one hour assessed the impact on their business and could decide on how to handle it.

Besides Ericsson exemplifying that a proactive approach to SCRM is important, there is a lot of published literature on the topic. One example is Grötsch et al. (2013) who describe that proactive SCRM requires planning in advance, anticipating risks, implementing counteractions in advance as well as identification and evaluation of risks causes. These requirements are reflected in the phases of RM suggested by other authors. In a large portion of the literature about proactive SCRM three or four phases are classified as proactive SCRM, which are summarized in Table 3.2. Most researchers include identification, assessment, and mitigation in the SCRM process, but fewer include the monitoring step. However, it is commonly included in more recent published literature (e.g., Ho et al., 2015; Fan & Stevenson, 2018). Some researchers also suggest other steps or other methods as well, such as Business Continuity Management, BCM. BCM concerns identifying and managing risks but also mitigating the effects on business processes that can be interrupted due to disruptions (Gibb & Buchanan, 2006; Norrman & Linderoth, 2004). Moreover, it is used to ensure that recovery of a process or service is possible without any significant disruption to the business (Gibb & Buchanan, 2006), meaning it also includes the reactive approach. Gibb & Buchanan (2006) developed a framework on how to work with BCM containing nine steps, where some of these overlap. The steps are: (1) Programme Initiation, (2) Project Initiation, (3) Risk Analysis, (4) Risk Mitigation Strategy Selection, (5) Monitoring and Control, (6) Implementation (7) Testing, (8) Education and Training, and lastly (9) Review (Gibb & Buchanan, 2006). Norrman & Wieland (2020) present the framework for BCM developed by Ericsson, which only contains six cylindrical steps. These are (i) Defining the scope, (ii) Analysis of business impact, (iii) Develop strategy, (iv) Establish and implement mitigation strategies, (v) Exercise and test, and lastly (vi) Assessment and review. The framework presented by both Gibb & Buchanan (2006) and Norrman & Wieland (2020) are quite similar but distributed

differently in the steps presented. Both start the project by defining the risk, then analyzing it and selecting strategy, and then implementing it to finish it off with recording and reviewing it to learn in the future. However, as most of the literature focuses on the four steps *Identification, Assessment, Mitigation* and some also suggest *Monitoring,* see Table 3.2, these are further investigated. Each of the steps are described, one at a time, in the following four sections.

Table 3.2: Summary of which authors mention what RM phases.

Author(s)	Identification (1)	Assessment (2)	Mitigation (3)	Monitor (4)	Other
Aboutorab et al. (2022)	•			•	
Fan & Stevenson (2018)	•	•	•	•	
Kirilmaz and Erol (2017)	•	•	•		
Proença et al. (2017)	•	•	•	•	Improvement, communication
Dong & Cooper (2016)	•	•	•		
Ho et al. (2015)	•	•	•	•	
Ghadge et al. (2013)	•	•	•		
Cagliano et al. (2012)	•	•			Process analysis, SCOR
Sodhi et al. (2012)	•	•	•		
Knemeyer et al. (2009)	•	•	•		
Oke & Gopalakrishnan (2009)	•		•		
Manuj & Mentzer (2008a)	•	•	•		Implementation of strategies
Manuj & Mentzer (2008b)	•	•	•		
Gibb & Buchanan (2006)					BCM
Kleindorfer & Saad (2005)		•	•		
Chopra & Sodhi (2004)	•		•		
Norrman & Jansson (2004)	•	•	•	•	BCM, Incident handling
Norrman & Lindroth (2004)	•	•	•		

3.3.1 Risk Identification

As seen in Table 3.2, all researchers considered *Identification* as the first step in the RM process. Aboutorab et al. (2022) describe that globalization and the increased efficiency in SCs have increased the exposure to additional risks. To manage this, proactive risk identification has become an important step (Aboutorab et al., 2022). Risk identification involves identification of risk types, factors, or both

(Ho et al., 2015). The goal of the phase is to discover all risks and recognize future uncertainties to manage these and as only identified risks can be managed in a proactive manner, this phase is highly critical (Fan & Stevenson, 2018). They also found that many different strategies are suggested by researchers, and that these generally focus on complex approaches such as Analytical Hierarchy Process or Value-Focused Engineering but also the Cause-Effect Diagram. The latter method is also used by practitioners. Practitioners seem to be using much simpler methods such as Value-Stream Mapping. Mapping is a method that has been mentioned frequently by various researchers (e.g., Kirilmaz & Erol, 2017; MacCarthy et al., 2022; Barroso et al., 2009; Norrman & Jansson, 2004; Cagliano et al., 2012) as a successful tool for identifying potential risks.

3.3.2 Risk Assessment

In 2009, Barroso et al. described a rise in SCs' likelihood of being affected by disturbances and stated the need for analyzing their possibility of occurring. A SC can have the lowest overall costs as long as the environment is stable but be exposed to the highest level of risk (Manuj & Mentzer, 2008b). Not only academia recognises the importance of assessing risks. Tang (2006) describes that firms are also aware of the importance, but still invest little resources. There is conflicting support in literature about managers under- and overemphasizing catastrophic risks (Knemeyer et al., 2009). Knemeyer et al. (2009) discuss that it can lead to SC managers accepting a risk they believe isn't very threatening, a choice that can become very costly. This implies a need for a structured proactive process to assess the risks based on less biased information.

Therefore, the second step in the proactive SCRM process in Table 3.2 is *Risk Assessment*, also sometimes referred to as *Risk Analysis* or *Risk Evaluation*. The goal of this phase is to evaluate the probability of events occurring as well as what impact and significance the occurrence would have (Sodhi et al., 2012; Ho et al., 2015). This can be done by either assessing data, getting expert judgment, and developing scenarios, and can therefore be qualitative, quantitative, formal, and informal (Fan & Stevenson, 2018). They argue that a combination of data and a subjective perception result in a robust construction. The ISO31000 standard suggests risk evaluation as a sub-process to its risk identification step where risks should be compared and analysed to be able to prioritize (Proença et al., 2017). Ozdemir et al. (2022) also point out that understanding the way a disruption would affect the SC is crucial for optimal resource allocation for effective mitigation. As seen in Table 3.2, many authors suggest risk assessment as a step in their SCRM processes.

3.3.3 Risk Mitigation

After identifying and assessing risks, several authors suggest *Mitigation* to be the third step (see Table 4.2). Mitigation is the process where decisions are made on how to handle specific risks (Norrman & Jansson, 2004; Proença et al., 2017). The goal is to reduce the likelihood of the risk's occurrence, reducing the impact or even both (Norrman & Jansson, 2004; Sodhi et al. 2012). Manuj & Mentzer (2008b) describe that it is common among companies to ignore high-impact, but low-probability risks. However, Manuj & Mentzer (2008a) mean that organizations should act as if all identified risks can occur and therefore implement RM strategies that should be used proactively to address the risks before they occur. Through the reviewing literature, a set of common mitigation strategies is found. These are avoidance, reduction, transfer, sharing or accepting the risk, seen in Table 3.3 together with the authors that suggest them. However, Chopra & Sodhi (2004) state that managers still must tailor the different risk mitigation approaches to fit their unique SC setting.

Table 3.3: Overview of which mitigation strategies different authors suggest.

Author(s)	Avoid	Reduce/ Mitigate	Transfer	Share	Accept	Other
Norrman & Jansson (2004)	•	•	•	•	•	
Fan & Stevenson (2018)	•	•	•	•	•	
Knemeyer et al. (2009)	•	•	•		•	
Manuj & Mentzer (2008a)	•	~	•	•		Postponement, speculation, security, control, hedging
Gibb & Buchanan (2006)		•	•		•	Disaster recovery plans *(reactive)*
Kirilmaz & Erol (2017)	•	•			•	Control, cooperation, flexibility

The avoidance strategy is to eliminate events or causes that triggers the risk and should be used when a risk is considered unacceptable (Manuj & Mentzer, 2008a; Norrman & Jansson, 2004) such as changing suppliers (Fan & Stevenson, 2018). The reduce strategy refers to both reducing the probability and/or impact of the risk (Norrman & Jansson, 2004) to an acceptable level (Fan & Stevenson, 2018). The transfer strategy means to transfer the risk to another party such as insurance companies or SC partners through outsourcing (Manuj & Mentzer, 2008a; Norrman & Jansson, 2004; Fan & Stevenson, 2018). Similarly, the sharing strategy can also mean outsourcing or other contractual mechanisms with the difference that the risk is not fully transferred (Fan & Stevenson, 2018; Manuj & Mentzer, 2008a; Norrman & Jansson, 2004). The acceptance strategy means to take the risk (Fan & Stevenson, 2018; Norrman & Jansson, 2004), however this is not equal to ignoring the risk but rather tracking it and ensuring that the accepted consequences escalate (Fan & Stevenson, 2018). Manuj & Mentzer (2008a) also suggest a couple more strategies, but these can be considered to fall into the same category as reduction reported by other researchers since they are more specific strategies to reduce a risk's probability or impact. The strategies are postponement which refers to delaying the commitment of resources to maintain flexibility and its opposite speculation, security meaning the use of technology to identify risks, hedging achieved through globally dispersed suppliers, and lastly control which can be achieved through flexible contracts. Kirilmaz & Erol (2017) also suggest control as a risk mitigation strategy along with cooperation and flexibility.

Many mitigation strategies are focused on returning to, or maintaining in, the state prior to a disruption. However, Alikhani et al. (2021) and Wieland et al. (2023) discuss the perspective on mitigation by bringing the dynamic setting of SCs into SCRM. Companies should ask themselves if the aim is to go back to the same state as prior to a disruption or catastrophe, or if a new and better state should be desired (Wieland et al., 2023). Since SCs differ from an engineered system, Wieland et al. (2023) argue that by trying to bounce back to the same state as before a disruption, one misses the opportunity to improve and achieve a new normal. Alikhani et al. (2021) call this ability to change into a better new state evolutionary resilience.

3.3.4 Risk Monitoring

The fourth step of the SCRM process is *Monitoring* meaning risk information is continuously reviewed and updated (Proença et al., 2017). This step was not highlighted in the literature review performed by Norrman & Jansson (2004) but added as a step from the case study at Ericsson. This step is also suggested in articles published later (Sodhi et al., 2012; Ho et al., 2015; Fan & Stevenson, 2018; Proença et al., 2017; Aboutorab et al., 2022). Norrman & Jansson (2004) mean that this is done when the risk level is high, or not mitigated, but also on the risks mitigated to ensure that management actions prove to be successful. This is not a static event but something that should be done continuously to evaluate the risk sources and if changes to the strategy need to be made (Fan & Stevenson, 2018). Kern et al. (2012) mean that monitoring of already mitigated risks should be done. Several researchers have suggested that the implementation of specific data management programs should be done to get early warnings (Ho et al., 2015; Fan & Stevenson, 2018). However, practitioners can try to incorporate it into their already existing management routines through a combination of monitoring Key Performance Indicators (KPIs) in a Performance Management System (Fan & Stevenson, 2018).

Both Norrman & Jansson (2004) and Manuj & Mentzer (2008a) suggest that the assessment of risks as well as the mitigation should be continuous. In the framework suggested by Manuj & Mentzer (2008a), there is a feedback arrow from the mitigation step to the identification step to symbolize that the mitigation strategy performed should be continuously assessed. The feedback arrow creates a never-ending loop showing the RM process is continuous. According to Norrman & Jansson (2004) the same tools as they suggest for the assessment step should be used to monitor the risks, processes, and suppliers.

3.4 Tools & Methods for Proactive SCRM

When reviewing literature on proactive SCRM and its steps, several tools were mentioned to assist firms in working proactively. Some tools are developed by researchers, whereas others are founded by practitioners. Moreover, tools can be designed to help firms in one specific step of proactive SCRM, while some other tools are broad and suggested to be used during several steps. Based on the purpose and setting of the thesis, some of the mentioned relevant tools will be presented in the following sections.

3.4.1 SC Mapping

SC mapping is described as a tool to create a digital twin, or graphical representation, of the current state of the SC by both Barroso et al. (2009) and MacCarthy et al. (2022). Similarly, Gardner & Cooper (2003) describe the map as a stand-in for the real environment by employing a visual language. MacCarthy et al. (2022) describe that SC mapping is needed because consumers and regulations are putting more requirements on companies to be transparent with labor, product origin etc. Gardner & Cooper (2003) mean SC mapping is important since managing SCs is a complex task, especially in global SCs and when outsourcing strategies are pursued. Kirilmaz & Erol (2017) suggest SC mapping should be part of the risk identification process. Similarly, Barroso et al. (2009, p.1445) described that "*Mapping should be able to identify the main SC constraints, the relative importance of each SC entity and their main characteristics, and the SC dynamics and complexity*". Consequently, the SC map can help increase visibility and communication, find redesign opportunities, identify the SC's performance as well as identify and assess risks (Barroso et al., 2009; MacCarthy et al., 2022; Gardner & Cooper, 2003; Norrman & Jansson, 2004). Because of the increasing visibility SC maps lead to they can also help mitigate the identified risks (MacCarthy et al., 2022; Norrman & Wieland, 2020).

Illustration of flows:

- - - - - - - →   Information flow
·············→   Moneyflow
———————→   Material flow
━━━━━━━▶   Large material flow
-·-·-·-·-·-·→   Single-sourced material

Symbols:

Manufacturer/Supplier

Warehouse / DC

IKEA Store
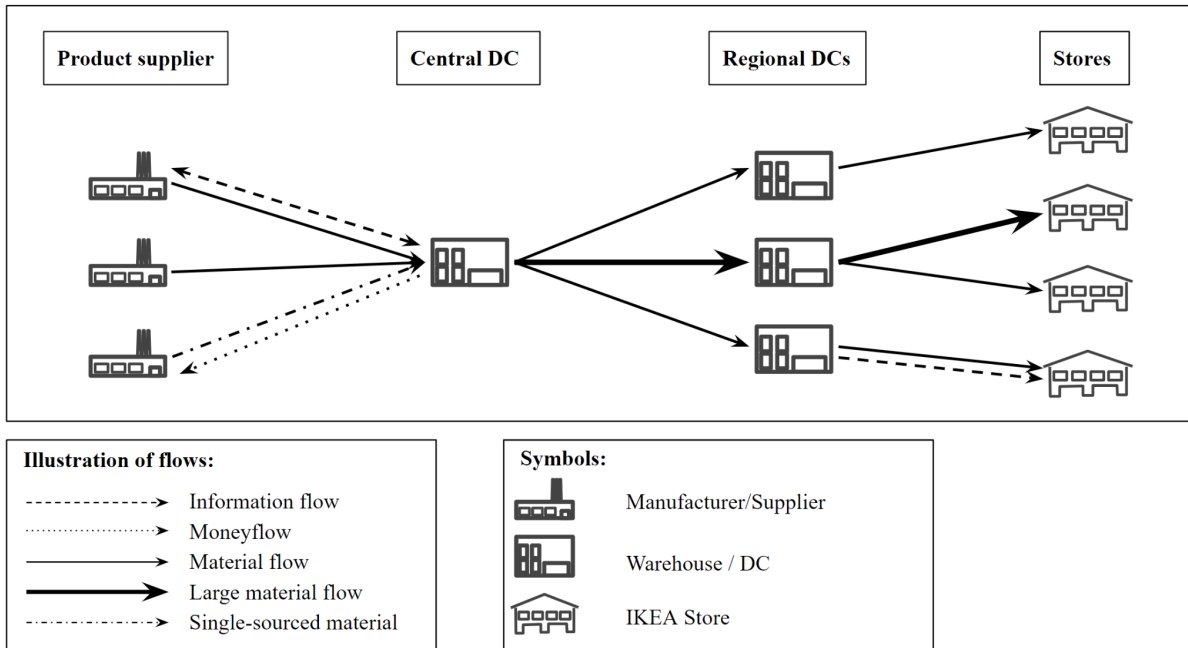
Figure 3.3: Illustration of an example of a SC map, inspired by Gardner & Cooper (2003).

The level of details on the SC map depends on its purpose according to MacCarthy et al. (2002), but an example is illustrated in Figure 3.3. Many SC maps are only a simplified model of the real SC showing key features because it is resource heavy to create (MacCarthy et al., 2022). The basic SC map contains nodes which represent SC actors and links representing flow of information, material, or money (MacCarthy et al., 2022). These links can be illustrated differently to show type of flow and if material is single- or multi-sourced etc as in Figure 3.3 (Gardner & Cooper, 2003). Barroso et al. (2009) also suggest a SC map could include management policies, relational link between actors and lead times. However, it is not only resource heavy to create the SC map, but also to maintain its relevance. Since it is providing a snapshot of the SC, it can become outdated (Barroso et al., 2009; MacCarthy et al., 2022). MacCarthy et al. (2022) suggest technologies such as digital twins and blockchain to be relevant to automate the mapping to solve this issue. Additionally, Barroso et al. (2009) discuss another limitation which is the fact that the map is static. As SCs are dynamic, their true nature cannot be represented in a map (Barroso et al., 2009). However, despite its limitations, it remains a useful tool for SCRM. In addition to the SC map, MacCarthy et al., (2022) discuss several maps ranging from macro to micro level that could be applied. Most macro is the Global Value Chain Map, then Supply Network Map, the second most micro is the Value Stream Map and most micro is the Process Map. The SC Map is placed in the middle. The choice of map should depend on what types of risks one wishes to identify.

3.4.2 Risk Classification

Categorizing risks is one way to get an overview of the SC risks identified (from mapping for example). According to Manuj & Mentzer (2008a), categorization of SC risks helps with understanding the sources to them. According to Oke & Gopalakrishnan (2009), many suggestions on how to categorize risks exist without an agreement on which is the best. Two very general classifications of risks are discussed by Manuj & Mentzer (2008a). The first classification is quantitative versus qualitative risks where stock-outs are an example of a quantitative risk and reliability an example of a qualitative risk. The second classification is holistic versus atomic risks. Holistic risks require an overall analysis of the whole SC while atomic risks can be assessed by only investigating a limited part of the SC (Manuj & Mentzer, 2008a).

When analyzing existing literature on SC risks, it was found that several authors have made similar categorization efforts which are presented in Table 4.4. The first category, named Risk Type 1 in Table 3.4, refers to operational accidents and risks related to supply, demand etc. The second category, named Risk Type 2 in Table 4.4, refers to external disruption risks like man-made or natural disasters.

Table 3.4: Two broad classifications of risks suggested by different authors.

Author(s)	Risk Type 1	Risk Type 2
Kleindorfer & Saad (2005)	Risks arising from coordination of supply and demand	Risks arising from disruptions to normal activities like natural disasters or purposeful acts
Kirilmaz & Erol (2017)	Operational risks like customer demand or uncertain supply costs	Disruption risks like man-made or natural disasters
Norrman & Jansson (2004)	Supply risks and demand risks	External risks like floods or wars
Knemeyer et al. (2009)	Normal accidents like technology breakdown	Natural accidents like fires and abnormal accidents like ill-will
Kumar et al. (2018)	Micro risks like demand or supply risks.	Macro risks like man-made or natural disasters

In addition to the broad categories, Table 3.5 shows that there have been many attempts to further categorize SC risks into more specific types. The table only includes commonly mentioned categories as there is an endless number of different suggestions in existing literature. Supply, demand, and operational/manufacturing risks seem to be the three most common categories among the reviewed set of existing literature.

Table 3.5: Commonly mentioned categories of SC risks.

Risk Category	Description	Author(s)
Supply risks	Inventory, quality, access etc.	*Manuj & Mentzer, (2008a; 2008b); Ho et al. (2015); Chopra & Sodhi, (2004); Tang (2006); Ghadge et al. (2013)*
Demand risks	Bullwhip effect, forecast errors, fluctuations etc.	*Manuj & Mentzer, (2008a; 2008b); Ho et al. (2015); Chopra & Sodhi, (2004); Tang (2006); Ghadge et al. (2013)*
Operational/ manufacturing risks	Manufacturing capability, transit time, capacity etc.	*Manuj & Mentzer, (2008a; 2008b); Ho et al. (2015); Chopra & Sodhi, (2004); Ghadge et al. (2013)*
Security risks	Systems risks are included. A cyber-attack is an example.	*Manuj & Mentzer, (2008a); Chopra & Sodhi, (2004); Ghadge et al. (2013)*
Macro risks	Price changes, currency and inflation are two examples.	*Manuj & Mentzer, (2008a; 2008b); Ho et al. (2015); Ghadge et al. (2013)*
Disruptions	Cause an inability to produce and/or sell goods. Unpredictable & damaging.	*Manuj & Mentzer, (2008b); Chopra & Sodhi, (2004); Ghadge et al. (2013)*

Manuj & Mentzer (2008a) suggest creating a risk profile for each identified risk. The profile should show how the risk is categorized both in the broad and more specific categories discussed in Table 3.4 and Table 3.5. However, an issue with classification is that both Manuj & Mentzer (2008b) and Chopra & Sodhi (2004) describe that SC risks often are interconnected. Manuj & Mentzer (2008b) investigated global SCs and found risk events to be linked in the sense that they are influencing or even causing other risks. They comment that it happens in domestic SCs as well but point out that global SCs experience a greater unpredictability and impact. Chopra & Sodhi (2004, p.54) have a similar discussion and state that "*Supply-chain risks can become full-fledged supply-chain problems*". Additionally, the World Economic Forum's global risk report for 2023 includes an interconnections map illustrating how all their risk categories (economic, environmental, geopolitical, societal, and technological risks) are interconnected (World Economic Forum, 2023). This points out that even SC risk categories cannot simply be investigated in isolation as they might impact one another.

3.4.3 Risk Matrix

A common way to assess risks is according to Norrman & Jansson (2004) to use the Risk Matrix (see Figure 3.4) where the risks are assigned a value in probability of occurrence and business impact. Similarly, Oke & Gopalakrishnan (2009) discuss the two dimensions of likelihood and impact to assess risks. Knemeyer et al. (2009), also use these two common parameters, in the form of probability and business impact, to create the Risk Matrix.
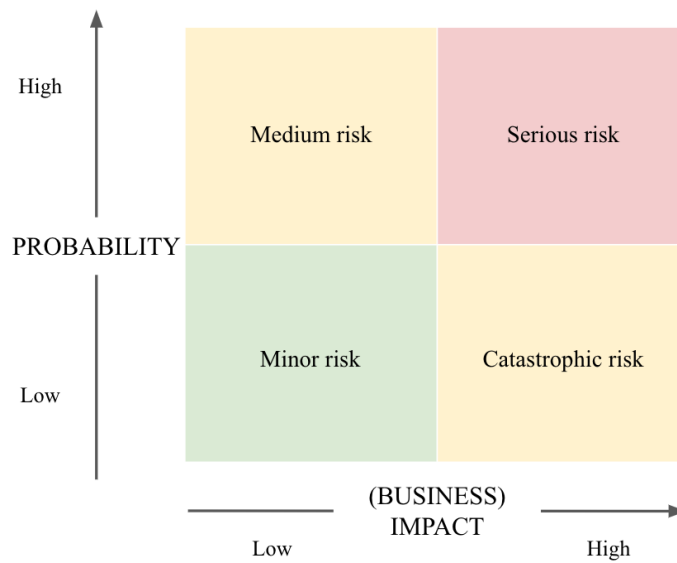
Figure 3.4: A Risk Matrix inspired by Norrman & Jansson (2004) and Knemeyer et al. (2009).

The Risk Matrix aids in prioritization of the risks identified. The value of risk, i.e., the product of probability and impact is not always easy to use and is not often understandable to businesspeople (Norrman & Jansson, 2004). Cagliano et al. (2012) therefore suggest that analysis of risky events should be based on performance indicators that should be analyzed and compared to target values, because it is easier to grasp. However, their approach is more reactive in its kind as they suggest analysis of this should be done when the event has happened, and then use the knowledge the next time it happens, which then becomes a proactive measure. Kirilmaz and Erol (2017) suggest that the assessment phase should be done in two steps: Measurement and Evaluation. They also suggest that the Risk Matrix should be used to measure the expected impact, but unlike Norrman & Jansson (2004) they suggest that the probability should be estimated based on a probability distribution in combination with historical data. Moreover, they believe the impact to be highly subjective as it varies between companies. Next, evaluation of the result from the previous step should be performed by comparing it to risk criteria derived from organizational objectives, ISO standards etc.

Knemeyer et al. (2009) also suggest a risk assessment process including input from historical data and probability distribution. They suggest their process should be conducted for each identified catastrophic risk connected to certain locations. In their first step of risk assessment, input from the government as well as other private sources are used to generate probability distributions for the different locations a SC is active in. In the second step, the local intensity should be assessed. In the third step, the information gathered in step one and two is combined with exposure data from other companies to generate an overall damage estimation for each location. The last step is to estimate the loss of revenue in the case of risk occurrence. This revenue loss is suggested to be estimated by investigating possible losses regarding the following six SC resources: Human resources, products/inventory, physical assets like warehouses, public infrastructure, information, and financial resources. By applying the process by Knemeyer et al. (2009) risk managers can insert the locations in the Risk Matrix. However, since a specific site or location can be prone to multiple risks, Knemeyer et al. (2009) suggest that after assessing risks individually, the highest estimated loss for each location should be put in the matrix.

3.4.4 The Spider-Web Tool and ERMET

Tools must not come from researchers. Practitioners can develop their own tools and one example is the assessment tool ERMET developed by Ericsson seen in Figure 3.5 (Norrman & Jansson, 2004).

24

ERMET stands for Ericsson's Risk Management Evaluation Tool. It evaluates issues in detail such as business control, financial issues, man-made- and natural hazards, hazards at site and business interruption handling by looking at various aspects of each of the areas. The tool can be used to analyze e.g., suppliers and the outcome is later summarized into a Spider-Web Tool that later can be used to monitor the risk. Ericsson also uses workshops to discuss events that can lead to risks in the SC and thereafter develop preventative actions, which is a methodology like Fault Tree Analysis (FTA) (Norrman & Jansson, 2004). All analysis is summed up in templates which are used to monitor it.
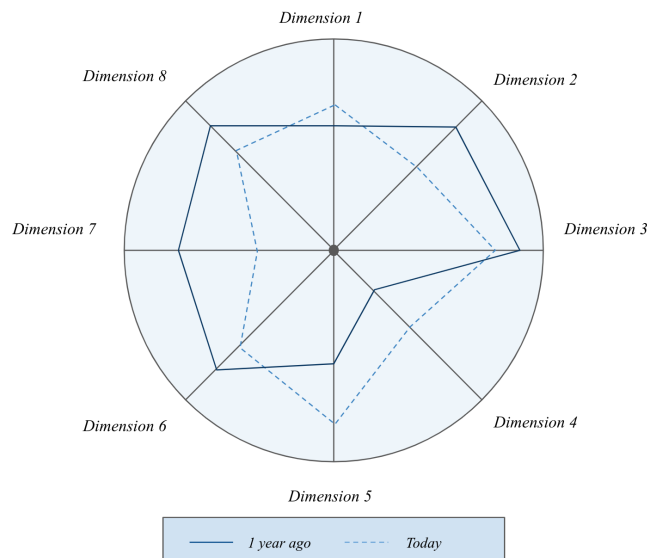
Figure 3.5: Spider-Web Tool based on Norrman & Jansson (2004).

3.4.5 Risk Mitigation Strategy Matrix

Some authors also propose frameworks for when to use different mitigation strategies mentioned in Section 3.3.3 as all strategies are more suitable for certain risks. The Risk Matrix is one such framework discussed by both Knemeyer et al. (2009) and Fan & Stevenson (2018). Figure 3.6 illustrates the Risk Matrix and the strategies the different authors suggest. However, Tang (2006) found that firms are more positive to implementing SCRM strategies if the strategies also increase efficiency and resiliency. So, it is not only a matter of what researchers suggest.
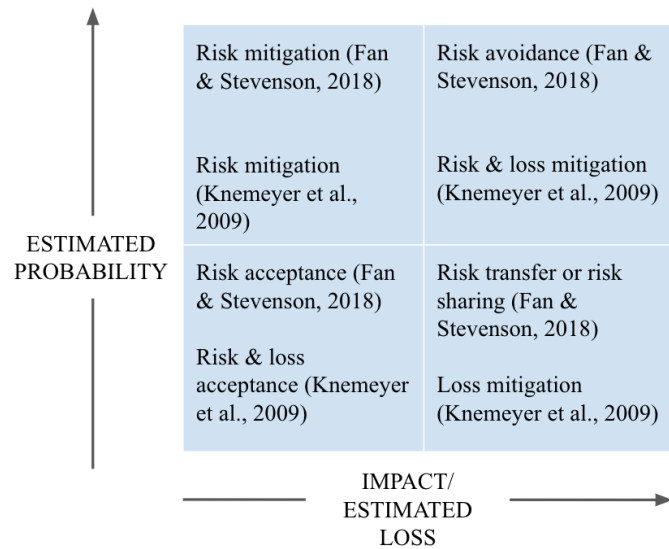
Figure 3.6: Proposed risk mitigation strategies depending on the type of risk (Fan & Stevenson, 2018; Knemeyer et al., 2009).

Manuj & Mentzer (2008b) discuss which global SCRM strategies a company is most likely to adopt depending on risks it is prone to. With high demand risks and low supply risks, a firm is most likely to adopt a postponement strategy. When both supply and demand risks are high, the postponement or hedging strategy is commonly adopted. In case of high supply risks and low demand risks, speculation or hedging are common. Lastly, when both supply and demand risks are low, a company is likely to adopt a speculation strategy. Manuj & Mentzer (2008b) also believe all SCs, no matter what risks they are prone to, adopt avoidance and will increasingly use security strategies.

3.4.6 Reinforcement Learning-Based Framework

Aboutorab et al. (2022) propose a Reinforcement Learning-Based Framework for proactive risk identification of SC disruption risks. It is suggested to be used for computer systems and consists of four modules. Module 1 is the Data Preparation Module. This is where risks are to be identified manually by the risk manager out of a set of risks based on the Cambridge Taxonomy of Business Risks. The output of this module is a database storing risks that can potentially have a negative impact. This relates to the risk identification phase described in Section 3.2.1. The remaining three modules are related to monitoring the manually identified risks, starting with Module 2, the Data Collection Module. In this module, real-time information is continuously gathered like relevant news and risk events reported by different news sources. Module 3 is the Entity Recognition Module. The news is matched with the most relevant risk from the Cambridge Taxonomy of Business Risks and a contextual description is added. Module 4 is called the Reinforcement Learning-Based Recommender System Module. The system uses the information from the third module and calculates a score for each news item. The most relevant ones are then presented to the risk manager. From these four modules, the system can proactively identify risks, monitor them continuously, and bring them to the risk manager's attention it is relevant. Therefore, it can assist in the proactive SCRM work in an organization by supporting the risk identification phase and by conducting monitoring continuously.

3.4.7 Fault Tree Analysis

The Fault Tree Analysis (FTA) and Event Tree Analysis (ETA) are two logic diagrams discussed by Norrman & Lindroth (2004) and Norrman & Jansson (2004). FTAs examines a sequence of events that can lead to a disruption by starting with the top event affecting the supply chain, then identifying the sufficient hazardous events and the causes to it as illustrated in Figure 3.7 (Mullai & Paulsson, 2002). Mullai & Paulsson (2002) suggest that this can be done by asking "*How can this event*

happen?" and *"what are the factors impacting this to occur?"*. ETAs focus on the sequence of events that occur after a disruption (Norrman & Lindroth, 2004), such as identifying and quantifying possible outcomes and consequences of a specific event by asking questions such as *"What happens after this event?"* and *"What are the consequences?"* (Mullai & Paulsson, 2002).
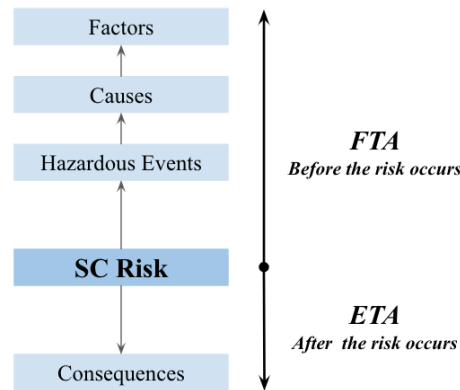
Figure 3.7: Illustration of the logic diagram techniques FTA and ETA, inspired by Mullai & Paulsson (2002).

3.5 Summarizing Processes & Tools for Proactive SCRM

The many different steps and tools presented in Section 3.3-3.5 are related to one another. To illustrate when the authors suggest the different tools can assist a firm in the proactive SCRM process, Figure 3.8 is created. The figure illustrates the four main proactive SCRM steps and the organizational aspect as well as the different tools already described. Some tools are specifically developed to facilitate the work connected to one of the steps, while other tools can be used more broadly throughout the proactive SCRM steps.

Figure 3.8: Summary of the proactive SCRM steps and which tools and methods that can be used in the different steps.

3.6 The Organizational Aspect of Proactive SCRM

As seen in Section 3.4 and Figure 3.8, there are many tools developed to support firms with proactive SCRM. However, to make the tools useful, firms must succeed in implementing and maintaining them. Proença et al. (2017) describe that this can be challenging. Some organizations give up along the way before achieving the desired result because they fail at being consistent over time (Proença et al., 2017). However, organizations that have developed a mature risk and integrity culture outperform their competitors in terms of handling challenges (Higgins et al., 2020). Higgins et al. (2020) also state that these companies are less likely to suffer from operational mistakes or other difficulties inflicted on themselves.

There are lots of research that implies the organizational setting has an impact on SCRM efforts. For example, Manuj & Mentzer (2008b) found that inter-organizational learning strengthens the relationship between strategies and outcomes regarding RM. Inter-relationships are also essential to enhance risk information sharing and risk sharing mechanisms, which both are vital to the SCRM performance (Kumar et al., 2018). Moreover, the ISO31000 framework includes a step where stakeholders are consulted and informed pointing at the need for communication (Proença et al., 2017). Some researchers have investigated what capabilities and resources that should be in place to succeed with attempts to work with SCRM. Manuj & Mentzer (2008b) suggest the following team composition for global SC decisions: Find a good balance between inclusion and not making the team too costly. Include employees with different opinions and attitudes to risk taking by inviting functionally focused as well as long term-oriented managers. Grötsch et al. (2013) describe that risk managers need to have an analytic and cognitive style to succeed with proactive SCRM specifically.

Ericsson is one example where the organizational aspects have been present in developing its SCRM practices and where a lot of focus was put into integrating a risk culture into the organization according to Norrman & Wieland (2020). Their organizational processes as well as SCRM processes are formalized and implemented cross-functionally across the organization and include activities related to both reactive and proactive SCRM. Norrman & Wieland (2020) mean that evaluating and learning from the reactive parts can through a formalized approach for engaging in and documenting lessons-learned sessions and that this knowledge can be transferred into proactive SCRM processes. Therefore, Ericsson put efforts on achieving cross-functional collaboration and a risk culture.

Before improving the risk culture in an organization, Higgins et al. (2020) means that it is important to diagnose its current state which can be done by establishing detailed definitions and understanding the elements of the risk culture. To facilitate understanding, organizations can use ten dimensions with the four themes, which are acknowledgement *(confidence, openness, challenge)*, responsiveness *(speed of response, level of care)*, transparency *(communication, tolerance, level of insight)* and respect *(adherence to rules, cooperation)* as suggested by Higgins et al. (2020). Once an understanding has been reached, development can begin. There are different tools and frameworks that can help a company develop their organization. Maturity levels and stress testing are two such things that will be discussed in the two following sections. However, some of the already discussed tools can also facilitate this. Mapping is one example as it can act as a communication tool to ease the discussion around RM and align strategic decisions with the SC strategy (McCarthy et al., 2022; Gardner & Cooper, 2003).

3.6.1 Maturity Model

With any skill, a firm can perform better or worse. Maturity is a term commonly used to describe the improvement or progression of a skill where there is a desired final state (Proença et al., 2017). A Maturity Model is described by Proença et al. (2017) to be a tool illustrating the journey of maturity towards a more organized and systematic way of working. Dellana et al. (2021) found that a company's SCRM maturity is an indication of its preparedness for SC disruptions. A Maturity Model can therefore be an instrument for evaluating the RM efforts as well as a guidance for how to advance and move towards the desired state (Dellana et al., 2021; Proença et al., 2017). Additionally, Dellana et al. (2021) describe the Maturity Model as a tool for benchmarking against competitors.
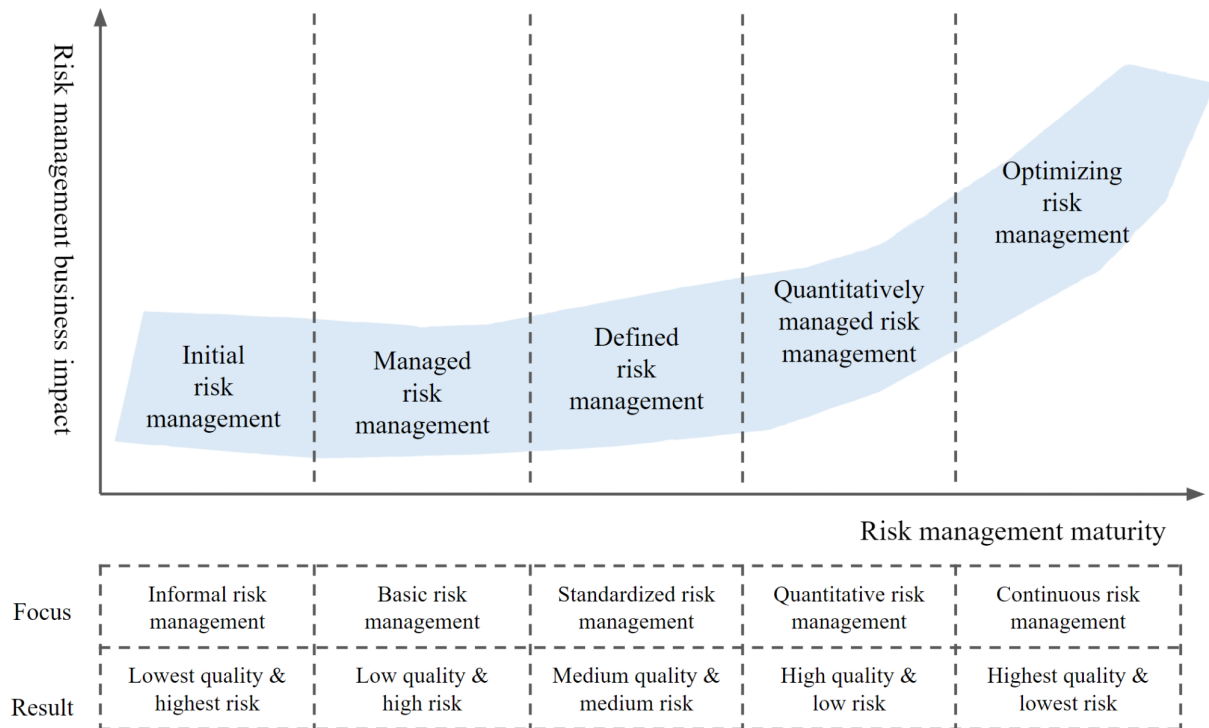
Figure 3.9: A RM Maturity Model developed by Proença et al. (2017).

The Maturity Model developed by Proença et al. (2017) can be seen in Figure 3.9. If no work with RM exists at a firm, Level 1 is not reached. However, a firm that is aware of the need for RM and performs basic tasks across the organization corresponds to Level 1, named *Initial Risk Management*. At the second level called *Managed Risk Management*, formal processes are still not followed, but risk activities are planned, assigned to personnel, and performed. On the third level called *Defined Risk Management*, procedures and tools are conducted in a centralized approach. Moreover, there is consistency across the organization. Level 4 is called *Quantitatively Managed Risk Management*. To reach this level, risk management, measurement and evaluation is performed with quantitative methods. The highest level of maturity, Level 5, is named *Optimizing Risk Management*. This level is the maturity firms should strive for according to Proença et al. (2017). Each level comes with a set of criteria to be fulfilled which can be seen in Appendix A.

The higher levels of maturity require cross-functional collaboration and commitment from every position within the company (Proença et al. 2017) and was also considered to be an enabler for SCRM at Ericsson (Norrman & Wieland, 2020). Dellana et al. (2021) also describe that maturity is connected to collaboration, not only within a firm, but also between SC partners, which was also realized at Ericsson as their inter-organizational SCRM cooperation was more formalized (Norrman & Wieland, 2020). In general, to achieve collaboration, companies must be organized and managed in a way that aligns the work of different functions. When functions aren't aligned, they work in silos. Stone (2004) describes silos as symptoms of organizational dysfunctions which create a culture of putting personal or departmental interests over the wellbeing of the organization. Additionally, Stone (2004) describes communication and knowledge sharing as both a factor behind silos and a critical step in tearing them down. Moreover, organizational structures can be a hindrance to cooperation and unclear procedures can cause conflicts. The company culture needs to be team oriented. Management styles can encourage or be a hindrance to this. Just like deconstructing silos require top management support, Dellana et al. (2021) describe that SCRM starts with top management and should then be developed among the employees of the organization to achieve a risk culture. Despite academia putting emphasis on the culture for RM, Cagliano et al. (2012) discuss companies still lacking a risk culture.

3.6.2 Stress Testing

As risk culture requires an organization wide understanding and approach to RM, Chopra & Sodhi (2004) suggest stress testing as an approach to create a shared organization wide understanding of SC risks. Stress testing is a group exercise where different what-if scenarios are discussed. The group should then identify suppliers, customers, facilities etc. Secondly, locations, inventory, components etc. From this information, potential risks are investigated, and possible impacts are investigated as well as the company's preparedness. What-if questions like *"What might happen if a particular supplier could not deliver for a month?"* are asked frequently to help identify e.g., critical plants and product families (Chopra & Sodhi, 2004, p.60). Through the what-if questions, stress testing can also help with risk identification. This kind of training was also applied at Ericsson according to Norrman & Wieland (2020) at all organizational levels cross-functionally to keep the risk culture alive, this also prevented Ericsson from falling back into old patterns when incidents were rare.

3.7 Conceptual Framework

From looking into the existing literature on proactive SCRM, a conceptual framework is developed. It is illustrated in Figure 3.10 and summarizes important terms, tools, concepts etc. for proactive SCRM. The conceptual framework illustrates that outside of the border of RM, there is the industry's setting which must be considered. The funnel illustrates how RM can be more specified into SCRM. For the proactive SCRM process, a description of why the phase is recommended, how it should be conducted, what the desired output is and what it requires from the organization is included. In the bottom of the framework the organizational aspect can be found. It illustrates that it is the foundation to successful SCRM. As RQ2 considers developing guidelines for IKEA CFLS (see Section 1.3), the conceptual framework is designed to represent what the literature suggests such guidelines to include to facilitate the development of guidelines for IKEA CFLS. Therefore, each step in the proactive SCRM process in the conceptual framework describes why the step is important, how it can be performed, suggested tools and what the output of it is.

Setting of the Food-retail Industry

Special characteristics of the goods & SC structure of the food & grocery retail sectors

Special characteristics of the goods:
- Temperature control
- Shelf life/BBD
- Varying weight, size and fragility

Risk Management

SCRM

Proactive SCRM
Proactive SCRM is the collaboration with supply chain partners regarding risk management activities to manage, plan and minimize risks before they occur

	Identification	**Assessment**	**Mitigation**	**Monitoring**
Why	Only identified risks can be managed proactively	To be aware of likelihood and possible impact of the risks	Develop strategies on how to handle the risks as well as carry them out	To keep track on mitigated and non-mitigated risks
Output	A set of risks to handle	Prioritization of risks in terms of probability & impact	Strategies on how to return to the original or a new preferred state	Continuously updated view of the risks
How	SC mapping or using a reinforcement learning-based framework to find all risks in the SC and thereafter categorizing them into fitting areas. Stress testing through a workshop is a way of including personnel in the identification of risks	Assessing data, getting expert judgements to evaluate the risk. The different tools (risk matrix, spider-web tool and reinforcement learning-based framework) help displaying the risks and get a prioritization order	There are five common strategies suggested in the literature: *Avoid, Reduce, Transfer, Share* and *Accept.* The mitigation strategy matrices can help suggest strategies based on estimated probability and loss or supply and demand uncertainty in the SC.	Assessing the risks manually or automated by continuously updating maps and spider-web diagram. The reinforced learning-based framework can automatically monitor events based on news incorporated in a computer system.

Organizational Aspect

The organization must support risk management by allocating resources, providing formal processes, having clear responsibilities and facilitate cross-functional collaboration.

Figure 3.10: Developed conceptual framework of proactive SCRM.

4 Methodology

The fourth chapter aims to address the chosen method and approach of the thesis. A Design Science (DS) approach is chosen as the overall method, which is motivated in Section 4.1 and outlined further in detail in Section 4.2. The phases, and the application for this thesis, of the DS approach are discussed in sections 4.3-4.6 Lastly, measures taken to assure the quality of the thesis is discussed in Section 3.7. The output of this chapter is a research design as well as an interview guide.

4.1 Research Strategy

To answer RQ1, an overview of the existing knowledge in the topic *proactive SCRM* must be achieved. Rowley & Slack (2004), state that literature reviews are important for developing an understanding of a research topic as well as its concepts and terminology. Since the thesis aims at using and contributing to the existing body of knowledge, it is also crucial to investigate existing theory (Höst et al., 2006). Therefore, a literature review is conducted. However, to answer RQ2, an additional research strategy is required. The purpose of the thesis is to apply already existing theory into practice and the main contribution will therefore be empirical. The Design Science (DS) Research Approach is considered suitable as it iterates between theory and practice. It is described by Holmström et al. (2009, p.24) as having its strength in the "*explicit focus on improving practice*" and its purpose is to develop a design. By using a DS approach, the thesis aims at bridging the theoretical knowledge on proactive SCRM with empirical findings within the context of IKEA CFLS by designing guidelines on how IKEA CFLS should work proactively with SCRM. However, it should be noted that simply the approach of DS is followed, meaning all steps of DS research is not fully conducted. For example, due to the delimitations presented in Section 1.5 as well as the time constraint of the thesis, the developed guidelines are not tested by implementation, but validated through workshops at IKEA CFLS.

To answer RQ2, knowledge about IKEA CFLS's current practices is required and is understood by studying some of IKEA CFLS's experienced supply chain disruptions. Also, empirical data is required for the DS approach. This is solved by conducting case study research. It is considered a suitable method for three reasons. First, RQ2 doesn't require control of behavioral events, but a focus on contemporary events (Yin, 2018). Second, Höst et al. (2006) says case studies are good when the phenomenon is difficult to separate or distinguish from its environment, which proactive SCRM is. Third, Lukka (2003) suggests the application of the case study method aligns well with empirical and normative research like the DS approach which strengthens the choice of conducting case study further. Case studies can be conducted with different purposes. In this thesis, the case study is conducted to elaborate on theory. Case study research as theory elaboration is described by Ketokivi & Choi (2014) to iterate between theory and empirical data. This iteration is shared with the DS approach (Holmström et al., 2009; Ketokivi & Choi, 2014). By using case study for theory elaboration, the aim is to elaborate on existing theory and explore it in the empirical context of IKEA CFLS (Ketokivi & Choi, 2014).

4.2 Research Design

As described, the research process will follow a modified version of the DS approach to fit the purpose and constraints of the thesis. The unit of analysis, in other words what should be studied, is IKEA

CFLS's work with SCRM. This is because the goal with the research is to draw conclusions regarding IKEA CFLS's work and through their experiences contribute to the existing body of knowledge.

4.2.1 Constructing the Research Process

As mentioned in Section 4.1 the DS approach is selected as the overall research method. As DS research focuses on solving problems, it is of importance to both frame and theorize the problem and the process (Romme & Dimov, 2021). The model by Romme & Dimov (2021) contains four activities; *Framing, Creating, Theorizing and Validating,* as illustrated in Figure 4.1. The activities can be divided into the two phases design and science. Framing is when the problem is explored, and emphasis is put on the setting. In the creating phase, the artifact is developed, and theorizing is the phase where the artifact is generalized as well as made applicable to other contexts. Lastly, validating involves evaluating if the framing of the problem, the artifact and generalized theory is valid.
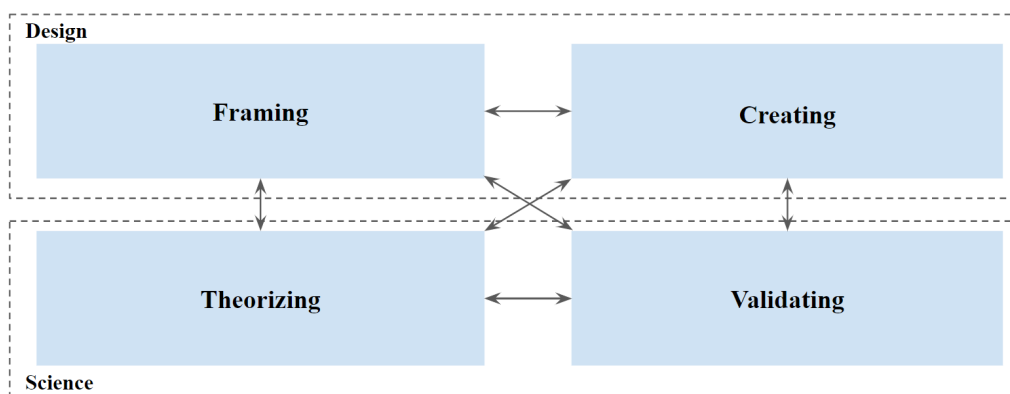
Figure 4.1: Model by Romme & Dimov (2021) containing four main activities.

A consensus model containing six process elements describing activities and ways of working was created by Peffers et al. (2007), Figure 4.2, based on a study made on the DS research methodology. The first element is *Problem identification and motivation* where the research problem is defined. The second element is to *Define the objectives for the solution* which conclude the objectives of what is possible and feasible. These can be both quantitative and qualitative but should be derived from the problem specification. Third, *Design and development* refers to the element where the artifact is created. It is also included to determine the desired functionality and architecture and lastly creating the artifact. The fourth element is *Demonstration* which demonstrates how the artifact can be used to solve one or several problems by e.g., case studies. Fifth, *Evaluation* which involves testing the artifact by observing and measuring how well it supports the solution to the problem. Lastly, the sixth element is *Communication* which refers to communicating the problem and the importance but also the artifact. These elements can be performed in any order and usually involve iteration.
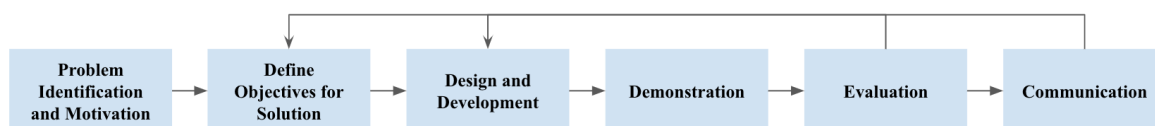
Figure 4.2: The consensus model of six process elements by Peffers et al., 2007.

The two models presented by Romme & Dimov (2021) and Peffers et al., (2007) describe similar steps and procedures. However, Peffers et al. (2007) include the element of communicating the findings and artifacts throughout and after the process. Figure 4.3 illustrates a combination of the two

processes that is applied to the thesis. The authors argue that communication, the last step of the model by Peffers et al., (2007), is included in validation and theorizing. In the validation phase, the developed guidelines are communicated with IKEA CFLS and during the theorizing phase, the findings are generalized in the format of this report. However, problem identification is not considered to be emphasized enough in the framing phase, so it has its own step like in the model by Peffers et al., (2007). Moreover, two iterations are removed from Romme & Dimov's model due to the time limitation of the thesis. The iteration between framing and theorizing is not performed and once the guidelines are validated, they are considered relevant.
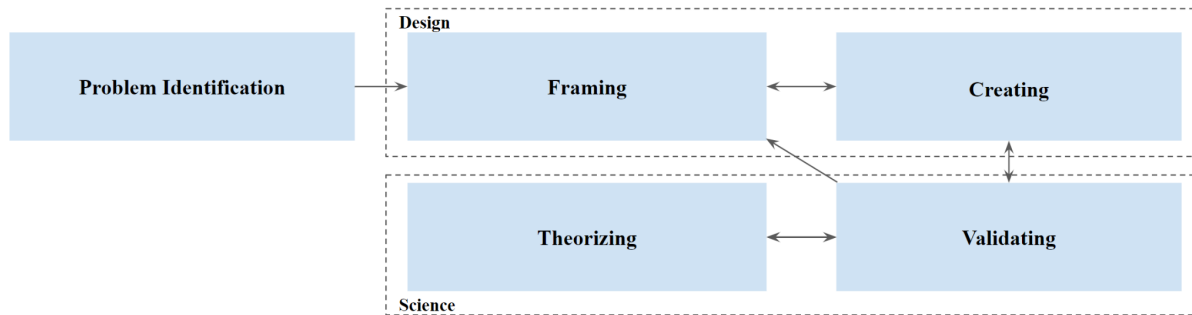
Figure 4.3: Combined research process of Design Science Research by Romme & Dimov (2021) and Peffers et al. (2007).

4.2.2 Application of Research Process

The research strategy of the thesis is presented in Figure 4.3 and rhymes with DS research. This strategy is applied, except for the separation of the problem identification element as the authors have the perception that development of the methodology should have its own element between identification and framing. Further description and visualization of the research process (see Figure 4.4) will be outlined in the following paragraph.
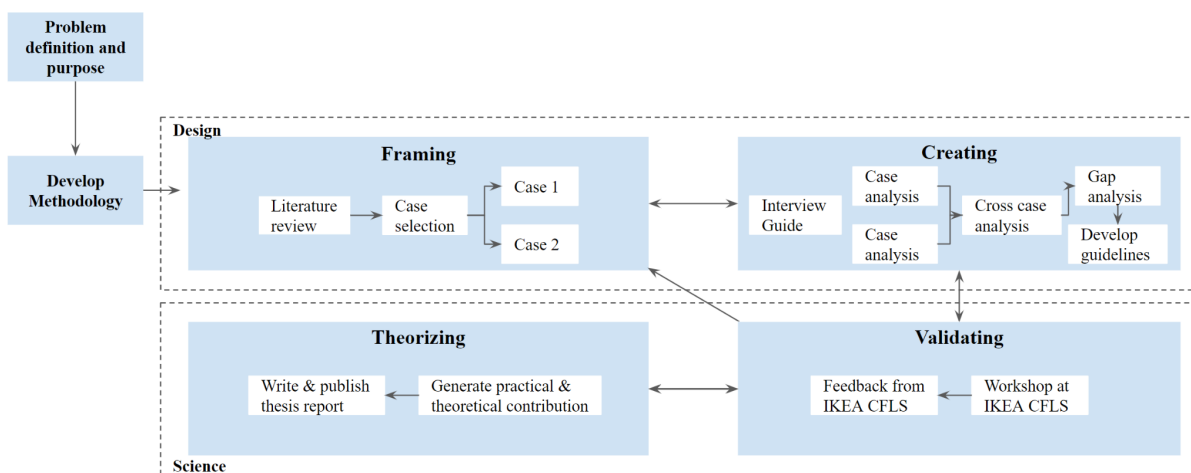
Figure 4.4: Overview of the research process (Romme & Dimov, 2021; Peffers et al., 2007).

The research process begins with defining the problem and purpose of the thesis which is stated in Section 1.3-1.4. Afterwards, the development of the methodology, as done in this chapter, is performed to move on to conducting the research. Framing is conducted first out of the four phases suggested by Romme & Dimov (2021). The initial step of the framing phase is performing a literature review to answer RQ1 as well as build a conceptual framework. Based on the framework, two cases are selected from IKEA CFLS and studied. However, to study the cases, an interview guide is

developed which falls under the creating phase. Therefore, there is an interaction between these two phases. Except for creating the interview guide, the creating phase includes analyzing the cases both individually and cross-case, comparing with the conceptual framework and developing the guidelines. To validate the guidelines, a workshop is held with IKEA CFLS employees in the validation phase. The feedback from the workshop is used to improve the guidelines, meaning there is an iteration back to the framing phase and creating phase. The final version of the guidelines answers RQ2. As the thesis aims at contributing to both the scientific field and IKEA CFLS, the findings are then generated into practical and theoretical contributions. Lastly, the knowledge gained from the research is shared with both academia and IKEA CFLS.

4.3 Framing

As described, the framing phase includes a literature review, case selection and two case studies. The two following sections describe more in depth how the literature review and empirical data collection are performed.

4.3.1 Literature Review

A literature review of existing theory and research within the topic proactive SCRM is conducted with the purpose of answering RQ1 but also to set a starting point for RQ2. The process of the literature review is outlined in Figure 4.5. It is inspired by the suggested stages by Rowley & Slack (2004), but with the modification that a step for retrieving the documents is included. This is because several crucial decisions are made when searching for and selecting documents to include in the review. The choices are as follows.
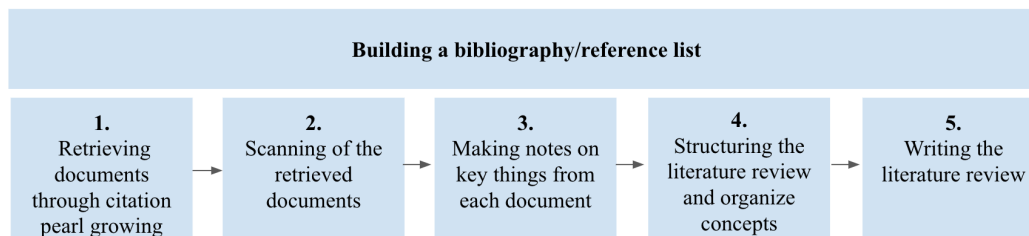
Figure 4.5: Process of the literature review inspired by Rowley & Slack (2004).

The choice of primary search engine is the Web of Science, and the used search strategy is citation pearl growing where a set of literature is used to retrieve keywords which can be used to gather more articles (Rowley & Slack, 2004). To put some requirements on the quality of the reviewed literature, some limitations are set on the search result on the search engines. First, peer reviewed research articles are picked with few exceptions. Second, the journal in which each research article was published is considered to make sure it is serious and relevant. No restraint is set on the publication year of the paper. However, it is considered when referring to the articles in the literature review. To ease the retrieval of literature, a set of key references were decided. These are peer reviewed, highly cited articles published in serious journals. The key references can be seen in Table 4.1. From the key references, key words are identified and used to gather more relevant literature. Articles that cite the key references are possible relevant research and are therefore investigated as well.

Table 4.1: Overview of key references in the literature review.

Author(s):	Risk categories	SCRM	Proactive SCRM	Organizational aspects
Manuj & Mentzer (2008a)	•	•	•	
Norrman & Jansson (2004)		•	•	
Knemeyer et al. (2009)	•	•	•	
Ho et al. (2015)	•	•	•	
Fan & Stevenson (2018)		•	•	
Sodhi et al. (2012)	•	•	•	•
Chopra & Sodhi (2004)	•	•	•	•
Proença et al. (2017)			•	•

To filter out the documents with non-relevant content, each retrieved document is scanned briefly. This is mainly done to ensure the findings are engineered in a relevant setting for this thesis (Höst et al., 2006). There is an iteration between step one and step two in Figure 4.6 where articles are retrieved and scanned. Next, in step three in Figure 4.5, the remaining documents are summarized in one page per document to get an overview of the main messages and findings. The summaries help with the structuring of the actual literature review. Key information on each source is also gathered in a summarizing table. Inspired by recommendations from Höst et al. (2006) the following areas are gathered; *Title, Author(s), Publication year, Key words, Summary of findings* and *Date of retrieval.* Based on the summaries the documents are categorized into main themes and discussed together, which will be the foundation of the literature review. The building of the bibliography is an ongoing task throughout the whole process. For example, the literature review is extended after feedback is gathered on the first draft of the guidelines to complement with more information on the areas where gaps between the guidelines and IKEA CFLS practice is found to be able to deliver complete guidelines.

4.3.2 Case Selection

The selection of case(s) is a critical step in conducting a case study (Voss et al., 2002). As Voss et al. (2002) discuss, a single case has the benefit of allowing a more in-depth investigation but is difficult to draw generalizations from. To avoid some risks of choosing a single case, multiple studies are conducted. A larger number of cases would be beneficial in terms of generalizability, but due to resource constraints, it would not allow for an in-depth study of each case. Therefore, two cases are considered a good balance. Several authors suggest predefined selection criteria should be used when choosing cases (see e.g., Voss et al., 2002; Eisenhardt, 1989). The selection criteria used in this thesis are listed below:

1. As the unit of analysis and RQ2 are connected to IKEA CFLS, only cases involving IKEA CFLS will be considered.
2. The case selected should be considered as a disruption by IKEA CFLS.
3. As Yin (2014) states that sufficient access to data is crucial and should be considered when selecting cases, only recent disruptions will be considered. It also reduces the risk of fading memory among employees.
4. One case should be historical to enable data collection from the entire sequence of the event and one case should be somewhat ongoing to observe the real time working process.

From these criteria, the following two cases were selected. The first case, from now on referred to as Case DC, is connected to a DC in the United States, where a newly opened DC did not live up to the agreement reached, and IKEA was urgently forced to change and implement a new DC. The second case studied, named Case Labelling, is concerning new laws and regulations in a European country requiring major changes to all labelling on all products immediately to be compliant. Both cases are considered interesting to study as they connect well to the unique setting that IKEA CFLS and its SC has. As it is a global supply chain, factors affecting foreign nodes in the chain can have a very big impact on the overall operations. In both cases, it was urgent to solve this quickly, not least due to the characteristics of the goods discussed in chapter 2.

4.3.3 Empirical Data Collection

Once the cases are chosen, the data collection is performed through the three methods interviewing, collecting secondary data, and observing seen in Table 4.2. All three methods are commonly used in and suited for case studies according to Höst et al. (2006). When an interview or observation has taken place, Miles & Huberman (1994) suggest a contact summary sheet should be written. It allows for reflection and should include where, when, and how the interview or observation took place. Moreover, the main themes discussed or observed, a summary of the information gathered and a reflection of new or useful information should be added. Contact summary sheets were therefore created after each interview and observation.

Table 4.2: Data collection methods used during the case study.

Data collection method	Purpose
Interview	Interviews are used to understand the case and actions taken from the employees handling the supply chain disruption.
Secondary data	Lessons learned documents as well as project documents established by IKEA CFLS in connection with disruptions are used as supplementary data.
Observation	The environment and meetings at IKEA CFLS is observed to better understand the current state.

The first type of data collection is gathered from interviews. Interviews can be divided into three categories; structured-, semi-structured- and unstructured interviews (Ellram, 1996; Höst et al., 2006). The structured interview can be compared to a questionnaire which is performed verbally (Ellram, 1996), which increases the participation rate but is very time consuming for the interviewer (Höst et al., 2006). On the other side of the spectrum the unstructured approach is found. The unstructured

interview is more conversational which can be used to gather and catch key information (Ellram, 1996). Moreover, the unstructured interview allows the interviewee to decide what is discussed in detail, so an interview guide with pre-decided topics with allocated time for each should be prepared (Höst et al., 2006). Between these two categories, a combination can be found, referred to as the semi-structured interview. It can contain more structured questions but allows for modifications and probes to accommodate the interviewee and situation. To obtain the data needed to understand the two cases, the last mentioned, i.e., semi-structured, variant is used. To capture the interviewee's own experiences and view on how IKEA CFLS work with SCRM, the authors wanted to let the interviewee speak freely. However, as there are specific topics and processes of interest for the thesis, certain overarching questions are asked. In combination with these, relevant sub-questions are developed and asked. When conducting multiple interviews, Höst et al., (2006) highlight the importance of asking the more structured questions in the same order and phrasing if there are several interviewees to not risk impacting the answers. With this in mind, a general interview guide is developed, see Section 4.4.1. The interview guide is used to assist during the interview and after each interview, the contact summary sheet described earlier is created where the authors own notes also are added. As Höst et al. (2006) suggest recording and transcribing the interviews, this is done with the help of an AI-tool.

A summary of the conducted interviews is presented in Table 4.3. All interviews are aimed to understand either how the organization works and their risk work or related to understanding the cases selected. All interviewees fulfil the following selection criteria:

1. The interviewee should have been (more or less) involved in the handling of the disruption.
2. The interviewee should work/or worked at IKEA Food during the handling of the disruption to connect to the unit of analysis of the thesis but also RQ2.
3. Employees with different roles, and therefore also different viewpoints, were interviewed. Also, as Miles & Huberman (2020) suggest, the interviewees have not been involved in the cases to the same extent. This is to further diversify the different angles covered.

Table 4.3: Summary of the conducted interviews.

Interviewee	Position	Purpose & Interview type	Date	Duration [min]
Alpha	Development Manager	Semi-structured interview about the organizational setup of IKEA.	February 23	60
Beta	Project Leader, Case DC	Semi-structured interview with the responsible project leader of Case DC.	February 23	105
Gamma	Delivery Planner Manager	Semi-structured interview with a manager introduced to Case DC late in the process.	February 23	60
Delta	Delivery Planner	Semi-structured interview with an operational delivery planner highly involved in Case DC.	March 23	60
Epsilon	Operations Manager	Semi-structured interview with an operations manager at IFSAG who can provide a holistic view of the organizational structure, risk organization but was also involved in Case DC and minor involvement in Case Labelling.	March 23	60
Zeta	Food Demand Coordinator Manager	Semi-structured interview with a manager about Case Labelling.	March 23	60
Alpha	Development Manager	Follow-up interview for clarification and additional organizational questions. Moreover, the interview was conducted to get an understanding of tools and guidelines accessible for project leaders. Semi-structured interview.	March 23	60
Eta	Food Demand Coordinator	Semi-structured interview with a Food Demand Coordinator about Case Labelling.	March 23	60
Theta	Project Leader, Case Labelling	Semi-structured interview with the project leader of Case Labelling.	March 23	60
Jota	Category Sourcing Specialist	Semi-structured interview regarding RM processes & BCP.	March 23	60
Kappa	Operations Manager	Semi- structured interview about organization and Case Labelling	March 23	60

The second type of empirical data collection is secondary data. For both cases, there is stored documentation that is gathered from the interviewees and will be used as supplementary data (see Table 4.4). According to Höst et al. (2006), examples of internal secondary data can be lessons learned documents or project reports produced by the company. The secondary data collected in the thesis are related to the organizational setup and documents related to handling of the cases. These are collected from the interviews and the relevance related to the topics discussed are determined by the interviewee.

Table 4.4: Summary of the secondary data collected.

Data type	Description	Title
Qualitative	History of IKEA Food, product characteristics and logistics setup	Fundamentals of Physical Distribution - Inter IKEA
Qualitative	Figures of organizational structure and role descriptions.	Introduction to IKEA Food Supply Chain
Qualitative	Organization, business structure and category areas	We are Core Business Supply
Qualitative	Process description of re-labelling generated from Case Labelling	Process description- Labelling at DC
Qualitative & Quantitative	Documentation from internal project meetings regarding Case DC. Containing KPIs, timeline and lessons learned etc.	DC- Challenges and Lessons Learned
Qualitative	Part of project plan for Case DC, scope, and updates in the start of the project	DC Presentation

The third type of data collection used in the thesis is observations and can, according to Höst et al. (2006), be used to complement the understanding of processes. As Case Labelling is an ongoing project, observations of several cross-functional meetings are performed as seen in Table 4.5. Data from observations can be collected by taking notes such as journals or a more systematic approach of documenting such as coding schemes and in this thesis the first alternative is chosen (Höst et al., 2006).

Table 4.5: Summary of the observations at IKEA CFLS.

Purpose & Description	Date	Attendants
Observation of the communication between IKEA Food and retail during a biweekly meeting regarding the project for Case Labelling	March 2023	Eta, Theta, a Retail Representative, and a Need Planner responsible for Country Z
Observation of communication and working process within IKEA Food and the weekly meeting for Case Labelling	April 2023	Eta, Theta, and other representatives from IKEA FOOD
Observation of communication and working process within IKEA Food and the weekly meeting for Case Labelling	April 2023	Eta, Theta, and other representatives from IKEA FOOD

4.4 Creating

The goal with the creating phase is to develop guidelines for IKEA CFLS. To achieve this, the empirical data is analyzed individually for the two cases, followed by a cross case analysis. The findings from the cross-case analysis will be used to evaluate and find gaps between the conceptual

framework from the literature review and how IKEA CFLS works with SCRM today. However, as illustrated in the research process outlined in Figure 4.4, the initial task in the creating phase is to develop the interview guide. This must be performed prior to conducting the interviews and does therefore create an iteration between the framing and creating phase. The process of developing the interview guide is described in the following section.

4.4.1 Developing Interview Guide

The interview guide is a rough plan of the interviews. The authors choose to follow the interview layout proposed by Höst et al. (2006) containing four phases; (1) context, (2) introductory questions, (3) main questions and (4) summary. The interview guide starts off with explaining the context, i.e., the purpose of both the thesis and the interview are explained. This part of the interview is also important to develop a common understanding of the topic to be discussed. Moreover, the anonymity of the interviewee as well as how the data will be handled is described. Permission to record is always asked in this phase as well. All of this aligns with Höst et al. (2006). In the phase of introductory questions, the main goal is to get the conversation going (Höst et al., 2006). This was done through asking general questions about the interviewee's role at IKEA. When asking the main questions in the third phase, the interview guide is used as a tool to make sure the questions are asked in a logical order as Höst et al. (2006) suggest. It also acts as a checklist to make sure every important topic is covered. The different topics included in the interview guide derive from the conceptual framework. However, the interviews are focused on the sequence of events of the two cases. The goal of the interviews is to not test any theory from the conceptual framework, but to understand IKEA CFLS' practices and issues by asking overarching questions about their daily operations and how the cases were handled, hence an inductive approach is taken. In the last phase called summary, the interviewee was asked to give any other relevant information, also proposed by Höst et al. (2006). The complete interview guide can be found in Appendix B & C. Assisting the interview guide is also the figure in Appendix D to illustrate the purpose of the thesis and the information sheet in Appendix A. When the interview guide has been used to collect the empirical data at IKEA CFLS, the data analysis is allowed to begin.

4.4.2 Data Analysis

The purpose of the collection of data is to develop and validate proactive SCRM guidelines for IKEA CFLS as well as generalizing the findings to contribute to science. This purpose determines how the data is analyzed. The performed process of data analysis is a combination of suggested analysis steps by Höst et al. (2006) and case analysis steps. The processes will first be described individually and are then combined in creating the data analysis process of this thesis.

Höst et al. (2006) suggest four steps for a qualitative data analysis, and they are all conducted in this thesis. The steps are *data gathering*, *coding*, *grouping* and *conclusions*. The data gathering concerns the literature review as well as case studies and has already been described (see Section 4.3.1 and Section 4.3.3). The coding step involves giving important things in documents keywords. The content connected to a keyword is then grouped to be able to analyze it and draw conclusions. As mentioned, case analysis is a process itself. Eisenhardt (1989) and Voss et al., (2002) suggest analyzing cases first by within-case analyses for each case and second a cross-case analysis. For the case analysis, Voss et al., (2002) and Miles & Huberman (1994) propose visually displaying the data as a good starting point for the analysis and can help provide a good structure. In this thesis, structuring of empirical data is done through coding and grouping as suggested by Höst et al. (2006). The coding

and grouping steps are conducted by following the coding tree approach proposed by Gioia et al. (2012) illustrated in Figure 4.6.
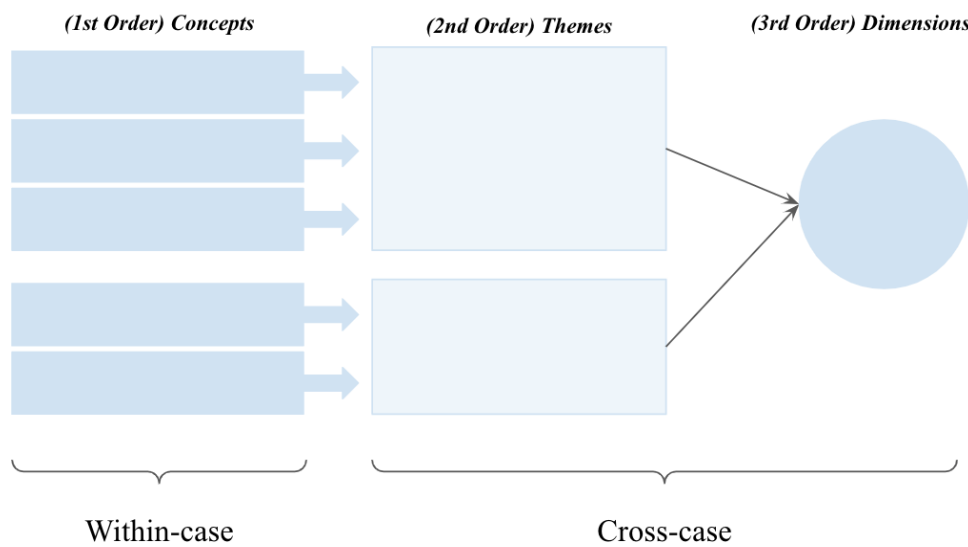
Figure 4.6: Coding tree for qualitative data analysis by (Gioia et al., 2012).

The following four steps describe the Gioia et al. (2012) inspired process that is applied to the thesis:

(1) The recorded interviews are transcribed and coded to capture concepts described by the interviewees in their original phrasing. The phrasings are sorted by using codes covering different areas of proactive SCRM. Five codes are selected in total. Three codes named *Setting, Risk Management Processes,* and *Organizational Factors* are derived from the conceptual framework as it is built on these three areas. They are selected to ensure they are reflected upon when analyzing the empirics. The remaining two codes are subjects mentioned by the interviewees in every interview conducted; *Lessons Learned* and *Communication*. The phrasings are then used to capture concepts describing the current state at IKEA CFLS. The devil's advocate role is taken to challenge the authors' perception of the retrieved information. This is conducted for each of the cases individually as well as for the complementary interviews as within-case analyses and the result of this step is a number of 1st Order Concepts (see Figure 4.7), from here on referred to as concepts.

(2) The concepts are scanned to find similarities between them and categorize them further. It aligns with the purpose of the cross-case analysis described by Voss et al. (2002) regarding searching for patterns across the cases. The identified categories are given labels or phrasal descriptors. They are also analyzed to find interconnections and deeper structures, to answer the question "*what is going on here?*". These are called 2nd Order Themes in Figure 4.7, from here on referred to as themes.

(3) The themes from the cross-case analysis are analyzed further with the purpose to investigate if they can contribute to understanding the phenomenon studied. If they do not contribute, they are filtered out.

(4) The remaining themes are used to create 3rd Order Dimensions as seen in Figure 4.6, from here on referred to as dimensions. These will conclude what IKEA CFLS do today in their RM and factors that impact their work.

The dimensions are categorized into three areas in which guidelines are needed. For each of these areas, a gap analysis is conducted to compare what was found in the literature review with the practices at IKEA CFLS. Moreover, an iteration back to the creating phase is made after having developed the first draft of the guidelines and gathering feedback on how they can be improved.

4.4.3 Developing Guidelines

The development and design of guidelines for IKEA CFLS start once the conceptual framework is created and the empirical data is analyzed as described in Section 4.4.2. According to the DS Approach, both general knowledge from theory and context specific factors are considered. The development of guidelines starts with generating a conceptual framework based on the literature review describing processes and other factors necessary to work with proactive SCRM. Additionally, empirical data is collected and analyzed according to a coding method, see Section 4.2.2 which results in key issues and/or improvement areas based on the interviewees point of view. The empirical data is also assessed by the authors to rate the risk management maturity in the Maturity Model proposed by Proença et al. (2017), to determine the level of IKEA CFLS as well as to identify what is hindering them to reach a higher level. Next, a gap analysis is performed to understand how IKEA CFLS practices differ from what the literature suggests and differs from the dimensions in the sense that it is not limited to the interviewees' perspective. The dimensions are based on what is explicitly described by the interviewees while the gaps also can be based on a lack of an aspect that is highlighted in the literature. This connects to the purpose of applying existing into practice.

The gaps are used to iterate back to the literature review and match IKEA CFLS's improvement areas with suggestions in literature. When reviewing the literature, IKEA CFLS placement in the Maturity Model is kept in mind to ensure the selected theoretical suggestions are aligned with what is reasonable to implement now based on the model. This is important for creating a threshold possible to overcome. Moreover, the theoretical suggestions are chosen to address the dimensions as these are improvement areas described by the respondents. When the literature-based improvements are selected and formulated into guidelines for IKEA CFLS, the feedback workshop is held. It contributes to the development of the guidelines in the sense that it gives additional information on the applicability of the guidelines and facilitates the customizing of the guidelines to fit IKEA CFLS specifically.
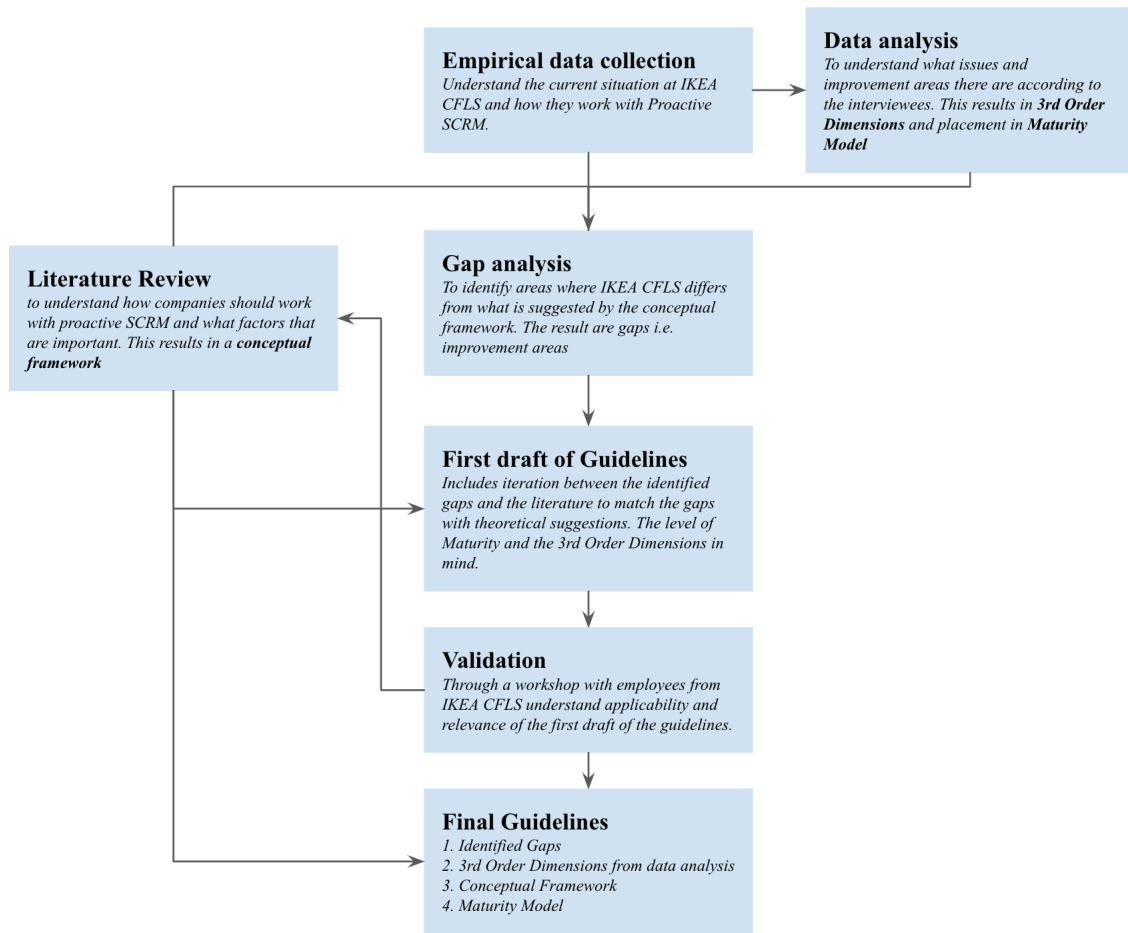
Figure 4.7: Visualization and explanation of how the Creating process is used to answer RQ2.

4.5 Validating

After the first draft of guidelines is created, they are validated to ensure their practical applicability. There are two different validation methods called ex-ante and ex-post evaluation (Romme & Dimov, 2021). Ex-ante refers to validation performed before as well as after creating the artifact and Ex-post is naturalistic artificial evaluation such as field studies or pilot studies (Romme & Dimov, 2021). The artificial evaluation includes assessing how the artifact performs in the setting it is designed for, which is what is required to assess the first draft of the developed guidelines. As the product of the thesis is a set of guidelines, it can be validated by employees and future users and understand the applicability (Höst et al., 2006) which is why conducting a workshop at IKEA CFLS is performed.

The purpose of having a workshop is to validate the guidelines and to understand the applicability of them. Therefore, functional managers, development managers and an experienced employee with no prior knowledge about the thesis was invited. During the workshop, each guideline is presented in a presentation describing the guideline, the purpose of it, what tools it comes with and what it requires from the organization. This presentation is seen in Appendix E. The feedback is gathered through a questionnaire is given to each participant to answer some questions regarding each guideline and rate several aspects of it on the Likert Scale. Additionally, discussions concerning each guideline on a deeper level was conducted. The feedback can be found in Appendix F. Based on the feedback, an iteration back to the Framing and Creating phases is done to gather more knowledge and build on the

literature review as well as improve the guidelines to achieve the final version. This is also illustrated in Figure 4.7.

4.6 Theorizing

A main challenge with the DS Research approach is to conduct research that contributes to theoretical insight (Holmström et al., 2009). As the empirical data is limited to the unique setting of IKEA CFLS, there is a constraint on how much generalization can be made. However, by using the DS research approach, the literature on proactive SCRM is studied and applied practically in a new setting, which in turn can produce a new conceptual understanding of the topic. The existing theoretical concepts are further strengthened by applying them and show they are applicable in a new context. By formulating theoretical and practical contributions, the findings can go beyond the thesis. The thesis report is how the findings are communicated and is written in parallel to the practical work. The report is to be both published and shared with IKEA CFLS.

4.7 Research Quality

Traditionally, research quality within the logistics field has been evaluated through four areas: *Construct validity, internal validity, external validity,* and *reliability* (Yin, 2009; Voss et al., 2002; Halldórsson & Aastrup, 2003). However, Halldórsson & Aastrup (2003) suggest four research quality areas for qualitative research within the field of logistics: *credibility, transferability, dependability,* and *confirmability*. As the research conducted in this thesis is highly qualitative but also performed at a single company, Halldórsson & Aastrup areas are selected to determine the quality. Credibility refers to how well the respondents' constructions are represented in relation to what is presented in the research. Transferability relates to generalization and assess how much the study is allowed to make general claims. Dependability determines how stable the data is over time meaning processes and methods should preferably be well documented. Confirmability refers to researchers' biases which should be minimized. An external actor should be able to assess this. As presented in Table 4.6, several actions are taken to improve the quality of the research.

As the thesis is covering a topic that can be sensitive to discuss, confidentiality and anonymity are aspects the authors believe are important to consider. Confidentiality regarding sensitive or specific information about IKEA and its supply chain should be considered according to Miles & Huberman (2020) too. Moreover, since interviews with employees are conducted, anonymization is considered as well. Therefore, no names of employees or other organizations as well as specific locations will be provided. This puts constraints on the transparency but is considered necessary by the authors and case company. However, the interviewees are informed about their anonymity in the beginning of the interview to decrease the risk of hidden information. The confidentiality and anonymity are assured through applying pseudonyms and having all company information approved prior to publishing the thesis. However, as there has been a limited number of employees participating in handling the studied cases, as well as the factor of them having an existing relation there can be a lack of willingness to share information that can appear to be sensitive or critical towards how a case was handled or other organizational factors. This can in turn affect not having the full set of information, and thereby also the research quality.

Table 4.6: Actions taken to address research quality areas by Halldórsson & Aastrup (2003).

Research Quality areas	Actions Taken	Phase in Research Process			
		Framing	*Creating*	*Validating*	*Theorizing*
Credibility	Several interviewees (triangulation)	•			
	Conducting follow-up interviews	•			
	Recording and transcribing interviews	•			
	Interviewees approving used information	•			
	LTH supervisor reviewing interview guide	•	•		
	Validation workshops with informants			•	
	Key informants reviewing the thesis report				•
Transferability	Multiple cases are investigated	•	•		•
	Detailed description of the cases	•			•
	Description of the case company's setting	•	•		•
	The conceptual framework is used as input and guidance when developing the guidelines	•	•		
	Validation workshop feedback is described			•	
Dependability	Conducting literature review on SCRM overall	•			
	Standardized Contact Sheet Summary	•			
	Feedback session on methodology chapter	•	•	•	•
	Methodology is described in detail	•	•	•	•
Confirmability	Conducting follow-up interviews	•			
	Transcribing interviews	•			
	Triangulation in interviews and literature	•			
	Literature review method is explicitly described	•			
	Two thesis authors reduce the bias	•	•	•	•
	Semi-structured interview approach	•			
	Regular feedback from LTH supervisor	•	•	•	•
	Validation workshop to ensure applicability			•	
	Triangulation in feedback on guidelines			•	

5   Empirics

The fifth chapter presents the empirical data gathered from IKEA Food. In Section 5.1 a general description of how IKEA Food is working with RM is given. The respondents' views on the maturity of their RM efforts are also included in this section. The two cases are presented in Chapter 5.2 (Case DC) and 5.3 (Case Labelling) to give insight into the actual handling of risks in practice.

5.1 Description of How IKEA CFLS is Working

To get some background to IKEA CFLS' structure and way of working, it is crucial to know that until 2019 the logistics for IKEA Food was handled by an outsourced company, however, it is now a part of IKEA. Due to this there were different practices for the food- and home furniture branch (Epsilon; Jota). However, after the acquisition it has been important to align the practices, demands on SC partners and way of working, among other things, with home furniture with the goal to become *"One IKEA"* (Jota). This also applies to the practices regarding RM (Jota). However, Alpha mentions that in terms of RM, it is important that IKEA Food pays extra attention as the aspect of food safety results in different risks compared to IKEA Home Furniture.

5.1.1 Risk Management at IKEA Food

There are several RM practices currently used at IKEA Food. RM at the highest level in the organization is performed at a meeting by ISAG, and IFSAG is one of the departments invited. At this meeting representatives from each department meet twice a year to discuss identified global or potential global risks in terms of business impact but also risks that are seen in the global structure of retail and wholesale. These are later drilled down and prioritized, based on these three are chosen to work with each calendar year with the ambition to be proactive and prepare, create awareness, and mitigate them, either to eliminate or have an action plan in place if the risk is realized. This is done at a high level and does not involve representatives from each operational area or team. However, input is considered valuable, but it is important to not confuse a risk with working improvements. (Epsilon).

They are currently working to implement RM actions over the business (Jota). One relatively new initiative is Business Continuity Planning (BCP), which is seen as a proactive action (Jota). The BCPs are currently being implemented for all Logistic Service Providers (LSPs) and have three different focus areas. The first one is Capacity at the LSP. The second one is Fluctuation Analysis, where it is explored how the LSP and DCs are affected by having e.g., 30% more or less demand and what actions would be taken by IKEA and the LSP. The third focus area concerns Risk Assessments along with actions that can be taken connected to each Service Provider (SP). This is based on a SP Classification where the SP is assessed in a big template with various criteria concerning operational performance, compliance, quality etc. The BCP should be used by the business development team, the Service Provider Operations Developers (SPODs) and the metrics manager. Additionally, inputs are taken from Product Development Unit and Food category. It is also mentioned that if there are major risks or concerns connected to a SP, these can be addressed and mitigated through opening a project (Jota).

When handling risks, it is important to also document how the risks are handled according to Epsilon. But *"we would put the fire out and then two weeks, three weeks, four weeks, six months later, the fire would start burning again"* and then they don't have the knowledge on how to fix it again (Epsilon). Epsilon says *"you need to define where it went wrong and ensure that it is documented within a process and use this as reference"* which allows for a better chance to handle it next time. Even

though things might still go wrong, it provides a better chance for recognition a couple of years down the line (Epsilon). However, Epsilon also mentions *"You can't expect a colleague to do 40 hours a week of what they should do in their job and do process work on top of that",* meaning that you cannot expect people to work with it if not given time within their workday.

There is a platform accessible for everyone that works within the food business at IKEA called CANEA ONE. It is an archival system where processes are uploaded, but it is not used for storing any documents on lessons learned from projects (Kappa). The processes found on CANEA ONE are describing different tasks like how to create a process, but also provides explanations and responsibilities regarding existing processes. Each process is assigned a revision date along with an employee responsible for updating it. If one process is touched upon or changes are necessary due to a project's lessons learned, the project leader or the steering group should contact the responsible person, however this is not always the case (Kappa). Therefore, some processes on CANEA ONE are not up to date (Kappa). When it comes to communication channels, there are several forums where risks and information can be communicated according to Kappa, however no direct channels between the operational staff and managers at a higher-level making decisions about RM (Epsilon).

5.1.2 A Functional Oriented Organization

As described in Figure 2.5, Chapter 2, IKEA Food is currently organized into different functions with clearly described responsibilities often connected to a very specific and narrow part of the supply chain (Alpha). IKEA CFLS is a relatively flat organization but in the horizontal perspective there are many teams which results in many handovers. The communication between the personnel within the same function is well functioning as there are common platforms for information and weekly meetings to facilitate this (Delta; Eta). However, cross-functional communication is not as ambitious (Epsilon; Kappa). The same goes for the top managers of the different areas of the IKEA Food business (Epsilon). They only meet as a group if they are brought together through projects or in an already existing crisis, but never proactively (Epsilon). Epsilon describes that this lack of cross-functional collaboration has led to a silo mentality across the organization as says, *"Everybody sits back and goes; yes but it wasn't in my area of responsibility, so I'm not going to put in any effort".* Consequently, personnel are not aware of what happens outside of their responsibility and that it further leads to a lack of understanding of how one's work affects other parts of the business (Epsilon).

According to Epsilon, involvement in different projects is a unique chance for different functions to come together, even though one of their core values is *"Togetherness".* However, that is simply for the project. Epsilon describes that when the project is closed, everyone goes back to their area and their own tasks, so it falls on the project team to document the findings, learnings, successes, and failures. However, with the current processes, you must hope that someone who remembers the earlier project is around the next time a similar project is started. Otherwise, the documentation will most likely not be used (Epsilon). However, Jota believes that there are good forums for communications where the different functions and stakeholders can meet. There are also team meetings every month where business topics are shared and discussed (Jota).

5.1.3 Project Management and Associated Risk Management Practices

As both cases are handled by a project team, an understanding of IKEA CFLS' RM work connected to projects is required before diving into the case descriptions.

All development projects at IKEA CFLS are conducted by one assigned part of the organization. Before each project, a pre-study is conducted (Alpha). This is usually initiated by managers at a high level. Sometimes the pre-study results in a project, but not all pre-studies turn into projects, these

should also be successful projects though according to Alpha. It is up to the steering group if the project should be launched (Alpha). The projects usually follow the Practical Project Steering (PPS) structure as a working method where deliverables are defined (Kappa). Additionally, a risk list, project plan and budget etc. need to be included. According to Alpha and Beta, the risk list is a very central part in this, and it is very important to work and follow up on these. It should be created in the beginning through a workshop with representatives from the business areas involved and is later complemented by the project leader and the steering group (Alpha). Each risk is assigned a score for both probability and impact between one and five as seen in Figure 5.1, which is later used to prioritize them. Alpha describes the list should be continuously updated and monitored but also discussed with the steering group on a regular basis. Additionally, in larger projects, a reference group can also be assigned, which usually consists of mid-level managers, as they usually also come with good input and facilitate communication. After a project ends, it should result in a project report where lessons learned, among others, are presented (Alpha; Beta). However, this is according to Alpha an area where there is room for improvement as many project leaders are quick to jump onboard the next project even though it is seen as an important area to reflect upon after a project. Alpha describes *"Our project leaders, they are not administrators or think it is fun to sit and write essays. Just these after action, or how to call it, the evaluations, they usually suffer a little"* and occasionally some reports have been three or four sentences long. Everything related to the project, including the risk list and lessons learned are stored in a folder (Alpha).

Risk	Probability	Impact	Resonsible	Status
Risk n	3	4	xx	
Risk n+1	2	5	xx	
Risk n+2	4	1	xx	
Risk n+3	5	5	xx	
Risk n+4	1	3	xx	Closed
Risk n+5	2	4	xx	
Risk n+ i	x	x	x	Closed
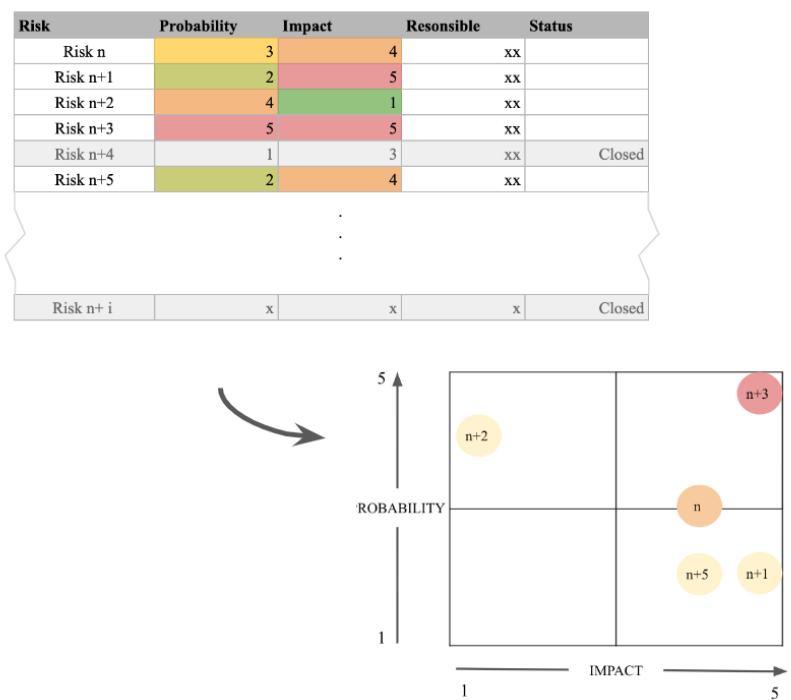
Figure 5.1: Example of how risk assessment and use of Risk Matrix in projects (Beta).

5.1.4 The Maturity of IKEA CFLS's Work with Proactive SCRM

The interviewees were asked to place IKEA CFLS in the Risk Management Maturity Model by Proença et al. (2017) earlier presented in Section 3.6.1 in the literature review. In Figure 5.2, each of the respondents' placement can be seen. Most of the interviewees seem to agree that the RM work aligns with Level 2 in the Maturity Model. Zeta believes that the RM work mainly is reactive, and that Level 1 is suiting. Epsilon believes that they are currently between Level 1 and 2. Beta means that the daily work aligns with Level 1, however, in projects it is rather aligned with Level 2 but also fulfils some criteria for Level 3. Gamma means that they are on a good way to approach Level 3.

Which Delta agrees with, but also highlights that in Case DC it was rather Level 2. Kappa stands out by saying that IKEA CFLS achieves Level 5.

Code	Title
α	Development Manager
β	Project Leader Case DC
γ	Delivery Planner Manager
δ	Delivery Planner
ε	Operations Manager at IFSAG
ζ	Food Demand Coordinator Manager
η	Food Demand Coordinator
ι	Category Sourcing Specialist
κ	Operations Manager (CFLS)
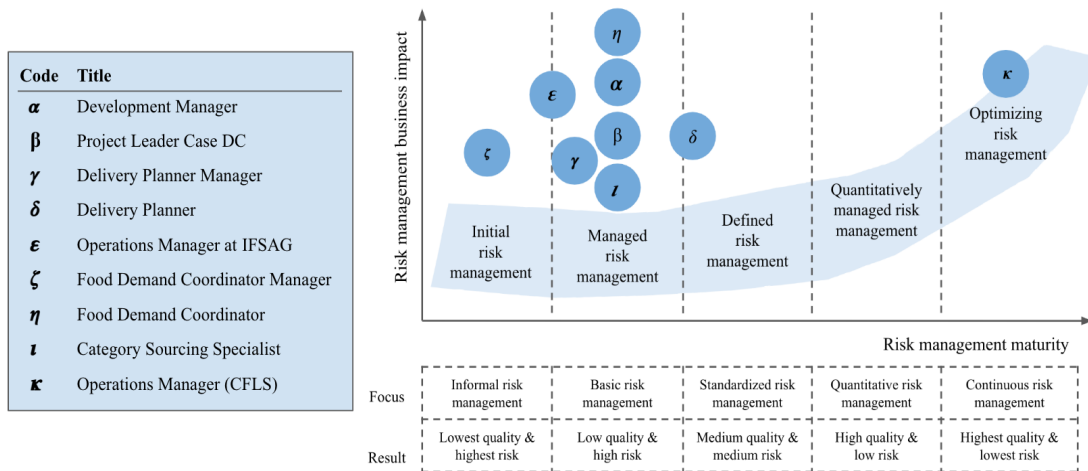
Figure 5.2: Placement of IKEA CFLS in the Maturity Model according to the respondents.

5.1.5 Key Takeaways from the Overall Organizational Efforts

There are several key takeaways from the interviews about the overall organizational efforts at IKEA CFLS. Firstly, there are some efforts addressing RM, but these are made at a very high level, such as the global risk meetings or the BCP connected to each SP. Additionally, there are proactive RM efforts connected to development projects. Secondly, the organizational structure is flat in the vertical perspective, but wide in the horizontal perspective, meaning that there are many functions, responsibility areas which in turn results in many handovers. The third takeaway is that most of the respondents place IKEA CFLS in Level 2 in the Maturity Model, see Section 5.1.4. Lastly, the fourth takeaway is that they are currently trying to align their working practices and organizational setup with IKEA Home Furniture.

5.2 Case DC

Case DC is one out of two cases investigated to get an understanding of how RM efforts and processes work in practice. The case has been investigated through interviewing personnel within IKEA Food that was involved in the case. All the interviewees and their role in Case DC, additional explanations of involved parties, can be seen in Table 5.1.

Table 5.1: Anonymized codes for interviewees, partners, cities roles in Case DC described.

Code	Role in Case DC
Beta	Project leader
Gamma	Delivery Planner Manager at the time and got involved in the project after a couple of months
Delta	Delivery Planner working with the US and project member of Case DC
Epsilon	Operations Manager and member of the steering group of Case DC
City X	The city hosting both new DCs
Service Provider	The party (LSP) collaborated with IKEA CFLS with this project to open up the DC, and the party responsible for DC2
Sub-Contractor	Contracted by the Service Provider to operate DC1

There are four sections describing Case DC. First, a description of the case is given together with a timeline of important events. Second, actions taken to handle the case are presented. Third, the communication throughout Case DC is described. Fourth and lastly, takeaways and lessons learned according to the interviewees are presented.

5.2.1 Description of Case DC

Until the summer of 2022 the entire United States (51 stores) was provided by one DC located on the East Coast (IKEA CFLS, 2023f). Due to the placement of the DC, there were long lead times for most of the stores (Beta). In addition, they recognized that they were close to the storage capacity limit in the current DC (Beta). This resulted in the decision to start the process of opening a new DC in the United States (Beta). The pros with this were according to Beta a reduction of order lead times for stores along with increased delivery frequency. It was also considered to be proactive to allow for future growth, but also a possibility to reduce costs in the supply chain (Beta). Lastly, the outbound distribution routes would decrease significantly in distance and thereby also carbondioxide (CO2) emissions (IKEA CFLS, 2023f). In September 2020, this project was set in motion and the search for a SP as well as optimal location was started (Beta). This was found in City X with a partner from now on referred to as the *Service Provider*. Originally, the GoLive was planned to be in January 2022 but was delayed due to various reasons to June 2022 instead (Beta). The chosen SP was building a new warehouse and until it was finished, the DC would firstly be operated by a sub-contractor in their premises, found by the Service Provider, to be able to start the collaboration earlier (Beta; IKEA CFLS, 2023f). This DC is referred to as DC 1, see Figure 5.3. According to the original plan, IKEA would move into another DC in a few years operated by the Service Provider, referred to as DC 2 (Beta; IKEA CFLS, 2023f).
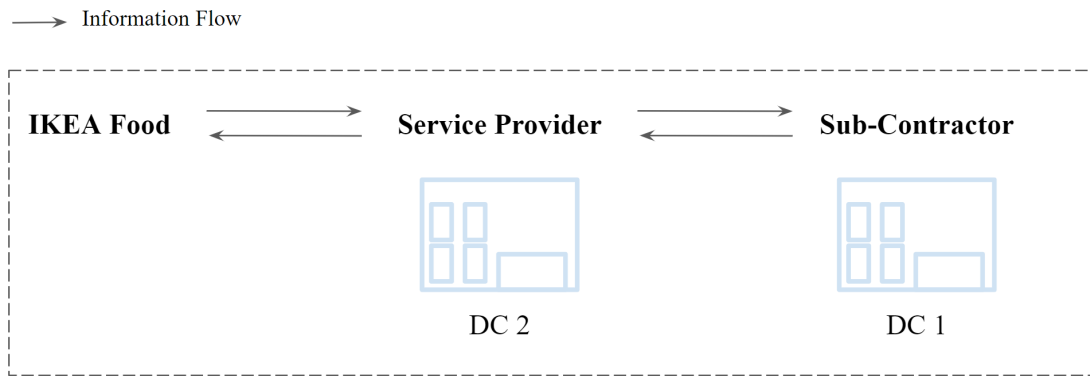
Figure 5.3: Setup of outsourcing of the DC and information flow (Beta).

Already one week after the GoLive, it was noticed by the project team that something was wrong, and operations did not go as well and smoothly as expected (Beta). The reception process was slow and not optimal as wrong BBDs and quantities were registered, along with lower picking accuracy than expected. At the end of the summer, there was a backlog of about 30-40 containers that had not been registered at the DC (Beta). Very soon after realizing that the launch was not working, a member of the project team along with a manager went to visit at site and spent their time in meetings to understand what was wrong and develop common understanding about the processes and issues that had arisen (Gamma). However, they soon realized that the people working with them from the Service Providers side were salespeople and key account managers, and not the people that were going to work with the daily operations, which was the area that did not work (Gamma).

When they realized that it was not working, they assigned a taskforce to try to improve operations (Beta). No predetermined plan on how to handle a crisis like this was in place as "*we don't have a crisis handbook, we are more about firefighting"* and *"we aren't an airline company"* (Beta), and it was also mentioned that *"we don't have a SWAT-Team"* (Beta)*,* meaning that there is not a team in the organization responsible to handle events like these. Although a plan was made up to handle it now. It consisted of weekly meetings with the project team and the Service Provider, and a common action plan was put into motion. According to Beta, more focus than normal was put on improving several KPIs by inserting buffers such as increased expected lead time. There was also much focus on so-called proactive communication in the operations, such as information on estimated time of arrival for goods (Beta). However, in the fall 2022, it was seen that the improvement efforts did not have the result they were hoping for and did thereby decide to move into DC 2 ahead of schedule (Beta). The Service Provider planned that the move would take a maximum of 48 hours, but in the end, it took 3 months. It was according to Gamma a common theme that the Service Provider made these kinds of promises that they could not keep or live up to. Another example of this is that after the move they did still not deliver what they promised even after much communication on this (Gamma). After the move, at least the KPI about picking accuracy that improved significantly, but the rest remained at somewhat similar levels which were acceptable even before the move (Beta). The project was closed in January 2023, and after this it was up to the staff in the operative roles to further develop operations even though not fulfilling all exit criteria (Beta). They are currently still firefighting and are trying to implement basic processes and routines (Delta). The timeline describing the events mentioned can be found in Figure 5.4.
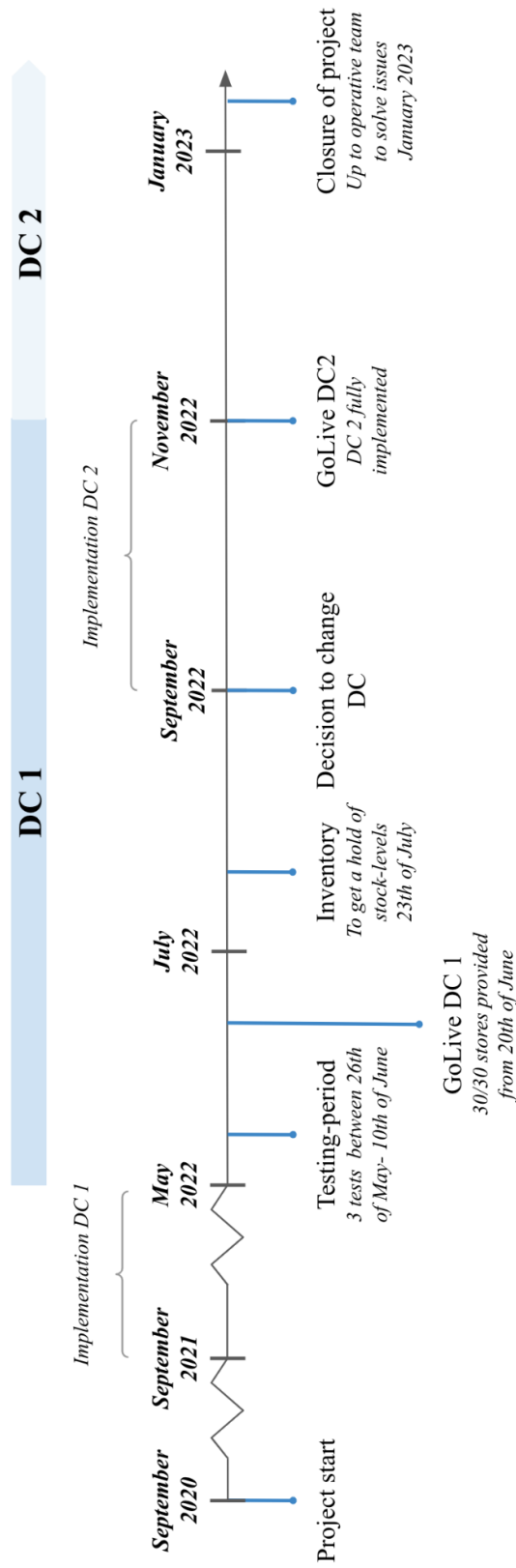
Figure 5.4: Timeline containing project milestones and actions taken for Case DC.

5.2.2 How Case DC was Handled

The project team was handling this crisis which consisted of a project leader, a steering group along with the core team, i.e., operative team working with the market daily. As the core team were the ones understanding the daily operations, it was very important to involve them (Beta). When working on a project there are some steps regarding risks taken, which were followed in this case (Alpha; Beta). The project leader created a risk list prior to a project start and lists risks based on own experiences about four to eight weeks before the project opens (Beta). According to Beta, the risk list was reviewed by the steering group and other stakeholders and input to the risk list and the assessments were collected. Moreover, Beta describes that the list of risks both were related to project risks as well as result and were rated on a scale of one to five both in impact and probability. It was after the combined value and intuition that they were prioritized and to each risk, there a person responsible was assigned (Alpha, Beta), in this case the list was limited due to time constraints (Beta). The perception of importance could also vary depending on the project leader and its experience (Beta). This list was accessible everyone in the project according to Beta but was not seen by Delta. After prioritizing the risks, they could either be managed proactively, reduced, or accepted (Alpha; Beta). The risks were however discussed during weekly meetings, and everyone should have been aware of the risks that lie within their responsibility (Beta). It lied within the responsibility of the project leader to follow up on the risks assigned to others and revisit these regularly throughout the project to assess the relevance (Beta).

After this project, a summary report was written by the project leader where challenges and issues were identified by taking a holistic perspective where operations and investigation of product categories was done. The challenges were assigned a score indicating frequency of occurrence and the impact it had. From these challenges root causes were identified: (i) the sub-contracted warehouse operations, (ii) imprecise warehouse working routines, (iii) frequent warehouse staff changes, (iv) overwhelmed by complexity and (v) insufficient Warehouse Management System (WMS) support (IKEA CFLS, 2023e). All interviewees agreed that the first root cause was critical as it limited the possibility for communication as it had to go through the SP, see Figure 5.3. The second root cause was also seen as an issue as the basic routines did not work and is according to Delta still not working, as these got lost in translation. It was also raised by Beta that there were always new personnel partly due to the very short notice period in the US, but also it seemed difficult to retain the staff. Another concern raised by Delta was the short time frame for the implementation and insufficient testing of flows and data transfer. The five root causes were analyzed and laid the foundation to twelve lessons learned (IKEA CFLS, 2023e):

1. Subcontracting should be avoided when possible
2. Direct communication channels (including warehouse operations) are needed
3. Frequent and extensive warehouse visits help significantly
4. IKEA support in training of warehouse operations enables better quality
5. Extended testing with further load tests (including physical flow) enables better quality
6. Issues need to be addressed early and by the supply chain function responsible
7. Availability /participation of all key resources is required
8. Key resources must be knowledgeable with the right competence level
9. Clear and complete Electronic Data Interchange (EDI) specifications/documentation are needed
10. Timelines should be agreed between business, operations- and project teams
11. Communication, common sense, and transparency are needed in all stages of a project
12. Visibility into warehouse WMS is vital, e.g., through customer portal

Besides from these lessons learned, Interviewee Epsilon added that "*one of the big learnings from this particular case was: "Maybe we had just become complacent because all of the other projects had successfully delivered a local DC in other countries, or where we just exceptionally lucky never to fall into this trap before"*. Interviewee Epsilon also mentioned that this was far from the first DC opened and that they never had problems to this extent earlier. However, Gamma believed that it could have been more chaotic without the project leader, as an exceptionally good job was performed.

5.2.3 Communication in Case DC

"Communication is a major problem" (Beta) in this case, which was an issue mentioned by other interviewees as well. Partly external communication with the Service Provider and Sub Contractor and partly the internal communication within IKEA CFLS. Regarding the external communication, the interviewees described both a lack of transparency and communication with the wrong people. The lack of transparency became an issue when the Sub Contractor was informed that DC 1 was not a long-term solution (Delta). When discussing what could have been done differently, Delta described that they should have been open and honest from the beginning. Moreover, Beta believes one can be too transparent towards external parties and points out that it can be harmful to IKEA Food. Failing to communicate with the right people was something mentioned by all interviewees. Interviewee Epsilon described *"You were talking to a level above, and they were just nodding and saying all the right things. And in reality, that wasn't being communicated correctly"*. Looking into the internal communication, information sharing was mentioned by several interviewees (Beta; Delta; Gamma). Information sharing was not conducted to the extent that the interviewees wanted (Delta). Already before the project of Case DC was initiated, the lack of communication began. After the start of the project, the project members got no information on the experiences from earlier similar projects. During the project, information is shared via a common platform for the project team, additionally information about the project was shared in sporadically sent out newsletters along with "on-the-plate-meetings (Gamma). However, afterwards when the project was summed up and reviewed, information was no longer shared with the whole project team (Delta; Gamma). The project leader of Case DC described that communication always was on top of the task list and that there were many stakeholders in the project, so it easily happens that someone or several miss out on important information but at the end of the day *"Sharing is caring"* (Beta). However, Beta stated that the aim always was to have transparent communication throughout the project.

5.2.4 Lessons Learned from Case DC

Epsilon believes that the learning aspect was the most interesting thing to investigate for Case DC and said the following "*It took us all by surprise. There's a lot to learn from this project so we can ensure we don't make the same mistakes again*". Even though Case DC was described to be unique in its impact, IKEA CFLS have earlier experience indicating that it is difficult to open a new DC and that it usually comes with problems (Delta; Epsilon). Every time IKEA CFLS opens a new DC, similar issues appear, and things go wrong according to Delta. It is also the perception of Gamma that they have the same lessons learned from all DC opening projects. But as Gamma stated, *"we never seem to learn"* and that *"Generally we are quite bad at learning from past mistakes"* (Gamma). Delta explained that they take learnings from each opening of a new DC. However, some were concerned from the beginning that it was not enough and that they were going to end up firefighting (Delta). Gamma also described that some were concerned about opening a DC that was sub-contracted based on learnings from other markets and that they therefore should have been able to foresee that it was going to come with issues.

After the project was closed, the project leader was gathering information on what could have been handled better and what didn't work. The purpose of this was to develop lessons learned and bring these into the next project (Beta; Delta). A long list with input was provided by Gamma. However, it was not clear where this is stored or who has access to it (Delta; Gamma). One interviewee described seeing it presented in a PowerPoint and that "*It is probably put in some folder and is forgotten about I guess*" (Gamma). Another interviewee weren't sure where it ends up by mentioning: "*It lands in his (the project leader's) lap and then I don't really know what he's doing with it*" (Delta). Delta got no access to lessons learned documents from earlier DC opening projects even though Delta was part of the project group for Case DC. Gamma also believed that there should have been more work put into documenting and sharing lessons learned.

Interviewee Beta thinks it is too early to say if IKEA CFLS have learnt from Case DC yet. Epsilon and Delta both mentioned that as this was a severe case, the personnel was startled and will therefore likely keep this case in mind in the future. Moreover, Epsilon believed the fact that a similar project was going live shortly after impact in the sense that Case DC was still fresh in memory. Both Delta and Epsilon therefore mentioned that they believed that there will be changes in the procedure of the next similar upcoming project (Delta; Epsilon). Additionally, Gamma believed they will be on site more during the upcoming implementations of DCs, that more testing will be conducted, and that more effort will be put into ensuring that they are speaking the same language in the future. However, Delta pointed out that this is within the responsibility of managers to decide and not the operational staff who only can come with input. The documented lessons learned was been sent to the project leader of the next similar project (opening a DC) as the steering group insisted (Beta; Epsilon). Additionally, Beta shared experiences about Case DC during the weekly meetings with the other project leaders (Beta). However, no common folder or existing procedure regarding who to share lessons learned with exists currently. Delta also believed the operational staff in the upcoming projects could take advantage from receiving the lessons learned document because more information gives better conditions. There were conflicting opinions if this was done or not (Beta; Delta).

5.2.5 Key Takeaways from Case DC

There are several key takeaways from the case that can be made. First, the required risk list was used throughout the project, using steps classified as identification, assessment, mitigation, and monitoring. Second, all interviewees mentioned internal and external communication as an issue. The third takeaway is that it appears that the lessons learned process is not working as it should as it was mentioned that there are repeating issues for DC openings, as well as they have the same lessons learned every time.

5.3 Case Labelling

Just as Case DC, Case Labelling is also giving insight to the actual handling of a disruption. Moreover, it is, just like Case DC investigated through interviewing personnel that have been involved. Each interviewee's code name and role in Case Labelling is presented in Table 5.2.

Table 5.2: Anonymized codes for interviewees, partners, cities roles in Case Labelling described.

Code	Role in Case Labelling
Zeta	Food Demand Coordinator Manager supporting in Case Labelling
Eta	Food Demand Coordinator and project group member of Case Labelling
Epsilon	Operations Manager at IFSAG working closely with the Product Development (PD) Unit
Theta	External consultant hired as the project leader of Case Labelling
Kappa	Operations Manager involved in development of formal process
PD Unit	The product development team responsible for the artwork of packaging
Country Z	The European country in which the new recycling law was initiated

The same structure as for Case DC is used to describe Case Labelling. This means one Section for the timeline, one for actions taken, one for how the communication was working and one for the takeaways and lessons learned due to the interviewees.

5.3.1 Description of Case Labelling

A new recycling law for household packaging became effective in Country Z in March 2023 resulting in new requirements on labelling of IKEA CFLS's products. The new requirements were highlighted within the PD unit back in November 2021 and a project was deemed necessary to update the artwork of the packaging to ensure compliance (Theta). The project got kick started in January 2021 when an external project leader was hired to support the process of updating the artwork and becoming compliant with the new law (Theta). However, this process got delayed in September 2022, almost 100 of IKEA's food products, part of the Swedish Food Market range in Country Z, were no longer going to be compliant (Zeta; Theta). To not conduct a sales stop, IKEA decided to relabel the products at the two DCs storing Country Z's goods before being shipped to Country Z's stores (Zeta; Theta). According to Zeta, this was a completely new process for IKEA CFLS to handle and they had to start with it right away to not go against the new law (Zeta). Therefore, the re-labelling process was developed and conducted in parallel to the work by having the approach of *"Learning by doing"* (Eta) of updating the artwork to become compliant with the new law (Theta). At this stage, the situation had become a crisis affecting many segments of the supply chain, so lots of different functions were required to be involved, see Figure 2.4 (Zeta; Eta; Theta; IKEA CFLS, 2023d). The operational staff at IKEA CFLS became active members of the project group in fall 2022 and were not aware of the new law and its implications on IKEA CFLS's products until the first meeting with the project group (Eta). This was three weeks before the products were going to be non-compliant in Country Z (Theta). It is also mentioned that it was difficult to get CFLS onboard in handling the crisis with labelling at the DCs, and that it took many meetings to get them onboard as "*it took a lot of meetings"* (Theta).

Looking at the organizational structure and responsibility areas, it is the personnel at the PD Unit that is ultimately responsible for what is visible on packaging and labels from a legal and compliance perspective (Epsilon; Eta; Zeta; IKEA CFLS, 2023d). However, initially it is up to retail to inform about changes in law (Zeta). According to Zeta, there are no indications that this was faulty in the Country Z situation (Zeta). It appears as Country Z retail personnel had informed about the change in law two years ago (Zeta). There is *"a lack of personnel at the PD Unit"* (Kappa), a view which is

also shared with Zeta and Eta, along with a restructuring and that *"the new law did not come out of nowhere, but two and a half years ago"* (Eta), additionally that it is Category Food that are responsible for updating the artwork of the label. The external project leader of this case adds the information that PD Unit lacked a clear list of the products whose artwork needed to be updated in which was timely to investigate and that summer holiday contributed to the delay (Theta).

At the time of the interviews with Zeta, Eta, and Theta, they are estimated to start shipping the new items successively from week 17 to week 24, so the project is still ongoing (Zeta; Theta). However, from observing project meetings, it is known that this has been postponed to week 26. The complete timeline of Case Labelling can be seen in Figure 5.5.
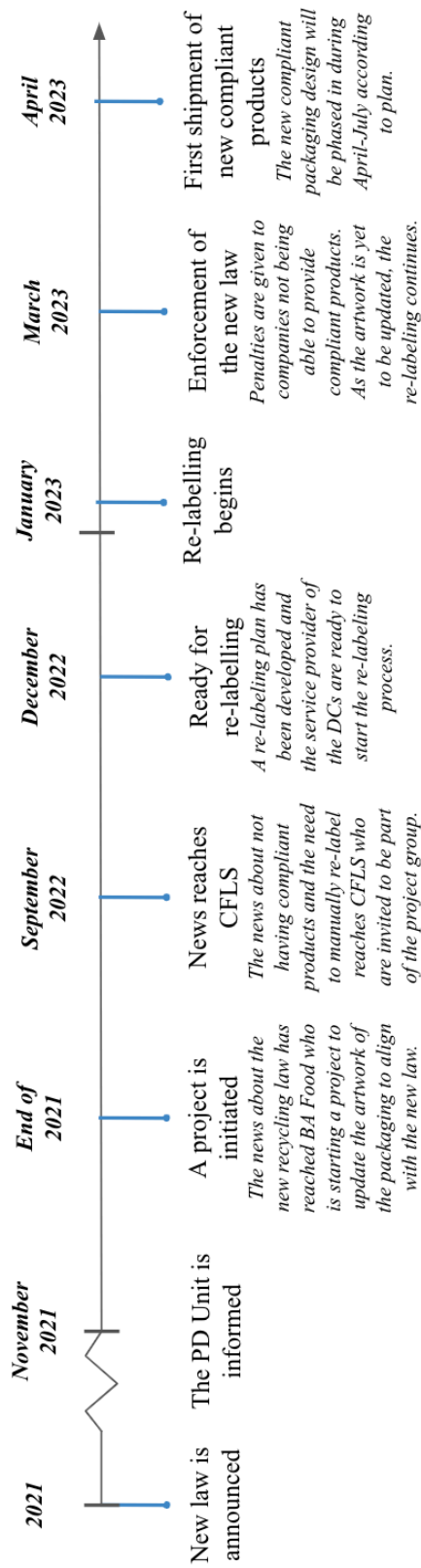
Figure 5.5: Timeline containing project milestones and actions taken for Case Labelling.

5.3.2 How Case Labelling was Handled

After finding out that the products were no longer compliant in Country Z, the project group started planning the re-labelling, as selling non-compliant products doesn't go hand in hand with the IKEA brand (Kappa). The whole re-labelling process regarding the market in Country Z is a reactive process and is a kind of emergency handling as the change in legislation came as a surprise (Zeta; Eta; Kappa). Therefore, no proactive measures were taken to mitigate this risk. No RM actions have been taken in this project according to Theta, meaning that no risk list, assessment, or mitigating actions have been taken and neither monitoring of risks. Instead, it fell into the hands of the operational staff to work outside of their scope according to Zeta and Eta. The SC has had to deal with multiple people working simultaneously and manually to secure and set up new ways of working to be able to deliver compliant items to the markets with the interim solution (Theta). Zeta described the process of getting the re-labelling going. To start the process of re-labelling, they had to know what articles, what volumes, the time plan, when the new compliant articles could be in place etc. When that was received, the Business Developer negotiated with the LSP to get their help in conducting the labelling. It forced the LSP to hire around 30 new full-time workers to be able to manage the stickering (Eta). It has also required more resources from operations office staff who are largely involved (Eta). The same issue impacted IKEA Home Furniture as well, but they are already done as *"Food is a bit more complicated as the artworks are very dedicated to a specific product. The furniture side is more about cardboard packaging. they can label without a problem"* (Theta).

IKEA CFLS handled the logistics, while the PD Unit worked on creating new artworks. Normally, it takes ten to twelve months to create one new artwork as there are many stakeholders and negotiation, designing and printing needs to be done (Zeta; Eta). In this case, there were almost 100 new artworks that needed to be created (Eta). The LSP got directions to separate and store the goods made after the law was enforced and the products were included in the new law (Eta). The DC then got the directions to re-label products covered by the new law representing one to two weeks of forecasted demand at a time as the actual demand deviates from the forecast sometimes (Eta). As they got started with these labelling procedures as late as in December, the compliant products ran out of stock and the availability for retailers to place orders had to be stopped. Moreover, orderliness sometimes needed to be removed manually. At the same time the operational staff responsible for inflow of goods to the DC needed to block all arrivals, resulting in a physical stock, not possible to use. Once a week, an "Are-labelled file" was received from the DC indicating what and the amount available for stores to purchase (Eta). The labelling started with a limited number of products and was later extended to more groups. To manage this work, meetings were held weekly internally, and biweekly with retail as well (Eta). These meetings, based on the observations made, covered updates from the previous meeting, issues that emerged during the week as well the time plan. However, discussing risks was not on the agenda. The labelling process was complex according to Theta as some of the products need to be stored in a temperature-controlled environment, in total there are three different temperature zones. Most complex was the frozen goods, both due to limitations on the time the products could be stored outside of the refrigerator, but also the working environment (Theta). Additionally, it was discovered that the glue used in the beginning wasn't compatible with the low temperature and the freshly re-labelled labels fell off (Theta). Eta describes *"The temperature difference needs to be taken into account when choosing glue etc."*.

Much of the work is documented in files, and emails as there is no proper tool to facilitate this process (Eta; Theta; IKEA CFLS, 2023d). It was therefore much extra work performed just to handle this. Moreover, it was difficult to know the labelling progress at the DCs. As it was not easy to know what was labelled, it was also difficult to match the demand to the available products at the DCs (Eta). Additionally, the labelling did not include all product groups in the beginning, but new ones were added occasionally which made the lead time for this difficult to estimate (Eta). In early 2023, one of

the DCs stressed they could not keep up with the demand vs the stickering capacity within the warehouse. According to Theta, it was then decided in the steering group to adopt a new more sustainable approach. The new approach was based on sales volumes and the 29 products with the highest volumes were prioritized for stickering and the rest were put on sales-stop. This eased the stress on the DC and ensured Country Z was provided with business-critical items (Theta). Both Zeta and Eta believe that clearly defined processes including responsibilities and communication common for PD Unit and the operational supply chain staff is something that could have made a difference in shortening the reactive RM process they are conducting. Another thing that, according to Theta, could shorten the process is having a crisis plan in place for when a product is out of availability including responsibilities and required resources to be able to work in a structured way. Theta says, "*just like if there would be a leakage somewhere*". Because the Country Z case isn't unique and there are large costs involved, IKEA Food is now looking at improving this process for the future (Zeta). However, there are no attempts to create a general crisis plan as Theta suggested.

5.3.3 Communication in Case Labelling

Communication was mentioned by all interviewees to be a factor behind the crisis causing the re-labelling process in the Country Z DCs. It is mentioned in terms of communication between systems, communication with external parts like retail and internal communication. Regarding communication in between systems, Theta describes an issue with systems not sharing the same language requiring the personnel to work with several names for the same article. According to Theta, it confuses, and communication would be smoother with one common name. Additionally, during the second observation of the cross-functional weekly meeting, one project member displayed a program tracking necessary information, such as quantities, product number, exact specification etc., and it appeared to be the first time most of the project members saw it. However, this information was appearing to be very valuable, but it was the first time displayed seven months into the project. It is also clear after the third observation some participants do not understand how their actions can impact the work of other project members in the chain, one example of this was items accidentally ending up on the labelling list, forcing the next one to negotiate more capacity at the LSP. The second aspect was the external communication. One of the DCs also provides two other markets that weren't affected by the new law but were affected by the disturbance in operations and availability at the DC. According to Eta, there were flaws in the communication about this to the other two markets as they found out about it very late, but it is "*important to have everyone involved in the decision as all are affected*" (Eta). Theta also described issues in the communication with retail and said "*Retail only wants to sell. They don't understand what we are going through*". For internal communication, several interviewees express their thoughts. Epsilon thinks the solution to avoiding Case Labelling from repeating itself (or from occurring in the first place) is to work more cross-functional so every part of the business is represented in some kind of process/team or group. Meaning that things will still go wrong, but they should be prepared to tackle it together. Epsilon describes "*We're very happy to say, or happy and happy, we're very happy to criticize the PD Unit for making this mistake and not being on board with their artwork in Country Z. But, you know, we should have an interest to ensure that they themselves are proactively working to avoid it happening again. But we don't. We sit back and go, yeah, okay, we'll just wait for it to happen again.*" The silo mentality is something mentioned by Theta "*Now it just feels like you're working in the silos*". and Kappa seems to share the idea of them being in silos and mentions that the responsibility range was too narrow resulting in things getting lost on the way. Zeta believes that the project leader made a huge difference in the communication aspect of the Country Z Labelling Project as the project leader was working full-time arranging meetings and creating a channel for everyone involved to communicate and be transparent. However, Theta describes that the communication started too late and that the operational staff should have been informed from the start. Theta also adds that communication from the beginning "*To say,*

this is what we need to do" (Theta), together with better conditions for cross-functional work is something that can prevent this kind of crisis from occurring. Kappa believes that a common platform, or a central database, for storing this type of updates in products should be implemented with proper EDI to the system used by the operational staff. Kappa means that this system potentially should notify all departments as kind of a *"central distributor to distribute orders"* when actions are required to avoid this in the future.

5.3.4 Lessons Learned from Case Labelling

To facilitate generating lessons learned, the project leader mentioned that *"I document all meetings, I think four to five per week, and I actually had a lessons learned meeting before Christmas"* (Theta). This will be repeated at the closure of the project to gather final feedback and learnings from the project group according to Theta. Moreover, there is a parallel process of documenting and forming a formal process for handling re-labelling to assist in future crises (Zeta; Theta; Kappa; IKEA CFLS, 2023d). Kappa describes *"We don't share the responsibility and there is no overall ownership of this process"*. This as they today don't have an end-to-end process descending product specification and no clear ownership of the process, but also as they realize that the ones handling the crisis today might not be the ones handling it the next time it occurs (Kappa). This process includes the tasks that should be performed and who should be responsible for it, but also what should be communicated with the LSP (IKEA CFLS, 2023d). Additionally, it includes the working steps that the operational staff should take to ensure that everything also is aligned in the information system, such as temporary blockage of products (IKEA CFLS, 2023d). Kappa also means that this process is something that needs to be done cross-functionally. Theta believes the lessons learned from Case Labelling could help setting up the formal process, secure project teams, ways of working, secure systems (who speak with each other), reduce/remove the silo way of working, reduce/remove frustrations internally and manage stakeholders in a more efficient way through the correct commercial flow. Additionally, Epsilon said *"do we have a good enough process to work and ensure that we don't do it again? Clearly not"*, which highlights the importance of improving in this area. It is also considered to be necessary as "*this is a problem which has repeated itself in many countries*" (Epsilon).

The new law in Country Z is not the first change of law that is affecting the labelling of IKEA CFLS's Swedish Food Market products. Brexit is a quite recent example where IKEA Food wasn't prepared in time (Zeta). The project leader from the Brexit case had written a report regarding what should be done in the case of re-labelling as well as what it costs and what resources are required (Zeta). According to Zeta, this helped the project team for Case Labelling to avoid some things in the reactive process. For example, they were a lot clearer regarding the design of the label (Zeta). However, some issues like not informing how and where the labels should be stickered has been a repeated mistake (Zeta). Moreover, the Brexit report was not used to assist in any proactive work (Zeta). Eta, an operational project member of Case Labelling, describes that no such help had been provided to the members of the project at all. The project leader of Case Labelling was aware of the earlier experiences and said it helped in the sense that the project group were informed it was an already conducted emergency plan that could be an alternative when the new artwork is delayed (Theta). The actual formation of the re-labelling process was developed by the project group of Case Labelling (Theta).

There are also more law changes initiated in other markets after the new law in Country Z (Zeta; Eta; Theta). Additionally, IKEA Food suspects more are coming (Zeta; Theta). Therefore, there is a lot to benefit from being prepared for this kind of event (Zeta). If handled correctly and in time, it should not appear as a supply chain disruption or crisis to IKEA CFLS who are changing labels every now and then for many different reasons (Eta), but only about products being phased in and out (Kappa).

According to Theta, they are already showing that they learn from the Country Z situation in the reactive process by working faster and avoiding some things in the re-labelling process in another market, but there is still a lot of work to do before IKEA Food can work proactively and prevent going into firefighting mode.

5.3.5 Key Takeaways from Case Labelling

There are several key takeaways from the case that can be made. First, no risk list or other methods to address risks were used in this project. Second, a lack of a common platform along with inconsistent names of products made information sharing, access to knowledge and communication more difficult. The third takeaway is that there is a lack of cross-functional collaboration and there seems to be a low willingness to work outside of their own responsibilities. The last and fourth takeaway for this case is that they seem to be very process oriented, currently they are also creating a new process on how to handle this issue in the future. Although only focusing on the reactive part, and not how to notice it before it is critical.

6 Analysis

In the sixth chapter, the empirical data presented in Chapter 5 is analyzed. First, the interviews about the organization overall as well as the two cases are analyzed as within-case analyses in Section 6.1-6.3. Here concepts are presented for each within-case analysis. Second, a cross-case analysis is conducted to compare the cases in Section 6.4. The concepts are combined into themes and dimensions spanning over the cases in Section 6.4 as well. Finally, Section 6.5 provides a gap analysis to extend the analysis to comparing IKEA CFLS to literature.

6.1 Overall

Several interviews were conducted with the aim of understanding the organization and their way of working in projects etc. These interviews are analyzed separately from the two cases. Each of the following sections discuss the result of the data analysis and coding within the areas *Setting, Risk Management Processes, Organizational Factors, Lessons Learned* and *Communication*. The first three codes originate from the literature review and the conceptual framework, see Figure 3.10. The last two are subjects mentioned by the interviewees in every interview conducted.

6.1.1 Setting

Since the aspect of food safety comes with many different additional risks compared to the Home Furniture side of IKEA, Alpha believes there really is a need for investigating what IKEA CFLS can do in terms of RM. From this reflection by Alpha, the following concept was derived:

- The aspect of food safety comes with many food-specific risks

6.1.2 Risk Management Processes

When gathering information from the interviews for the *Risk Management Processes*, it is found that there are a few proactive measures made overall. Additionally, they try to be process driven and have a vision of having these updated on a regular basis. Epsilon mentioned that having defined and documented processes are the only way of avoiding repetition of firefighting, but at the same time, it is important to allocate time to keep these updated and *"You can't expect a colleague to do 40 hours a week of what they should do in their job and do process work on top of that"*.

It is mentioned by several interviewees (e.g., Alpha, Epsilon) that a risk list should be used in all projects. The list includes identification of project specific risks, assessment in terms of impact and probability and placement in a Risk Matrix, mitigating and treating the risks and lastly monitoring them. A formal way of doing this is absent though, it should be based on experience and feeling. They are usually identified in a risk workshop with the project members to try to take a cross-functional perspective (Alpha). Additionally, the risk list should be a living document, and therefore monitoring and a continuous iteration between the four steps are performed. This work with risks is not mentioned to be performed outside of projects by any of the interviewees. However, other initiatives such as BCPs for all SPs are currently being implemented. The BCPs should be reviewed once a year and when improvement or RM efforts should be taken these can be addressed with a development project (Jota). Additionally, the top management of IKEA works with risks at a very high level where various areas are invited to participate in risk meetings, where global risks are identified and prioritized every sixth months. To conclude, RM efforts are performed in limited areas of the organization such as projects or on a high level and not performed in the daily work at an operational level. The concepts generated about RM processes from the organizational interviews are presented in a list below, note that the first point mentioned is for IKEA in general while the rest are specific to IKEA Food.

- Yearly identification of high-level-risks that are assessed and prioritized. Three are selected each year to work proactively at IKEA in General
- Ensure to have space in the operational teams at IKEA Food to be able to handle events when something occurs
- The process needs to be continuously updated and reviewed, but *"we don't give the business the time to work on those processes"* (Epsilon). Must allocate time within working hours and not expect personnel to complete it outside of their 40 hours per week.
- Keeping processes up to date is seen as a challenge
- All projects have a risk list where risks are assessed and assigned a responsible person for mitigation and monitoring. The risk list is created before the project starts and should be continuously updated throughout the project
- *"the biggest risk is the unknown"* (Epsilon)
- SP Classification is conducted on a regular basis
- A BCP is created for all SPs (currently implementing it) and the aim is to update it once a year

6.1.3 Organizational Factors

From the code *Organizational factors*, it is understood that there are efforts to align the working methods and the organizational setup with the Home Furniture part of IKEA, as one of their core values is "*togetherness*". However, projects are the only opportunity for different areas to come together according to Epsilon. Additionally, the organizational setup is flat vertically, but wide horizontally, due to this they are working isolated to a high extent and having many handovers in the supply chain (Kappa). These three aspects have been formed into concepts presented in the following list:

- The food business has not yet aligned with the IKEA way of working and is lacking basics and a common foundation
- The organization is flat, but very wide horizontally which is resulting in many handovers
- One of the core values is *"togetherness"* (Epsilon), but it is only in projects that various business areas come together

6.1.4 Communication

There is no communication channel that can be used for communicating risks or issues between the operational level and the higher ones where decisions about RM are being taken according to e.g., Epsilon. At the same time, there are contradicting opinions meaning that the communication works quite well as they have several forums that can be used to communicate with all stakeholders within and outside of IKEA CFLS. It is also mentioned that there are systems that store information about everything relevant for all employees within IKEA Food, so everyone should be able to have access to necessary information. But as mentioned in Section 6.1.2, these processes are necessarily not always updated. The concepts generated from the empirical data behind this discussion are:

- There is no direct communication from the operational staff to a higher-level regarding RM. Requires a bad situation for communication to happen
- Several different channels for internal communication
- Process descriptions are stored in the archival system CANEA One which all IKEA Food employees have access to
- The Home Furniture business has another archival system

6.1.5 Lessons Learned

After every project, a report should be generated where lessons learned are included. This is highlighted as important by Epsilon as "*you need to define where it went wrong and ensure that it is documented within a process and use this as reference*". At the same time, it is also mentioned that *"Our project leaders, they are not administrators or think it is fun to sit and write essays. Just these after action, or how to call it, the evaluations, they usually suffer a little"* (Alpha), and that these reports sometimes can consist of as little as four sentences in total. Additionally, it is mentioned that there can be a lot of effort and resources put into fixing an issue, but no focus on documenting what is done. Therefore, when it starts "burning" again they do not know how to fix it (Epsilon). To conclude, takeaways from projects or other firefighting actions are not documented consistently and this has resulted in following three concepts:

- *"You need to define where it went wrong and ensure that it is documented within a process and use this as reference"* (Epsilon)
- Documentation of lessons learned is not always prioritized even though it is required formally. *"Our project leaders, they are not administrators or think it is fun to sit and write essays. Just these after action, or how to call it, the evaluations, they usually suffer a little"* (Alpha)
- There is a lot of effort that is put into fixing issues and firefighting, but these are not documented. *"We would put the fire out and then two weeks, three weeks, four weeks, six months later, the fire would start burning again. And you would put the fire out and we focus so much effort in fixing things, but not documenting the way to fix it."* (Epsilon)

6.2 Case DC

A number of interviews were conducted to study the case about a DC opening, referred to as Case DC. The aim is to understand how IKEA CFLS work in projects but also how the reactive RM for this case was conducted. Each of the following sections present the data analysis and coding within the areas *Setting, Risk Management Processes, Organizational Factors, Lessons Learned* and *Communication.*

6.2.1 Setting

The fact that the goods IKEA CFLS are handling has a BBD puts extra requirements on the SP and the communication between the two parties. Batches need to be separated from another and quantities must be correct for each BBD-batch (Beta). In Case DC, it was reported by Beta to not be working. Therefore, the following concept was formed:

- The BBD quantities the SP communicated were wrong

This points towards an extra challenge to get the implementation of a new DC to work as BBD information must be correct to assure food safety.

6.2.2 Risk Management Processes

Risk management does not seem to be spread throughout the organization. It is expected from the operational personnel that risks are handled by a project manager or higher management. Moreover, in a project, it is assumed that the project leader knows what to do in a potential crisis (Delta). As proactive SCRM efforts such as creating the risk list as well as decisions to start a new project along

with what deserves attention is made on a high level in the organization, the non-collaborative environment can possibly explain this attitude (Beta; Alpha; Epsilon).

The project leader and steering group followed the routine of creating the risk list and assessing the risks based on experiences and gut-feeling (Alpha, Beta). Moreover, responsibilities for different risks were assigned to project members and the risk list was monitored during regular meetings with the project team (Beta). Except for the directives to assess risks in terms of probability and impact, there are no formal tools supporting the RM process in projects at IKEA CFLS (Alpha; Beta). Moreover, the project leader is under the impression that the risk list could have been more extensive if given more time to develop it (Beta).

When it was evident that the new DC was not working as desired, and the daily operational task performed at the sub-contractor was not living up to what had been agreed earlier it gained attention quickly as this was already an ongoing project that had a project team and allocated resources (Beta). This team quickly went into firefighting mode and created a new updated action plan. This included a part of the project team going over to the new DC (DC1) working closely together with what they thought to be the staff from the SPs side, although it was quickly realized that it was only key-account managers lacking knowledge about the processes and operational language at the SPs (Gamma). The action plan also included regular follow ups, increased frequency of measuring KPIs and keeping track of the performance along with implementing an action plan (Beta). After realizing it was not making the progress that was desired, a bolder move was made, as the timeframe of changing into the second DC (DC2) was moved up in time (Beta). There was no plan prepared to handle a crisis like this and it was the project team that worked with the crisis management as well, as there is no team allocated to jump in when a crisis occurs (Beta). The description of the crisis management generated a set of concepts listed below:

- Decisions to start a new project are taken on a high level, the operational staff does not have any say in it, but are just requested to start working with it
- It is assumed by the operational staff that project leaders have all knowledge of what to do if something does not work within a project
- Frameworks for RM are only used by the project leaders and steering group
- The project leader (and partly the steering group) identifies & assesses the risks on the project's risk list
- There weren't enough time resources to focus on the risk list for this project
- Follow-up meetings of a regular basis
- Increased measuring and monitoring of KPIs
- Moved up timeframe for long-term solution to the DC setup
- There is no formalized process of how to handle this type of crisis
- It is subjective what is considered to be a crisis and when in time it should be escalated to higher level and given extra resources
- No allocated part of business to handle crises: *"we don't have a SWAT-Team"*, *"we don't have a crisis handbook, but are more about firefighting"*, *"we aren't an airline company"* (Beta)

6.2.3 Organizational Factors that Impacted Case DC

Relatively few organizational factors that impacted Case DC have been mentioned by the interviewees. However, two issues raised have been transferred into concepts:

- *"Communication is a major problem"* (Beta) in this case, and is mentioned by the majority of the interviewees

- Many functions and stakeholders involved with various ambitions and mindsets making communication complex

The first issue related to both internal and external communication and was mentioned by the majority of the interviewees. The second issue is due to the many roles involved in the project team. A varying ambition and different mindsets on how to handle the project has been described which made the communication more complex. The many different project members and stakeholders in Case DC made the communication complex according to (Beta) and some project members did not get information to the extent they wished (Delta).

6.2.4 Communication

Communication is the topic that was most frequently mentioned as an issue during the interviews. In Case DC, it was mostly mentioned with the external communication in mind, as there was a difficulty of getting on the same page as the SP and the sub-contractor (Gamma; Beta). The communication was not always transparent as the sub-contractor was not aware of DC1 not being a permanent solution (Delta). But it was made a priority by the project team to put effort in communication with the external parts as they did realize that this was an important aspect. Communication and transparency is also represented in one of the lessons learned generated from Case DC. Internal communication is not as frequently mentioned as an issue in Case DC as they have the opinion that *"Sharing is caring"* internally (Beta). Overall, as the project leaders have regular meetings other project leaders were updated and informed about the project, and it was also raised during the "On-The-Plate"-meetings held every month where all IKEA Food employees are invited. However, the internal communication about previous projects and lessons generated from these are not functioning. This is seen as an area of improvement that the majority seem to be aware of. In this case, it is stated that the lessons learned have been communicated to other employees and that the main problem rather lies in how this information is shared and later stored. All concepts connected to the communication in Case DC are:

- Information is shared internally within the functional teams, *"Sharing is caring"* (Beta)
- The project team meet regularly and share a common platform
- Newsletter about ongoing projects is sent out sporadically & general information is shared monthly
- Project leaders meet every sixth week to discuss all projects
- The same risk or crisis can appear several times with no knowledge of previous situations, *"Generally we are quite bad at learning from past mistakes"* (Gamma)
- Lessons learned from Case DC were sent to some employees individually and is not stored in a common platform

6.2.5 Lessons Learned

Lessons learned and take-aways from the project were generated from the Case DC project (Beta). All project members were asked to contribute to the official lessons learned which are presented in Section 5.2.4 (Beta; Delta; Gamma). However, even though participating in the project and in generating lessons learned, there is a lack of knowledge of what has happened with the report and where it is stored (Delta; Gamma). One interviewee said *"It is put in a folder somewhere and is forgotten about I Guess"* which highlights this issue (Gamma). This can also be related to the overall problem of not learning from the previous mistakes and crises (Epsilon; Gamma; Delta). The interviewees are aware of the issue and there is an ambition to improve (Delta; Gamma). They are also aware that input from older projects can be helpful when opening a new one (Delta). Moreover, as this particular case was so catastrophic, it was given extra attention to avoid this being repeated in

the future (Epsilon). The concepts connected to the lessons learned process in Case DC are listed below:

- Employees do not know where to find lessons learned. "*It is put in a folder somewhere and is forgotten about I guess*" (Gamma)
- The lessons learned developed in earlier projects have not been seen by all project members
- Project members are asked to give input on lessons learned
- Ambition to document learnings from DC openings and act on these
- Want to be better at reviewing old projects before opening a new one
- Extra effort was put into documenting Case DC to avoid similar situations in the future
- The same lessons learned seem to be developed many times, meaning that they "*never seem to learn unfortunately*" (Gamma)

6.3 Case Labelling

Several interviews were conducted to study the case about the emergency relabeling which was the effect of a change in legislation, referred to as Case Labelling. The aim was to understand how IKEA CFLS work in projects but also how the reactive RM for this case was conducted. Each of the following sections present the data analysis and coding within the areas *Setting, Risk Management Processes, Organizational Factors, Lessons Learned* and *Communication.*

6.3.1 Setting

IKEA's Home Furniture business managed to update the artwork of their packaging prior to the implementation as they didn't have as complex packaging according to Theta. Even though other mistakes have been described as the cause for the delay at IKEA Food, the complexity of food packaging certainly did not help. Moreover, the stickering processes conducted by the LSPs at the DCs is more complex than it would have been for the Home Furniture business as the food requires different temperature zones. There two reasons can be seen in the concepts:

- More complex task to update artwork for food packaging. "*The furniture side had the same demands and are already done. Food is a bit more complicated as the artworks are very dedicated to a specific product. The furniture side is more about cardboard packaging. they can label without a problem*" (Theta).
- The re-labelling process needs to respect the different temperature zones

6.3.2 Risk Management Processes

No RM effort was taken in this case. The labelling was solely an emergency response that was initiated as the best way of handling the situation where they stood without compliant products (Theta). There was no risk list used throughout the project either. This is the first time that the emergency labelling has occurred and therefore there were no plans or processes in place to handle an event like this. Therefore, the approach *"Learning by doing"* has been applied (Eta) and this, in combination by heavily documenting every step has resulted in a cross-functional process description for emergency labelling at a DC that will work as a reactive management plan in the future consisting of responsibilities and actions. The interviewees predict that this will not be the first country that will change regulations regarding recycling-labels. Still, the process description will only focus on the fire fighting and not proactive measures to prevent this from occurring again.

To conclude, the concepts formed for the RM efforts in Case Labelling are:

- Decided to re-label non-compliant products after prioritization list as an emergency solution
- Pays for increased capacity at the LSP to re-label
- *"Learning by doing"* (Eta) approach, but documenting it to create a formal process
- No crisis plan exists to support this project
- No risk list or other frameworks were used
- No resources (personnel and tools) at PD Unit to work with change in legislation before it becomes a crisis
- There is a lack of ownership and responsibilities for processes e.g., product specification

6.3.3 Organizational Factors that Impacted Case Labelling

A reorganization in the PD Unit is speculated to be one of the main reasons why the change in legislation was missed, *"the new law did not come out of nowhere, but two and a half years ago"* (Eta). But also, that there was no end-to-end process or ownership for the product specification according to Kappa, making it difficult to know where the responsibility lied. Additionally, it was raised that many functions have been involved in handling this case, and that there normally is too many handovers due to the organizational structure and that things got lost on the way. The organizational structure is also mentioned by Epsilon as *"Everybody sits back and goes; yes but it wasn't in my area of responsibility, so I'm not going to put in any effort"* and that this is the effect of having a narrow scope of responsibilities. This is also shown in the quote mentioned by Theta *"it took a lot of meetings"* to get CFLS onboard in the emergency response, that people are unwilling to put in effort when it goes outside of their area of responsibility. From this set of empirical data, the following concepts has been formed:

- *"A lot of reorganizing at the PD Unit, many changing positions or moving away. There has been a lack of personnel and this has contributed to not having the easiest communication. Because the new law did not come out of nowhere, but two and a half year ago"* (Eta)
- There is not an end-to-end process or ownership for product specification
- Involved many functions from IKEA and things got lost in translation as the responsibility range is narrow.
- The attitude from employees is seen as a problem; *"Everybody sits back and goes, yes but it wasn't in my area of responsibility, so I'm not going to put in any effort"* (Epsilon)
- It was difficult to get CFLS on board in this emergency handling plan, *"it took a lot of meetings"* (Theta)

6.3.4 Communication

Communication has been an issue in several aspects in this case resulting in ten concepts listed below. Firstly, the issue was not communicated to IKEA CFLS until a long time into this project, neither communication with various stakeholders nor retail, but this was discovered to be necessary a bit into the project. Secondly, internal communication has been difficult as there has not been a common platform to communicate, and factors such as one product can be named differently depending on who is talking about it and in the many systems appeared to be difficult to handle. The system aspect was mentioned by many different interviewees, such as Eta and Kappa. The lack of a common platform also contributed, according to Eta, to a lot of manual work in excel and over emails, which led to confusions and that more time was spent on one task than would have been necessary. The lack of a common platform also makes it challenging to collect and document data, but certain information is only available for some project members, hence the information is too decentralized. Third, the communication both with suppliers and the DC has been difficult to handle and get right, as it has been hard to communicate to the suppliers what makes the products compliant, but also that it has been difficult to know the capacity at the DC to label. As communication was expected to become

difficult, an external project leader was assigned to the project to facilitate this along the way. Even due to this, there were some huge misses in communication such as informing stakeholders and CFLS. The concepts for Communication in Case Labelling are:

- All stakeholders need to be involved from the beginning "*To say, this is what we need to do*" (Theta)
- Important to inform retail to explain the plan and get feedback *"Important to have everyone involved in the decision as all are affected"* (Eta)
- It is not known why information on the new legislation got lost
- An external project leader was assigned to work with information sharing and communication like arranging weekly meetings
- *"Now it just feels like you're working in the silos"* (Theta)
- There are many different role/functions at IKEA CFLS
- Much of the work cannot be documented in the archival system
- Only some of the project members can access certain information in Case Labelling
- IKEA Food's different systems do not communicate leading to different isolated information regarding the same article
- There is no central database that can aid information storing

6.3.5 Lessons Learned

No formal lessons learned have been developed for Case Labelling yet as it is still ongoing but based on what the interviewees have mentioned there are a few areas that could be taken as lessons learned. Firstly, the responsibility needs to be shared cross-functionally (Kappa). Secondly, because of this crisis occurring in Country X, IKEA Food have come to an understanding that they are lacking the processes to quickly respond to this type of risk, *do we have a good enough process to work and ensure that we don't do it again? "Clearly not"* (Epsilon). They understood that as there is no ownership of the end-to-end process of having compliant products, there is a risk connected to noticing and completing the changes necessary to be compliant. Therefore, they put much effort into documenting every step in solving this, to formulate a formal process, which has already been proven useful as the same issue surfaced in another country. Thirdly, there should be a common system in place to facilitate communication during these types of cross-functional projects (Kappa), but also during the daily operations to be able to keep track of potential changes. With a common system, everyone could potentially have access to the same information. Fourth, one specific learning for the labelling process mentioned should be taken from finding the right glue and managing the temperature requirements necessary for the products at the DC, as this impacts the capacity (Eta). The concepts for Lessons Learned in Case Labelling are:

- "*This is a problem which has repeated itself in many countries*" (Epsilon)
- A similar issue was worked with in relation to Brexit, however, they did not need to label at the DC in the end there. But some learnings were transferred into this case
- *"So do we have a good enough process to work and ensure that we don't do it again? Clearly not"* (Epsilon)
- "*I document all meetings, I think four to five per week, and I actually had a lessons learned meeting before Christmas*" (Theta)
- "*We don't share the responsibility and there is no overall ownership of this process*" (Kappa)
- "*The temperature difference needs to be taken into account when choosing glue etc.*" (Eta)
- Changes in artwork should be cross-functional

6.4 Cross-Case Analysis

The concepts found through the within-case analyses in Section 6.1-6.3 are used in the cross-case analysis as well. By combining the concepts from the different cases, twelve overlapping themes are found. These themes are spanning over all or several of the within-case analyses. From these themes, five common issues were found. These are formulated into five dimensions. The dimensions are presenting the areas which the empirical data point towards as issues and together, they provide an understanding of the challenges at IKEA CFLS in terms of RM. Each dimension is presented in the following sections (6.4.1-6.4.5) together with the concepts and themes behind it.

It should be noted that none of the concepts linked to the setting IKEA CFLS operates in are included in any of the themes, and therefore no dimensions either.

6.4.1 Lack of Resources is an Obstacle to Work Proactively with SCRM

When comparing the two cases in terms of RM practices there are several areas that can be highlighted. For Case DC, the approach of solving things as it happens was taken, as *"we don't have a crisis handbook, we are more about firefighting"* (Beta). For Case Labelling, no crisis plan was in place either. Instead of having predetermined plans on how to handle the crises, reactive RM was applied for both cases. Even though there are two separate teams, there are similarities in how the two crises were handled. Firstly, by having an assigned team with cross-functional representatives and secondly, having meetings frequently and assigning clear responsibilities. Another interesting aspect raised by Epsilon is the fact that if you expect people to put time into working with processes and RM, it is important to allocate time for this within the 40 hours per week, and currently keeping processes describing this is seen as a challenge. Meaning there is no time allocated. The time aspect was also present when creating a risk list for Case DC, as Beta was under the impression that a more detailed and thorough list could have been created if not having constraints on time. In Case Labelling, a lack of resources could instead be seen in the form of not having the end-to-end ownership described for how the product specification should be handled, and currently they *"don't share the responsibility"* (Kappa), but also that *"a lack of personnel at the PD Unit"* (Kappa) contributing to not recognizing the new law coming into effect. To conclude, there does not seem to be any predetermined action plans that can be used when a crisis occurred, and the resources allocated to (risk) processes are not enough, which together can be seen as the lack of resources is an obstacle to work proactively with SCRM. This is also illustrated in Figure 6.1.

1st Order Concepts	2nd Order Themes	3rd Order Dimension

Labelling
- Decided to re-label non-compliant products after prioritization list as an emergency solution
- Pays for increased capacity at the LSP to re-label
- *"Learning by doing"* (Eta) approach, but documenting it to create a formal process
- No crisis plan exists to support this project
- No risk list or other frameworks were used

No predetermined action plans

DC
- Increased measuring and monitoring of KPIs
- Follow-up meetings on a regular basis
- Moved up timeframe for long-term solution to the DC setup
- There was no formalized process of how to handle the crisis
- It is subjective of when something is seen as a crisis and should be escalated and given extra resources
- There is no allocated part of business to handle a crisis: *"We don't have a SWAT team"*, *"we don't have a crisis handbook, we are more about fire-fighting"* (Beta)

Overall
- The processes needs to be continuously updated and reviewed, but *"we don't give the business the time to work on those processes"* (Epsilon). Must allocate time within working hours and not expect personnel to complete it outside of their 40 hours per week.
- Keeping processes up to date is seen as a challenge

DC
- There weren't enough resources to focus on the risk list for this project

Do not allocate enough resources to (risk) processes

Labelling
- *"A lot of reorganizing at the PD Unit, many changing positions or moving away. There has been a lack of personnel and this has contributed to not having the easiest communication. Because the new law did not come out of nowhere, but two and a half year ago"* (Eta)
- *We don't share the responsibility and there is no overall ownership of this process"* (Kappa)
- There is not an end-to-end process for product specification

Lack of resources is an obstacle to work proactively with SCRM

Figure 6.1: Lack of resources is an obstacle to work proactively with SCRM is the first dimension.

6.4.2 Efforts to Become More Proactive are Limited to Projects or Top Management Level

Based on the empirical data, there are several proactive SCRM efforts that either are in place or currently implemented. Much focus is put on managing risks connected to the SPs by having a formal SP classification and conducting BCPs for them (Jota). Additionally, global risks are managed at the top level of IKEA every year where some representatives from IFSAG are present (Epsilon). All these efforts are conducted on a high level. There are also guidelines on how to work with risks in a project. All projects should have a risk list presented in the beginning of the project, which also is monitored continuously throughout it. For Case DC, a clear working method on how to address risks concerning the project was applied and included the four steps: *identification*, *assessment*, *mitigation* and *monitoring* of risks throughout the entire project. However, it was mostly the project leader and the steering group that was aware of it. For Case Labelling, no RM framework was used at all (Theta). Meaning, that two different approaches were taken for the cases. The two cases differ in the sense that Case DC was a planned case to lower costs and to proactively mitigate some risks in the market, while Case Labelling was a reactive response to an already existing crisis in the supply chain. The project was therefore not planned to exist in comparison to Case DC which can be a reason why they have been handled differently from a RM perspective. There are also differences in which part of IKEA Food that is leading the project. For Case DC, a project leader from the business development team at IKEA CFLS was assigned, as this was a planned project. For Case Labelling, an external project leader was hired by the PD Unit. Still, both cases are formal projects with a project leader, project team etc. To conclude, the proactive SCRM efforts in the empirical data seem to be either limited to projects or only conducted at a top management level. The analysis behind the second dimension is illustrated in Figure 6.2.
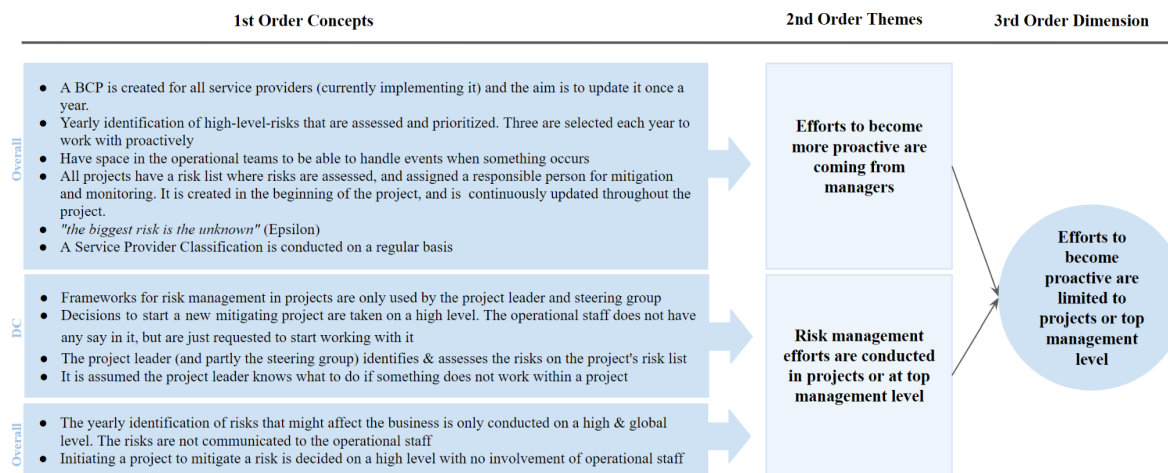
Figure 6.2: Efforts to become proactive are limited to projects or top management level is the second dimension.

6.4.3 Lack of Communication

Communication is frequently mentioned throughout the empirical data, which can be summarized under three themes. The first one is the fact that they do not have a centralized system for storing and communicating information. Overall, there are several different channels for internal communication, where one of them is called CANEA One. In this system all processes are stored, and all IKEA Food employees should have access to it, but it is not shared with IKEA Home Furniture (Kappa). For Case Labelling the lack of a common system caused a lot of issues as the project members worked in various systems and the products were not even named the same. This resulted in employees not having access to the same information, additionally it caused a lot of extra manual work (Eta). For Case DC, it is more present as the lessons learned are not stored in a common platform, but in a folder or sent to several employees via email.

The second theme is the lack of communication about risks. Overall, there are no direct communication channels between operational staff and higher-level managers (Epsilon), who are the ones supposed to take decisions about the risks. For Case DC, it was mentioned that they can have similar issues appearing several times, and as information about them was lacking from the previous time it must be handled again, and that *"Generally we are quite bad at learning from past mistakes"* (Gamma). Communication was also a big issue in Case Labelling as many of the stakeholders were not informed about this big issue, even to the extent that the IKEA CFLS were informed shortly before the new legislation would come into effect.

The third theme is more on the positive side though, as there are some efforts to facilitate internal communication that was apparent. In projects that are planned, such as Case DC there is much effort put into creating a common platform to communicate as well as meeting frequently (Beta). These projects are also covered in newsletters to all other employees sporadically or shared on "on-the-plate"-meetings (e.g., Gamma). It was also seen that as Case Labelling would be a very large and extensive project a project leader was brought in to facilitate communication. Even though these are positive aspects, the first two themes point to the fact that there is a lack of communication and information sharing. This is also the dimension, which is illustrated in Figure 6.3.
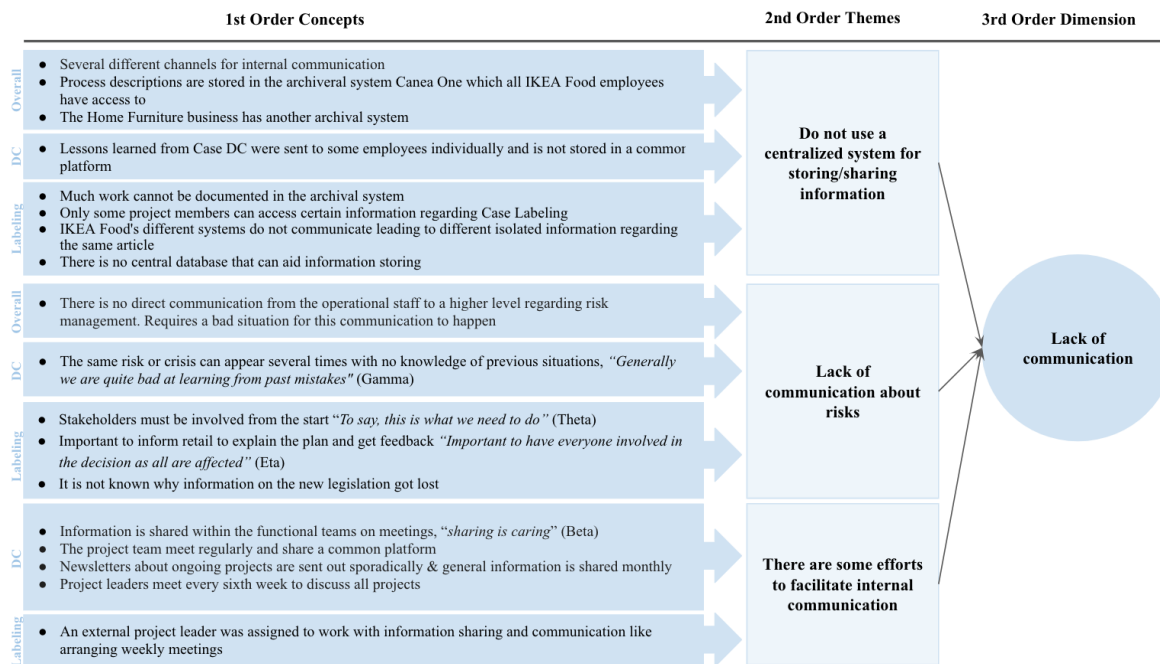
Figure 6.3: Lack of communication is the third dimension.

6.4.4 Lessons learned are sometimes neglected, but there is a desire to improve and incorporate them

One issue that was highlighted during the interviews concerns how IKEA CFLS generate learnings based on various projects or in daily work. Two themes describing that this is an area that could be approved could be seen in the analysis. The first one is that lessons learned are not always documented and/or communicated which result in these not being considered for future projects or avoiding certain situations. The importance of generating and sharing lessons learned was highlighted as "*you need to define where it went wrong and ensure that it is documented within a process or use this as a reference*" (Epsilon). Even due to this, there is not that much focus on generating lessons learned after all development projects as it is mentioned that the project leaders are "*not administrators or think it is fun to sit and write essays*" (Alpha). Although it is mentioned that they are aware that they spend much effort to fix issues and firefighting, not documenting how to fix it (Epsilon). Which is also seen in Case DC, as Gamma mentioned that they have the same lessons learned every time, and that "*they never seem to learn*". However, for Case DC, lessons learned were generated and project members were also involved and contributed but it was not clear where these were stored in the end (Gamma). No formal lessons learned has been generated for Case Labelling yet as it is still ongoing, but they are aware that "*this is a problem which has repeated itself in many countries*" (Epsilon). Even though the generation of lessons learned could be improved, there have been efforts for both cases to learn from how these crises were handled and act on it and bring it into the next project. This is done by e.g., creating a process describing Labelling at the DC, or documenting Case DC in detail. However, it is still something that needs improvements in both generating lessons learned but also sharing it with the rest of the employees. Therefore, it is formed into a dimension as seen in Figure 6.4.

1st Order Concepts

Overall	• *"you need to define where it went wrong and ensure that it is documented within a process and use this as reference"* (Epsilon) • Documentation of lessons learned is not always prioritized even though it is required fromally. *"Our project managers, they are not administrators or think it is fun to sit and write essays. Just these after action, or how to call it, the evaluations, they usually suffer a little"* (Alpha) • There is a lot of effort that is put into fixing issues and fire fighting, but these are not documented. *"We would put the fire out and then two weeks, three weeks, four weeks, six months later, the fire would start burning again. And you would put the fire out and we focus so much effort in fixing things, but not documenting the way to fix it."* (Epsilon)
DC	• Employees do not know where to find lessons learned. *"It is put in a folder somewhere and is forgotten about I guess"* (Gamma) • The same lessons learned seem to be developed many times. Meaning that they *"never seem to learn unfortunately"* (Gamma) • The lessons learned developed in earlier projects have not been seen by all project members • Project members are asked to give input on lessons learned
Labeling	• *"This is a problem which has repeated itself on many countries"* (Epsilon)
DC	• Ambition to document learnings from DC openings and take actions on these • Want to be better in reviewing old projects before opening a new one • Extra effort was put into documenting Case DC to avoid similar situations in the future
Labelling	• They need to work on their processes as they *"So do we have a good enough process to work and ensure that we don't do it again, clearly not"* (Epsilon) • Extra effort into documenting process to have a process describing for the future • *"I document all meetings, i think four to five per week, and I actually had a lessons learned meeting before christmas"* (Theta)

2nd Order Themes

Lessons learned are not always documented & communicated and therefore not taken into account in new projects

There is a willingness to improve in generating lessons learned and take these into account

3rd Order Dimension

Lessons learned are sometimes neglected, but there is a desire to improve and incorporate them

Figure 6.4: Lessons learned are sometimes neglected, but there is a desire to improve and incorporate them is the fourth dimension.

6.4.5 No *"we"* in the Organization

The fifth issue found through the data analysis is the fact that they are not working together and there is no "we" in the organization. First, this can be seen because of the organizational setup as it is flat, but wide horizontally which results in many handovers (Kappa). Additionally, it is only in projects where various business areas come together, even though they value "*Togetherness"* (Epsilon). Even due to this, there seems to be a lack of willingness to help each other if something lies outside of their own responsibility, even though it affects them somehow (Epsilon). However, it is important to keep in mind that this is an organization under development, as IKEA Food is relatively new into the IKEA Family and that the setup and working routines and processes are still aligning. Due to this Eta describes there has been "*A lot of reorganizing at the PD Unit, many changing positions or moving away. There has been a lack of personnel and this has contributed to not having the easiest communication"* e.g. the PD Unit was under a major reorganization causing lack of personnel and somewhat poor communication in the Labelling Case (Eta). The silo mentality is more obvious in Case Labelling than in Case DC but is overall considered to be an issue and is a dimension as seen in Figure 6.5.

Overall
- The organization is flat, but very wide horizontally which is resulting in many handovers
- One of the core values is *"togetherness",* but it is only in projects that various business areas come together

Labeling
- Involved many functions from IKEA and things got lost in translation as the responsibility range is narrow.
- The attitude among employees is seen as a problem as *"Everybody sits back and goes, yes but it wasn't in my area of responsibility, so I'm not going to put in any effort"* (Epsilon)
- It was difficult to get CFLS on board in this emergency handling plan, "*it took a lot of meetings*" (Theta)
- *Now it just feels like you're working in the silos"* (Theta)
- There are many different roles/functions at IKEA CFLS

DC
- *"communication is a major problem"* (Beta)
- Many functions and stakeholders involved with various ambitions and mindsets making communication complex

Silo mentality and lack of collaboration between functions because of organizational setup

Overall
- The food business has not yet aligned with the IKEA way of working and are lacking basics and a common foundation

Labeling
- There are reorganization efforts at e.g. the PD Unit causing a lack of personnel and poor communication

The organization is currently under development

No "*we*" in the organization

Figure 6.5: No "we" in the organization is the fifth dimension.

7   Developing Guidelines

Chapter seven describes the development of the guidelines for IKEA CFLS concerning how they should work proactively with SCRM. The guidelines cover three overarching areas which are analyzed in a gap analysis and based on the gaps, formed into proposals in the guidelines. Each guideline is presented one at a time in Section 7.1-7.3. Moreover, Section 7.4 provides a summary of the recommended guidelines.

The dimensions presented in Section 6.4 are describing what the interviewees at IKEA Food were describing to be areas of improvement during the interviews. However, it is crucial to also include an analysis of what is not discussed by the interviewees as it can point towards a lack of something important. Therefore, the authors see the need for a gap analysis comparing the IKEA CFLS work with what the conceptual framework suggests should be included. The conceptual framework consists of the three areas: the setting, the proactive SCRM process and the organizational aspect. As the case analysis revealed the setting to be of minor importance for the overall proactive SCRM work, no guideline is specifically addressing the setting. Moreover, the current practices for lessons learned were discussed heavily in the interviews and were identified as an improvement area in the case analysis. Therefore, the authors see a need to provide guidelines within the three areas; *requirements on the organization, proactive SCRM process* and *lessons learned*. One guideline is developed for each area meaning Guideline 1 considers the organizational aspect, Guideline 2 the proactive SCRM process and Guideline 3 the lessons learned. To know what the guidelines should include, a gap analysis is conducted simultaneously to the development of the guideline to highlight gaps between IKEA CFLS and the literature. The gaps identified are translated into proposals for how to close the gap in the form of the guidelines.

Prior to developing the final guidelines, a first draft of guidelines was created and then, feedback was gathered from IKEA CFLS employees during a workshop to understand the applicability. The first draft of each guideline as well as the agenda for the feedback workshop are found in Appendix E. The feedback received can be found in Appendix F and the implemented changes that derive specifically from the feedback are explicitly described in this chapter. Each guideline consists of a process or tasks that should be conducted, tools that can be used to facilitate this and a description of what is required from the organization to implement the guideline.

7.1 Identifying Gaps and Developing Guideline 1

Two gaps are identified when comparing the organizational aspects of proactive SCRM at IKEA CFLS with what is suggested in the literature review in Chapter 3. An overview of them, as well as a translation into what Guideline 1 should include to address them is found in Figure 7.1 below. Moreover, each gap and corresponding proposal in Guideline 1 are discussed thoroughly in the following paragraphs.

Lack of a risk culture

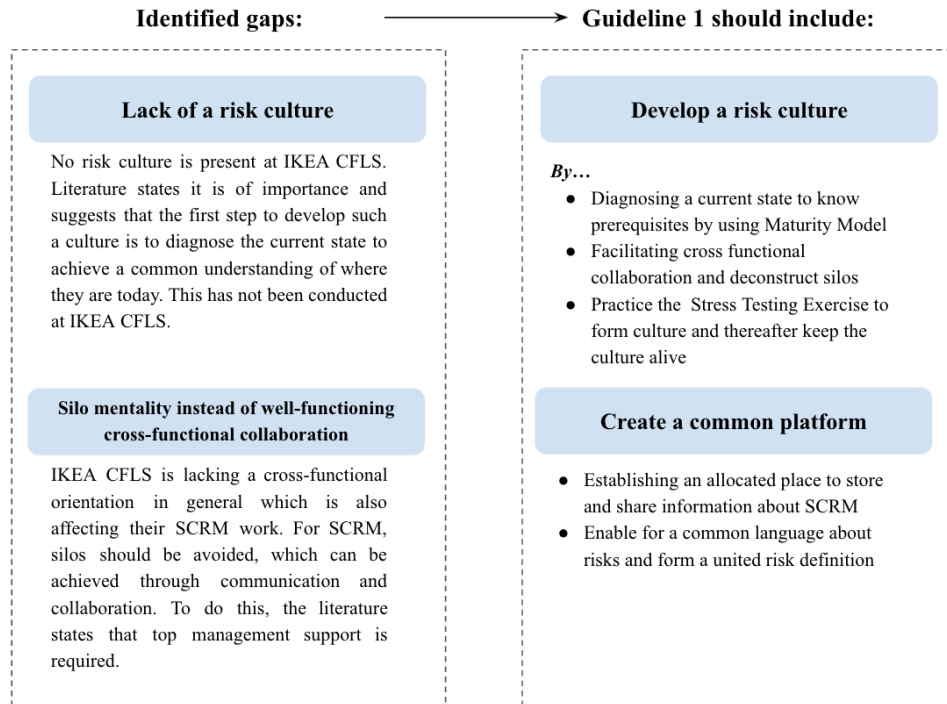No risk culture is present at IKEA CFLS. Literature states it is of importance and suggests that the first step to develop such a culture is to diagnose the current state to achieve a common understanding of where they are today. This has not been conducted at IKEA CFLS.

Silo mentality instead of well-functioning cross-functional collaboration

IKEA CFLS is lacking a cross-functional orientation in general which is also affecting their SCRM work. For SCRM, silos should be avoided, which can be achieved through communication and collaboration. To do this, the literature states that top management support is required.

Develop a risk culture

By...
- Diagnosing a current state to know prerequisites by using Maturity Model
- Facilitating cross functional collaboration and deconstruct silos
- Practice the Stress Testing Exercise to form culture and thereafter keep the culture alive

Create a common platform

- Establishing an allocated place to store and share information about SCRM
- Enable for a common language about risks and form a united risk definition

Figure 7.1: Identified gaps and suggested content of Guideline 1

Having a risk culture spread out in the fingertips of the organization is important for several reasons. Higgins et al. (2020) describe that organizations that have a well-developed, matured risk and integrity culture are outperforming competitors in terms of handling challenges. Moreover, it has been proven by Ericsson that a risk culture is a successful factor for developing proactive SCRM (Norrman & Wieland, 2020). Currently, there are no activities presented during the interviews to create a risk culture at IKEA CFLS. IKEA CFLS are beginners and therefore lack a risk culture, which motivates it as a gap and an area of improvement.

In the literature review, a couple of things were described to be of importance when developing a risk culture. Higgins et al. (2020), highlights the importance of diagnosing the current state of an organization prior to establishing a risk culture. It can facilitate forming a common view of the current state as well as to set goals i.e., decide upon the desired state. One tool frequently used throughout the thesis that can help diagnose the current state is the Maturity Model as it acts as an instrument for evaluation as well as guides in how to advance and move towards the desired state (Dellana et al., 2021; Proença et al., 2017). In the thesis, a small-scale assessment of the current state is conducted (see Section 5.1.4). However, as discussed in Section 5.1.4 there are different opinions on the current state and to achieve a common viewpoint, IKEA CFLS must discuss the RM maturity within the organization. Therefore, it is suggested that the Maturity Model is used to establish an understanding about the current state and to form a discussion about the RM maturity.

Ericsson, another company with a global SC, put a lot of focus on developing a risk culture into the organization as explained by Norrman & Wieland (2020). This was done by both implementing organizational- as well as SCRM processes cross-functionally and by including employees in various scenario-based training sessions. A scenario-based training approach suggested by Chopra & Sodhi (2004) is called stress testing where what-if scenarios are developed and discussed in groups. The Stress Testing Exercise can facilitate an organization-wide understanding of risks and how prepared IKEA CFLS currently are to address different scenarios. It is suggested by the authors to be performed in cross-functional teams to facilitate collaboration and get the different functions' perspective on the different risks. The lack of "we" in the organization (see Section 6.4.5) is likely to be demolished by

the cross-functional approach to perform the Stress Testing Exercise. Moreover, the exercise creates a space for communication about risks, which is positive for both facilitating communication in terms of SCRM and to achieve a risk culture. Another reason why the exercise is proposed by the authors is because of its simplicity. It does not require any previous knowledge in SCRM from the employees and is not resource heavy. Instead, it is considered a simple way of putting proactive SCRM on the agenda. To support IKEA CFLS in how to conduct this exercise in practice, the authors are proposing five diverse examples of what-if scenarios that can be explored:

1. *What if IKEA CFLS main information system is being exposed to a cyberattack and is not possible to use?*
   This is addressing a risk which according to The Manufacturer (2022) has low preparedness among companies as was described in the background to the thesis in Section 1.1.
2. *What if a SP operating one/several DCs goes bankrupt?*
   This provides a more extreme scenario than what is included in the BCPs (see Section 5.1.1) but builds on to it.
3. *What if a natural disaster hits Region X?*
   A natural disaster is included as the authors believe it is good to widen the attention span to go beyond SC specific risks.
4. *What if there is a global lack of refrigerant hindering temperature-controlled transport?*
   This scenario connects to the specific characteristics of the cold chain described in Section 3.1. Additionally, it is a specific challenge for IKEA CFLS.
5. *What if Supplier X cannot deliver a product for a month?*
   This scenario is adopted by Chopra & Sodhi (2004) as this was one of their given examples on how one what-if-scenario might be formulated. Moreover, it includes the purchasing division at IKEA Food, which goes beyond CFLS, and therefore requires cross-functional communication and discussion.

Cross-functional collaboration and commitment is important to successfully develop a risk culture (Proença et al., 2017). Therefore, it is important to eliminate the silo mentality described in the fifth dimension *No "we" in the organization* (see Section 6.4.5). In the maturity Model (see Appendix A) by Proença et al. (2017), one criterion for reaching Level 3 is "*The organization goals and objectives for RM are the same in the entire organization and are aligned with all other organizational objectives*". Similarly, cross-functional collaboration was also considered an enabler for Ericsson (Norrman & Wieland, 2020). Moreover, Stone (2004) states that the company culture needs to be team-oriented which is well aligned with the core value *"Togetherness"* as mentioned by Epsilon in Section 5.1.2. However, as the fifth dimension *"There is no "we" in the organization"* implies, there are currently some difficulties in having the various functions to work together. Even though recognizing the importance, there seem to be a lack of willingness to help each other if it is not included in the scope as Epsilon highlighted with the quote: "*Everyone sits back and goes, yes but it wasn't in my area of responsibility, so I'm not going to put in any effort*". Kappa mentioned during the interview that the organization is flat but wide horizontally, meaning that there are many functions operating in the supply chain which in turn result in a narrow scope of responsibility and many handovers. Theta also said, *"Now it feels like you're working in the silos"*.

The organizational structure can be an obstacle for cooperation, and one way of tearing down silos, according to Stone (2004), can be to focus on communication and knowledge sharing. A common platform could enable both electronic and physical communication and the work with SCRM. Both to facilitate knowledge-sharing but also to provide an opportunity for cross-functional collaboration. One of the dimensions (Section 6.4.3) found through the data analysis is *Lack of communication*, meaning that the lack of communication appears to be an issue. Currently, IKEA Food uses various

systems in their daily operations and thereby also uses different names for one article which makes cross-functional work more difficult. The common platform will also support the development of a risk culture by providing access to the same data but also to have meetings or occasions set aside to discuss risks, apart from other issues in the daily business.

The platform should be accessible for everyone working at IKEA Food to allow for collaboration throughout the entire SC, as everyone should be a part of the proactive SCRM work to reach a higher level of RM maturity (Proença et al., 2017). This has also proven to be successful at Ericsson, according to Norrman & Wieland (2020). To add to this point, everything related to SCRM should be stored in one dedicated place. To start, this can be as simple as a dedicated folder. The purpose of this is to not repeat the same issue as with the lessons learned reports generated in projects, since as discussed in Section 6.4.4, employees are not aware of where these reports are stored or how to access it. Lastly, the platform should provide a communication channel for SCRM. Examples of this is having regular meetings on the topic, or even including it in the agenda of existing cross-functional meetings. This can facilitate keeping the risk culture alive, which is like the way Ericsson works with including scenario-based training in less eventful times (Norrman & Wieland, 2020).

Another aspect touching upon the need of having a common language was revealed through the feedback workshop as it was evident that there is a lack of a common definition of what a risk is (see Appendix F). Currently, Epsilon described that the personnel working in the operational business are more focused on working improvements than actual SC risks (see Section 5.1.1). In the Theoretical Baseline (Section 3.2) various definitions were presented, both risk as a general term and SC risk specifically were defined in this Section as the following:

- According to Manuj & Mentzer (2008a), three components are present in all conceptualizations of risk: *(1) The potential losses if the risk happens to be realized, (2) The likelihood of the occurrence of the risk and, (3) The consequences of the losses.*
- Knemeyer et al. (2009) describe SC risks through the probability of an event as well as the business impact of it.

Both definitions have a close relation to the Risk Matrix and can be illustrated by using the tool that is already familiar to employees at IKEA CFLS, (e.g., see Figure 5.1). Moreover, when defining risks, it should be emphasized that a risk can be positive or negative. The Maturity Model clearly states in Level 3 that positive risks should be identified too (Proença et al., 2017). In the interviews, risks were only discussed in a negative manner, hence risks were not seen as positive. However, the term *risk* can refer to both positive and negative risks (Proença et al., 2017). Therefore, the following risk definition is proposed by the authors: *A risk is a positive or negative event that can be described by its likelihood of occurrence and business impact.*

The proposals in Guideline 1 are summarized and illustrated in Figure 7.2. The implementation and maintenance of Guideline 1 puts some requirements on the organization. The literature review revealed top management support is necessary both to deconstruct silos and as a starting point for building a risk culture as well as implementing SCRM efforts (Stone 2004; Dellana et al. 2021). Dellana et al. (2021) also stresses the importance of continuing to develop this among employees to achieve a risk culture. Therefore, the overall ownership of Guideline 1 should lie at the Category Manager of IKEA Food, but functional managers should also have responsibility to maintain it. This is also aligned with the employee's perception of the ownership from the feedback workshop seen in Appendix F.

Create a common starting point & develop a risk culture	
Diagnosing the current state Understanding the current state, establish goals of where to go, and a plan of how to get there.	**Suggested Tool:** Maturity Model
Practising the Stress Testing Exercise Initiates a cross-functional discussion about SC risks and an understanding of the current level of preparedness.	A set of five diverse what-if scenarios are suggested. Further, additional ones can be developed.
Develop a common platform Allows access to the same data and facilitates communication about risks.	Platform accessible for all employees at IKEA Food.
Establish a risk definition To assure there is a common understanding of what a risk is.	**Suggested risk definition:** *A risk is a positive or negative event that can be described by its likelihood of occurrence and business impact*

Figure 7.2:Illustration of the two areas of Guideline 1.

7.2 Identifying Gaps and Developing Guideline 2

The second guideline suggests a process that can be used to conduct proactive SCRM at IKEA CFLS. This is addressing one of the dimensions called *Lack of resources is an obstacle to work proactively with SCRM* presented in Section 6.4.1, as it attempts to solve the issue that no focus or effort is currently put on proactive SCRM processes outside of projects at IKEA CFLS. The identified gaps and what Guideline 2 should include to address them are summarized in Figure 7.3 but are explained in detail in this section.
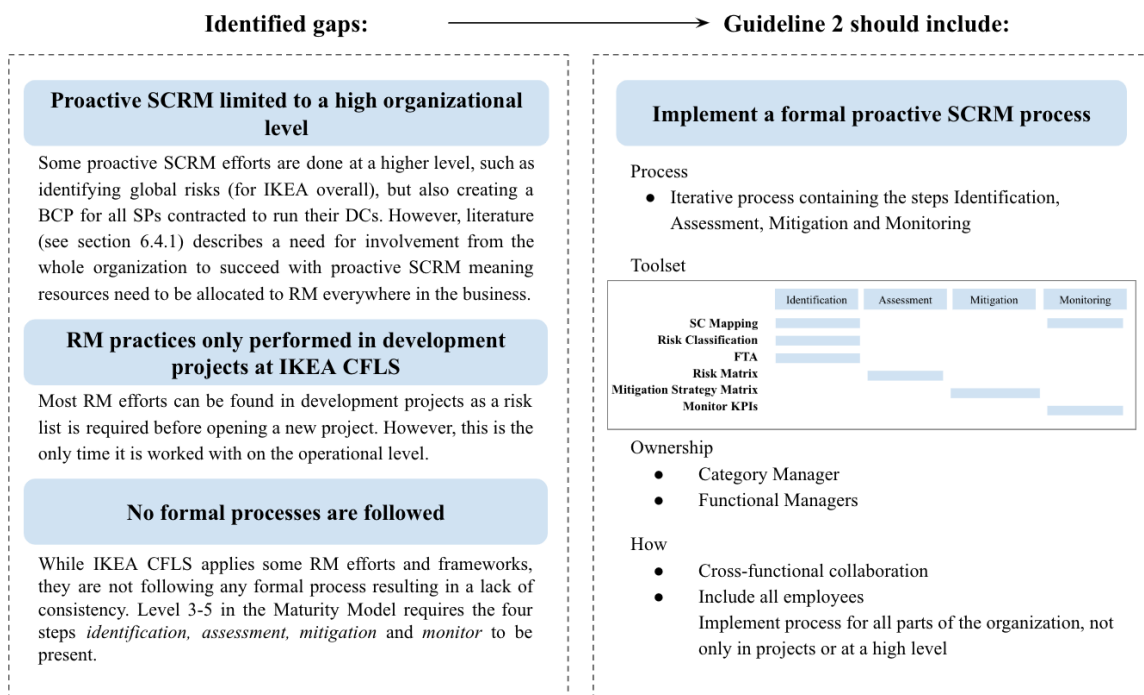
Figure 7.3: The identified gaps and proposed content of Guideline 2.

The assessment of IKEA CFLS current maturity in RM by the interviewees (Section 5.1.4) showed that the majority seem to agree that IKEA CFLS currently handles their SCRM according to Level 2 even though there are conflicting opinions and even though it varies between projects and the daily business. In the analysis, the authors also evaluate the placement based on the empirical data gathered from the interviews and observations conducted. This placed IKEA CFLS on Level 2 according to

the authors perception as Level 1 is completely fulfilled and Level 2 partly fulfilled, (see Appendix G, where the rating is outlined and visualized). Having a RM maturity according to Level 2 means that formal processes are not followed, but risk activities are planned, assigned to personnel, and performed (Proença et al., 2017). According to the authors rating, there is still a need to *Allocate resources to RM* and prioritize the work, to increase in levels. To complete Level 2 in the Maturity Model and move towards Level 3, IKEA CFLS must give their employees designated time for working with RM. This aligns with the dimension in Section 6.4.1 named *Lack of resources is an obstacle to work proactively with SCRM* clearly stating that resources are a limiting factor when looking into IKEA CFLS SCRM practices. Moreover, examples of criteria in the Maturity Model related to the various proactive SCRM steps (Identification, Assessment, Mitigation and Monitoring) were placed in separate columns in Figure 7.4. Based on these examples, to go beyond Level 3, all four proactive SCRM steps should be in place as each has specific criteria to be fulfilled. Therefore, it is long-term wise not only a matter of allocating resources to proactive SCRM practices overall, but to implement each of the steps in the conceptual framework. Additionally, as Epsilon said that well defined and documented processes are the only way that repetition of firefighting can be avoided, along with the finding that formalized SCRM processes was contributing factor to the success of Ericsson (Norrman & Wieland, 2020), a formal process can be beneficial for IKEA CFLS. As there is no formal process today, this is considered a gap and hence an area of improvement.

Level	Identification	Assessment	Mitigation	Monitoring
1				
2				
3	All identified risks have an owner Risks are found, recognized and described There is a procedure to identify potential positive risks The interdependence between risks different risks and their sources are studied	Organization defines risk criteria Determination of risk level Risks are compared with the previously defined risk level Risk to be treated are prioritized Risks from not pursuing an opportunity are identified Consideration and communication in the confidence of the risk level determination and its sensitivity to preconditions and assumptions	The organization defines rationale/logic for managing risks The cost versus benefit is considered for each risk treatment option There is appreciation treatment communication and monitoring of secondary risk	There is appreciation treatment communication and monitoring of secondary risk All risk management activities are monitored and reviewed Monitoring and reviewing risks is scheduled
4		There are measures and analytic techniques for quantitative risk management	There are measures and analytic techniques for quantitative risk management	There are measures and analytic techniques for quantitative risk management
5				

Figure 7.4: Examples of criteria for each level in the Maturity Model in relation to the four RM steps identification, assessment, mitigation, and monitoring (Proença et al., 2017).

Before suggesting a designed formal proactive SCRM process for IKEA CFLS, a second dimension from the cross-case analysis must be addressed. As analyzed in Section 6.4.2 and represented in the *Efforts to become proactive are limited to projects or top management level* dimension, proactive SCRM efforts at IKEA CFLS are all limited to top management or projects. First, top management efforts are reviewed in the following paragraph and second, the practice in projects is compared to the conceptual framework.

The top management efforts mainly consist of global risk-meetings at ISAG and BCP for SPs. When it comes to the global risk-meetings, no structured way of identifying risks or formal processes of assessing and prioritizing risks is found in the empirical data. The risks are although monitored and reviewed twice per year at the least (Epsilon). This can be considered manual monitoring even though

conducted in large intervals. Literature also describes automatic monitoring of risks, for example through the Reinforcement Learning-Based Framework or automated SC maps, which isn't used by IKEA CFLS at all (Aboutorab et al., 2022; McCarthy et al., 2022). The BCP conducted for each SP is based partly on a SP Classification where a template is used for rating. No formal process for assessing these risks is mentioned nor any specific strategies on how to mitigate them. Although, some risks are addressed by development projects, like Case DC. The BCP is however reviewed on a yearly basis were what-if scenarios related to capacity are explored (Jota). These efforts are conducted by management and do not include representatives from all levels in the organization. Besides the global risk-meetings and the BCP, there are no structured efforts made to work with SC risks in everyday business, except for in projects. In projects, the four steps of proactive SCRM *identification, assessment, mitigation,* and *monitoring* are used (Alpha; Beta). To align with literature, these processes must move beyond projects and be introduced to the daily business as well. Moreover, the efforts on a top management level are good, but to become more mature in RM, they should be expanded on to include the employees in the daily business. For example, according to Level 3 in the Maturity Model, everyone should be included in the work with RM (Proença et al., 2017). Prior to suggesting how IKEA CFLS can work with each of the four proactive SCRM steps, each step is analyzed in a gap analysis comparing the current practices within projects at IKEA CFLS to literature. It gives an opportunity to find strengths in the current way of working which can be expanded to the daily business, but also to identify gaps where the RM work can be improved. Each step is analyzed separately in the following paragraphs.

The first step is *Risk Identification*. Risk identification in projects does not follow a formal process except for requiring a risk list prior to opening a project at IKEA CFLS (Alpha). According to Fan & Stevenson (2018), the identification step is the most important as only identified risks can be managed proactively. Based on the literature review, there are four tools (see Figure 3.8) that can be used to facilitate the identification. The first is the Reinforcement Learning-Based Framework which allows for computer assistance in risk identification, but it is resource heavy (Aboutorab et al., 2022). Two less resource heavy tools that can be used manually to facilitate risk identification are SC mapping and risk categorization (Barroso et al., 2009; MacCarthy et al., 2022; Gardner & Cooper, 2003; Norrman & Jansson, 2004; Manuj & Mentzer, 2008a). Additionally, the SC Map can facilitate the identification of operational risks connected to the business (Gardner & Cooper, 2003) and provides an opportunity to collaborate cross-functionally while creating a map. It also provides a chance to get a holistic understanding about the specific risks connected to IKEA CFLS SC, as an example, a food SC requires a temperature-controlled environment to preserve quality and shelf life (Robertson, 2012). Additionally, a SC Map facilitates the understanding of how various risks impact one another. This addresses the concern raised during the feedback workshop about currently not managing to create a SC map without a joint effort (see Appendix F). The third tool is risk classification. Categorization of the risks are not performed to the knowledge of the authors but could possibly assist in understanding the sources of risks according to Manuj & Mentzer (2008a). There are according to the literature review many ways of classifying risks. However, as Table 3.4 suggests, there are two types of risks; the first type is connected to operations while the second type is disruptive risks such as natural disasters (see e.g. Kumar et al., 2018; Kleindorfer & Saad, 2005; Norrman & Jansson, 2004). The authors suggest that categorization of risks into these two types can be performed at IKEA CFLS. It is a good opportunity to allow personnel to widen the attention span beyond the operational risks seen in everyday business, as this is a concern raised by Epsilon in Section 5.1.2. It forces the operational personnel to zoom out to look at their SC from a bigger perspective and put the silo mentality aside. Additionally, when identifying disruption risks, inspiration can be taken from the yearly risk report generated by the World Economic Forum where various global risks are presented (World Economic Forum, 2023) as suggested in Section 3.4.2. The FTA is also discussed in the literature review. Together with SC mapping and risk categorization, it is the third tool proposed to

assist IKEA CFLS in the identification step. The authors consider it a good complement to the SC map as operational risks identified in the SC map can be put in the FTA and be expanded upon. It can also help in understanding what the actual risk is for IKEA CFLS which was discussed during the feedback workshop (see Appendix F). For example, if a supplier is exposed to an earthquake, should IKEA CFLS consider the earthquake, or the supplier's capability of delivering goods as the risk?

In total, three out of the four identification tools from the literature are suggested. These tools are illustrated in Figure 7.5 below. All three identification tools are suggested to be applied in workshops on a regular basis, at least twice a year but preferably more often. Representatives from various functions across the SC should be invited to contribute with different perspectives. During the workshop, smaller groups can be formed with at least one representative from each function participating to involve everyone in the risk identification.
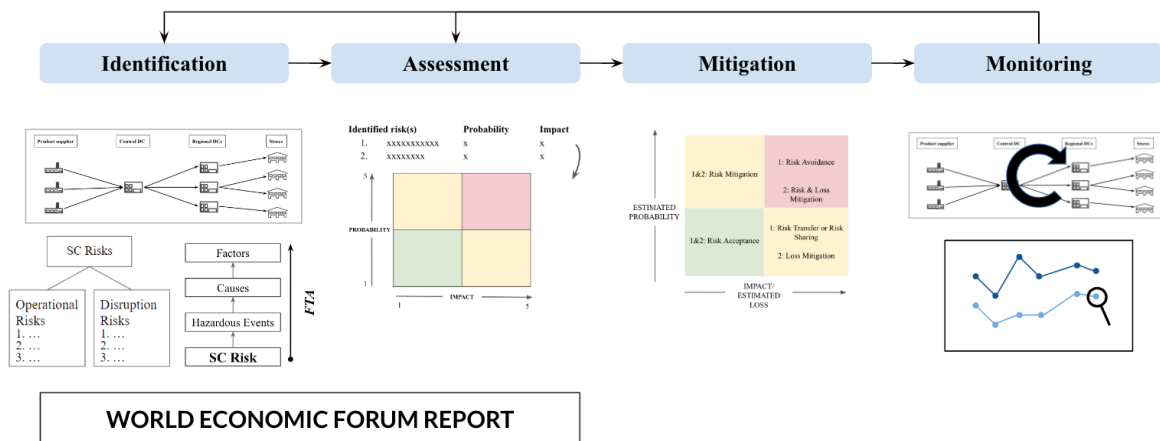

Figure 7.5: Visualization of the tools that are proposed to be used for the four steps in Guideline 2.

The second step according to the conceptual framework (Section 3.7) is *Risk Assessment*. There are a number of similarities as well as differences identified between the practice at IKEA Food, and the conceptual framework. First, when assessing the identified risks in the project risk list, probability and impact are used as measures and when combined, they create a prioritization order (Beta, see Section 5.1.3). This aligns with the assessment of risks proposed in the literature on the Risk Matrix in Section 3.4.3 (Sodhi et al., 2012; Ho et al., 2015). The literature also suggests the Spider-web-tool (Section 3.4.4), which is used by Ericsson, according to Norrman & Jansson (2004), and FTA. However, as the Risk Matrix already is used within projects, and is already familiar, this tool is considered more suitable and is therefore included in the toolset of Guideline 2 as seen in Figure 7.5. When using the risk matrix in projects currently, no formal method is used and the assessment is based on gut-feeling and experience rather than quantified data as the literature state is preferable to include (see e.g., Kirilmaz & Erol, 2017; Proença et al., 2017). Moreover, judgment of risks from experts is suggested by Fan & Stevenson (2018), but is not used at IKEA CFLS, although a steering group with experience can be included (Beta). It would be possible to quantify the assessment of risks as various methods are presented in the literature review. Additionally, to reach higher RM maturity, quantifying of risks are required (Proença et al., 2017), which is why this can be considered a long-term goal for IKEA CFLS. However, as they are new in the area and hence beginners, it is more important to lay the groundwork first according to the authors. It is most important to start allocating resources to and getting familiar with risk assessment in the daily business. Therefore, the operational risks are suggested to be assessed in terms of probability and impact manually just as the project specific risks. When it comes to the disruption risks, the World Economic Forum's yearly reports should be used as guidance for assessing very large and complex disruption risks as these can be difficult to assess based on experience and gut-feeling (World Economic Forum, 2023). Like as done in IKEA CFLS projects and at Ericsson (see Section 3.4.4), workshops are proposed to be scheduled

to discuss events. Aligned with what is described in Section 3.6 (by Manuj & Mentzer, 2008b), the authors suggest the following aspects to be considered when composing the team responsible for the assessment: (1) finding a good balance between including employees with different opinions and attitude to risk taking and employees with various focus and managers, (2) not making the team too costly meaning that everyone cannot be included, and (3) managers included need to have an analytic and cognitive leadership approach.

The conceptual framework (Section 3.7) suggests that *Risk Mitigation* should be the third step. Table 3.8 displays that the Mitigation Strategy Matrix can be used as guidance when selecting a mitigation strategy (Fan & Stevenson, 2018; Knemeyer et al., 2009). In the projects at IKEA CFLS, no specific tool is used but the assessed risks are described to be either avoided, reduced, or accepted (Alpha; Beta) which aligns with three out of five commonly mentioned mitigation strategies in the literature. Since it can quickly become time consuming to develop mitigation strategies for the identified and assessed risks, the responsibility must be delegated for developing and realizing (taking actions on) the mitigation strategy. This means new employees will be introduced to risk mitigation. To support them in what strategy can be suitable due to the assessment in the Risk Matrix, the authors suggest IKEA CFLS uses the Mitigation Strategy Matrix (see Figure 7.5). It aligns with the familiar Risk Matrix and can act as guidance. Moreover, through efforts such as developing projects, IKEA CFLS already proves skills in planning actions to mitigate a crisis. Therefore, support should also be taken internally at IKEA CFLS to educate each other in developing mitigation strategies so that every employee feels comfortable with having the responsibility to create a mitigation strategy for a set of risks.

The fourth step suggested by the conceptual framework (Section 3.7) is *Risk Monitoring*. Some monitoring of project related risks has been identified in the empirical data. For example, the project risk list is described to be reviewed weekly due to being part of the agenda on project meetings which corresponds to the manual monitoring of risks suggested in literature (see e.g., MacCarthy et al., 2022; Norrman & Jansson, 2004). Moreover, IKEA CFLS do monitor both mitigated and non-mitigated project risks as suggested by Norrman & Jansson (2004). As with the assessment of risks, this can be conducted manually or through automated systems as described in the literature review in Chapter 3, but at IKEA CFLS no automated monitor is currently used. According to (Fan & Stevenson, 2018), it is possible to incorporate monitoring in already existing routines through monitoring of KPIs by connecting them to risks. As IKEA CFLS does monitor KPIs, selected KPIs can potentially be connected to identified risks to get warnings if they are changing as somewhat automated monitoring. The SC map suggested in the *identification* step, must be continuously updated to remain relevant. It is possible to monitor a SC map automatically, but it requires an investment in a computer system. The authors suggest manual monitoring of the SC map to begin with. Employees should be assigned the task to continuously update the map to make sure it is not forgotten. This is suggested to be done at least prior to each risk identification workshop to make sure a relevant map is used during the workshop. However, for the monitoring of all identified risks at IKEA CFLS, it is not reasonable to assign the responsibility to one or a few employees. Instead, it is important that all employees are involved which is a reason why it is of high importance to establish the risk culture before implementing this process i.e., implementing Guideline 1 before Guideline 2. To have a natural logic, the authors consider it reasonable to assign the same employee responsible for monitoring the same risks as the employee has developed mitigation strategies for. A summary of the tools suggested to support monitoring is seen in Figure 7.5.
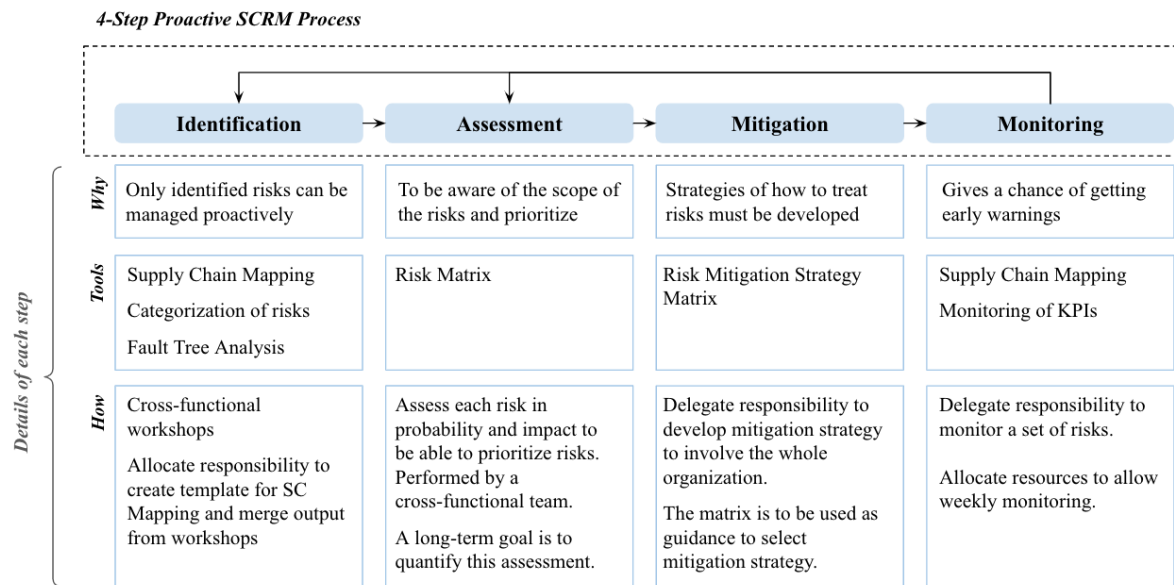
4-Step Proactive SCRM Process

	Identification	Assessment	Mitigation	Monitoring
Why	Only identified risks can be managed proactively	To be aware of the scope of the risks and prioritize	Strategies of how to treat risks must be developed	Gives a chance of getting early warnings
Tools	Supply Chain Mapping Categorization of risks Fault Tree Analysis	Risk Matrix	Risk Mitigation Strategy Matrix	Supply Chain Mapping Monitoring of KPIs
How	Cross-functional workshops Allocate responsibility to create template for SC Mapping and merge output from workshops	Assess each risk in probability and impact to be able to prioritize risks. Performed by a cross-functional team. A long-term goal is to quantify this assessment.	Delegate responsibility to develop mitigation strategy to involve the whole organization. The matrix is to be used as guidance to select mitigation strategy.	Delegate responsibility to monitor a set of risks. Allocate resources to allow weekly monitoring.

Details of each step

Figure 7.6: Illustration of the proactive SCRM process and details of each step in Guideline 2.

An overview of the whole process and details of each of the four steps are seen in Figure 7.6. The overall ownership of this process (Guideline 2) should be on a top management level, tentatively the Category Manager of IKEA Food as it requires all the functional areas to be involved (see Appendix F). However, functional managers of CFLS should be assigned the responsibility to establish the process among the operational functions to make sure it is performed on a regular basis. This is aligned with the functional managers' perception during the feedback workshop (see Appendix F). It is important that management is involved to ensure that sufficient resources are allocated for this process to be performed within working hours as it has been described as an issue today by Epsilon. Moreover, it is also described to be important that it starts at top management and is developed by being introduced to the whole organization by Dellana et al. (2021).

The long-term goal for Guideline 2 (the proactive SCRM process) should be to invite external parties such as IFSAG or retail (IKEA Home furniture) to participate in the process and extend the collaboration in RM to SC partners. This as the definition of SCRM in this thesis, see Section 1.1, includes collaborating with SC partners in terms of SCRM.

7.3 Identifying Gaps and Developing Guideline 3

The third guideline includes improvements for the existing lessons learned practice. A comparison between IKEA CFLS and literature is conducted to identify gaps in which the guideline can attempt to close. An overview of the gaps and proposals of what Guideline 3 should include to address them can be found in Figure 7.7. The following paragraphs will explain them more thoroughly.
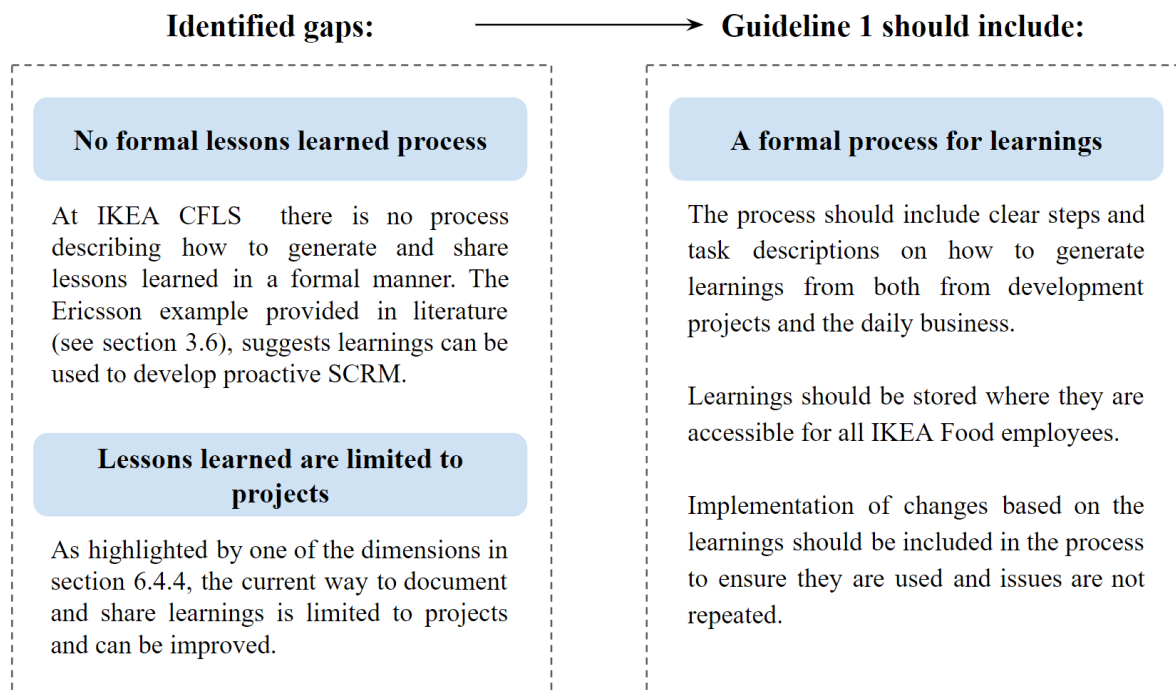
Identified gaps: ⟶ **Guideline 1 should include:**

No formal lessons learned process

At IKEA CFLS there is no process describing how to generate and share lessons learned in a formal manner. The Ericsson example provided in literature (see section 3.6), suggests learnings can be used to develop proactive SCRM.

Lessons learned are limited to projects

As highlighted by one of the dimensions in section 6.4.4, the current way to document and share learnings is limited to projects and can be improved.

A formal process for learnings

The process should include clear steps and task descriptions on how to generate learnings from both from development projects and the daily business.

Learnings should be stored where they are accessible for all IKEA Food employees.

Implementation of changes based on the learnings should be included in the process to ensure they are used and issues are not repeated.

Figure 7.7: The identified gaps and corresponding content that should be included in Guideline 3.

In the Ericsson report by Norrman & Wieland (2020), it was highlighted that they use the lessons learned from reactive SCRM to implement improvements in proactive SCRM. As reflected in the dimension *Lessons learned are sometimes neglected, but there is a desire to improve and incorporate them* presented in Section 6.4.4, there is room for improvement in the current handling of lessons learned at IKEA CFLS. During the closure of every project, a lessons learned report is written to document the learnings from the project team (Alpha). However, the report is not written, shared, and stored in a consistent way and there is no formal process for it (e.g., Alpha; Gamma). It is evident in the empirical data that there are recurring issues, but also as the same lessons learned are generated for many different projects with the same character (see e.g., Gamma; Epsilon). As the lessons learned process is limited to project related learnings, there are no documented lessons learned from the daily business. Moreover, there is no guidance on how to use the lessons learned to improve. At Ericsson, they use sessions to develop learnings in a systematic way (Norrman & Wieland, 2020). Moreover, sharing knowledge (e.g., lessons learned) from projects with the organization is also good for increasing the cross-functional communication and removing the silo mentality as it is described by Stone (2004) to be a factor of tearing down silos. Because of this reasoning, the fact that IKEA CFLS' lessons learned process is limited to projects and is not a formal process is gaps, and areas of improvements.

To address these gaps, suggestively a formal process describing how lessons learned can be generated in a systematic way. Therefore, Guideline 3 consists of a suggestion of a formal lessons learned process. The purpose of this process is to generate and implement learnings to avoid having recurring mistakes or inefficient ways of handling a process or task. By generating learnings, current routines or processes can be improved for the future. This process can be used when e.g., a potential improvement has been identified, a risk/crisis has affected an existing process or lessons learned have been generated in a project. The process is illustrated in Figure 7.8. As lessons learned should be generated both in projects and from observations in the daily business, the proposed process includes two different sub-processes. The first sub-process, *S1*, focuses on the general business and operations. The second sub-process, *S2*, is addressing the lessons learned from projects. As the goal is that lessons learned should be implemented in the organization, the last part of each process should be designed

similarly, meaning that the last steps can be described as a main process, *M*. The expected output of this process is an improved process or way of working and a new usage area (the daily business).
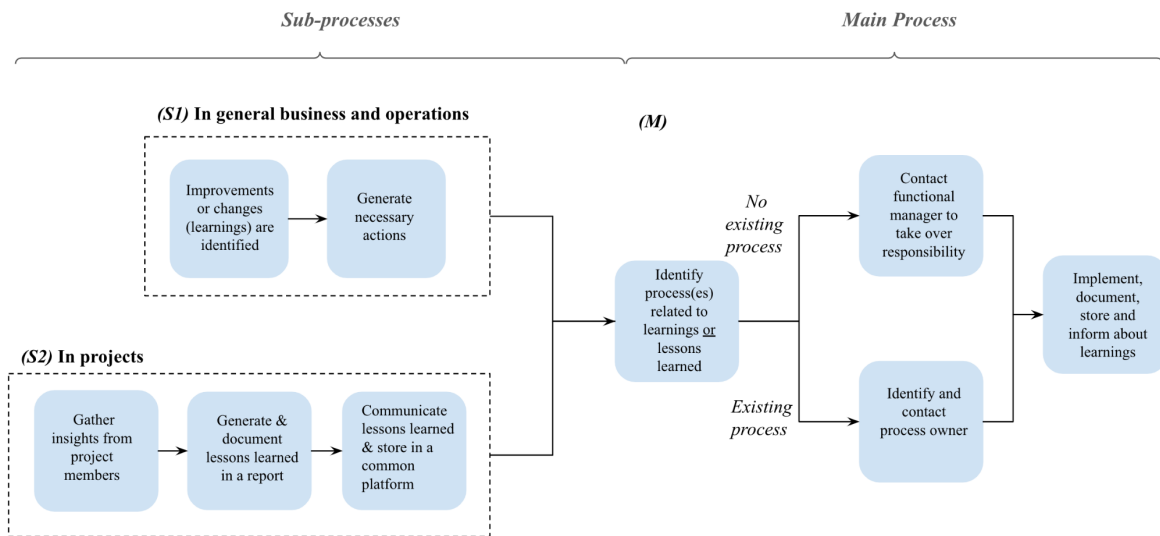

Figure 7.8: Illustration of process of generating learnings in Guideline 3.

As there are directions on how lessons learned should be generated in development projects at IKEA CFLS, these are used as guidance when designing *S2* (Figure 7.8). The first two tasks in *S2* are taken directly from the current directions on how to generate lessons learned in projects. Insights should be gathered from all project members and the project leader should be responsible for translating this into lessons learned as well as documenting it in a report. The third task, *communicate lessons learned & store in a common platform* is somewhat a new addition. There are existing directives on where the lessons learned report should be stored, but it is not in a place accessible for all employees. To make sure the lessons learned report can be revisited in the future, the authors suggest the report is stored in a common platform accessible for all IKEA Food employees. Suggestively, CANEA One as this archival system already acts as a common platform for other documents and processes. Alternatively, the same platform as suggested through Guideline 1 can be used. Moreover, emphasis is put on communicating the lessons learned in the third task as this is something there were conflicting opinions on in Case DC (see Section 5.2.4). Some project members (e.g., Delta & Gamma), explained they never got to read the lessons learned report while the project leader, Beta, says it was shared.

To create a process describing how lessons learned can be developed in everyday business or from managing risks both proactively and reactively, inspiration from *S2* is taken. However, as the term *Lessons Learned* is linked to a project terminology at IKEA CFLS, the term *Learnings* are used instead, as the proposed process of how to use learnings should not be linked to/or limited by a project scope (see Appendix F). This process is referred to as *S1*. The first task in this process is to identify an improvement or changes affecting the way of working. When this is done, it was discussed during the workshop (see Appendix F) that the easiest way of knowing or finding out the ownership of the possible learning, is by trying to generate actions on how to address it, and then the responsibility should become somewhat clear.

The next task is where *S1* and *S2* merge in the main process referred to as *M*. This is where a lesson learned, or learning is to be used to improve for the future. This is not currently existing at IKEA CFLS, so no inspiration could be taken from the lessons learned practice in projects. The first task is to investigate if the learning or lesson learned is affecting any existing process at IKEA CFLS. As all

formal processes are stored in CANEA One, this system should be used to identify which processes are affected. As described by Kappa (Section 5.1.1), each process has a process owner responsible for updating it. If a process affected by the learning is found, this person (process owner) should be contacted in the second task of *M*. If no existing process is found, it is suggested that one can contact the functional manager. As Gamma mentioned (Section 6.1.2) that every team has extra space and staff allocated to work with developments. The functional manager can therefore delegate responsibility for how to address the learning. The last task concerns developing formal learnings by documenting, storing, sharing, and implementing them. The authors found out during the Workshop (see Appendix F) that there is a process describing *How to create a process* that should be easily accessible in the description of this process. The purpose of the last task is to use and implement the learnings to avoid the problem of recurring issues and being forced to handle the same issues repeatedly, to address concerns raised by both Gamma (Section 5.2.4), and Epsilon (Section 5.1.1).

As for Guideline 1 & 2, it is suggested that the Category Manager of IKEA Food is assigned the overall responsibility of the process. Moreover, the functional managers of CFLS should be given some responsibility to assure it is followed and used regularly.

As the feedback from the first draft of this guideline, found in Appendix F, pointed towards a need for a more detailed description of the guideline, Table 7.1 is created to support Figure 7.8 with task and responsibility descriptions. As there is a formal process developed for labelling at DC from Case Labelling (discussed in Section 5.3.4), it could be used as inspiration for how to formulate a process description and task responsibilities.

Table 7.1: Description of process steps and responsibilities for the learning process.

Process	Task	Description	Responsible *(S1, S2 & M indicating sub-process)*
S1	Improvements or changes (learnings) are identified	Learnings are identified in daily work or when handling events or incidents. Such as when managing risks.	Employee that identified the learning and/or functional manager
	Generate necessary actions	Translate the possible improvement or learning into necessary points that actions can be taken on.	Employee that identified the learning and/or functional manager
S2	Gather insights from project members	A standardized sheet for collecting insights from employees that can be of assistance when identifying challenges at the end of a project, but workshops during a project can also be applied.	Project Leader
	Generate & document lessons learned in a report	Description of how to translate challenges into lessons learned and actionable points.	Project Leader
	Communicate lessons learned & store in a common platform	Store the report in a platform accessible for the whole organization such as CANEA One.	Project Leader
M	Identify process(es) related to learnings or lessons learned	Visit CANEA One and identify the processes that shall be improved	*S1*. Employee that identified the learning *S2*. Project Leader
	Identify and contact process owner	Through CANEA One, find the process and identify and contact the process owner.	*S1*. Employee that identified the learning *S2*. Project Leader
	Contact functional manager to take over responsibility	If no process is found, contact own functional manager to take learnings further.	*S1*. Employee that identified the learning *S2*. Project Leader
	Implement, document, store and inform about learnings	An updated process description shall be created and documented. When finished, it shall also be uploaded to CANEA One. Each mentioned role in the process, shall be informed about the implemented improvements.	*M*. Process Owner *S1*. Employee that identified the learning *S2*. Project Leader

7.4 Final Set of Guidelines

In this section, a summary of the final three guidelines is given by presenting each guideline shortly in Section 7.4.1-7.4.3. Emphasis is put on the actual recommendations as the logic and reasoning behind each guideline has been given in Section 7.1-7.3.

All guidelines are suggested to be the Category Manager of IKEA Food's responsibility as each guideline requires cross-functional efforts (see Appendix F). However, as discussed, the functional managers of CFLS should be part of the responsibility for establishing each guideline within their functional team and make sure it is performed regularly.

7.4.1 Guideline 1: Create a Common Starting Point & Develop a Risk Culture

Guideline 1 is named *Create a Common Starting Point & Develop a Risk Culture* to put emphasis on the need to develop an organization-wide understanding of risks and to put it on the agenda prior to implementing the proactive SCRM process or learnings process in Guideline 2 & 3. Guideline 1 derives from two dimensions and two gaps identified. The dimensions are *Lack of Communication* (Section 6.4.3) and *No "we" in the organization* (Section 6.4.5). The gaps are *Silo Mentality* and *Lack of Risk Culture*. Together, these call for a better cross-functional collaboration and common foundation, which is what Guideline 1 attempts to address by forming a common starting point in terms of SCRM.

Create a common starting point & develop a risk culture	
Diagnosing the current state Understanding the current state, establish goals of where to go, and a plan of how to get there.	**Suggested Tool:** Maturity Model
Practising the Stress Testing Exercise Initiates a cross-functional discussion about SC risks and an understanding of the current level of preparedness.	A set of five diverse what-if scenarios are suggested. Further, additional ones can be developed.
Develop a common platform Allows access to the same data and facilitates communication about risks.	Platform accessible for all employees at IKEA Food.
Establish a risk definition To assure there is a common understanding of what a risk is.	**Suggested risk definition:** *A risk is a positive or negative event that can be described by its likelihood of occurrence and business impact*

Figure 7.9: Illustration of Guideline 1: Create a Common Starting Point & Develop a Risk Culture.

As Figure 7.9 displays, the implementation of Guideline 1 is done in two steps: First by diagnosing the current state, and second by developing a risk culture. The Maturity Model is suggested to support in diagnosing the current state as conducted in a small scale in this thesis. From having a shared view of the current state, common goals can be formalized, and the development of a risk culture can begin. As seen in Figure 7.9, three tools and resources are proposed to assist in developing a risk culture: (1) Stress Testing Group Exercise, (2) A common platform for SCRM, and (3) A common definition of a risk. The Stress Testing Group Exercise is suggested to be used with the purpose to initiate a discussion about risks. By exploring different what-if scenarios in cross-functional teams also including functions outside of IKEA CFLS, risks can be discussed in a collaborative environment. Five suggested scenarios to discuss are listed below and they are motivated in Section (7.1).

1. *What if IKEA CFLS main information system is being exposed to a cyber-attack and is not possible to use?*
2. *What if a SP operating one/several DCs goes bankrupt?*

3. *What if a natural disaster hits Region X?*
4. *What if there is a global lack of refrigerant hindering temperature-controlled transport?*
5. *What if Supplier X cannot deliver a product for a month?*

The second tool that can be used to develop a risk culture is to have a common platform. Both in terms of having access to the same data but also to have meetings or occasions set aside to discuss risks, apart from other issues in the daily business. To enable this, it is also important to establish a common terminology. This includes a common definition of what a risk is as this is currently lacking (see Appendix F). The following risk definition is proposed by the authors: *A risk is a positive or negative event that can be described by its likelihood of occurrence and business impact.* To enable this, it is important to have top management support, and ownership should lie at the Category Manager, but functional managers should also have responsibility.

7.4.2 Guideline 2: Implement a 4-Step Proactive SCRM Process

The second Guideline is to Implement a 4-step proactive SCRM process. The reasoning behind this recommendation is that projects have an end, while proactive SCRM should be performed continuously. The guideline derives from identifying gaps concerning where proactive SCRM efforts are performed and the lack of a formal process. Moreover, it addresses the first dimension presented in Section 6.4.1 and named *Lack of resources is an obstacle to work proactively with SCRM.* The proposed steps in the process are *identification, assessment, mitigation,* and *monitoring.* These are suggested based on the conceptual framework, see Section 3.7, and should be performed in an iterative process, meaning it should be conducted continuously. The steps are to some extent already in use in development projects at IKEA CFLS, however, it is suggested to extend the proactive SCRM efforts beyond projects and out into the fingertips of the organization. The steps are described in the following paragraphs.

It is important to identify the risks as these are the only ones that can be managed proactively; therefore, identification is suggested to be the first step. To facilitate this step, three tools are proposed. First, the SC Map is suggested to identify the operational risks connected to the business, which also provides an opportunity to collaborate cross-functionally and create a holistic understanding of the specific risks in the SC. Further, a SC map facilitates the understanding of how the risks impact one another. Next, risk categorization into operational risks and disruptive risks such as natural- or man-made disasters. The last-mentioned type can be more difficult to identify, therefore the World Economic Forum Report is suggested to be used to identify these ones. Lastly, the third tool suggested is FTA, which can be a good complement to the previously mentioned ones, as a way of expanding the understanding of the risks. These three tools are suggested to be applied in workshops on a regular basis. Representatives from various functions across the SC should be invited to get different perspectives. During the workshop, smaller groups can be formed with at least one representative from each function participating to involve everyone in the risk identification.

The second step is the assessment, where the Risk Matrix is suggested to be used as a tool, where the operational risks are suggested to be assessed in terms of probability and impact manually just as the project specific risks. For the disruption risks, the World Economic Forum's yearly reports should be used as guidance when assessing very large and complex disruption risks. To reach higher levels of RM Maturity, the long-term goal can be to apply quantifiable methods when assessing risks. The tools are suggested to be used in workshops, with balanced teams (meaning including different functions, focus, managers while not making the team too costly). The third step is mitigation, where an extension of the risk matrix is suggested, called Mitigation Strategy Matrix. Based on the placement, suitable mitigation strategies are suggested. As developing strategies can be time consuming, responsibility should be delegated for developing and realizing the chosen strategies. The

fourth step is monitoring, and two tools or methods are proposed in this step. The first is to monitor selected KPIs connected to the identified risks. Additionally, the SC map must be updated on a regular basis as SCs are dynamic and constantly change. Employees should be assigned the task to update the map, and as this is a resource heavy task it is important to involve many. Which stresses the importance of establishing a risk culture (see Guideline 1). To have a natural logic, the authors consider it reasonable to assign the same employee responsible for monitoring the same risks as the employee has developed mitigation strategies for.
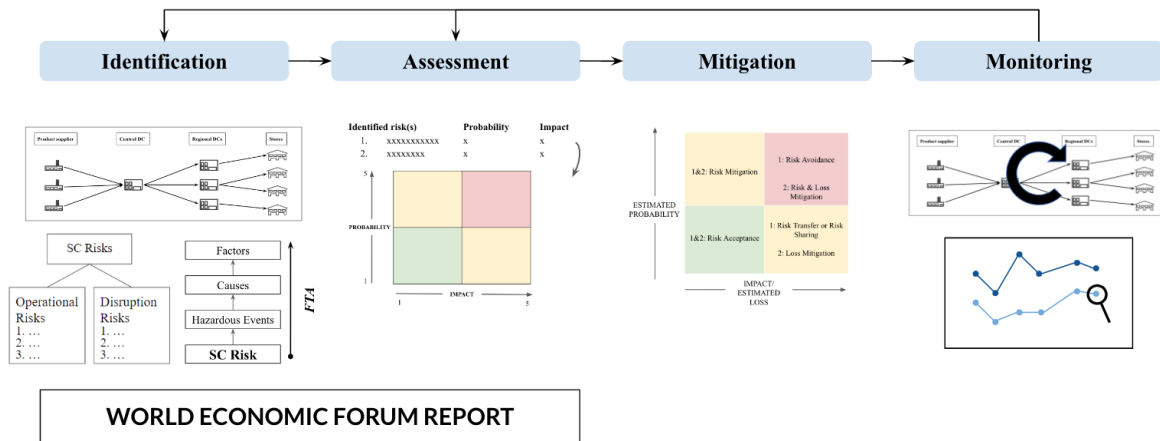

Figure 7.10: Illustration of the toolset for Guideline 2.

As for the other guidelines, the Category Manager of IKEA Food is suggested to have the overall responsibility for this process. It is important that management is involved to ensure that sufficient resources are allocated for this process to be performed within working hours. Moreover, it is also important that it starts at top management and is developed by being introduced to the whole organization.

7.4.3 Guideline 3: Expand & Formalize the Lessons Learned Process

Guideline 3 is formed from identifying the two gaps; No formal lessons learned process and Lessons learned are limited to projects as well as the dimension *Lessons learned are sometimes neglected, but there is a desire to improve and incorporate them* (Section 6.4.4). The need to move beyond projects in learning from reactive SCRM is visible in the title of Guideline 3 which is Expand & Formalize the Lessons Learned Process. Expand refers to bringing the reflection on lessons learned into the general business and operations. Formalize refers to creating a process of how to work with lessons learned in a consistent way as there currently only are some directives and not a formal process. The suggested process is illustrated in Figure 7.11 looking differently depending on if a learning is rooted in a development project or in daily business. However, the main process of transforming the learning into actual improvements for the future is the same. A major difference between the proposed learning process and the current lessons learned practice are the directives on how the learnings should be communicated and stored. The process in Figure 7.11 puts emphasis on the need to make the learnings accessible for all employees at IKEA Food as learnings can concern many employees' tasks.
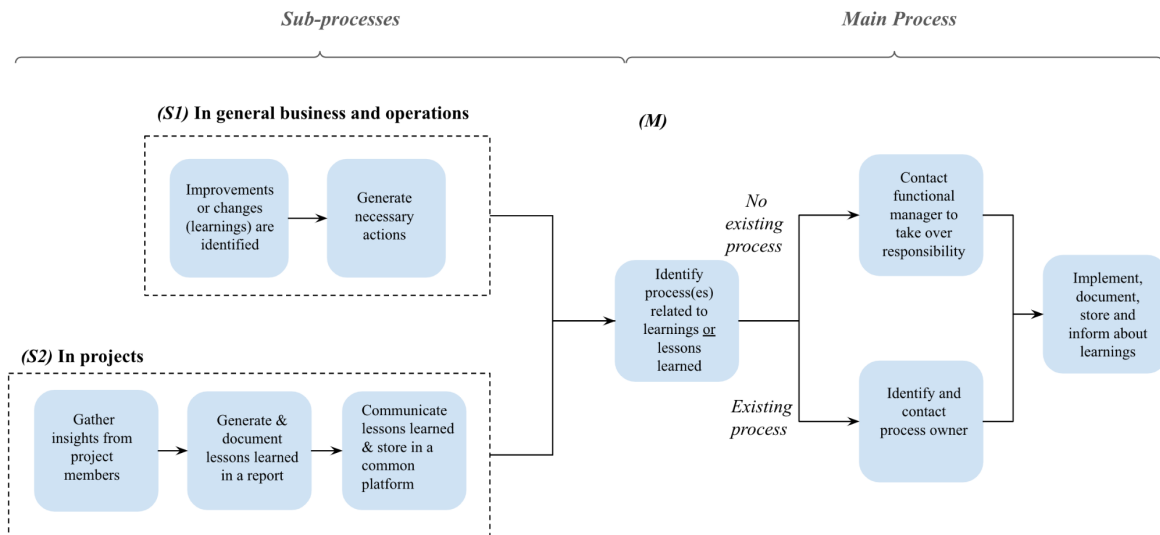
Figure 7.11: The formal learning process suggested in Guideline 3.

To support the process in Figure 7.11, task descriptions as well as suggestions regarding who should be responsible for each task are provided in Table 7.2. However, as described in the beginning of Section 7.4, the ownership of the learning process is proposed to lie with the Category Manager at IKEA Food as the process involved more than CFLS employees.

Table 7.2: Description of tasks and responsibilities in the learning process of Guideline 3.

Process	Task	Description	Responsible *(S1, S2 & M indicating sub-process)*
S1	Improvements or changes (learnings) are identified	Learnings are identified in daily work or when handling events or incidents. Such as when managing risks.	Employee that identified the learning and/or functional manager
	Generate necessary actions	Translate the possible improvement or learning into necessary points that actions can be taken on.	Employee that identified the learning and/or functional manager
S2	Gather insights from project members	A standardized sheet for collecting insights from employees that can be of assistance when identifying challenges at the end of a project, but workshops during a project can also be applied.	Project Leader
	Generate & document lessons learned in a report	Description of how to translate challenges into lessons learned and actionable points.	Project Leader
	Communicate lessons learned & store in a common platform	Store the report in a platform accessible for the whole organization such as CANEA One.	Project Leader
M	Identify process(es) related to learnings or lessons learned	Visit CANEA One and identify the processes that shall be improved	*S1*. Employee that identified the learning *S2*. Project Leader
	Identify and contact process owner	Through CANEA One, find the process and identify and contact the process owner.	*S1*. Employee that identified the learning *S2*. Project Leader
	Contact functional manager to take over responsibility	If no process is found, contact own functional manager to take learnings further.	*S1*. Employee that identified the learning *S2*. Project Leader
	Implement, document, store and inform about learnings	An updated process description shall be created and documented. When finished, it shall also be uploaded to CANEA One. Each mentioned role in the process, shall be informed about the implemented improvements.	*M*. Process Owner *S1*. Employee that identified the learning *S2*. Project Leader

8 Conclusion and Discussion

The eighth chapter provides the conclusion and discussion of the thesis. First, the purpose and research questions are revisited in Section 8.1 along with a discussion of the fulfilment of these. Then, the theoretical and practical contributions are discussed in Section 8.2 and 8.3 respectively. Lastly, the limitations of the thesis and suggestions for future research are presented in Section 8.4.

8.1 Fulfilment of Purpose and Research Questions

The purpose of the thesis was stated in the first chapter as *"to understand what is needed to work with proactive SCRM as well as to create guidelines for IKEA CFLS"*. To fulfil the purpose, the RQs in Section 8.1.1 and 8.1.2 were investigated through the DS Research approach as the overall research method of the thesis. It was conducted by iterating between the four phases *Framing, Creating, Validating* and *Theorizing*. *Framing* consisted of both conducting a literature review to understand the literature's point of view and a multiple case study at IKEA CFLS to investigate the organization and its current practices. The *Creating* phase has consisted of both a case analysis and the development of the guidelines. *Validating* was conducted through a feedback workshop at IKEA CFLS where a first draft of the guidelines was presented. Lastly, *Theorizing* is done by writing and publishing this report.

8.1.1 RQ1: How Can Companies Work with Proactive SCRM According to Literature?

Before being able to provide IKEA CFLS with guidelines, it was important to understand the concept of proactive SCRM as well as what the existing literature suggests it should include. A literature review was conducted to get an overview of the current knowledge on proactive SCRM. Through the Web of Science, eight key references were collected and covered the four areas *risk categories, SCRM, proactive SCRM* and *organizational aspects*. To retrieve a larger set of literature, citation pearl growing was used. The literature was used to understand and describe what the existing literature says about proactive SCRM. First, the setting IKEA CFLS operates in was described and a theoretical baseline was provided to give some context before focusing on proactive SCRM, such as process steps, tools and methods. Lastly, the organizational aspect of proactive SCRM was explored.

The findings from the literature review were presented in a conceptual framework in Section 3.7. Proactive SCRM is described to derive from RM and SCM. The framework illustrates an iterative proactive SCRM process containing the four commonly mentioned steps *identification, assessment, mitigation* and *monitoring*. For each step, a description of why it is important, what the output of it is and how it can be conducted is presented in the framework. For *identification,* it was discovered that its importance lies in the fact that only identified risks can be managed proactively. The goal with the *identification* step is to find a set of risks to handle. Moreover, it can be conducted with the help of several different tools such as SC maps, the Reinforcement Learning-Based Framework, risk categorization and Stress Testing. The purpose of the *assessment* step is to create an awareness of the likelihood of occurrence and potential impact of the identified risks to be able to prioritize them. The assessment is preferably a combination of quantified data and subjective reflections. As for *identification*, there are several tools to choose among when performing the assessment of risks. In the literature review the Risk Matrix, Spider-Web Tool and Reinforcement Learning-Based Framework were described as different options. After the assessment comes the *mitigation* step. This is where strategies of how to treat the risk are developed and carried out with the goal to return to the original or a new preferred state. The literature review revealed there are five commonly mentioned

risk mitigation strategies; *Avoid, Reduce, Transfer, Share* and *Accept*. To get some guidance in which strategy to select for differently prioritized risks, the Mitigation Strategy Matrix can be used. The fourth and last step *monitoring* is performed to keep track of the mitigated and non-mitigated risks by continuously re-assessing them. The purpose of monitoring risks is to get early warnings if circumstances are changing. Monitoring can be conducted manually or automatically depending on what resources are available at the company and which tools are used in the previously mentioned steps. For example, manual monitoring can be done by updating SC maps or the Spider-Web Tool and automatic monitoring can be performed by computer systems as the Reinforcement Learning-Based Framework suggests.

Impacting the whole process (all four steps) of proactive SCRM is the organizational aspect illustrated as the foundation to proactive SCRM in the conceptual framework (see Section 3.7). It is found that the organization must support the RM by allocating resources, providing formal processes, establishing clear responsibilities, and lastly facilitating cross-functional collaboration. The Maturity Model is an instrument that can be used for evaluating RM efforts as well as provide guidance on how to advance and reach a desired state. The model consists of five levels, which each are described with several criteria. To reach a higher level of maturity, cross-functional collaboration is required.

Lastly the setting for a company operating in the food-retail industry was explored with the finding that there are special characteristics of the goods such as a temperature-controlled SC. Additionally, the products have a limited shelf life and to ensure food safety a higher frequency of deliveries are required. Lastly, varying weight, sizes and fragility of the products makes storage and transportation complex. Due to the mentioned requirements, food products have specific sets of risks connected to them.

8.1.2 RQ2: How Can Guidelines be Designed to Improve IKEA CFLS Current Work with Proactive SCRM?

To understand how IKEA CFLS currently are working with SCRM, two cases were studied through semi-structured interviews, observations, and secondary data, along with complementary interviews to understand the complex organizational setup of IKEA Food. The first case, referred to as Case DC, concerns a major recent crisis at IKEA CFLS where a project for opening a new DC took unexpected turns. The second case, referred to as Case Labelling, is an ongoing project initiated to act reactively upon a crisis regarding missing to act upon a change in legislation.

The empirical data was analyzed through inductive coding, adapted by Gioia et al. (2012). First, the cases were analyzed individually through a within-case analysis and were thereafter compared. The result of the coding was presented as five dimensions describing improvement areas and possible causes to the current state. The first dimension was *Lack of resources is an obstacle to work proactively with SCRM* and describes that not enough resources are currently allocated to risk processes, additionally no action plans on how to handle incidents are in place. The second dimension was *Efforts to become more proactive are limited to projects or top management level* meaning that all proactive efforts are either performed at a high level or are limited to projects. The third dimension was *Lack of communication* as there currently is no centralized or common system used to communicate and there is little communication about risks overall. The fourth dimension was *Lessons learned are sometimes neglected, but there is a desire to improve and incorporate them,* which highlights the fact that lessons learned are not always documented or shared which in turn leads to recurrent issues. Lastly, the fifth dimension *No "we" in the organization* addresses issues such as how the organizational setup leads to a silo mentality, and the low willingness to collaborate. It was also found during the analysis that very few of the quotes linked to setting are believed to impact how

the organization works with risks as these were not included in the identified themes. However, it can impact the complexity of the mitigation action as it did in Case Labelling, therefore it is still important to keep in mind the details when working and addressing risks, although the processes designed are not affected. Moreover, the coding and case analysis were supplemented with a gap analysis in three areas; *requirements on the organization, proactive SCRM process* and *lessons learned*. The gaps were identified by comparing IKEA CFLS practices to what the literature suggests. The identified gaps and the earlier developed dimensions were translated into proposals with support in the literature review of how to close the gaps. It is these proposals that laid the foundation to the content of the guidelines. This resulted in a first draft of three guidelines for IKEA CFLS. Then, a feedback workshop was held with IKEA CFLS employees to investigate the understandability and applicability of the guidelines. Taking the feedback into account, the final version of the guidelines illustrated in Figure 8.1 could be developed.
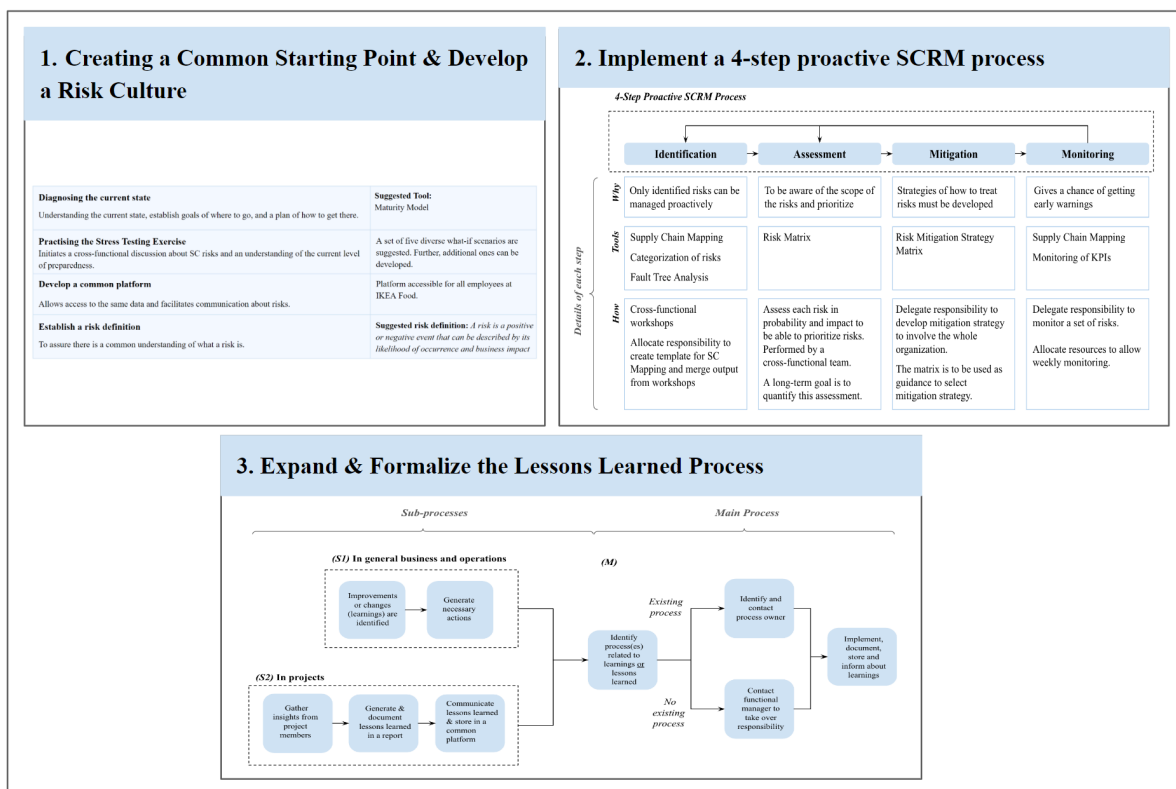

Figure 8.1: Illustration of the three guidelines that answer RQ2.

The first guideline is named *Guideline 1: Create a common starting point & Develop a Risk Culture* and describes what is required to be done at IKEA CFLS prior to implementing any new SCRM processes. It consists of two parts: *Diagnosing the current* state and *developing a risk culture*. The first part is important to get an understanding of what the starting point looks like i.e., what the prerequisites are. This is suggested to be performed partly through a self-assessment by rating IKEA CFLS' RM work in the Maturity Model. The Stress Testing Group Exercise is also suggested to support in diagnosing the current state by exploring different what-if scenarios.

The second guideline is named *Guideline 2: Implement a 4-step proactive SCRM process* and describe how IKEA CFLS can perform the iterative proactive SCRM process illustrated in the conceptual framework. *Identification* is proposed to be performed in cross-functional workshops with the tools SC map, risk categorization in terms of operational risks and disruption risks as well as the FTA. *Assessment* is proposed to be conducted similarly to what IKEA CFLS is doing in projects,

meaning the Risk Matrix should be used. However, the assessment should not be limited to project related risks, and it is proposed to be performed in cross-functional workshops. The long-term goal for this step should be to quantify the assessment. *Mitigation* is found to be well functioning currently, but as the risks to be mitigated will increase and go beyond projects, the responsibility must be delegated to everyone in the organization both in terms of developing and carrying out the strategies. To assist in this process, the Risk Mitigation Strategy Matrix is proposed as it goes well along with the Risk Matrix. Lastly, *monitoring* is proposed to be delegated to the same employee(s) being responsible for mitigation and should be conducted on a weekly basis. KPIs are proposed to be tied to different risks to get indications if circumstances are changing. Moreover, the SC map should be updated continuously. The responsibility for the proactive SCRM process is recommended to lie at the top management level, tentatively at the Category Manager for IKEA Food, but responsibility for bringing it into the daily work should also be delegated to the functional managers.

The third guideline is named *Guideline 3: Expand & Formalize the Lessons Learned Process*. The purpose of these guidelines is to generate and implement learnings to avoid having recurring mistakes or inefficient ways of handling a process or task. By generating learnings, current routines or processes can be improved for the future. The guideline consists of a suggested process on how to generate learnings both from projects, but also from the daily operations. Currently, IKEA CFLS does not take learnings from the daily business in a systematic way, so Guideline 3 attempts to support this.

8.1.3 Purpose Fulfilment

It is concluded that the purpose of the thesis: *"to understand what is needed to work with proactive SCRM as well as to create guidelines for IKEA CFLS"* is fulfilled. The conceptual framework presented in Section 3.7 addresses the first part of the purpose "*to understand what is needed to work with proactive SCRM*" by describing what the literature suggests is needed to work with proactive SCRM. It takes several aspects into account such as the setting and organization. Moreover, it provides a clear overview of a process consisting of the most mentioned steps suggested to be carried out in proactive SCRM as well as what tools and resources each step requires. The second part of the purpose, "*to create guidelines for IKEA CFLS*" is fulfilled by the three developed guidelines. They were created with the conceptual framework as well as KEA CFLS current situation and challenges in mind. The guidelines include organizational aspects, processes, and tools.

8.1.4 Discussion of Findings

The generation of guidelines for IKEA CFLS has been a constant balance between developing proposals that are best aligned with literature and what is manageable at IKEA CFLS for now as they are beginners at proactive SCRM. As an example, Fan & Stevenson (2018) found that many researchers suggest complex methods, while companies often apply simpler methods such as SC mapping. In the analysis, some low hanging fruit was found that is believed by the authors to have the possibility to make a large difference. Two examples are the stress testing exercise to put proactive SCRM on the agenda as well as creating an organization-wide understanding of risks, and the lessons learned process where reflections are made of what can be improved, but not utilized. However, to truly adapt the proactive SCRM approach, large resources and efforts are required. Moreover, it is the authors perception that these must come from top management and include all of IKEA Food in a common effort, which lies outside of the scope of the thesis which is limited to what IKEA CFLS can implement. However, the more resource-heavy, and long-term options have been included in the thesis like implementing an automated SC map or making proactive SCRM part of every employee's daily work. Moreover, the guidelines include tools and processes that are considered suitable to expand upon as the maturity in proactive SCRM advances. For example, more resource-heavy

computer systems can be implemented to offer an automated SC map and automated monitoring. Additionally, different options for how to quantify the assessment of risks in the Risk Matrix has been included in the literature review (see Section 3.4.3) even though it should be adopted when a higher level of maturity is reached (Proença et al., 2017). The idea is that IKEA CFLS can adopt the proposed guidelines with their current maturity to build a risk culture and get the most essential processes in place.

Another aspect of the findings that the authors want to emphasize is that IKEA CFLS is a project-oriented organization. It is the authors' perception that projects are a great way of developing the business, but as for proactive SCRM, it is not suitable to be limited to projects as projects have an ending date, while proactive SCRM is something that needs to be handled continuously. There must be resources in the daily business allocated to proactive SCRM to succeed. With this discussion point, the authors want to highlight the issue with the fact that projects get temporary attention and resources. Moreover, it is always closed when the objectives are achieved. This project-oriented way of thinking cannot be brought into proactive SCRM as the literature review clearly revealed the need for an iterative process.

8.2 Theoretical Contribution

The thesis is aimed at contributing to existing literature in the field of proactive SCRM in three ways. First, by providing insight in cases from IKEA CFLS and its unique setting. The empirical data provides a rich description of how IKEA CFLS works with SCRM. Second, by conducting a literature review with sources up until the beginning of 2023, this thesis can contribute to the existing literature to some extent as it adds to the existing set of summaries and frameworks for proactive SCRM. Third, the Maturity Model for RM developed by Proença et al. (2017) is used throughout the thesis to assess IKEA CFLS, both by the authors and by the interviewees. The usage of the model and the reflections from it can also be considered a theoretical contribution.

The setting of IKEA CFLS and the characteristics of their goods were considered but one finding in the analysis is that this did not impact how IKEA CFLS should work with proactive SCRM. Meaning that the setting does not impact the suggested processes, which is considered a theoretical contribution itself. This is strengthened by comparing the findings with those of Norrman & Wieland (2020) when they were revisiting Ericsson after having implemented a proactive approach to SCRM. The findings are similar, even though Ericsson and IKEA CFLS do handle completely different goods with different requirements and risks. Therefore, a contribution to literature is that findings from another company are strengthened by being similar in this (IKEA CFLS) context. The generalizability of these theories is strengthened by being confirmed in a new setting in this thesis. This points towards a possibility that there could be an analytical generalizability in this thesis, but it cannot be stated for sure as more research must be conducted to analyze if this is true.

8.3 Practical Contribution

The fact that similar findings to what Norrman & Wieland (2020) came up with at Ericsson also were found at IKEA CFLS results in two different contributions. As both IKEA and Ericsson are large global companies, and the findings are similar, the authors believe there could be many other companies who could take learnings from the issues highlighted in the thesis, which is a theoretical contribution. On the same note, this is a good practical contribution to IKEA CFLS as the findings point towards the opportunity for them to take and give inspiration from/to the IKEA Home Furniture business even though being exposed to different risks. The proactive SCRM might not be identical in

details, but the findings from the thesis point towards a possibility that the overall processes and organizational factors could be similar.

The thesis can act as a pre-study for IKEA CFLS as it investigates proactive SCRM and proposes guidelines specifically designed for their organization and current maturity. The analysis highlights areas of improvements, both related to proactive SCRM but also organizational factors. This can in turn work as a motivating factor that it is possible to constantly work with improvements and challenge the organization to grow and refine. Moreover, the guidelines address what should be implemented at the current state, but also provide suggestions for how to advance and propose long-term goals. Therefore, the thesis overall can be considered a practical contribution for IKEA CFLS to explore. However, it can also be used by other companies as it highlights and practically examines one company and addresses organizational factors and how these can impact their work with proactive SCRM. As the organizational factor seem to be of importance for IKEA CFLS's work with proactive SCRM, the thesis can emphasize the significance of this in improving SCRM practices. Other companies can implement the guidelines to foster a risk culture and a culture of learning. Lastly, as the first RQ focuses on how companies overall should work with proactive SCRM, the answer can be used to develop own guidelines tailor-made to the specific company. As the findings of this thesis point to the fact that the external setting, such as industry, does not play a major role in how companies should work with proactive SCRM, other companies can leverage the findings from this thesis and take inspiration from the guidelines to improve their own approaches to proactive SCRM.

8.4 Limitations and Future Research

As stated in the purpose, this thesis is limited to designing guidelines for IKEA CFLS on how to work proactively with SCRM. Therefore, no implementation effort is made. Even though a feedback workshop was held with IKEA CFLS employees to validate the applicability, nothing is investigated regarding an actual implementation. Moreover, only three employees participated during the workshop, even though more were invited. The low representation from IKEA CFLS might derive from the lack of resources discussed throughout the thesis. It limits the feedback gathered and thereby also the confidence in the guidelines' applicability. Therefore, IKEA CFLS can assess the guidelines further in larger workshops to get more input on the applicability. Moreover, they could investigate what an implementation plan could look like as well as deciding on a suitable time frame.

Due to directives from the company, the scope of the thesis is limited to IKEA CFLS, meaning only a part of IKEA Food has been analyzed. IKEA Food overall is considered in several parts of the thesis when impacting IKEA CFLS and employees outside of IKEA CFLS have been interviewed when required. However, the focus has been limited to IKEA CFLS and the guidelines are designed to fit this organization. Thereby a limited number of employees have been interviewed and a limited number of perspectives from IKEA Food has been shared. IKEA CFLS can conduct a collaborative study with the rest of IKEA Food to complement the thesis and cover the whole SC in proactive SCRM. For example, the procurement function is not part of IKEA CFLS, but is a vital part of the SC and should be invited to a joint effort on proactive SCRM.

Due to time constraints, only two cases were investigated in the case study, hence it is a limitation in the empirical data that has been analyzed and used as an input for the development of guidelines. Additionally, a limited literature review was conducted meaning that the conceptual framework only covers a limited number of articles and thereby also aspects. Therefore, there could be other interesting areas or tools suggested that could be relevant for IKEA CFLS. If interested to deepen the knowledge further within the topic of proactive SCRM, IKEA CFLS can conduct a more extensive review of existing literature.

As the thesis is limited to investigating proactive SCRM, there are some aspects that limit the findings in terms of not covering the full picture of RM at IKEA CFLS. First, all aspects and impacts of implementing proactive SCRM cannot be covered by the thesis as the reactive part of SCRM is not considered. As the two approaches are linked and impact one another, this can be a limitation of the thesis. Therefore, it is suggested that IKEA CFLS investigate what implications the guidelines will have on reactive SCRM and if they can be extended to include both approaches. Second, no business case has been conducted to strengthen the proposals. This also relates to the fact that only the proactive approach to SCRM is taken into consideration. As the proactive and reactive approaches are linked, it is the authors perception that the business case should consider the totality and not be limited to only one of the approaches. This is also something that is suggested to be conducted by IKEA CFLS as it could be an interesting driver of change to get resources allocated to proactive SCRM. Third, both cases investigated are official projects with an assigned project manager. They differ in the sense that one project was planned (Case DC) and the other was a reactive response (Case Labelling), but the fact that they are projects remains and the full picture of SCRM in the daily business cannot be given in the thesis.

Lastly, five future research areas related to SCRM that intrigues the authors are proposed in this paragraph. First, as future research it is suggested for researchers to put more emphasis on the business case side of working with proactive SCRM, meaning if it pays off to be proactive compared to having simply a reactive approach. Additionally, where the threshold is for it to become profitable as this was requested by IKEA CFLS during the thesis. IKEA CFLS can be revisited to evaluate if a business case can support the effort to become proactive in SCRM. Moreover, other aspects such as how the potential implementation went can be examined. Second, the authors suggest what role new technologies such as Blockchain and Artificial Intelligence can have in enhancing proactive SCRM. For example, in terms of enabling real-time monitoring and early risk detection. Third, it would be interesting to examine how the organizational culture influences the adoption and implementation of proactive SCRM practices. One cultural factor to investigate could be communication as it seems to have impacted IKEA CFLS in their RM work. Additionally, as it is suggested that expert judgements by Fan & Stevenson (2018) can be a part of assessment of risks, it would be interesting to further explore human factors and risk perception, i.e., to understand how individual risk perception and biases can impact SCRM. The last and fifth suggestion is to investigate how environmental and sustainability risks such as climate change and resource scarcity can be integrated in proactive SCRM as it is a relevant topic (Swansroop, 2022), see Section 1.1.

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Appendix

Appendix A – Maturity Model Presented to Each Interviewee

As part of the interview guide, the interviewee got to place IKEA CFLS in the Maturity Model developed by Proença et al. (2017). The following description was provided to each interviewee to assist in the task to place IKEA CFLS in one of the five levels.

RISK MANAGEMENT MATURITY MODEL
With any skill, an organization can perform better or worse. Maturity is a term commonly used to describe the improvement or progression of a skill. Below is a Maturity Model that aids measuring maturity of RM practices. The SCRM maturity is an indication of how well prepared an organization is to handle supply chain disruptions. The more mature an organization is, the more systematic and organized is the work.
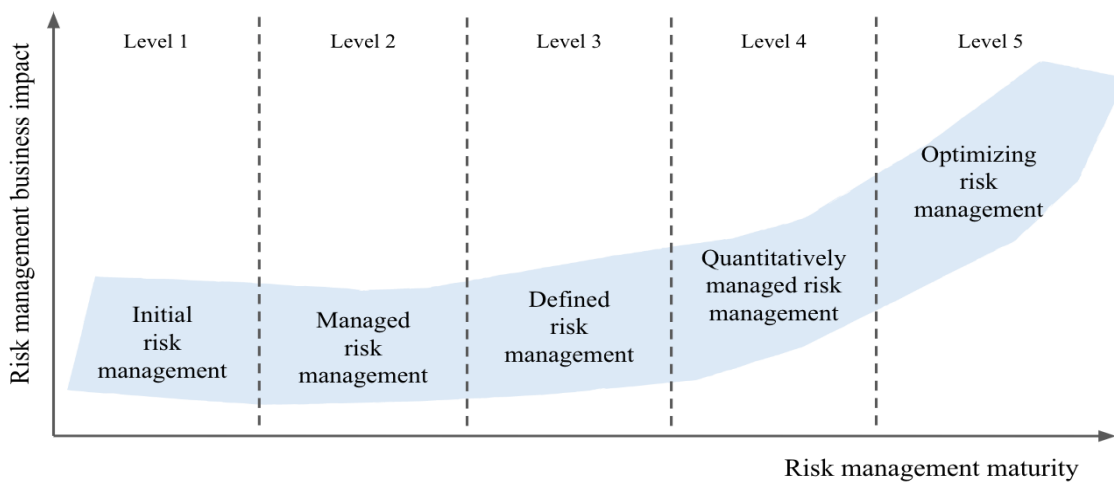
Description and criteria of each level in the Maturity Model

Level 0 - No Risk Management
No work with risk management exists at all

Level 1 - Initial Risk Management
The organization is aware of the need for risk management and performs basic tasks across the organization. No formal processes are followed, and risk management work is based on intuition.

- There is a RM report

Level 2 - Managed Risk Management
Risk activities are planned for, assigned to personnel and performed. However, no formal processes are followed.

- People are assigned to risk management
- Resources are available for risk management

Level 3 - Defined Risk Management

Risk management work is consistent throughout the organization. Tools and procedures are performed centralized. Collaboration across the organization exists to identify, asses and communicate risks.

- The organization provides training in risk management
- Risk management is integrated in all organizational processes
- The organization defines rationale/logic for managing risks
- Responsibilities in RM are identified accordingly to every position in the organization
- All identified risks have an owner
- The way the organization deals with conflating interests is defined
- Stakeholders perceptions are identified, recorded, and taken into consideration in decision making
- Communication and consultation take place in all activities of risk management process
- There is a communication and consultation plan
- The organization establish its internal and external context
- Organization defines risk criteria
- The organization goals and objectives for risk management are the same in the entire organization and are aligned with all other organizational objectives
- Risks are found, recognized and described
- Determination of risk level
- Risks are compared with the previously defined risk level
- Risk to be treated are prioritized
- There is a procedure to identify potential positive risks
- Risks from not pursuing an opportunity are identified
- The interdependence between risks different risks and their sources are studied
- Consideration and communication in the confidence of the risk level determination and its sensitivity to preconditions and assumptions
- The cost versus benefit is considered for each risk treatment option
- There is appreciation treatment communication and monitoring of secondary risk
- Risk management activities are recorded
- All risk management activities are monitored and reviewed
- Monitoring and reviewing risks is scheduled

Level 4 - Quantitatively Managed Risk Management

Quantitative methods exist to measure and evaluate different risks. A combination of data and judgment is used.

- Process quality and performance objectives exist
- There are measures and analytic techniques for quantitative risk management
- Process performance analysis exist
- Process performance baselines exist
- There is frequent and comprehensive reporting of risk management performance

Level 5 - Optimizing Risk Management

Cross functional collaboration and commitment to risk management from everyone in the organization. Long-term and short-term risk management. Resources are optimally allocated to work with risk reduction.

- There are potential areas for improvement
- Improvements alternatives are selected and implemented
- There is evaluation of the effects of improvement
- Causes of selected outcomes are determined
- Causes of selected outcomes are addressed

Appendix B - Interview Guide for the Complementary Interviews about Overall Organizational Aspects

The interview guide used in the interviews regarding the organizational setup is presented in this section. The interview is divided into six parts. In these parts there are overarching questions presented in Italic text. Below these questions, there are bullet points that allow for the interviewer to tick off the areas needed from each question.

INTRODUCTION
Us
- Introduce us, the thesis and its purpose
- Explain the purpose of the interview
- The interviewee will be anonymous
- Ask for allowance to record the interview

Interviewee
Can you describe your role?
- What are your tasks?
- How long have you been in this role?
- Where in the organization are you?
- Who are you collaborating with on a regular basis? What other roles do you have insight into?

ORGANIZATION
Organizational structure
What does the organizational structure look like at IKEA CFLS?
- What teams? How are they linked? What are they responsible for?
- Hierarchy-structure?
- Who/what part of the organization works with RM?
- How does the information flow work?

How and in what ways are IKEA Food connected to IKEA Furniture?
- Do you collaborate with RM?

RISK
How do you work with risks to avoid a crisis?
- Do you have any frameworks or standardized routines?
- Who is responsible for ensuring that they are followed? What part of the organization works with this?

How do you work when a crisis occurs? (reactive)
- Do you have any frameworks or standardized routines?
- Who is responsible for ensuring that they are followed? What part of the organization works with this?
- Can you walk us through the sequence of events from the point that a crisis occurs until it is over? (identification, management, changes/lessons learned)

How is the information regarding RM shared and stored?

- How is the information stored?
- Where can you find the information?
- how/when is the information updated?
- Who has access to the information?

MATURITY MODEL
Risk Management Maturity Model, see Appendix A.
- Explain the Maturity Model
- Ask the interviewee to rate IKEA CFLS in the Maturity Model and briefly explain their thought.

DATA
Is there any kind of information that we can access? Such as data or documentation of:
- Supply chain
- Risk management processes

SUMMING UP THE INTERVIEW
- Are there any documents or other supplementary data relating to the case that we can access?
- Is it ok for us to contact you again if we missed asking a question?
- Explain that the interviewee will receive and be able to approve what is used from the interview, to ensure that we have understood correctly

Appendix C - Interview Guide for Case DC & Case Labelling

The interview guide used in the interviews regarding the two cases is presented in this section. The interview is divided into six parts. In these parts there are overarching questions presented in Italic text. Below these questions, there are bullet points that allow for the interviewer to tick off the areas needed from each question.

INTRODUCTION
Us
- Introduce us, the thesis and its purpose
- Explain the purpose of the interview
- The interiviewee will be anonymous
- Ask for allowance to record the interview

Interviewee
    Can you describe your role at IKEA CFLS?
- What are your tasks?
- How long have you been in this role?
- Where in the organization are you?
- Who are you collaborating with on a regular basis? What other roles do you have insight into?

DESCRIPTION OF THE EVENT
The crisis /disruption
    Can you describe what happened?
- When?
- Why?

Before
    How did you work before the crisis? Was there any thought/indication that the crisis could occur?
- Could you have done something to avoid the crisis from happening?
- Were there any indications that this would happen? Was there anyone who identified the risk of the crisis occurring? I.e. flagged the crisis in advance?
- Was there a management plan for this type of crisis?

During
    Can you take us through the sequence of events from when you were informed of the crisis to when you started acting to deal with it?
- How were you informed?
- How long after you perceived the crisis did you begin to deal with it/act? For example, appoint a working group that has responsibility for solving the crisis.
- Were there any routines that you could follow to handle the crisis?
- What was done at IKEA CFLS?
- What was done by others?
- Who was involved? Can you describe your role?

    What was not done to handle the crisis?
- What should have been done according to you?
- Who else should have been involved according to you?

After

    What was the effect of the crisis?
- Are there any routines for how the follow-up work looks like after a crisis?
- Have you made any changes after the crisis in your routines/organization etc? Has your approach changed?
- Have you as an organization learned from the crisis? What?

ORGANIZATION

What parts of the organization /teams etc, are involved when a crisis occurs?
- Is there a specific part of the organization that works with risks and crises?
- What might a group to work on a specific project/crisis look like?
- How is knowledge about a crisis and RM generally shared?

Information sharing

What does communication look like during a crisis?
- How was the information about the crisis shared with you?
    - By who?
    - With whom?
    - When?
- How is information regarding crises or potential ones stored?
- How is information compiled after a crisis has occurred? Is there anyone evaluating how you handled the crisis?

IN THE FUTURE
Until next crisis / Proactive

Based on your learnings from this crisis, how do you think you as an organization should prepare for the next crisis?
- What can you do differently compare to what you do today/did before?

MATURITY MODEL

*Risk Management Maturity Model, see Appendix A.*
- Explain the Maturity Model
- Ask the interviewee to rate IKEA CFLS in the Maturity Model and briefly explain their thought.

SUMMING UP THE INTERVIEW
- Are there any documents or other supplementary data relating to the case that we can access?
- Is it ok for us to contact you again if we missed asking a question?
- Explain that the interviewee will receive and be able to approve what is used from the interview, to ensure that we have understood correctly

Appendix D - Figure to Illustrate the Overall Topic of the Thesis

During the start of every interview, the thesis and its purpose is explained. In connection to this, the following figure was also displayed and discussed further with the interviewee.
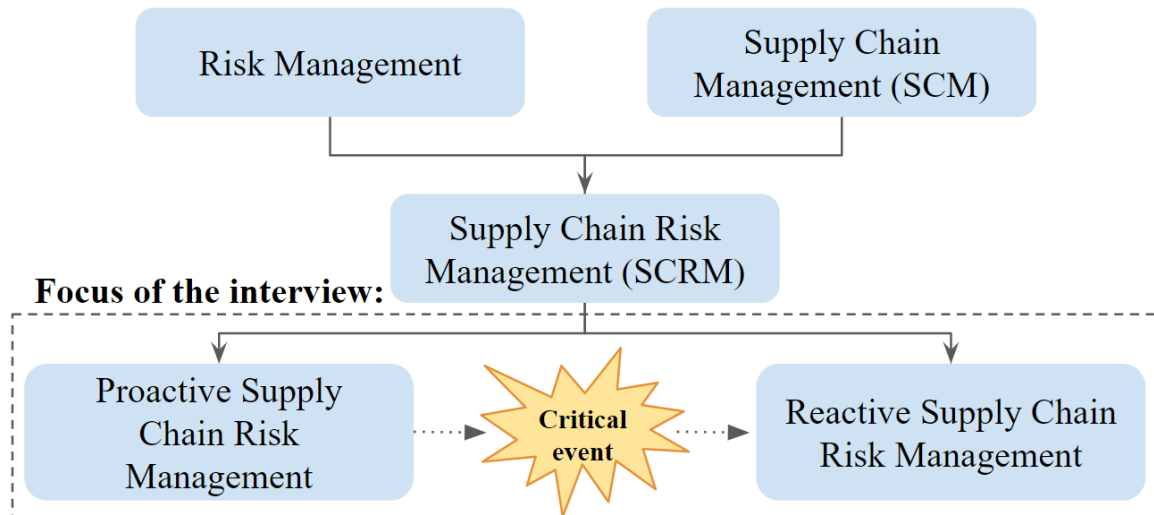
Appendix E - Agenda of Feedback Workshop & First Draft of Guidelines

As part of the validating phase in the constructive approach, a feedback workshop was held to get the IKEA CFLS employees opinions on the first draft of the developed guidelines. The slides presented below described the agenda of the workshop as well as the first draft of the guidelines that were discussed during the workshop.

Agenda

- **Definition of key terms** *(See Section 3.2)*

- **Recap of thesis & purpose of workshop**

- **Why is this relevant for IKEA CFLS?** *(See Section 1.1)*

- **The data behind our guidelines** *(3. Literature review, 5. Empirics & 6. Analysis)*

- **1st draft of guidelines**

- **Discussion & Reflection** *(See Appendix F)*

Guideline 1: Creating a Starting Point

Diagnose & create an organization-wide understanding of the current state prior to implementing any new risk management processes

Why is it important?

Organizations that have a well developed, matured risk and integrity culture are outperforming competitors in terms of handling challenges.

What tools can be used?

The Maturity Model
- Comes with criteria for each level

Stress Testing Group Exercise
- Explore what-if-scenarios

What is required from the organization

- When the current state is known, top management needs to involve all employees so a a risk culture can be developed.
- Communication is a key to achieve the risk culture.
- Allocating resources is crucial to get started with risk management work.
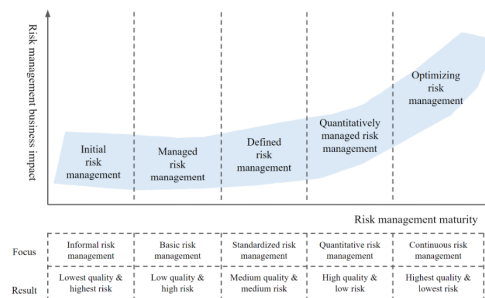
Guideline 2: Implement Four Proactive Supply Chain Risk Management Processes

122
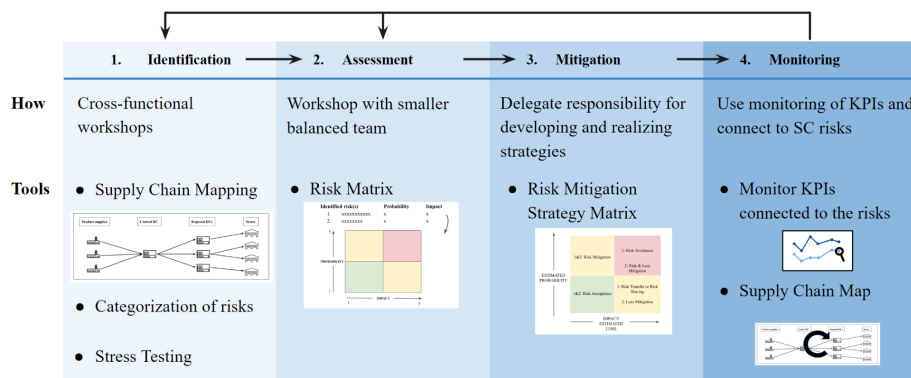
Guideline 2 - Step 1 (Identification)

The risks are suggested to be identified in workshops with cross-functional teams to allow for a risk culture to form.

Why is it important?

Only identified risks can be managed proactively.

Tools and techniques that can be used in the workshop:

SC Mapping & Categorization of risks
Stress Testing
- Developing and exploring What-if-scenarios

What is required from the organization

- A common definition and understanding of what a risk is
- Allocate resources for this process
- Invite other functions to create a holistic understanding of risks and gather various perspectives. This will allow personnel to get an understanding of other roles and how they are affected.
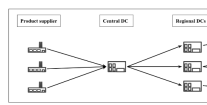
What-if scenarios
e.g. What if:
"there is an earthquake in XX"
"our systems are hacked?"
etc.

Guideline 2 - Step 2 (Assessment)

Assessment of the identified risks can be done in two dimensions: Probability of Occurrence and Estimated Impact. Based on the placement, prioritization of risks can be made.

Why is it important?

Assessment of the risks should be made to prioritize them

***Assess the risk in terms of probability and impact***

Risk Matrix
- Operational risks can be assessed by using SC Mapping performed in previous stage and discuss in workshops.
- Disruption risks assessment can be aided by the World Economic Forum Yearly Report for global risks. Where those are assessed and discussed.

Methods for quantifying risks
- Probability- Normal distribution
- Impact - Revenue loss by six SC factors

What is required from the organization

- Give extra resources to allow for time being allocated
- A formal process needs to be created in order to make sure the assessment of risks is consistent as well as performed and reviewed regularly
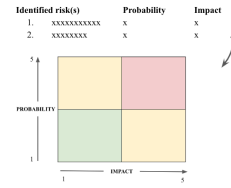
Guideline 2 - Step 3 (Mitigation)

Based on the assessment of the risks, various mitigation strategies can be developed and performed to handle the risks proactively.

Mitigation Strategies

- Avoid
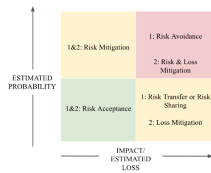- Reduce/Mitigate
- Transfer
- Share
- Accept

Tools

Risk Mitigation Strategy Matrix
Strategies depending on where in the risk matrix the risk has been placed.

What is required from the organization

- Responsibility to conduct this step must be assigned
- Once a mitigation strategy is developed, responsibility for realizing it must also be delegated

Based by suggestions from e.g.
1. Fan & Stevenson (2018) , 2. Knemeyer et al. (2009)

Guideline 3: Create a More Extensive Lessons Learned Process

Improve the current lessons learned process by designating time to write the report and provide more instructions on how to generate, store and communicate them. Actions should also be taken to make changes according to the lessons learned.

Why is it important?

Lessons learned can prevent fire fighting as preventative actions could be developed from earlier experiences. Sharing knowledge (e.g. lessons learned) with the organization is also good for increasing cross-functional communication.

What tools can be used?

- A clear processes of how to generate and store lessons learned.
- A standardized sheet for collecting insights from project members can be developed to assist the project leader.

What is required from the organization?

- Time must be given to create a thorough lessons learned report and implement changes based on it.
- A platform (like CANEA One) must be prepared to store the reports.
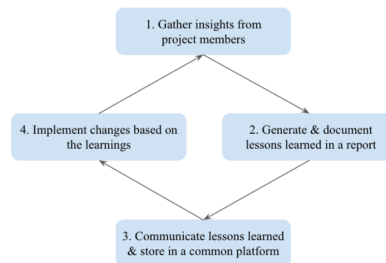
Appendix F - Feedback from the Workshop

During the feedback workshop presented in Appendix E, each guideline was discussed and reflected upon with help of two questions and five claims to be rated on the Likert Scale. Below are the questions and a summary of the answers from the IKEA CFLS employees.

Guideline 1: Creating a Starting Point

Who/Whom at IKEA CFLS could have the ownership of this process?
Answer:
The category manager should have ownership, but the different functional managers should be assigned responsibility for incorporating it in their function.

In your opinion, is there anything missing in this guideline?
Answer:
How to interact/include stakeholders outside of CFLS and more detailed instructions for the stress testing exercise

Please rate the following statements with the guideline in mind

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
The purpose of the guideline is clear	●	●	●	●	●
It is easy to understand the guideline	●	●	●	●	●
The guideline is relevant for IKEA CFLS	●	●	●	●	●
The guideline is possible to implement at IKEA CFLS	●	●	●	●	●
The guideline is detailed enough	●	●	●	●	●

Guideline 2: Implement Four Proactive SCRM Processes

Who/Whom at IKEA CFLS could have the ownership of this process?
Answer: The category manager overall and the functional managers of CFLS should ensure that it is used and taken into account for all steps

In your opinion, is there anything missing in this guideline?
Answer: A definition of what a risk is to make sure they are aligned/have a common definition. Additionally, the SC map is interesting as they are not using one and can't create one as it is now. It would be interesting to hear about the cost of being proactive or simply having a reactive approach.

Please rate the following statements with the guideline in mind

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
The purpose of the guideline is clear	●	●	●	●	●
It is easy to understand the guideline	●	●	●	●	●

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
The guideline is relevant for IKEA CFLS	●	●	●	●	●
The guideline is possible to implement at IKEA CFLS	●	●	●	●	●
The guideline is detailed enough	●	●	●	●	●

Guideline 3: Create a More Extensive Lessons Learned Process

Who/Whom at IKEA CFLS could have the ownership of this process?
Answer: There is a process owner for the general project process that could be the owner of the lessons learned process as well.

In your opinion, is there anything missing in this guideline?
Answer: More specific instructions on how to generate the lessons learned as their perception is that this is not done consistently. Moreover, the name should be changed as, according to one of the participants, the term lessons learned is associated with, and limited to projects.

A tip can be to try to generate actions based on the improvement areas found, as this can aid in understanding of who has/would have the ownership of the specific learning.

There is a process describing How to create a process.

Please rate the following statements with the guideline in mind

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
The purpose of the guideline is clear	●	●	●	●	●
It is easy to understand the guideline	●	●	●	●	●
The guideline is relevant for IKEA CFLS	●	●	●	●	●
The guideline is possible to implement at IKEA CFLS	●	●	●	●	●
The guideline is detailed enough	●	●	●	●	●

Appendix G - IKEA CFLS Placement in the Maturity Model

As part of the analysis, the empirical data was used to place IKEA CFLS in the Maturity Model by Proença et al. (2017). It is used to compare IKEA CFLS employees' perception with the empirical data (and authors perception) of where IKEA CFLS should be placed.

Description and criteria of each level in the Maturity Model	Comments
Level 0 - No Risk Management *No work with risk management exist at all*	
Level 1 - Initial Risk Management *The organization is aware of the need for risk management and performs basic tasks across the organization. No formal processes are followed and risk management work is based on intuition.* ● ~~**There is a risk management report**~~	**Organization:** Identifying and management of risks at a global and high level (for both food and home furniture). **Case DC:** Report at the end of the project to close which involved, among others, risks and how they were managed. **Case Labelling:** Documenting process and risks. But more reactive. This is probably since the case is still ongoing. The plan is to complete the report after.

Level 2 - Managed Risk Management
Risk activities are planned for, assigned to personnel, and performed. However, no formal processes are followed.
 	
  ● ~~**People are assigned to risk management**~~
  ● **Resources are available for risk management** ⚠️
     It was mentioned from many interviewees that this is a point where there is room for improvement as "the project leaders are not report writers". It was also mentioned by a project leader that there was time limitation in regards to completing the risk list for Case DC and that it could have been more holistic if given the time.
	Organization:
	  ● Project in place to work with BCP
	  ● Risk meetings
	  ● Risks identified gets a responsible employee
	  ● Space in operational teams if something occurs
	
	Case DC: The project leader and the steering group is responsible for creating and monitoring the risk list. However, the project leader reports not having the time to do it extensively.
	
	Case Labelling: There is personnel responsible for documenting and developing a process.

Level 3 - Defined Risk Management

Risk management work is consistent throughout the organization. Tools and procedures are performed centralized. Collaboration across the organization exists to identify, assess, and communicate risks.

- The organization provides training in risk management
- Risk management is integrated in all organizational processes
- The organization defines rationale/logic for managing risks
- Responsibilities in risk management are identified accordingly to every position in the organization
- ~~All identified risks have an owner~~
- The way the organization deals with conflating interests is defined
- Stakeholders perceptions are identified, recorded, and taken into consideration in decision making
- Communication and consultation take place in all activities of risk management process
- ~~There is a communication and consultation plan~~
- The organization establish its internal and external context
- Organization defines risk criteria
- The organization goals and objectives for risk management are the same in the entire organization and are aligned with all other organizational objectives
- ~~Risks are found, recognized and described~~
- ~~Determination of risk level~~
- Risks are compared with the previously defined risk level
- ~~Risk to be treated are prioritized~~
- There is a procedure to identify potential positive risks
- Risks from not pursuing an opportunity are identified
- The interdependence between risks different risks and their sources are studied
- ~~Consideration and communication in the confidence of the risk level determination and its sensitivity to preconditions and assumptions~~
- The cost versus benefit is considered for each risk treatment option
- There is appreciation treatment communication and monitoring of secondary risk
- Risk management activities are recorded
- All risk management activities are monitored and reviewed
- ~~Monitoring and reviewing risks is scheduled~~

Organization: The team identifying and assessing the high-level risks are responsible for monitoring them.
They develop a plan for how to communicate and create a reference group for each project.

Case DC: The project leader assigns a person responsible for each of the risks in the risk list.
A risk list was created which is an effort to identify and describe risks.
Risks are rated based on probability and impact. This ranking gives a prioritization order.
Reviewing risks is included in the meeting agenda.

Case Labelling: The project leader is responsible.

Level 4 - Quantitatively Managed Risk Management

Quantitative methods exist to measure and evaluate different risks. A combination of data and judgment is used.

- Process quality and performance objectives exist

- There are measures and analytic techniques for quantitative risk management
- Process performance analysis exist
- Process performance baselines exist
- There is frequent and comprehensive reporting of risk management performance

Level 5 - Optimizing Risk Management

Cross functional collaboration and commitment to risk management from everyone in the organization. Long-term and short-term risk management. Resources are optimally allocated to work with risk reduction.

- There are potential areas for improvement
- Improvements alternatives are selected and implemented
- There is evaluation of the effects of improvement
- Causes of selected outcomes are determined
- Causes of selected outcomes are addressed