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Improving the Sales and Operations Planning process at a Swedish dairy company

Lund University
Faculty of Engineering
Department of Industrial Management & Logistics
Division of Engineering Logistics

Authors
Caroline Geelmuyden & Emma Rasmusson
Supervisor
Jan Olhager, Faculty of Engineering, Lund University
Examiner
Louise Bildsten, Faculty of Engineering, Lund University

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Caroline Geelmuyden and Emma Rasmusson

Abstract

Sales & Operations Planning (S&OP) has for long been a topic of interest in many industries, the structured way of planning and matching supply with demand has proved to be successful in many cases. However, achieving all the benefits that it can offer can be a difficult task. This master thesis has sought to guide a Swedish dairy company in their goal to improve their current S&OP process, firstly by investigating *How the newly implemented process of S&OP in the cheese category is performing* and further on by exploring *What the dairy company needs to improve and develop in order to be successful in their SOP process.* A traditional view presented in literature has been followed in order to find all areas that are essential to achieve the benefits presented. Five key aspects of S&OP are identified and these have served as a basis throughout the master thesis. They are *Leadership, Focus on the people, Incentives and Key Performance Indicators, Communication and information sharing* and *Rules and guidelines.* In order to investigate the current process, a thorough case study constituted of interviews with a wide range of representatives from the company was performed. This case study showed that the current process was inadequate in many ways. The most obvious ones were the lack of meetings and the discontent amongst the employees with the inefficiency of the meetings that actually were held. This led to a gap analysis in which the gaps between literature and the current process were identified. It also led to a positioning in a maturity framework where the company was positioned on a low level of maturity due to the malfunctioning process.

The suggested process contains five steps and five meetings following the traditional process of S&OP, apart from some adjustments that has been made in order to match the needs and demands from the company. In the proposal, one can find inputs, agendas, outputs and participants for each step. Following the proposed solution is an implementation plan constituting of the three phases: *Educational phase, Process initiation phase* and *Continuous improvement and monitoring phase.* The authors recommend the company to follow the suggested solution and implementation in order to advance in the maturity framework and hence improve their S&OP process.

Key words: Sales and Operations Planning, S&OP, Dairy Industry, Maturity Framework, Change Management, Meeting Structure

Contents

Chapter 1

Introduction

This chapter describes the background of this master thesis together with a description of the concerned company. Furthermore the purpose, research questions and problem description are stated. Lastly the focus and delimitations of the thesis are presented.

1.1 Background

As companies grow bigger, customers go pickier and the supply chain complexity increases, the need for coordination and cross-functional thinking is greater than ever (Sabri & Verma, 2015). Obtaining an efficient supply chain demands aligned decisions, where the daily business is based upon the strategic plan of the company (Grimson & Pyke, 2007).

Sales and Operations Planning (S&OP) has for many years been a popular management method and has been implemented in various businesses with various success rates. S&OP is in theory an easy method but can be harder to implement in practice: many companies have tried and implemented expensive S&OP systems but not found the benefits that researchers claim there to be (Lapide, 2004b). Even though the managerial interest is great the success rate shows that companies lack guidelines of how to implement S&OP (Tuomikangas & Kaipia, 2014).

S&OP is a decision making process where the demand should be successfully aligned with the supply, and all affected functions within the organisation such as sales, manufacturing, finance and marketing are involved to sustain the idea of cross-functionality (Pedroso, da Silva, & Tate, 2016). Meetings are traditionally held on a monthly basis where the decisions that are made on an operational level are linked to the strategic plan of the company (Grimson & Pyke, 2007). It is designed to serve as a communication tool that targets the volume and production mix as well as the key resources of the organisation (Tuomikangas & Kaipia, 2014). By arranging meetings including several functions the company, such as sales and manufactur-

ing, they can together decide upon a plan of what to produce in order to match the expected demand of their customers. It traditionally follows a five step process containing the following steps: data gathering, demand planning, supply planning, pre-meeting, and executive meeting (Hulthén, Näslund, & Norrman, 2016).

S&OP has been a topic of managerial interests for over 35 years and is still today a frequently used method for decreasing silo-thinking and misalignment in organisations (Grimson & Pyke, 2007). The need for cross-functional thinking arises from conflicts that can be very much present between the different functions of the organisation. These conflicts are supported and triggered by badly aligned incentives and Key Performance Indicators (KPIs) that contradict each other (Shapiro, 1977). The focus of managers is often on setting S&OP into a process or a system but this can be an inadequate way to look at the problem. Success of S&OP lies more in changing the mindset of the organisation than adding on another system (Implement Consulting Group, 2014). Therefore each implementation is different, i.e. there is no "fit for all" process. Instead, each organisation should adapt the ways of S&OP and find their perfect match (Småros & Falck, 2013).

1.2 The Company

The concerned company will throughout the thesis be referred to as The Company (TC) due to a preference of being anonymous.

TC is a large Swedish dairy company with a great range of products, including for instance milk, yogurt and cheese. The company is since 2012 owned by a major European company, which will be referred to as The Corporation Group (TCG). TCG is one of the world's largest dairy companies, and holds a large number of subsidiaries.

The dairy business differs from other businesses due to many things. One important factor is that the supply is not as stable as a company in another business might face, since it depends on how much milk the farmers can deliver. Variations such as seasonality and the cows' access to food can affect the amount of milk produced. Furthermore, the dairies have a responsibility to take care of the raw product they receive, as well as to distribute it appropriately over their different product categories. This is a constant struggle, making sure that it satisfies demand but in the same time does not lead to waste (Milk Balance Manager, 2019). This issue is handled with the so called "milk balance". When the milk enters the dairy plant it is divided into two parts: skim milk and cream. The cream is more valuable but only stands for 10 % of the raw milk, and therefore this can become a scarce commodity and the skim milk an excess product (Milk Balance Manager, 2019). The milk balance is under constant analysis in order for the Milk Balance Manager to distribute the raw milk over the different product categories. To even this out, activities such as

purchasing more cream, freezing butter and selling skim milk as milk powder to different industries are performed. However, when there is excess milk the routine has been to make cheese of this raw material since these products have a longer shelf life. This is done due to the responsibility towards the farmers to take care and buy all milk they provide as previously mentioned. Therefore cheese can be manufactured even though the demand is not forecasted and the finished product may not provide any profit (Brand Manager, 2019).

Cheese can be a difficult product to plan and forecast since the manufactured product today is not available for sale until 3-18 months, due to the storage time it needs to develop taste and other important characteristics. Thus shifts in demand can be hard to follow and creating the forecast is a troublesome task. In addition to this, cheese is considered to be an expensive product and most customers are highly price sensitive when it comes to hard cheese. This results in that about 50 % percent of the cheese sold in stores are sold on promotion (Cheese Planner, 2019). Today TC has around 150 products within the cheese category which are separated by characteristics such as fat content, form and age. These are combined in different ways, giving various flavours and richness to the cheese, which together compose the product portfolio.

Since 2012 when TCG purchased TC, large investments have been made to the mechanical equipment which help TCG to stay innovative and sustainable in an ever changing market. To be the most sustainable dairy manufacturer in Sweden is namely one of their goals (Communications Director, 2019). The aspect of minimizing waste and excess products comes into this perspective, which is also a factor where the initiative to implement S&OP is important. In order to minimize waste they need to better match what is produced with what will be sold. However, a component that increases the difficulty within this is the short lifetime of some products such as milk and yogurt in combination with the increasingly high demand of shelf time from the larger wholesalers. They often demand that at least 2/3 of the shelf time should remain when they receive the product (Communications Director, 2019). These high demands increase the rejection of products which increases the waste and reduces the revenue. There are many angles of this problem but one of the solutions could be a well-implemented S&OP process.

1.3 Problem description

Due to the large variations in both supply and demand in the dairy industry, the work of balancing the two is difficult. Additionally, the different characteristics between the product categories, e.g. lead time, life time and production methods, contribute to the complexity. In order to be able to keep pace with the volatile demand as well as staying competitive on the market, it is important to find a way to integrate the

two functions. This action should be done by including also other relevant stakeholders in order to work as cross-functionally as possible.

TC has recently started to work with S&OP within their product category "cheese". This is the first step in their work to implement it in all product categories. Although they have only used the label "S&OP" for a short period of time, there have been monthly meetings regarding balancing demand and supply for a long time. However, the process is far from complete and the benefits of S&OP are not yet achieved in their entirety. For instance, there is a feeling that not all participating employees truly understand their actual purpose in the meetings, and might hence not contribute as much as they could. Furthermore, TC has been experiencing problems in finding a consequent way of sharing information, and in addition to this, the fact that the different divisions of the company are situated in different buildings contributes to the complexity of information sharing.

The challenges faced by TC regarding the interaction and balance between demand and supply can be summarized into the following points:

- Volatile demand as well as volatile supply due to the milk balance difficulties.
- Difficult to forecast cheese products due to their long lead times.
- Achieving an aligned forecast is difficult due to the fact that several manual spreadsheets are used.
- Communication and routines regarding forecasts and meetings are inadequate.
- Misalignment between the forecast and the budget.

1.4 Purpose

The purpose of this master thesis is to investigate the current S&OP process within the cheese category at TC in order to suggest improvements as well as a framework of how the process should continue on.

1.5 Research questions and objectives

The research questions are:

RQ1: How is the newly implemented process of S&OP in the cheese category performing?

RQ2: What does TC need to improve and develop in order to be successful in

their S&OP process?

The objective of this thesis is hence to answer these questions and to provide TC with a feasible solution on how to proceed with their work in S&OP.

1.6 Focus and delimitations

Due to the time frame of this project, there is a need for delimitations. These delimitations derive from discussions with supervisors from both Lunds Tekniska Högskola (LTH), as well as from TC.

Firstly, the main content of this thesis is focused on the product category "cheese". This category has been chosen since it is the one category that has been the focus of S&OP so far at TC, and since it gives an appropriate scope to the thesis. However, the analysis will also touch upon other categories later on.

Secondly, the thesis will focus on TC in Sweden, and not as a part of the larger, European group (TCG).

1.7 Target group

The target group of this master thesis is primarily TC, who will hopefully obtain good insights in order to improve their operations. The thesis does also address people interested in supply chain management, S&OP as well as change management.

1.8 Report structure

Chapter 2: *Methodology* will follow this chapter and will cover the methodology used to write this report. Research methods, approaches and strategies from well-known theory will be described followed by a motivation of the choices made.

In Chapter 3: *Theoretical framework*, a literature review will be presented. It will be based on books and research articles regarding the subject of the thesis. Firstly, S&OP in general will be discussed, including a description of the concept and success factors. This will be followed by an introduction to S&OP in the dairy and food sector. Lastly, a brief description to the importance of change management will be presented.

Chapter 4: In the *Empirical study*, a presentation of the interviews that are conducted will be displayed. Representatives from sales, finance, top management, marketing, supply chain and production have been interviewed about their view of

the current S&OP process at TC. The answers are presented under the collected view of each department as well as under theme questions to get a broad picture of the current view and perception of the process.

Chapter 5: The *Analysis* will be carried out in this chapter and will aim to answer the research questions. By comparing the theoretical framework and the empirical study, the objective is to position TC in a maturity framework and find gaps related to the process.

Chapter 6: The *Proposal* contains the solution that the authors suggest TC to use in order to improve their S&OP process. It is based on the analysis and the empirical study.

Chapter 7: In the *Recommendation*, the authors' proposition to TC together with a suggestion of an implementation plan is presented.

Chapter 8: *Conclusion* includes a brief summary of the thesis. The authors answer the two research questions and motivate how the purpose has been fulfilled. The chapter also contains some suggestions for future studies within the area.

Chapter 2

Methodology

The following chapter aims to highlight different research strategies, methods and approaches that are presented by various research sources. These sections will be followed by an explanation of the chosen methodology for this particular research and a motivation of why is was chosen. The characteristics of the research questions will be the guidelines to the choice of methods.

2.1 Research methodology

What research methodology to use when conducting a study within an area is decided upon the nature and the goal of the work conducted. According to Höst et al. (2006) the four below are the most commonly used methodologies.

- Descriptive: A descriptive study can be used when there exists knowledge within a topic but the researcher seeks to in depth describe a problem or a phenomenon.
- Exploratory: This study seeks to in depth understand an area where there exists little pre-existing knowledge.
- Explanatory: This study is focused on finding causal links or explanations to why a phenomenon exists or occurs.
- Problem solving: This research focuses on finding a solution to an identified problem, and contribute with knowledge as well as analyses.

The chosen research methodology

This master thesis' goal is two-sided. It will firstly seek to investigate the current process of S&OP within the cheese category at TC, and then find improvements. Therefore this research will firstly be focused on an exploratory research where the process will be explored and problems will be identified. When these problems have

been found and described the thesis will move into a problem solving phase, helping TC to understand ways to improve and perform better.

2.2 Research strategy

The following section will describe the five different types of research strategies as described by Yin (2003) to evaluate and develop an understanding of why a certain strategy will be used in this master thesis.

2.2.1 Research strategies

There exists a range of different research strategies that each one is more suitable for one kind of research than another. According to Yin (2003) there are five commonly used method types as illustrated in Table 2.1 below. They are *experiment, survey, archival analysis, history* and *case study*. When deciding upon which method to use it is important to understand the advantages and disadvantages of each method. Yin (2003) describes three conditions or questions to evaluate when choosing which method to use. They are *form of research question, requires control of behavioral events?* and *focus on contemporary events?*

An *experiment* is the method of testing different assumptions in a controlled environment where one or more conditions can be changed and the outcome registered (Business Dictionary, 2019; Höst et al., 2006). In this environment an investigator can manipulate behavior, either in a laboratory or in a social environment by changing different factors. A *survey* is a mapping of the present situation of the studied object or problem and it often comes in questionnaires with the purpose to explain a phenomenon with a broad perspective (Denscombe, 2010). The archival analysis is focused on searching through original archives to study and find relevant information (Yin, 2003). The research focused on history is used when no contemporary information exists and one turns to the evidence of history to find knowledge that can have an impact or similarity to something of the present (University of Wisconsin-Madison Libraries, 2019). The use of *case studies* are appropriate when studying several current cases where the researchers perform the study without interference. Case studies can be performed by interviews, observations or archive analyses (Höst et al., 2006).

Table 2.1: Relevant situations for different research method (Yin, 2003)

Method Strategy	Form of Research	Requires Control of Behavioral Events?	Focus on Contemporary Events?
Experiment	How, Why?	Yes	Yes
Survey	Who, what, where how many how much?	No	Yes
Archival analysis	Who, what, where how many how much?	No	Yes/No
History	How, why?	No	No
Case study	How, why?	No	Yes

The first condition that distinguish what type of method to use is the research question. This is according to Yin (2003) probably the most important step in the research approach. Without an appropriate question it is difficult to focus the research appropriately and one has to consider whether it is a *who, what, where, how* or a *why* question, or even a *combination* of these. If a question is focused on a *what*, Yin (2003) argues that it can be divided into two types. Either where the goal is to develop hypotheses for further research, where any of the methods can be used. The study is then of an exploratory nature. It can also be used as a form of *how many* or *how much* which is more quantifiable and hence surveys or archival records are more appropriate. The *what* question is also answered by the help of surveys or archival records, for example answering questions such as "what happened" or "what was the outcome". The *how* and the *why* questions are however more likely to be answered by the help of history records or case studies since they are more explanatory in their nature. In these cases, problems need to be investigated over time rather than as mere incidents (Yin, 2003).

The remaining two questions that Yin (2003) suggests are only an issue in some cases. It is only in experiments that the researcher *requires control over behavioral events*, and all of the methods except from history and sometimes archival records *focus on contemporary events* (Yin, 2003).

2.2.2 The chosen method strategy

To truly understand the current process of S&OP at TC the main question to be answered is "how is the current S&OP process performing?", which will be followed by the question "why is it not working appropriately, and what is needed for it to perform better?". This concludes that case studies are an appropriate strategy to use. This is usually done in organisations to understand how the work is performed or conducted (Höst et al., 2006). The case studies will mainly be focused on interviews where all involved departments will be interviewed to get a broad insight into

the current process. The authors will also participate in the current meeting process to truly understand it, the inputs, agenda, outputs and communication method. In addition to this, study visits will be performed to give a thorough understanding of how the process effects the actual production, warehousing and transportation departments.

The use of case studies is a very common and good way to approach a problem connected to operations research or supply chain management (Voss, Tsikriktsis, & Frohlich, 2002). It can be a challenging method that demands time and appropriate interview questions to fully understand and pinpoint the discovered problem. Voss (2002) suggests a seven step process to follow in the course of conducting a case study which will be used in this thesis.This seven step process will now be presented.

Firstly, one has to decide if a case study is *appropriate* to use in the conducted research (Voss et al., 2002), i.e. if the goal of the study is to look at a specific case, to acquire knowledge on a deeper level (Höst et al., 2006). If so, the next step is to *develop a framework* where the purpose of the study, as well as appropriate questions, are established. When the purpose is set, the third step is to *choose which cases to study*, i.e. to find the people, actions or environments that are interesting. Then a decision of what *tools* to use should be decided, before moving on to the actual *execution of the field research* (Voss et al., 2002). When interviewing it is beneficial to choose a wide array of people to get a nuanced view of the identified phenomenon or problem (Höst et al., 2006). During and after each study, *documentation* is crucial in order to catch the essence of the interview or observation. When all the previous steps are conducted the case study can move into the last step where an *analysis* of the acquired data should be made. In this final step a hypothesis could be developed in order to investigate the studied phenomenon and try to come up with answers or solutions that can be further tested (Voss et al., 2002).

2.3 Research approach

This section will describe two ways of conducting research on a specific phenomenon. The two approaches are *inductive* and *deductive*. Furthermore, the combination of the two, usually described as the *balanced* approach will be described. The choice of approach for this thesis will also be motivated. Figure 2.1 below illustrates the relationship between the two approaches.

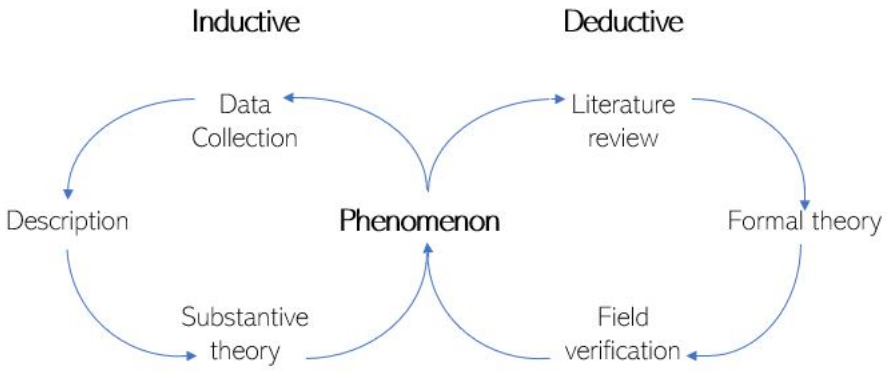


Figure 2.1: The Inductive and Deductive Approaches (Woodruff, 2003)

2.3.1 An inductive approach

The inductive approach starts with a data collection and then builds a theory based on the empirics (Kotzab, Seuring, Müller, & Reiner, 2006). In other words, the research has an inductive approach if one performs an empirical study based on the problem, and then uses the theory to develop a better understanding of the results (Blomkvist & Hallin, 2015). Björklund & Paulsson (2012) describes the inductive method with an arrow, moving from reality to theory. This approach is a common research approach within cases related to supply chains and logistics (Kotzab et al., 2006).

2.3.2 A deductive approach

The deductive approach has the goal to add on to existing knowledge. This process starts with a literature review where a conceptual framework is created. This framework specifies variables as well as possible relationships between them. Moving on to the next step, a formal theory is designed based on the already existing theory. The last step, data collection, has the aim to compare and test the empirics with theory (Kotzab et al., 2006). Björklund & Paulsson (2012) describes this approach as the opposite of inductive, with an arrow moving from theory to reality.

2.3.3 A balanced approach

The balanced approach, or the abductive approach as it is also referred to, is a mix between the inductive and the deductive approaches. This approach is useful when the phenomenon is complex and has dynamic characteristics, as in for example a supply chain phenomenon. Kotzab et al. (2006) highlight the fact that when working within a complex area, one could begin with an inductive approach to fully understand the phenomenon, and then move on to a deductive approach, i.e. to

explore possible relationships between the variables. This approach is by Björklund & Paulsson (2012) described with two arrows moving between theory and reality.

2.3.4 The chosen approach

Since this thesis handles a phenomenon that requires a deep understanding through both literature and empirical studies, the authors have agreed that the balanced approach would be preferred in this research. As described by Björklund & Paulsson (2012), the balanced approach moves between theory and reality, which is how the research for this thesis will be executed.

2.4 Research data collection

When performing a research and to be able to make an analysis, there is a need for data. This section highlights different types of data, as well as the importance of a well-written literature review. It also covers important aspects when conducting interviews.

2.4.1 Quantitative and qualitative data

There are two types of data that can be collected: quantitative and qualitative. Quantitative data is data that can be classified and calculated, for instance numerical information (Höst et al., 2006). It is often clear, specific and can be analyzed with statistical techniques. It can easily be communicated via graphs and charts. However, the quantitative data may require complex sampling procedures and expertise within statistical analysis. There might also be difficulties in describing a complex situation. Qualitative data on the other hand, is focused on words and themes. It often contains many details and can provide a nuanced view. Besides, one must take into consideration that the analysis of the qualitative data can be time consuming and that there is a risk that it will be subjective, since the person evaluating the data might be biased in some way (University of Minnesota, 2019). Höst et al. (2006) argue that when there is a complex problem, one would prefer using a combination of quantitative and qualitative data, since they in many cases can complement and support each other.

The chosen data type

In the case of this master thesis, the research will mainly be based on interviews with representatives from the company, hence on qualitative data. However, if there will be available quantitative data that could support the interviews, for instance numbers showing improvement, it will be used as long as it is of relevance.

Analyzing qualitative data

Collecting and analyzing data should be an iterative process, after each interview the unique tone and information gathered should be written down and worked through (Ellram & Edis, 1996). To put the analyzing on hold before all data collection is performed is not recommended as doing it simultaneously helps the researcher to cycle back and forth between existing data and finding ways to collect more (Miles, Huberman, & Saldana, 2014). To fully understand the collected data one could look for patterns and then categorize the collected information into appropriate areas. To show the relationships between variables Miles et al. (2014) recommends using illustrations to note the relationship between the variables found. This will in this master thesis be made to show the complexity in a more understandable way.

An issue when using qualitative data is analytic biases, as it can weaken the results (Miles et al., 2014). Interviewing is a troublesome task since the findings can be affected by the interpretation of the answers by the interviewers. Miles et al. (Miles et al., 2014) describes four biases found in research methods textbooks.

- The holistic fallacy: Interpreting events as more connected then they really are, drawing conclusions on sloppy research.
- Elite bias: Only using data from well-recognized researchers and underrepresenting data from lower status publications or authors.
- Personal bias: The researcher's personal agenda or thoughts go into the study which undermines the trustworthiness of the analysis.
- Going native: Losing the objectivity of the research as the perceptions are clouded by the participation of local interviewees with a certain more closed view (Miles et al., 2014).

To avoid these biases it is important to recollect the interviews in a fair and objective way. The researchers will often go back and recollect what has been said and if any doubts occur contact the interviewee to ground the collected information to further validate the results. During the data collection both authors will after each interview recollect what has been said by themselves to validate that the same information and impression have been gathered. All personal biases or "Going native" biases will to the largest extent be avoided as they are seen as the most probable risk for discredibility, the importance of objectivity cannot be stressed enough and will be central when writing Chapter 4: Empirical study.

2.4.2 Literature review

A well-written literature review is a cornerstone of a good report. Höst et al. (2006) mention that by executing a well-performed literature review, one decreases the risk

of overseeing existing facts and knowledge. It also facilitates for an independent reader and gives a clear foundation for the future reading. Examples of literature are books, articles and other publications (Höst et al., 2006). The literature review has many purposes. Rowley & Slack (2004) describes, inter alia, how it creates an understanding for the topic, suggesting research methods that can be useful, and how it helps analyzing and interpreting results.

In order to be successful when searching for relevant literature, one should begin by searching widely, by using different keywords and related subjects. When there is an understanding, one should study the most relevant sources on a deeper level (Höst et al., 2006). It is also possible to follow up the reference list in a relevant article in order to find other suitable sources, as well as look up interesting authors and find other articles written by them (Höst et al., 2006).

Relevant documents can be found on various databases, search engines and libraries. Many of the databases and search engines provide a service to do an advanced search, facilitating the search process for the researcher (Rowley & Slack, 2004). One must however consider the credibility and validity of the sources. This will be described later in this chapter.

The chosen search strategy

In this thesis, the literature review will be performed as described above. Data bases and search engines such as Science Direct, Web of Science and Research Gate will be used, as well as the physical library at the university. Furthermore, credible websites will be used, for instance from consultancy firms and trade associations. The following keywords will be the base of the search: *sales and operations planning, sales & operations planning, s&op, food, dairy, process industry, cross-functionality, change management*. They will be mixed in different combinations in order to obtain a representative view of the existing literature.

2.4.3 Interviews

Conducting interviews is a way of obtaining primary data, and is described as different ways of asking questions, either via personal contact or by telephone. They can be performed with only one interviewee, as well as in a group of people. The length of the interview, the number of questions and number of participants depend on the situation. If permitted, the interview can be recorded, but otherwise notes should be taken, either during the interview or afterwards (Björklund & Paulsson, 2012). Olhager (2019) however mentions that although there is permission to record the interview, this might not always be an advantage, since it may affect how the interviewee answers to the questions. Björklund & Paulsson (2012) emphasize that two advantages with interviews as a method to obtain data are firstly the fact that

one can adjust the questions to the specific individual interviewee and their previous answers, but also the fact that apart from the answers, one also gets the chance to interpret body language and reactions. This may provide an interesting angle to the answer. However, as a disadvantage they mention that interviews often are time consuming and expensive, since it may sometimes involve travelling (Björklund & Paulsson, 2012).

There are three types of interviews, depending on their structure. Höst et al. (2006) and Olhager (2019) describe the three as *structured interviews, semi-structured interviews* and *unstructured interviews*.

- Structured interviews means that the questions are determined in advance, and are asked in a certain order. It is practically an oral survey and the objective is to obtain knowledge about relations between concepts.
- Semi-structured interviews are more open than the structured ones, and have both pre-determined questions but also open ones. The questions are asked when the interviewer finds it suitable.
- Unstructured interviews are rather like a conversation than an interview. It is more exploring then the other two, and the questions usually arise as the conversation goes on.

The chosen interview type

This thesis will first and foremost be based on semi-structured interviews, since it is important to obtain a deep understanding of the problem, which can be done with the help of follow-up questions. Some interviews may turn towards the unstructured type, but only if there is no need to compare that specific interview with another one.

The interviewees in this thesis will be employees that represent the company as a whole and that together can give a collective view of the current process. A few days before each interview, the interviewees will receive an email containing a presentation of the authors and this thesis, an introduction to S&OP as well as a description of what kind of questions that will be asked. A standard template of questions will be used for all interviews, however depending on the interviewee's background, their knowledge of S&OP and their position, the questions will be slightly revised to fit the specific interview. The interview guide is presented in Appendix A.1.

2.5 Credibility

When conducting a research it is of the highest importance to ensure that the conclusions made are well reinforced and that it addresses the actual studied phenomenon

(Höst et al., 2006). In the matter of case studies there have however been critics highlighting that researchers easily can fail to stay completely objective due to the insufficiently developed operational set of measures (Yin, 2003). Therefore, ensuring credibility is of the utmost importance in this master thesis. There are three general ways to categorise credibility and they are *validity, reliability* and *objectivity.* (Björklund & Paulsson, 2012)

2.5.1 Validity and reliability

Validity is described as to what extent one measures what was intended to be measured to begin with (Björklund & Paulsson, 2012). To ensure this, Yin (2003) suggests that the investigator must cover two steps.

1. Select the specific types of changes that are to be studied.
2. Demonstrate that the selected measures of these changes do indeed reflect the specific types of change that have been selected.

To increase the validity, the study should include different perspectives. One can increase the validity by using the method of triangulation illustrated in Figure 2.2 below. This is the theory of using several methods to study the same phenomenon in order to get several perspectives of the same area (Björklund & Paulsson, 2012). When conducting interviews, one can use control questions for examining the same thing twice, to ask the questions in different ways and to ask the same question to different people within the same department (Olhager, 2019).

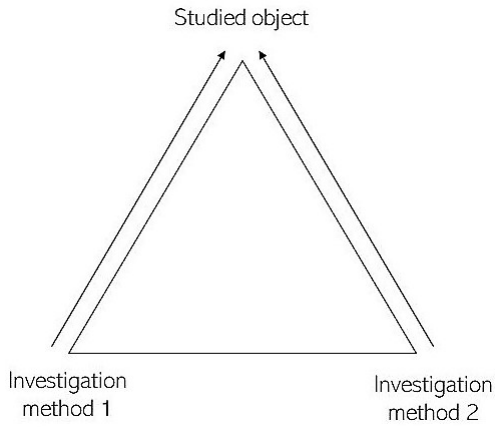


Figure 2.2: Triangulation (Björklund & Paulsson, 2012)

Reliability is the degree of authenticity in the achieved results. If the study or test is conducted several times, a high reliability will give the same result every time. To increase the reliability of the study, triangulation can again be used (Björklund & Paulsson, 2012). To ensure good reliability, it demands careful data collection

and analysis by the researchers. When interviewing, the researchers can increase the accuracy of the results by presenting a summary of the collected answers for the interviewee. To further ensure the reliability, the researches should declare the way the research have been conducted for the readers to make their own evaluation of the credibility (Höst et al., 2006).

The concept of validity and reliability can be illustrated by a dart board, see Figure 2.3 (Björklund & Paulsson, 2012; Olhager, 2019). The first image represents a study with both low reliability and validity. The result is not accurate and the study has not provided the same result when tested several times. The image in the middle illustrates a scenario where the reliability is high since the study yielded the same result several times but the validity is low. The last image represents the ideal scenario where the study is accurate in its result and have given the same answer after several tests or studies. This is the result that this master thesis will strive to achieve.

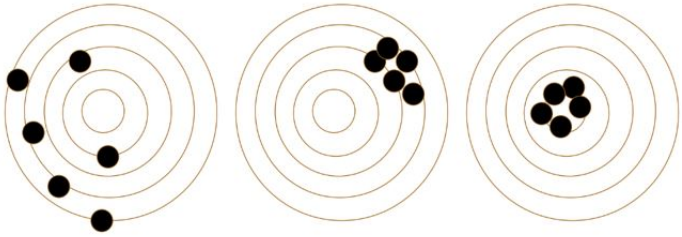


Figure 2.3: The dart board analogy (Björklund & Paulsson, 2012)

2.5.2 Objectivity

For a study to be credible it has to be objective, i.e. the researchers should not put their own values into the study. To achieve this the research should clearly state all sources of information and recollect information from interviews in a clear way. The authors should also avoid using emotionally charged words which indicates that there is a subjective tone to the stated information (Björklund & Paulsson, 2012). To help the reader, the authors should show and motivate all choices made in the study to give the reader the opportunity to make their own opinion of the credibility of the research (Olhager, 2019).

2.6 Project execution

The authors have divided the research in this thesis into three phases. They all have their own purpose, and together they create the foundation for the thesis. The first phase includes activities such as building a ground and understanding of the problem, deciding upon the methodology and conducting the literature review. During the second phase, the focus is on data collection, which will consist of interviews as well as

meeting participation, and summarizing the empirical findings. This will create the understanding of TC that is needed in order to carry out an analysis. This analysis will be performed in phase three, together with a conclusion and recommendation. Phase three, the last phase, also consists of pure report writing, and making the report coherent. The three phases can be seen in Figure 2.4 below.

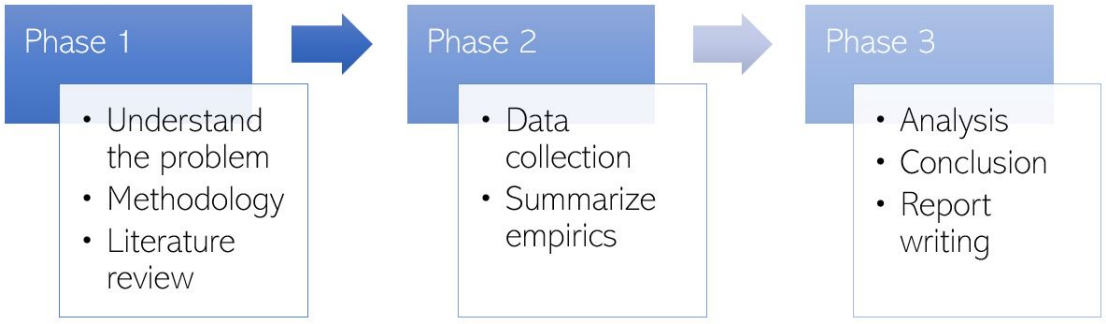


Figure 2.4: The three phases in this master thesis

2.7 Summary

To summarize this methodology chapter, the chosen methods, approaches and strategies for this thesis is gathered in Table 2.2.

Table 2.2: Summary of chosen methodology

Types of methodology	**Chosen methodology**
Research methodology	Exploratory & Problem solving
Research strategy	Case study
Research approach	A balanced approach
Type of data	Qualitative
Type of interview	Semi-structured

Chapter 3

Theoretical framework

In this chapter a review of the concept of S&OP will be explained. The first part will focus on S&OP in general, the process and its key aspects. Further on a few maturity frameworks will be displayed, as well as important aspects to think about during the implementation of the process. The second part will cover how S&OP is used in the food and dairy industry, and the final parts will describe the importance of change management as well as a summarizing synthesis.

3.1 Sales and Operations Planning

S&OP has been recognized as a relevant supply chain concept for many years and has the last decade received a lot of attention (Lapide, 2004b). Today it is possible to find countless consultancy firms offering to help companies with the implementation of an S&OP process. What is it about S&OP that spikes this amount of attention and appreciation? One reason is that S&OP is a key business process that aims to match demand with supply as well as aligning the operational level with the strategic plan of the organisation (Tuomikangas & Kaipia, 2014). Implement Consulting Group (2014) emphasizes that it is important to also integrate financial planning in the process. By doing this successfully, management can direct its businesses to achieve competitive advantage. When introducing new products this can be harmonized with the operational department early on, in order to succeed with a smoother, more integrated start-up phase (Thomé, Scavarda, Fernandez, & Scavarda, 2012). When this coordination fails, the value of the process is missed which can cause several hardships. Some examples of this are stated below (Hinkel, Merkel, & Kwasniok, 2016).

- Functions or units make decisions in isolation.
- Decisions are made without the consideration or understanding of the effects on other departments.
- The company can face surging inventory.

- Problems with stockouts.
- Mistrust can occur between departments.
- Service levels may decrease.

However, when succeeding with tearing down the silos, both quantitative and qualitative improvements can be seen. These stretch from factors such as forecast accuracy and decrease in inventory, but also an enhanced information flow between demand and supply (Stahl & Wallace, 2008). The benefits are many and whilst the concept itself is simple and straightforward, the actual implementation demands coordination on several organisational levels as well as a strong leadership and support on a managerial level (Danese, Molinaro, & Romano, 2016; Stahl & Wallace, 2008).

With appropriate attention from the departments involved, the meetings that are held can become decision meetings instead of discussion meetings, which is essential. Each meeting needs to end with a closure that can be distributed in the organisation (Lapide, 2004b). S&OP is and should be conducted on product families and not on individual stock keeping unit (SKU) level since the plans that are generated is on a 1 to 18 months planning horizon (Grimson & Pyke, 2007). The product families should be on a level that all participants in the S&OP process can understand and relate to. To achieve appropriate product families can be troublesome but they should not be too many, preferably between 6-12 per business unit (Olhager, 2018; Stahl & Wallace, 2008). A reason for this is that if a company aims to achieve a successful S&OP process they need the support from top management since S&OP should be on a decision-making level (Stahl & Wallace, 2008). Executives should be present in the meeting structure and their time is limited, so to keep the interest from top management and not lose the dignity of the process the product families need to be limited. When choosing how to split the products into families some options are: product type, product characteristics, product size or brand (Stahl & Wallace, 2008). The fundamental question to answer is "How do you go to the marketplace?". The focus of S&OP should be on volume and not product mix, therefore it is important to keep the planning on an aggregated level even though the forecast can be made on a more detailed level (Stahl & Wallace, 2008).

S&OP is a process that consists of a series of meetings in which each has its agenda and decision points. There exist several examples of processes to follow, but what to keep in mind is that it is not an off-the-shelf process, and could and should be adapted to fit the individual organisation's way of working (Småros & Falck, 2013). Each organisation needs to create individual rules and guidelines to aid the participants to fully understand the process. In addition to this, the actual process of S&OP consists of more factors than systems and processes: it is mostly about the mindset of the involved personnel (Implement Consulting Group, 2014). Without engagement and a complete understanding of its importance it is very likely that the process will fail.

As any implementation of change, the participants need to understand their value and contribution. According to Harvard Business Review (HBR) (2013), employee engagement is crucial in all companies and especially so when implementing a change.

All in all, S&OP enables the organisation to view the business holistically, to see the correlation between supply and demand as well customer orders and inventory. By the help of an appropriate process, one can make informed decisions where the response to increased inventory is not immediately to lower the stocks but to take sales' information into consideration (Stahl & Wallace, 2008). Without this interplay, a company can easily find itself in a "blame the others culture" and a sub-optimal process. Figure 3.1, which has been based on the work of Småros and Falck (2013), shows an illustration of the purpose of S&OP.

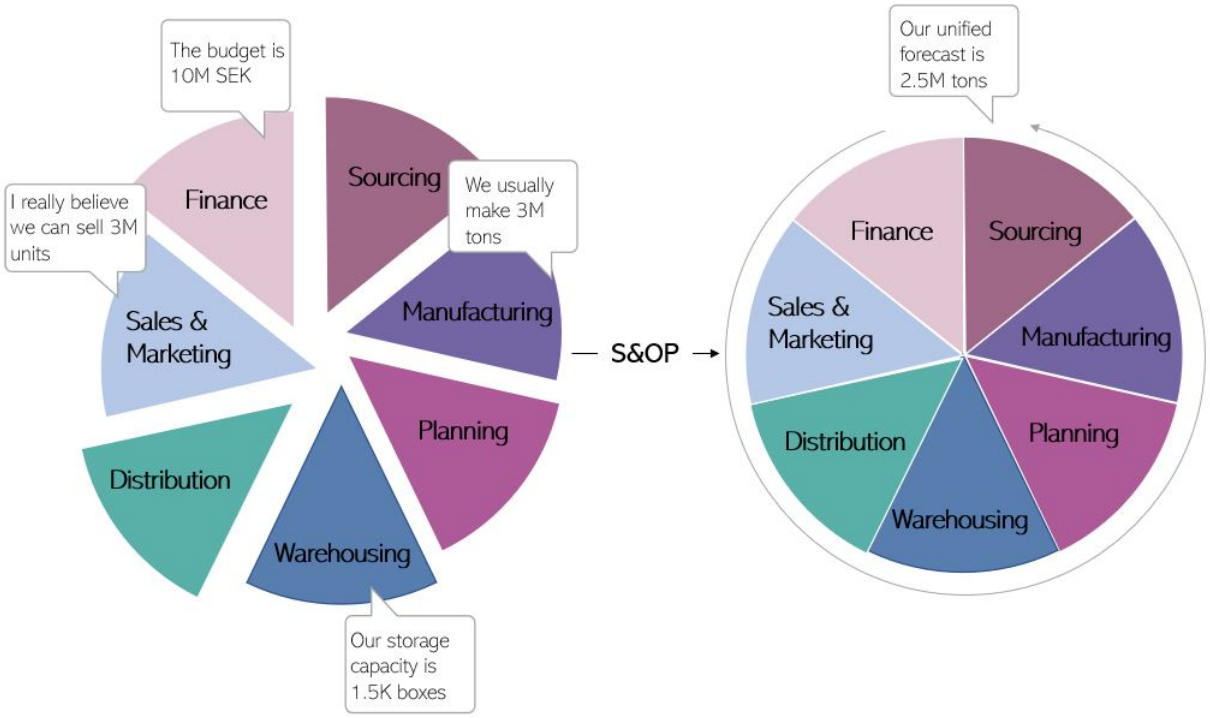


Figure 3.1: An illustration of the purpose of S&OP. (Geelmuyden & Rasmusson, inspired by: Småros and Falck (2013))

3.1.1 The S&OP process

The S&OP process consists of five steps, which are all important to obtain the insights in every relevant function of the company. In order to keep the cross-functionality between the functions, the decisions made by the functions should be aligned and established at monthly meetings (Pedroso et al., 2016). It is crucial that all functions are involved, and that the meetings are scheduled in a way so that the participants

do not see them as an extra task, but rather as an integrated part of their work (Schneider, 2013). Wagner, Ullrich and Transchel (2014) describe the five steps that are listed below.

1. Data Gathering
2. Demand Planning
3. Supply Planning
4. Pre-Meeting
5. Executive Meeting

The first step, *Data Gathering*, is not specifically a meeting, but rather a preparation for the meetings to come. In this step, data from the previous month is gathered and updated. Key Performance Indicators (KPIs) are also generated, and the data is delivered to the relevant people (Wagner et al., 2014).

In the second step, *Demand Planning*, the data gathered in step one is analyzed and discussed between people from first and foremost sales, marketing and planning (Wagner et al., 2014). Aparajithan, Berk, Gilbert and Mercier (2011) describe the objective of this meeting as "review and approve demand plan for short and long term". Together, they make a consensus decision on a new unconstrained demand plan for at least the next twelve months. It has to be adjusted for events such as cannibalization effects, new product introductions as well as other external factors (Wagner et al., 2014). It is important to find a key to convert the forecast into one "language" that can be understood by not only sales, but also operations (Schneider, 2013). Grimson and Pyke (2007) discuss that a key decision for this process is the planning horizon. They usually range between 6 to 18 months, but they highlight that the horizon mostly varies by industry, depending on e.g. seasonality and lead times.

Supply Planning is the name of the third step. Instead of sales and marketing, the participants come from different parts of operations, such as distribution, production and procurement. They use this meeting to study whether the actual performance of their processes meets the planned performance. They also analyze possible deviations (Wagner et al., 2014). According to Aparajithan et al. (2011), the objective of this meeting is to "review and approve supply plan for short and long term". This information is together with the updated sales forecast from step two analyzed. Based on this analysis, the participants modify the supply plans that allow for potential constraints regarding people, machinery or suppliers (Schneider, 2013). Also a "rough-cut capacity" plan is designed to meet the requirements that have been forecasted (Grimson & Pyke, 2007; Schneider, 2013; Wagner et al., 2014).

Stahl (2010) mentions that these first three steps should make sure that supply and demand are handled as "a set of connected activities", and that the results are ready for an executive review and action.

The fourth step is called *Pre-Meeting*, and this is when S&OP truly starts getting cross-functional. This meeting is, as might be revealed by the name, a preparation before the final step (*Executive Meeting*) (Wagner et al., 2014). The objective is to "align supply and demand plan for short and long term" (Aparajithan et al., 2011). The participants consist of representatives from various departments, such as demand, supply, product development and finance. The S&OP process owner is also present. This is where the "balancing of demand and supply" firstly happens. If there are any differences in opinions, these are resolved in this meeting. The balance plan is created so that it is aligned with the overall strategy of the company, the business plan as well as other policies. The result of this meeting is an aligned recommendation of how to reach the balance which can be presented in the fifth and final step (Wagner et al., 2014). Schneider (2013) emphasizes the importance of making this meeting a functional meeting, i.e. a foundation for future continuous improvement to the S&OP process.

The fifth and final step of the S&OP process is called *Executive Meeting*. During this meeting, the participants review, modify and approve the decisions from the *Pre-Meeting* (Wagner et al., 2014). It is described with the objective to "approve financial and operational targets for short and long term" (Aparajithan et al., 2011). It is also important that everyone is on board with the plan, so that anyone can raise awareness and react to potential issues they might find. This goes well in hand with the cross-functional mindset (Schneider, 2013). Wagner et al. (2014) furthermore mention that during this meeting, the participants also discuss and decide upon issues that were out of the scope, or could not be settled by the *Pre-Meeting* team.

Although these five steps are built on cross-functional and collaborative decisions, Stahl (2010) emphasizes that it is not a democracy running a business, and that leaders have the responsibility as well as the authority to make clear decisions if consensus cannot be achieved. However, the employees should still feel that they have opportunities to influence the final decisions. This is important since it will increase the probability of the participants ending up supporting the final decision (Stahl, 2010).

Figure 3.2 shows how Boston Consulting Group summarizes the four meetings of S&OP, i.e. step two to five. It gives a picture of what kind of inputs, outputs, participants and metrics that are typically used in the S&OP process (Aparajithan et al., 2011).

	Demand Planning	Supply Planning	Pre-meeting	Executive meeting
Objectives	•Review and approve demand plan	•Review and approve supply plan	•Align supply and demand plan	•Approve financial and operational targets
Typical inputs	•Statistical baseline •Demand forecast •Pricing and promotions	•Capacity plan •Inventory target •Supplier constraints •Production commitments	•Demand plan •Supply plan •Initial financial impact	•Aligned demand/supply plan •Financial impact scenarios
Typical outputs	•Market share •Unit & revenue plan •Service levels •Demand plan	•Cash flow •Manufacturing costs •Unit production plan •Supply plan	•Trade offs between demand & supply •Financial impact scenarios	•Committed financial plan with market share •Profit •Cash flow
Typical metrics	•Forecast error & bias •Cancelled orders •Order fill rates	•Production plan attainment •Inventory vs. plan	•Lost sales •Expedite costs •On time in full (%)	•Revenue •Market share •Margin •Cash flow loss & gain
Principal decision makers	•Sales •Marketing •Product Management	•Operations •Manufacturing/ Procurement	•Finance •Sales & Operations	•Executives •Business unit heads

Figure 3.2: Summary of the S&OP process steps (Aparajithan et al., 2011)

3.1.2 Key aspects of S&OP

In this section the greatest enablers of S&OP found in literature will be described and discussed. These are in most articles presented as truly important factors when implementing S&OP.

Leadership

Implementing change is hard, and when implementing an S&OP process, the change needs to be achieved throughout the whole organisation. All affected personnel need to be aware of the process and find it meaningful in order to contribute with value (Apics, 2013). However, in order for this to succeed a key in reaching the full potential is to have support from top management (Milliken, 2008). McKinsey & Company have in their article "Secrets of successful change implementation" found that the organisation's commitment to the change is the most important factor in achieving success. In addition to this, they highlight that having an owner of the process is crucial and that when responsibility is assigned, accountability is formed.

When actions and malfunctions have consequences the success rate becomes higher. Therefore leaders of an S&OP process is crucial, i.e. leaders that feel responsibility and that may suffer consequences if they fail (Johnston, Lefort, & Tesvic, 2017). The leaders should also appoint an S&OP champion or act as one themselves (Grimson & Pyke, 2007). The champion is a person to whom the rest of the team can report and who acts as a sponsor. A senior executive is often appropriate since this person often have the authority to grant permission to changes or decisions connected to the S&OP planning process. What is important is that the S&OP champion should not belong to one specific department since it will be ultimately harder to break the silos. This person may be affected by their own department and motivated to make decisions more optimal for them. Sales, marketing, finance, operations and supply chain all need to be equally participants (Apics, 2013).

There lies a lot of responsibility on the S&OP leader or champion. They need to be well-educated about the cornerstones of S&OP as well as truly understand the needs and goals of all involved departments. In addition to this, an understanding and knowledge of the organisation's operational, tactical and strategic goals need to be in place (Apics, 2013). This will require a specific skill-set, and some companies are educating their people into acquiring this for certain S&OP positions or hiring expertise to breach this gap of knowledge (Grimson & Pyke, 2007).

Leaders' commitment to change is not only crucial when implementing S&OP. Several authors claim that it is crucial to show unity and lead with examples when it comes to change (Abrell-Vogel & Rowold, 2014; Avolio & Bass, 1988; Ilies, Judge, & Wagner, 2006; Faupel & Süß, 2018; Michaelis, Stegmaier, & Sonntag, 2009). Not only should the leaders be educated about the process, but their true engagement and their charisma also have a positive affect on the implementation (Michaelis et al., 2009). The participants benefit from personal encouragement and recognition by their leaders, as well as proper guidance and responsibility (Apics, 2013). A company and its S&OP leaders need to keep in mind the essence of S&OP, i.e. to understand what they are trying to achieve and why they are taking this initiative. It is also crucial to express this leadership. Grimson and Pyke (2007) summarize this in the quote below.

> *It is critical to keep the goal in mind – not additional meetings, not new organizational structures or teams, and not new software. [...] Ultimately, the goal is to optimize profit, and the fundamental driver is leadership.*
>
> (Grimson & Pyke, 2007)

Focus on the people

There exists a fundamental misconception in the implementation of S&OP, namely that the focus should be on implementing a new IT system. Even if supporting systems are enablers, it is not the most important factor. What is crucial is to focus on the people of the organisation and their attitude towards the new process (Williams, 2016; Implement Consulting Group, 2014). Imposing a technological solution on an immature S&OP process can easily lead to failure. Instead it is the culture that needs to be attacked in order to get all affected personnel on board. A culture of collaboration and communication should be fostered to begin with before any larger investments are made (Lapide, 2002). Consultancy firms have seen a trend at their customers that the focus on people is lower than desired and is replaced by more focus on technology and the IT system they want to put in place (Implement Consulting Group, 2014; Småros & Falck, 2013). This is shown in Figure 3.3 below.

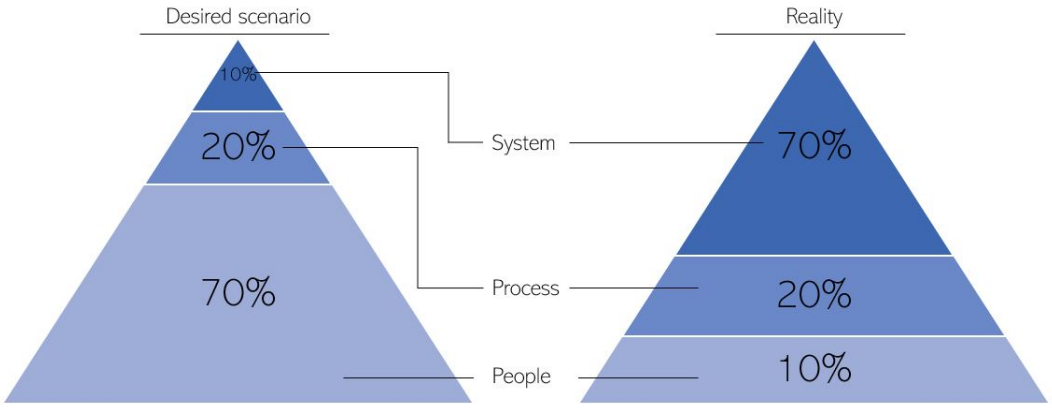


Figure 3.3: Share of focus on people, process and system in the desired vs. common scenario (Implement Consulting Group, 2014; Williams, 2016)

As markets become more global and competitive new challenges and opportunities arise for supply chains (Quelch & Deshpande, 2004). This itself fosters a sort of specialization focus in departments within a single company in order to compete with the rising demands and expectations from customers. This specialization can have the downside of increasing the silo-thinking in each department (Olivia & Watson, 2011). Keeping the expertise in each area at the same time as making the organisation work more cross-functionally is a challenging task. A sales person needs to be selling in order to succeed with their work but still understand the need of a stable production from operations, i.e. an integration of the departments needs to be reached. Hence, the S&OP process needs to target the people and their views and values in order to succeed, a team culture needs to be fostered and this is where several companies have failed (Lapide, 2004b).

Incentives and Key Performance Indicators

In order to help the departments of an organisation to act in a more integrated way, it is important to establish aligned incentives (Lee, 2004). By having KPIs that encourage the personnel to act in a beneficial way for the entire organisation it is easier to reach a desired scenario where cross-functionality is achieved. E.g., if a goal for the sales department is to launch at least X new products each year and the goal for manufacturing is to have a stable manufacturing process with a high frequency, the combined outcome may not be optimal. If the managers of a company sense that there exits an irritation between the departments, or complaints that one party is acting in a way that is not optimal for the big picture, this is a signal that the incentives are misaligned (Raman & Raman, 2004). Not only should the alignment between departments be achieved, but the strategic goals should be upheld by the tactical decisions taken during the S&OP meetings (Apics, 2013).

The benefits of a well-functioning S&OP process are many, but the most important goal is still to achieve increased profit. This is the linkage between operations' focus on decreasing costs, and sales' focus on increasing revenue (Grimson & Pyke, 2007). A well-implemented process can guide a company towards this goal (Thomé et al., 2012). Therefore there are some KPIs that are more appropriate to measure in order to see how the process is performing. However S&OP takes time and the first months or even years of the implementation should be considered as a starting phase and can be difficult and troublesome. Before a high performance process is achieved the organisation must develop tools to meet the demands of the process (Apics, 2012).

When measuring the performance of an S&OP process there are several dimensions in which one could measure. Tuomikangas and Kaipia (2014) suggest that performance management can be divided into three perspectives: financial performance, operations performance and process performance, and these measures are mentioned by several other authors as well. *Financial performance* constitutes of logistics and manufacturing costs (Nakano, 2009), i.e. costs that could be affected by the S&OP process. Optimizing profit or increasing revenue should also be considered as a crucial measure for financial performance connected to the S&OP process (Chen-Ritzoa, Ervolina, Harrison, & Gupta, 2010). The second perspective is *operations performance*. Nakano (2009) defines this as "production performance" and mentions KPIs such as order fill rates, delivery times and delivery speed. Forecast accuracy, inventory and obsolescence measures (Olivia & Watson, 2011) as well as quality, productivity and volume flexibility (Olhager & Selldin, 2007) are also mentioned as operational performance measurements. Lastly *process performance* is discussed as the level of planning efficiency, decision support and learning effects (Tuomikangas & Kaipia, 2014). The process performance will in this thesis be recognized as the measure of how well the S&OP process is performing. Table 3.1 displays a suggestion from the discussion of appropriate performance measurements for evaluating the performance

of an S&OP process. Additionally, Apics (2012) suggest an S&OP scorecard where the participants should rank statements on a scale from 1-5 to the degree that they agree with the said statement. This scorecard highlights factors such as degree of communication, leadership, trustworthiness of the data and cross-functionality.

Table 3.1: Suggestion of performance measurements connected to the S&OP process (Tuomikangas & Kaipia, 2014)

Financial Performance	Logistics costs Manufacturing costs Profit Revenue
Operational Performance	Order fill rate Delivery times Delivery speed Forecast accuracy Inventory Obsolescence measures
Process Performance	Level of planning efficiency Degree of communication Learning effects Data accuracy

Communication and information sharing

One goal of S&OP is to bring the views of different stakeholders together and this results in *communication* as a key for success (Implement Consulting Group, 2014; Pedroso et al., 2016; Jacquemont, Maor, & Reich, 2015). Communication must be pursued in many parts of the S&OP process. For instance, Jacquemont et al. (2015) emphasize that leaders must communicate the change to the employees in an open and clear way. The employees must understand both the progress and success, but also potential implications on the employees' day-to-day work. The leaders must reduce the gap between what the employees think is happening, and what they actually experience (Jacquemont et al., 2015). Employees must also communicate between each other as well as up to top levels in order to guarantee the cross-functionality that is needed in S&OP.

Not only is there a need to communicate the change between employees and leaders: there is a need for an information sharing system to communicate actual numbers, forecasts and KPIs. Wallace (2013) mentions that a successful S&OP project has a communication system embedded into the daily work which facilitates if an employee e.g. needs to update their colleagues of a change of dates for a product launch. Apics (2012) also mention that it is important to find a way to communicate that fits the specific organisation, and that there is no right-or-wrong answer to which way

of communicating is the best. Instead, one should make use of the organisational culture and what is best suited for it (Apics, 2012).

Rules and guidelines

In order for the entire organisation to understand and follow the process of S&OP there needs to be a designated process with guidelines for the members to follow. Providing guidelines are necessary to reach a higher level of maturity in the S&OP process i.e. enhance the level of effectiveness (Vereecke, Vanderheyden, Baecke, & Steendam, 2016). Belotti et al. (2016) mention several key enablers in order to succeed with S&OP, and these can all be connected to the fact that guidelines are needed in order to succeed. For example:

- Delegating responsibilities and initial information
- Structured schedule
- Documentation
- Training/process understanding

When the implementation of the process is underway, the organisation should also focus on having tools, measurements and metrics established that are shared over the organisation, as well as formalized responsibilities for all stakeholders (Apics, 2012). Setting guidelines in advance can also help the organisation in faster decision-making (Aparajithan et al., 2011). Boyer (2009) concludes the importance of written guidelines in the following statement:

> *[...] all key process activities should be written down so people can be trained, and to ensure that the process is understood and followed.*
>
> (Boyer, 2009)

3.1.3 Maturity frameworks

There exists a number of frameworks that describe both how an S&OP process should be undertaken but also models that suggest a way to evaluate the current process. Several researchers have touched upon the topic and suggest relatively similar ways to evaluate the progress. Lapide (2005) explains that to be able to work on the process it is crucial to first evaluate and understand where one stands today in order to realize ways to improve. The goal is to map the current situation and compare to a more ideal process, and thereby find the gap. A road-map of how to achieve this ideal state should in this stage be created. Moving from one stage to the next can be tricky and support is needed (Lapide, 2005).

In order to get a broad view of available maturity frameworks a few authors' views will be described below in order to find the common ground and similarities between the different models. This will further on be summarized into a collective maturity model that will be used in this master thesis.

Lapide (2005) describes in his article a model based on the following four stages:

1. Marginal Process
2. Rudimentary Process
3. Classic Process
4. Ideal Process

The *Marginal Process* is characterized by being chaotic and randomized. The meetings that are held are done so on a sporadic basis, and participants may cancel since they do not fully understand the importance of the meeting. Silo-thinking is present, and the plans that are made are sub-optimized and can be on the expense of another department. The name comes from the fact that this can only *marginally* be seen as an S&OP process. In addition to this there exists only low support from executives and their interest is half-hearted (Lapide, 2005).

The next stage is when one moves into a *Rudimentary Process*. In this stage, the formal planning process has been reached but full integration and coordination is not yet fulfilled. Meetings are set up on a cross-functional scale but it still occurs that participants choose not to take part or is not adequately prepared. The plans of supply and demand are separately conducted often by the help of different software. However, the result of the demand plan is often shared with supply (Lapide, 2005). In this stage there is still a lack of engagement and sense of urgency connected to the process.

When companies achieve the third stage they follow the *Classic Process*. Here they go by guidelines of acknowledged S&OP frameworks and have cross-functional meetings on a routine basis where the participants are empowered and together make decisions about supply and demand. The participants bring necessary data to the meetings where discussions about the presented plan forward are held. Other relevant information such as information regarding certain customers' behavior can be brought to the table (Lapide, 2005).

The last stage is called the *Ideal Process* and is not truly reachable but suggested as a dream scenario that encourages organisations to focus on continuous improvement. In this stage the meetings are event-driven and held when the current plan is changed or something unforeseen happens. To succeed with this, supply and demand are updated in real time by the help of an extensive software system that can be

applied on a global scale alerting appropriate personnel when meetings need to be held. This process can also be extended to integrate the suppliers and customers of the company, and thereby full integration will be met (Lapide, 2005).

Grimson and Pyke (2007) are two authors who also present a maturity framework with influences from previous research within the area. One of the frameworks that they base their research on is one developed by Aberdeen Group. Aberdeen Group suggests that the companies should be evaluated based on six different categories. The categories are:

- Process
- Organisation
- Resource effectiveness
- IT architecture
- Decision making
- Collaboration

The companies in question are ranked in each one of these categories as either *Laggard*, *Industry average* or *Best in class* to understand how their S&OP process benchmarks against others (Aberdeen Group, according to Grimson and Pyke (2007)). Oliver Wight (n.d.) recognize the problem of maturity as the readiness for the management to achieve improvements in the "journey towards excellence" (Oliver Wight, n.d.). They emphasize four phases:

- *Coordination*: Eliminating unplanned events, doing routine things routinely
- *Business Process Control*: Eliminating failure in business process
- *Automation*: Knowledge-based automation of all processes
- *Integration*: Integrating all business processes with technology

Depending on where a company are in these steps their readiness for S&OP could be evaluated.

Gartner (2013) also suggest a widely spread maturity framework for self-evaluation. In their model they include the following stages: *reacting, anticipating, collaborating* and *orchestrating*. The first stage has an operational focus where the emphasis is on the operational plan which leads to an imbalance. Stage two is a more integrated process where the forecast is matched to the best of their ability between sales and operations. However the process is still owned by the supply chain department and is an off-shelf-solution, not particularity adapted to the particular organisation. In

stage three the focus is on profitability, here business functions take responsibility of the inputs and outputs they should provide and financial impact is crucial when making decisions. Stage four is a value-driven process where the collaboration extends outside the organisation, business ownership is high on each level and both executives and finance are integrated in the process (Barrett & Uskert, 2010; Gartner, 2013).

Grimson and Pyke (2007) also developed their own framework, see Figure 3.4. This constitutes of five different parts: *Meetings and Collaboration, Organisation, Measurements, Information technology* and *S&OP plan integration*. Companies can thereafter be situated on a scale from 1-5 where they fulfill the demands and expectations on that stage. This will give a broad image on how the company is performing in their S&OP process, in other words how mature the process is.

	Stage 1 No S&OP process	Stage 2 Reactive	Stage 3 Standard	Stage 4 Advanced	Stage 5 Proactive
Meetings and Collaboration	• Silo culture • No meetings • No collaboration	• Discussed at top level management meetings • Focus on financial results	• Staff Pre-meetings • Executive S&OP meetings • Some supplier/ customer data	• Supplier & customer data incorporated • Supplier & customers participate	• Event driven meetings • Real time access to relevant data
Organisation	• No S&OP organisation	• No formal S&OP function • Components of S&OP are in other positions	• S&OP function is part of other positions: Product Manager, Supply chain manager	• Formal S&OP team • Executive participants	• Throughput the organisation S&OP is understood as a tool for optimising company profit
Measurements	• No measurements	• Measure of well Operations meets the sales plan	• Stage 2 plus: • Sales measured on forecast accuracy	• Stage 3 plus: • New product introduction • S&OP effectiveness	• Stage 4 plus: • Company profitability
Information technology	• Individual managers keep own spreadsheets • No consolidation of information	• Many spreadsheets • Some consolidation but done manually	• Centralised information • Revenue or operations planning software	• Batch process • Link to ERP but not jointly optimized • S&OP workbench	• Integrated S&OP optimisation software • Full interface with ERP • Real time solver
S&OP plan integration	• No formal planning • Operations try attempt to meet incoming orders	• Sales plan drives operations • Top-down process • Capacity utilisation dynamics ignored	• Some plan integration • Sequential process in one direction only • Bottom-up plans – tempered by business goals	• Plans highly integrated • Concurrent & collaborative process • Constraints applied in both directions	• Seamless integration of plans • Process focuses on profit optimisation for the whole company

Figure 3.4: Grimson and Pyke's S&OP maturity framework (Grimson & Pyke, 2007)

These frameworks will lay the ground for the analysis of the maturity level of TC. An integrated framework created by the authors will be presented in the analysis which is based on the presented frameworks above.

3.1.4 Implementation

Although S&OP is partly a philosophy, it is also an actual process that needs to be implemented correctly in order to obtain the expected results. Wagner et al. (2014) emphasize that even if S&OP is conceptually easy and simple to understand, it is very difficult to implement. Since it is not only a matter of installing a new software system, but rather a change in mentality and business culture, it implies a large adjustment for the company. Different departments who have before worked with different incentives must now work together, towards a common goal (Grimson & Pyke, 2007). Implement Consulting Group (2014) mentions that one should establish a clear project purpose, as well as use a business case approach to set the focus and direction of the project. Although many authors share the view of which factors that have to be established before the implementation, it is difficult to conclude it in a step-by-step process. However, the authors of this thesis have concluded that there are three key areas in which there is a need for changes. These three are *change in behaviour, change in processes* and *change in IT structure*.

Regarding *change in behaviour*, many of the key success factors have previously been discussed in this report. However, here follows a list of factors that need to be established in order to reach a successful implementation of S&OP.

- Form an S&OP team with relevant members and verify that these people are aligned and willing to put time on the project (Milliken, 2008).
- Educate top management and verify that they support the project (Milliken, 2008). Write down expectations and their long-running commitment (Apics, 2013).
- Educate and empower employees: make them believe in how the change will yield improvement for the company as well as for themselves. They should see the S&OP process as an integrated part of their responsibilities (Schneider, 2013).
- Form aligned incentives between functions to establish cross-functional objectives (Implement Consulting Group, 2014).

Once the foundation is set and people are on board, the company must adapt the current setup. *Change in processes* is a necessary step since the processes provide support for the S&OP project. Since S&OP is highly dependent on monthly meetings, there needs to be a structure of these in place.

- Study the own organisation: how must this company adapt to fit the S&OP process? What are the characteristics of this company that must be considered (Apics, 2012)?
- Schedule the meetings, preferably twelve months ahead (Milliken, 2008).

- Add extra reporting processes to the daily activities of both operations and sales. For sales, a demand forecast report tool, and for operations, a supply capacity report tool (Lima, 2013).
- Settle relevant performance measures. How will the success be measured? The KPIs should be relevant for everyone involved, and be clear and intuitive (Apics, 2013).
- Establish a common language between the different stakeholders (Guldager & Gudum, 2019) as well as a common information sharing process (Lima, 2013).
- Make sure that finance is involved with the S&OP process. Align the finance forecast with the S&OP forecast by determining gross profit per product family (Apics, 2012).

Although the two previously mentioned areas are the most essential to a successful S&OP process, there is also a need of a supporting IT structure (Apics, 2013). However, most companies do not start the S&OP process by investing in new IT solutions. It is more crucial to get people on board and determine a process, and introducing a new system may only complicate matters. In most cases, it is enough to start off with a spreadsheet (Lima, 2013). Notwithstanding, by the time the S&OP process reaches a higher maturity level, there is often a need for technology in order to achieve all the benefits of S&OP (Lapide, 2004a). Implement Consulting Group (2014) argues that when there is an increased maturity, the constraints can no longer be modelled in a spreadsheet, and should together with what-if simulations be handled in a planning system. Lapide (2004a) discusses that the software that is needed should consist of three parts, which all will be reviewed in the following list.

- Demand-Side Planning system: This system should include a *demand planner tool* and a *demand collaborator tool*, which will support the demand plan development as well as the baseline forecast, i.e. the inputs to the S&OP process. The demand planner should handle information regarding campaigns, product introductions as well as competition. The demand collaborator manages data from downstream customers or collaboration programs such as Vendor Managed Inventory (VMI) or Collaborative Planning, Forecasting and Replenishment (CPFR). The demand collaborator is also used by external sources and is hence often web-based to facilitate the collection of information (Lapide, 2004a).
- Supply-Side Planning System: As for the demand side system, the supply side system should support the inputs from supply in the S&OP process. In other words, they should handle inventory, procurement as well as production plans. It should also include a *supply collaborator*, which will handle data from upstream suppliers and purchasing. As in the demand collaborator case, the supply collaborator is also often web-based (Lapide, 2004a).

- S&OP Workbench: As mentioned, it is of great importance that the S&OP process is working cross-functionally. With this third system component, the information sharing between functions is facilitated. Lapide (2004a) mentions that this system should generate dashboards on which everyone involved can follow the process and how well the planned supply is meeting the planned demand. It should also consist of scorecards, including KPIs to display the progress of the process, with metrics that can be understood by everyone (Lapide, 2004a).

Lapide (2004a) also emphasizes the importance of these three systems being connected, so that one easily can get the whole picture. When a change is made in any of the system components, this should be updated in every instance and hence keep up the cross-functional spirit that is S&OP.

One must remember that, even if all the above points are established, it is challenging to implement a change. Apics (2013) mention that the first six months in the process are crucial, and that many companies give up during this time. It is important to hedge for this potential outcome, and not expect extraordinary results during these months. Apics (2013) also emphasizes that a company must continuously involve participants in the process, regardless of its current success. This will yield a larger commitment from them since they will understand the process. People are in general reluctant to change, and many transformations at companies fail due to an ignorance of this (Jacquemont et al., 2015). The importance of change management will be deeper described in section 3.3.

3.2 Sales and Operations Planning in food and dairy

So far in this thesis, S&OP has been described in a general manner. Although it is a wide philosophy with a generic description, it is important to consider the industry in which one is operating when implementing S&OP. TC is a dairy company and this section will therefore be focused on the special characteristics of S&OP in dairy, food and processing industries.

Due to an increasing demand from customers, many dairy and food companies have been forced to respond quickly by widening product portfolios and become more flexible. Although this is welcomed by the market, it does lead to higher demands on complexity on the food supply chains (Doganis & Sarimveis, 2008). Furthermore, as mentioned by Pant, Prakash and Farooquie (2015), this industry is characterized by strict hygiene controls and health guidelines, and has a large responsibility which demands transparency and traceability. Moreover, the fact that seasonality, to some extent, controls the supply creates an imbalance between demand and supply (Ivert et al., 2013). Ivert et al. (2013) also emphasize that since many of the

products are perishable, it may be difficult to find efficient storing, which adds up to the complexity. This also puts a higher demand on accurate forecasting. They also mention that planning and forecasting is often difficult in companies in the food and dairy industry due to a high number of new product introductions (Ivert et al., 2013).

When considering the dairy industry in particular, Guan and Philpott (2011) discuss the high uncertainties regarding milk supply. Not only can conditions such as weather affect the supply, but the amount of milk received is uncertain, since the farmers will deliver the amount of milk that they have for now. This amount may be smaller or larger than what is needed, and one simply must work with what one has been provided with.

Ivert et al. (2013) carried out a study on how industrial food producers work with S&OP by comparing four selected companies. The four companies had many similar characteristics, and one thing in particular was that they had trouble with keeping the S&OP process on a tactical level; they often used it on a more operational level (Ivert et al., 2013). The authors explain that one of the reasons for this could be that the companies want to keep a flexible production, and are hence not able to work with S&OP in the long-term perspective. Therefore they do not always involve finance into the process, and lose the strategic and tactical aspects of S&OP. Overall, they concluded their findings that there is a high potential for S&OP in the food industry, but that the companies generally have not yet reached the higher maturity levels (Ivert et al., 2013). They furthermore came to the conclusion that when implementing S&OP, the food or dairy companies should put extra focus on the supply and purchasing side if they have an uncertainty in these areas, and not only adapt S&OP by the book (Ivert et al., 2013).

3.3 The importance of change management

One definition of change management is "The process, tools and techniques to manage the people side of change to achieve a required business outcome" (Prosci, n.d.). Since the people side of change is one area in which an S&OP company should put much focus, change management is important in S&OP (Stahl & Wallace, 2012). According to Angelöw (1991), the success of how well a change is received depends on whether the change is forced upon the employee or not, which actions that are provided, and which consequences the change will bring. It can also depend on the person, their mindset as well as their background. This can be traced down to an individual level, where an individual unconsciously uses defense mechanisms when facing a change (Bovey & Hede, 2001). Näslund (2013) mentions that the extent to which organisations provide training for their employees can affect the result, and that if the change is not communicated continuously, it may be perceived as a "fad of the month". However, Lawrence (1954) argues that many executives who encounter

change resistance only explain it with "people are resistant to change" and never go deeper. Instead, he argues, that much of the resistance, especially related to technical changes, is redundant and that it could be avoided if handled correctly, i.e. by letting employees participate, by encouraging them and by using understandable terms (Lawrence, 1954). Perren (1996) claims that people are not resistant to the change itself, but rather resistant to the insecurity that would follow the change, and suggests that the employees are given the opportunity to be involved in all parts of the change implementation. Additionally, Quast (2012) emphasizes the importance of being aware of the reasons why people resist the change. By being aware, one can minimize the struggle and pain (Quast, 2012).

Yet, what is important to remember is that resistance to change does not necessarily have to be all negative. Ahrenfeldt (2013) emphasizes that some consequences might be positive, and that the energy that is created due to the resistance is needed in order to build engagement around the change. He also mentions that although resistance may be irritating for the initiator, it can lead to questioning and discussions about the solution, which in the end could lead to an even more optimal solution (Ahrenfeldt, 2013).

To conclude, it is important to understand *that* people will resist change, *why* they will resist it and *how* to mitigate the impact. One must also remember that people are human, and that even though a solution seems waterproof on paper, it depends on how it is met and managed by the involved parties that will lay the ground for the project's success or failure.

3.4 Synthesis

In this chapter a broad view of the existing literature about S&OP has been presented. The process, maturity frameworks and change management have been discussed in order to get a thorough understanding of how an organisation can succeed with S&OP. What is emphasized is the importance of adequate leadership, communication, information sharing and a clear process. In order to succeed with the implementation, the importance of communication cannot be stressed enough. For instance, all participants need to be informed and aware of the process that is in progress. In addition to this, the process needs to be clear and guidelines should be present that drives S&OP forward by the help of an engaged S&OP champion. S&OP may be simple in theory but even in practice it can be achieved, if implemented correctly.

Chapter 4

Empirical study

In this chapter a review of the current process of how TC works with matching supply with demand will be presented. Firstly, an introduction to the empirical study, including a list of the interviewees, will be displayed. This will be followed by a section in which the current S&OP process is mapped. The mapping will include a description of the process, its meetings and its information flow, as well as a section of future investments and plans. It will also include the perceived ideas about the process, showing the different views of the departments. Lastly, perceived ideas regarding the five key aspects brought up in the theoretical framework will be displayed, followed by other relevant observations.

4.1 Introduction to the empirical study

The empirical study was, as already mentioned, conducted through interviews with employees representing different parts of the company, including sales, marketing, finance, supply chain, top management and production. As an additional way of collecting information, the authors have attended several meetings, monthly as well as weekly, in order to not only hear opinions about the meetings, but also to see how they actually are carried out. Table 4.1 displays a list of the interviewees in the empirical study.

In the beginning of each interview, all interviewees were asked the same question: *do you know what S&OP is?*, and the answers were widely spread. Some people had heard of the concept but did not know that it was being implemented at TC, while others had never heard of it. A few employees knew about the concept and knew that it was under implementation. The authors did not initially find a connection between the interviewees' positions and their knowledge of S&OP. The supply chain department however stated that they had sent out emails explaining the concept to all affected personnel in an earlier attempt to implement S&OP.

Table 4.1: List of interviewees in the empirical study

Sales	Key Account Manager Customer #1 Key Account Manager Customer #2 Key Account Manager Customer #3 Campaign Planner
Marketing	Brand Manager Marketing Manager
Finance	Commercial Controller Business Controller
Supply Chain	Cheese Planner Head of Planning Milk Balance Manager
Top Management	CEO Supply Chain Director Retail Commercial Director Controlling Director
Production	Cutting Plant Manager Cutting Plant Planner Plant Director Cheese Master

4.2 Mapping of the current S&OP process

This section will provide a presentation of the current S&OP process within the cheese category. The mapping is based on a mix of the authors' observations as well as the stated official process guidelines, due to the fact that the authors found dissimilarities between the two. It will also be based on how the participants describe the different meetings. In addition to this the employees' perception of the current process will be presented.

4.2.1 Description of the process

Figure 4.1 displays how the meetings during a typical month are structured. The three meetings that are described in detail are all part of the current S&OP process, while the meetings described briefly, i.e. the ones in colored circles, are other meetings that are scheduled. Although they are not an official part of the S&OP process, the authors found it relevant to still display them since they show the communication between departments.

Today the process is lead by the Cheese Planner who has the roles of both Demand Planner and Supply Planner within cheese at TC. He is therefore responsible for a large part of the process of matching of supply with demand in its current setup.

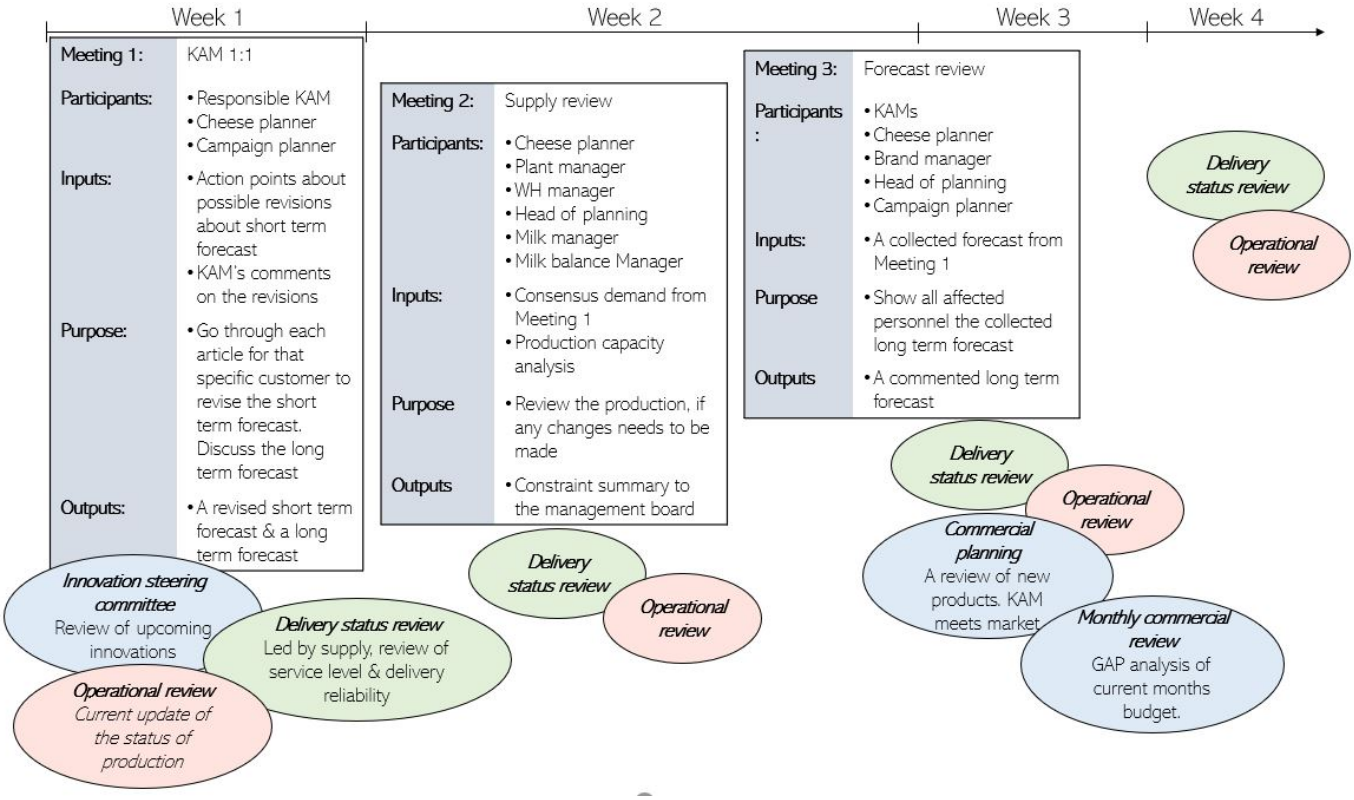


Figure 4.1: An illustration of the current monthly meeting process at TC (Geelmuyden & Rasmusson, 2019).

KAM 1:1

The *KAM 1:1 (one-on-one) meeting* is the first meeting that starts the process of S&OP at TC. The meeting is held with all KAMs separately which results in four KAM 1:1 meetings. These meetings take place in the beginning of the month in week one. Figure 4.1 shows the observed structure of these meetings. The meetings are held by the Cheese Planner together with the responsible KAM and the Campaign Planner. The meeting itself is new to TC and has only been held a few times in this manner. The idea is that each KAM owns their forecast and should therefore be responsible for it. Earlier this has not been the case and the Cheese Planner has on his own made these revisions and forecasts. Including the KAMs in this meeting has been one of the changes that TC has made to get a more aligned and agreed upon forecast, in the mindset of S&OP.

Before the meeting the Cheese Planner prepares suggestions of revisions to the short-term forecast. This is done by looking at the outcome of the past weeks and adjust the forecast thereafter. The forecast is here on an article and customer level, i.e. highly detailed, and these revisions lay the ground for setting the forecast in the coming year as well as adjustments to available stock for other customers with the same article. The KAMs should contribute with relevant customer data about the changes that the Cheese Planner suggests as well as an informed decision about what to forecast in the long run, in this case a rolling twelve month forecast. However, this customer data is not always provided by the KAMs.

During the meeting, each article for the KAM's customer is gone through according to the suggestions that the Cheese Planner has e-mailed beforehand. The suggestions are discussed and the short-term forecast is changed accordingly. The next discussion is about the long-term rolling forecast, where the KAM has the customer information and the Cheese Planner the numbers about past outcomes. A decision is made about what to adjust and the rolling twelve month forecast is decided upon. The Cheese Planner notes the changes that is made both on long-term and short-term and thereafter makes these changes in the master forecast file.

Supply Review

The second meeting in the current process is called *Supply Review*. It takes place in week two and is held at the cheese production plant. This meeting has the goal to go through the supply plan with regards to the unconstrained demand forecast. There is also room for discussion about possible risks and opportunities in the supply plan. The owner of the meeting is once again the Cheese Planner and the other participants include the Plant Director, the Cheese Master, the Warehouse Manager, the Head of Planning, the Milk Manager and the Milk Balance Manager.

The inputs to this meeting are the consensus demand from the KAM 1:1 meeting, a production capacity analysis, a milk balance analysis and a debrief from the previous month. It also includes some constraints and actions that must be discussed. The meeting commences with an action log from the last meeting, where every action point is once again put on the table and the status of it is checked. The Cheese Planner updates the action log when there are changes. Thereafter, the meeting moves to the agenda, which is divided into the following headlines: production, raw material, quality, inventory development, age of the cheese, and other. Under each headline, relevant and current issues are displayed, and all of these are discussed by the meeting participants. When there are concerns that should be discussed with other departments, the Cheese Planner informs that he will pass on this information to the relevant person. During the "raw material" discussion point, the Milk Balance Manager is given the floor and he presents how the milk balance is currently performing. After the agenda points have been handled, the meeting is open for

various discussions, and the attendees are given the chance to raise more issues and concerns. The output from this meeting is a summary of the action plan, as well as information that the Cheese Planner will bring to the next meeting he will attend, which is the *Forecast Review* meeting.

Forecast Review

The third meeting is, as already mentioned, called *Forecast Review*. This meeting is scheduled three days after the *Supply Review*, i.e. still in the second week. The goal of this meeting is to sign off a consensus forecast, supporting assumptions and actions, for the coming 18 months with input from sales and marketing. There is, as in the other meeting, room for discussion about the forecast. Once again the Cheese Planner is the owner, and the other participants are the Head of Planning, the KAMs, the Brand Managers, the Campaign Planner and the Tele Sales Manager.

During this meeting, the inputs are a debrief from the previous month, a promotion plan review and a forecast versus budget comparison. Other inputs are spontaneous questions from the participants. The action log from the previous month is brought to the table and, similar to the *Supply Review* meeting, all action points are gone through and updated. This is followed by the agenda, which is divided into the following headlines: previous meeting notes, KPIs, new inputs, the upcoming forecast, cheese on stock, forecast vs budget y and y+1, and other. Each point is discussed and if there are any concerns, the work is delegated to a relevant person.

The action points during this meeting are not on an as detailed level as the *KAM 1:1*. Instead, issues about specific products or categories are raised and handled. For example, one issue that was raised during one meeting was what to do with the remaining volumes of a product that was about to be discontinued. Supply chain wanted to know who could take responsibility for it, marketing was wondering if sales had any input from their customers about this product, and sales wanted to know the volumes and dates. The output from the *Forecast Review* is a consensus of the demand, as well as an action plan for the upcoming four weeks. However, although the meeting has a set agenda, most time is spent on presenting and reviewing the current forecast.

Other scheduled meetings

Within the cheese category, there are two additional meetings which are scheduled every week. The *Delivery Status Review* meeting is scheduled once a week and is a short status meeting regarding deliveries, service levels and a stock cover analysis. The participants are the Cheese Planner, the KAMs, the Cutting Plant Manager and the Head of Planning. Accordingly, the *Operational Review* meeting is also held once a week and a status meeting. Here, another stock cover analysis is made as well as

a gap analysis between the demand and the current inventory. The Cheese Planner is again present here, as well as the Warehouse Manager for cheese, the Warehouse Manager for the cutting plant and the Cutting Plant Planner.

Furthermore, there are three additional meetings to which the representatives are attending. However, these are not only concerning the cheese category, but the whole product mix. The *Innovation Steering Committee* meeting is held once a month and has the goal to review upcoming innovations and make sure that the relevant people get valuable insights. The *Commercial Planning* meeting is also focused on innovations, but is only attended by marketing and sales. Finally, the *Monthly Commercial Review* meeting is held once a month, and is attended by representatives from sales, marketing, finance, top management and supply chain. This meeting is i.e. cross-functional and is led by the Retail Commercial Director. The KAMs show a gap analysis on how to fulfill the budget for the current month as well as for the following year.

Information flow

Although Figure 4.1 displays the current structure of the monthly meetings, it does not show what happens between the meetings. Figure 4.2 provides a picture of how the meetings are connected and what is being prepared before the S&OP meetings. As stated in the top right corner in the figure, information constantly flows between the affected departments so that everyone is up-to-date with changes. Updates about demand, supply and milk balance can have an immediate effect on the forecast and should therefore be communicated instantly. This is the case since it is not possible to wait three weeks until the next meeting in critical situations to present the information.

What is important to keep in mind is that although the meetings are scheduled in this order, they are not always structured according to the calendar month in an S&OP way. This is the order in which the meetings have been scheduled for many years, and according to the Cheese Planner, the order of the meetings are not that important. He argues that since the process is floating and the forecast is constantly updated, the meetings could have been scheduled in another way and still would have been the same, since they always use the latest, most recent numbers whenever they make decisions.

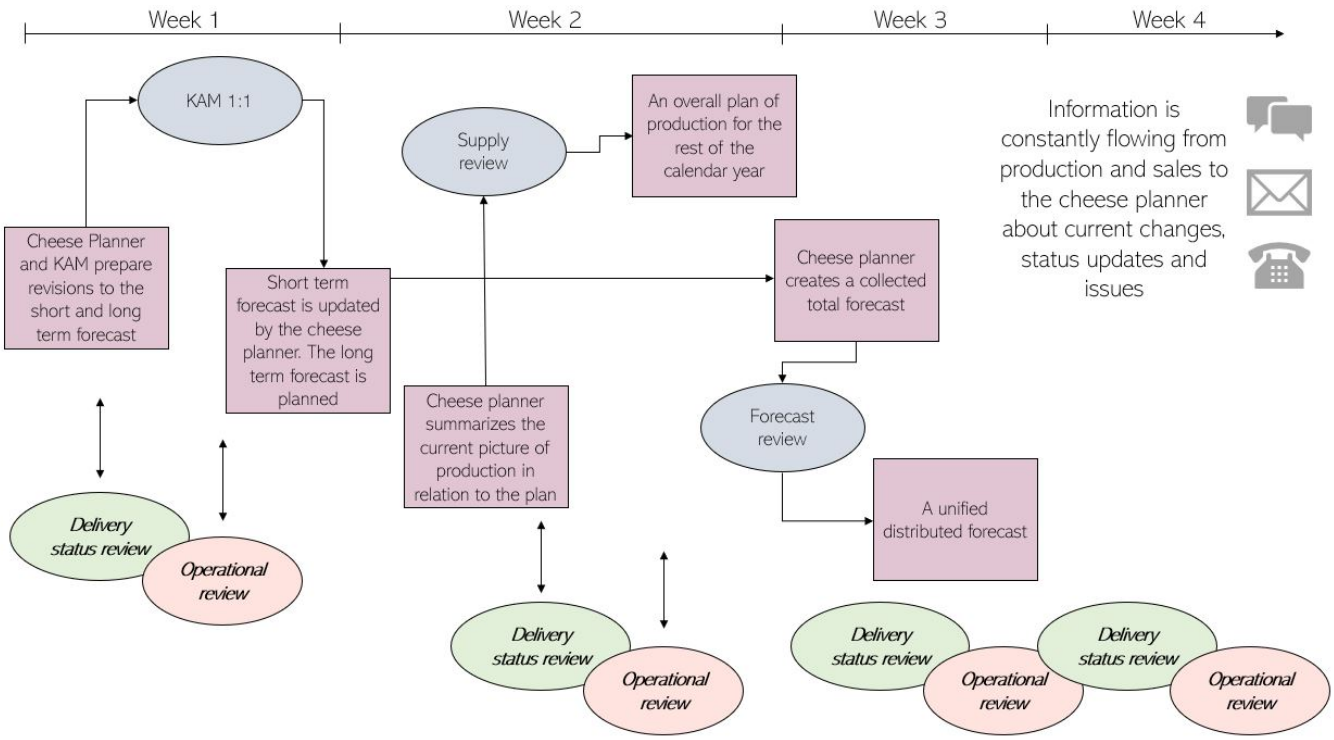


Figure 4.2: An illustration of the current meeting structure with inputs and outputs at TC (Geelmuyden & Rasmusson, 2019).

In order to obtain a full perspective of the current process and the different data files and spreadsheets that are transferred between people and departments, a mapping of the data and information sharing has been performed. Figure 4.3 displays how the Cheese Planner's master forecast file is connected with other files, and how the data sharing is structured.

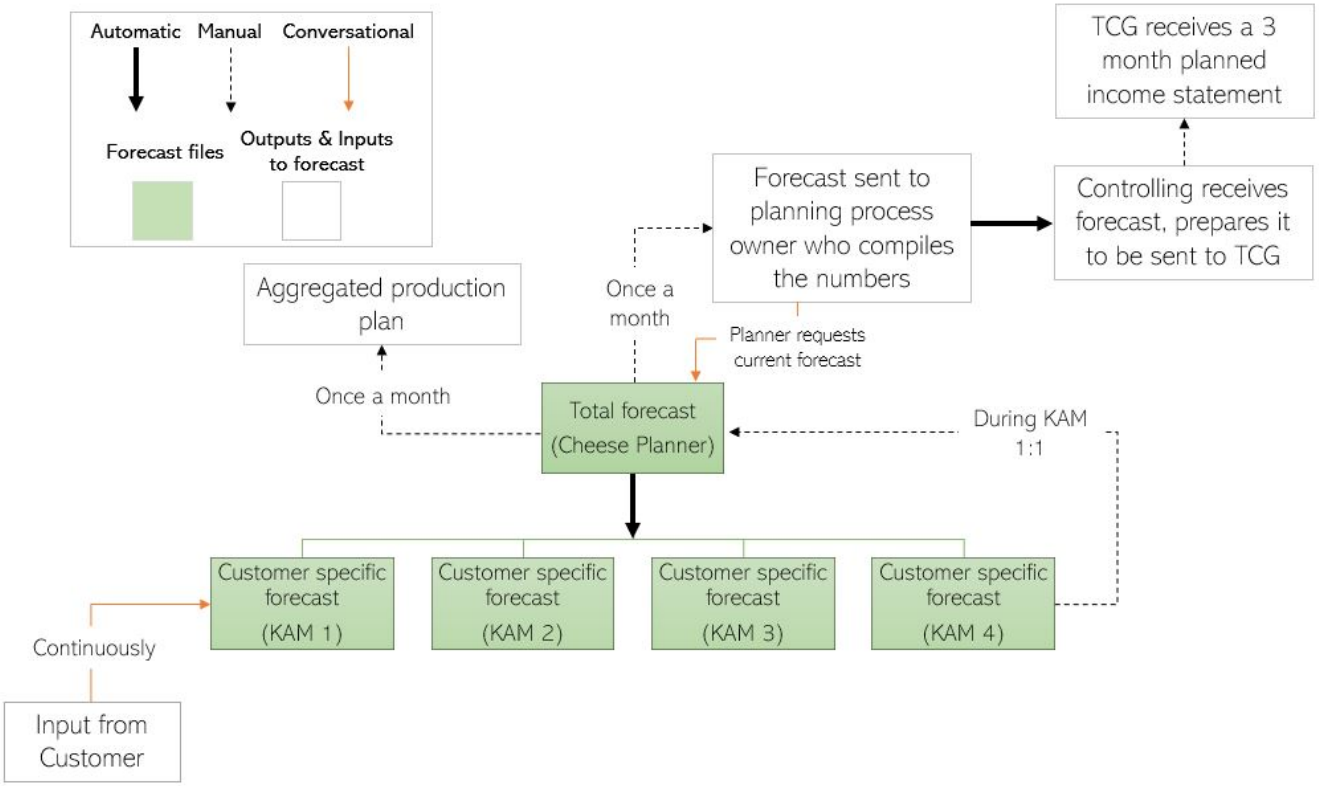


Figure 4.3: An illustration of the current data and information flow at TC (Geelmuyden & Rasmusson, 2019).

Forecasting of cheese is based on the Cheese Planner's master forecast file, which contains the total forecast for all products within the category, for all customers. This forecast is sorted on both a detailed level, i.e. on article and customer level, since this is the forecast he communicates to the KAMs, but also on a more aggregated level, which is what is communicated to the production. Since production only needs to know the type of cheese, and not the size or age, they do not need the detailed information.

The KAMs work for a specific customer and are therefore in need of a customer-specific forecast. They all have their own file which is connected to the Cheese Planner's master forecast file. The KAMs have a continuous dialogue with their customers, which gives input to the revisions made to the customer-specific forecast. During the KAM 1:1 meetings, the Cheese Planner and the KAMs sit together and update the master forecast file. Also continuously, whenever a KAM receives new information from their customers, this is communicated to the Cheese Planner. The master forecast file is connected with the KAMs' files, but due to the structure of the spreadsheets, it is only automatically updated one-way. In other words, the updates from the Cheese Planner's file is communicated to the KAMs' files, but not the other

way around.

Once a month, TCG wants a three months planned income statement which is provided to them by controlling. Controlling does hence send a request of the current forecast to a planner working at supply chain, who in turn sends a request to the Cheese Planner. The Cheese Planner sends the latest numbers and the planner compiles the numbers so that the file is compatible with the spreadsheet used by controlling. Controlling receives the numbers and revises the file so that it it can be sent, via the Management Board, to TCG.

Future investments and plans

TC views the implementation of S&OP within the cheese category as a first step towards integrating S&OP in all product categories in the future. There is a will to put efforts and resources into this project and since many of the employees have backgrounds in other companies in which S&OP has been successful, they have a positive mindset of the process.

There is also a plan to implement a new system in the future. This system is called *FuturMaster*, and it is already used in many other companies within TCG. It has a demand management tool that can aid in achieving a more integrated process to improve forecast reliability. The result on this thesis will not take FuturMaster into consideration since it will not be implemented in at least a year.

Furthermore, during the spring a project is being implemented where the focus of the KAMs is shifted. Instead of being completely responsible for all product categories for their customers, the work is divided so that there will be several KAMs on each customer, with fewer product categories to be responsible for. The goal is to create a more concentrated focus on the specific categories. Since this implies relocation of people and perhaps even new recruits, it will require a thorough work within change management. However, since the KAMs' roles will more or less remain the same, the process itself will not be affected significantly.

4.2.2 Perspectives on the current process

This section will provide the perceived ideas from each department regarding the current process. The results from the interviews are presented under a collected view from each department, and a general perception as well as potential deviations of opinions are presented.

Sales

The general opinion within the sales department regarding the concept of S&OP is that many of them are familiar with the term but not the actual significance of it.

They recognize that the meetings they attend are important, but are not aware that they are a part of a larger process. However, one KAM had a good insight in S&OP since he just recently started working at TC after spending many years in another company with a clear S&OP process. He had many inputs to the current process and suggestions for further improvements. He especially had remarks regarding the fact that the different forecasts are misaligned and that the financial forecast is completely separated from the others, which results in an unsynchronized budget with large gaps compared to the forecast.

Many representatives from sales argue that they today work with *sales planning*, without operations. All relevant information is not forwarded and there are no clear deadlines. However, they mention that within the cheese category, where there have been active attempts to improve the process by implementing S&OP, they have seen a clear improvement.

Regarding the two meetings in which sales representatives are attending, i.e. *KAM 1:1* and *Forecast Review*, there is a relatively collective opinion. When talking about the *KAM 1:1* meeting, the reactions are positive. Since it is a rather new meeting, all details are not completely set just yet, but everyone do see the potential of it. They all highlight that this meeting gives the opportunity for the KAM as well as the Cheese Planner to go down into detail and discuss the forecast on product level, for that particular customer.

On the other hand, the opinions about the *Forecast Review* meeting are not that positive. "Inefficient", "Unclear" and "Complete disaster" are three quotes with reference to this meeting from some of the KAMs. They agree that it lacks a clear agenda, that the meeting should be scheduled earlier in the month and that there are too many people attending. Some argue that it would be better if the Cheese Planner would send out a clear agenda beforehand, so that each participant can prepare questions and answers in advance, and hence make the meeting rather proactive than reactive. Others argue that this meeting is redundant and should involve top management instead of sales and marketing, i.e. that it would be enough for them to only attend the *KAM 1:1* meeting. However, the Campaign Planner did not have any particular issues with the current setup. He is satisfied with his role in the meeting and the information he obtains from it.

Furthermore, some representatives say that there is a lack of involvement from controlling in the process. Some KAMs think that controlling should do more, and that they should be more aligned with the rest of the process. The KAM with good insight in S&OP suggests that controlling should have a more defined role in the process. For instance, he argues that since controlling is not involved in the discounts that are put in place for the customers, it creates a lot of extra work. Instead, one can lay a good foundation with a large groundwork in advance, and then work with minor

adjustments, which will make the daily work less complicated.

Regarding the forecast in general, there are many opinions. The first common opinion is that the forecasts between departments are not aligned. Marketing and sales are working with one forecast, and supply chain with one. They are not really rooted in each other, and this creates a confusion of which one is "the official one". However, this problem is not that large in the cheese category, but mainly in other categories. They also claim that it is difficult to know what is expected of them. The KAMs should own the forecasts but they feel that it is difficult when the Cheese Planner is in charge of the master forecast file. They always need to match their forecast with his forecast and this takes time as well as prevents the KAMs from truly owning their forecast. One KAM also brought up that since the forecast is mostly based on intuition, it is difficult to trace the decisions made back and truly support it. It also limits the flexibility of the process, since it makes the people with the intuition and experience invaluable.

Marketing

Marketing is currently participating in the *Forecast Review* meeting. The Brand Manager is positive to the process and believes that there is potential for it to succeed at TC. She underlines that they have had meetings discussing these matters in the cheese category for a long time. However, she does not know that this is a part of a larger process, and does not really have insight of what happens after the meeting. She clarifies that her role in this meeting is not central, and that she rather acts as a spectator. It is important for her to hear about news regarding the cheese category and also to make sure that the brand is not harmed in any way, e.g. through clearance sales or promotions. Regarding the structure of the meeting, she emphasizes that it today has a good agenda, but that the Cheese Planner has a large workload connected to this meeting and that the sales department's role is more observing than acting. She highlights that the meeting could improve if only the roles and responsibilities would be clarified in an educational way. This is also emphasized by the Marketing Manager who believes that the largest challenge TC is facing is to create guidelines and structured processes. The meetings that are held lack efficiency and division of responsibilities and this is a task for the Management Board to put in place.

Controlling

Today the controlling department is only moderately involved in the S&OP process and they do not take part in any of the set meetings where the matter is discussed. However, the Commercial Controller explains that the new meeting, i.e *KAM 1:1*, has indeed improved things. Before, the Cheese Planner was alone responsible for the forecast and the KAMs received the finished result. The role of controlling, con-

nected to S&OP, is to deliver an income statement for the next three months to the board of TCG. Before the *KAM 1:1* meeting was introduced the KAMs prepared this file together with the Commercial Controller, which resulted in double work. This file is now based on the forecast that the Cheese Planner plans together with the KAMs which also results in a more unified forecast with better accuracy. The controllers are both positive to the S&OP initiative since they believe it will aid them in their daily work and create a more unified forecast. This is today not done on the other products at TC which contributes to the issue of several forecasts circulating in the organisation within different product categories.

Another initiative that the Commercial Controller was positive towards is the rolling twelve month forecast that is performed by the KAMs. This creates a more accurate and thorough forecast that can lay the ground for the budgeting of the next year. The Commercial Controller as well as the Controlling Director emphasized that this way of working helped in making the budget a more realistic goal which is a preferred by TCG. However, he also expresses that cheese is a difficult product to forecast and create a budget for due to its long lead time. Therefore the current twelve month forecast is not sufficient. When the budget is determined for the next year, the cheese that is budgeted have in many cases already been produced. To breach these issues the Commercial Controller emphasizes the importance of planning and this is something he believes that S&OP can contribute with. This is also highlighted by the Business Controller who believes that the process will run more smoothly with more structure and guidelines. Additionally, he mentions that the date on which controlling must send the three month planned income statement to TCG is fixed and have to be taken into consideration.

Production

In the current process, the production representatives are participating in the *Supply Review* meeting. There is no awareness of the larger picture, and people attend these meetings out of habit. The Cheese Master says that he does not see this meeting as necessary for him to attend, and that it is a status meeting rather than a decision meeting. Since this meeting handles issues regarding whether production meets the forecast and the budget, he believes that it is out of his scope and interest. The Plant Director explains that he has been on better meetings and that the actual agenda of the meeting is to show the plan forward but this is not what is discussed during the meeting. He still believes that such a meeting is appropriate but that the current setup is not efficient and needs improvements. In addition to this he raises concerns about the planning tools that are used. Since manual spreadsheets are used by the Cheese Planner, production does not have access to updated numbers in near time. Once a week the plan is sent to them, but smaller updates they are not made aware of. He truly believes that a system where everything can be seen by all affected parties would help them in their daily work, and that these closed documents

available only for the Cheese Planner is a non-optimal way to share information.

Top management

The representatives from top management at TC are truly driven to implement improvements and they have a strong will to drive the S&OP process forward. They agree that the present process within cheese is today not an S&OP process but it is a base they can stand upon. The initiative to implement the process comes from the CEO together with the Management Board and the reasoning behind this is the misaligned forecasts that create gaps compared to the budget. The CEO, who has previous experience within S&OP, mentions that S&OP crucial within the dairy industry due to the uncertainties regarding the milk supply and hence the milk balance. The Supply Chain Director has an idea of how the process should be designed but highlights that the implementation of such a process should have a long-term focus since he believes it to be a tool that can unify the strategic goals with the tactical and operational decisions. He emphasizes the importance of the role of controlling in the process, that today it is not sufficient, and the process should have a more financial budget perspective. He also suggests that the perspective from marketing is not sufficient, that their input to the forecast should be deeper since the forecast needs to be on a longer horizon in order to succeed with the planning. From the Retail Commercial Director's view, controlling should not be present in the process but on the other hand check what comes out from the process and highlight the risks towards the budget. However, he adds that they could play a valuable role in a summarizing meeting in order to connect the financial view with the forecast.

When asked about the fact that there today does not exist a traditional executive meeting the Retail Commercial Director, the Supply Chain Director as well as the Controlling Director agree that such a meeting is essential. In order to succeed with the process, there needs to be full support from the Management Board. They however have a different view of who should be present at this meeting, where one of them suggests that the entire Management Board should attend and the other suggests that only a few that are more connected to the process, such as supply chain, sales and finance should attend. Another area in which two of the interviewees have different perspectives is of who should be the owner of the process. The Supply Chain Director highlights that the ownership should first and foremost lie on the CEO in order to show the seriousness of the process. The CEO agrees that he should take part in the process to show the importance of S&OP, and he wants to take part in a monthly meeting where he can show his support and be the final decision maker. The Supply Chain Director believes that Supply chain could lead the implementation of S&OP but it should not be seen as a supply chain initiative. He instead suggests that each division should have an S&OP leader, and that these leaders together can create an S&OP team. The view of the Retail Commercial Director is that the owners of the process should be supply chain since it is supply chain's

responsibility to be the bridge between sales and operations. The S&OP team could therefore consist of himself, the Supply Chain Director, the Head of Planning and an appropriate employee from production. When asked about the executive meeting, he emphasizes that the "off-the-shelf solution" of S&OP can be too strained for TC and that the attendees to this meeting therefore not have to be the entire Management Board but rather a smaller more involved group.

The current plan from top management is that the process of S&OP should be rolled out on all product categories but they also emphasize that to succeed with this, the forecast's level of detail needs to improve on the other categories, but until then the process could still be implemented on an aggregated level.

Supply chain

The supply chain unit is the department which is ultimately responsible for planning the demand and it is this forecast that is transferred into a production plan. Within the cheese category this responsibility is currently shared with the KAMs which is something that the Cheese Planner views as a positive improvement but an initiative that is not yet fully implemented and grounded in the KAMs' way of working. The Cheese Planner is still the one that suggests changes to the forecast based on numbers of current results. His opinion is that the input from sales is today low and could be evolved and improved. The Cheese Planner emphasizes that today they do not work on a monthly calendar basis and the way that the meetings are scheduled in time is not important, since he constantly makes changes to the forecast as he gets updates from sales or production.

The Cheese Planner is the leader of all three meetings, and he prepares an agenda and sends out a follow-up mail to all attendees. The Cheese Planner emphasizes that the *KAM 1:1* meeting is new, and he believes that in order for it to evolve and improve, it needs a better structure than today. The *Supply Review* he also believes needs improvements, the discussion is today on a very detailed level and in order for it to be more effective and relevant for the participants it needs to move up on an aggregated level. The *Forecast Review* meeting in its current state he believes is unnecessary since the work that before was performed on this meeting is now done on the *KAM 1:1* meeting. Instead, he thinks this meeting should move up one authority level, involving the Supply Chain Director and the Retail Commercial Director. This opinion is also shared by the Head of Planning, who adds that this meeting should, when S&OP is implemented in the whole company, involve all product categories. It should be on a high level and if there are any particular issues that must be discussed, they can be brought up here so that decisions regarding them can be made. However, if there are no specific issues, he emphasizes that this meeting still would function as a "high level summary" which would end in a "sign off". The Head of Planning also mentions that the meetings in their current state lacks a clear agenda and that

people are not prepared. However, he highlights that there is a responsibility from his own department, who is initiating the process, to communicate this appropriately.

When the Cheese Planner sends his forecast to the Commercial Controller once a month, he has no insight in what revisions that are made to it. When asked whether there is one unified forecast that everyone agree upon, he firstly expresses that the one he makes is the official since it lays the foundation to what they produce. He then mentions that the forecast that is sent to TCG and revised by controlling is seen by the Management Board as the official one. However, the Head of Planning emphasizes that within the cheese category these forecasts are today well-aligned and basically the same.

The Milk Balance Manager is today attending the *Supply Review* meeting but explains that his role on the meeting is minor since he is responsible for the raw material. He believes that when the S&OP process is implemented within all product categories his relevance will be higher since he then can provide more relevant information about the milk balance.

4.3 Perspectives on the current process regarding the key aspects of S&OP

As mentioned in the Chapter 3: Theoretical Framework, there are several key aspects to S&OP that must be considered and handled properly in order to obtain an efficient process. In this section, the views of the interviewees will be presented within these key aspects, in order to display a collected view.

4.3.1 Leadership

During the interviews, leadership was discussed under two different themes, which both will be described below. Firstly, the interviewees were asked whether they feel that they have management support, not only regarding S&OP but in general. Secondly, the interviewees got the question of who they think would make a good S&OP champion and which role management should play in this new process.

Regarding the first question, the general opinion is that the executives are supportive and engaged. They are committed and they have a will to lead and change. Many people mention that there has been a large turnover of people the last years and that it has been good for the company. However, it was mentioned that there is a lack of understanding from management about the sub-optimization. This sub-optimization refers to the fact that the different production plants and departments have misaligned KPIs, which leads to some departments not succeeding in their measures even if it is a benefit for the company as a whole. However there has been an

improvement in this area where the understanding is now greater from management due to a new KPI implemented in the production. This KPI shows the effectiveness of the machinery in a more fair way, since it takes the capacities of the different production lines into account.

If the first question had a rather unified answer, the second question had more spread answers. All interviewees agree that there should be a dedicated S&OP team, but when it comes to who this should be, the answers differ. Some people argue that the Cheese Planner should be the champion, since he is already the owner of the process in the cheese category. Others emphasize that it should be the Head of Planning, since he has a holistic view of the processes, especially if S&OP should be implemented in other categories as well. Some claim that the company has a respect for him and that he is enthusiastic about the change. There are also opinions that top management should take a larger role and be the S&OP champions, while some believe that there should not be one champion but rather a team with representatives from all involved departments. These representatives would each have the role of the champion in their department, and together they could make up the team. Another interviewee did not have a proposal of a specific person, but emphasized the importance of this person being committed and showing a good example.

Many interviewees, who do not belong to the supply chain department, see S&OP as a supply chain project. Supply chain, on the other hand, do agree that the initiative can come from them, but argue that it is important for the success of the project that it is not only a supply chain activity. One interviewee emphasized that it is important for the success of the process to make sure that it is a *company process* rather than a *supply chain process*. Otherwise, they argue, the cross-functional concept is lost and it will be difficult to make everyone take responsibility for their part of the process.

4.3.2 Focus on the people

When this theme was discussed, the interviewees were asked if they considered themselves, as well as the rest of the company, as open to change. The general answer was that they considered themselves as open to change, but that they could think about several others who were more reluctant to change than themselves. However, people see the company as more open now than before. One interviewee mentions that when TCG acquired TC, many people who were change resistant left the company and that this can be connected to this openness. Nonetheless, one interviewee says that he does not see that the company is open to change, with a too large silo-culture and lack of understanding between departments. Another interviewee expressed that he is open to change if he can benefit from it.

One of the interviewees from top management emphasized how important it is to

have a soft start and make it simple. By highlighting that S&OP is not an additional pile of work, but rather a facilitator, one has a larger chance for success. He mentions that he believes that S&OP formally is a "monster", and it is important to make people think that it is interesting and fun, instead of giving them a large pile of papers to read through. Another top management interviewee mentioned the importance of understanding that S&OP is about people and not the system.

Many interviewees can see that there is a need of S&OP, even though they had not heard of the concept before. They see that if the meetings are restructured and clarified, there is a potential for a success. However, one interviewee has the opinion, although he can see the benefits of having one set of numbers, that the concept of S&OP is "simply fashion".

4.3.3 Incentives and Key Performance Indicators

That it is important to have common incentives and KPIs is something that everyone who touched upon this subject agree upon. There is an understanding that this is something that needs to be in place, but that they are not there yet. One interviewee from top management mentions that he thinks it is important with common KPIs which will result in a greater understanding for the company. However, he also mentions that he still wants some tension between departments, since this leads to everyone performing better. He emphasizes, however, that one must always have an understanding and respect for one another.

Some representatives from production and supply chain raised issues regarding the different KPIs. Since each plant or department has their own KPIs, it does sometimes result in counterproductive behaviours. For instance, a specific cheese product which is the most profitable on the market may not be as profitable to produce in terms of efficiency. Although this is the most profitable product to sell, out of the company's holistic perspective, it may result in bad KPIs for the production plant since they cannot run their machines to their fullest. This may present them in a bad manner, even if they only followed the will of top management. One top management interviewee is aware of this problem, and highlights the importance of communicating to all parts of the company that they are one company, working together. One must reach an understanding of the customer. The company is perhaps efficient, but if the customer does not want the product, the efficiency does not matter.

When asked whether there is tension between the different KAMs, the general answer is that there has been but it has been reduced during the last years. They are now more aligned and work for the deals that brings the most money to the company as a whole. There is still some rivalry but it is on a fun and playful level.

Regarding the question of which KPIs should be used to be more aligned, the an-

swer from top management is that the goal is to use common supply chain KPIs. However, they underline that it is too early to create these already, since the S&OP process is not that mature. One should not make up KPIs that does not bring any value to the process, but instead one should focus on finding cross-functional KPIs that also are relevant to the particular departments.

One interviewee was positive towards the concept of not only developing new KPIs to measure performance of the different departments, but to develop KPIs to measure the S&OP process itself. These KPIs could measure for example meeting attendance or how well the meeting is followed-up.

4.3.4 Communication and information sharing

Many aspects regarding information sharing and communication were discussed during the interviews. A majority of the interviewees agree that there is a silo-thinking regarding basically all departments. However, many highlight the fact that there has been a large improvement regarding the silo-culture only in the last years, and that they are on the right path. Nonetheless, there are improvement possibilities and many people believe that S&OP is a necessary key.

Related to the silo-culture issue, many interviewees mention that there is a lack of a common communication structure. Many emails are sent ad hoc and sometimes there is an absence of understanding of what capabilities other departments possess. For instance, an interviewee from production argues that what sales says regarding campaigns and the amount of products they deliver to their customers sometimes do not match what is planned and produced, and that this is communicated badly. One interviewee thinks that communication is about openness and responsibility, and that one has to open one's mouth to obtain the information that is necessary - no one will serve the information if it has not been requested. However, according to many interviewees, the communication problem is on a more general level, and that many of their everyday communications work as they wish.

Additionally, there are many opinions about the IT structure. Some argue that the way the current spreadsheets are built results in extra, unnecessary work. Since the spreadsheets are not fully connected, it is difficult to know which file that is the official one, and this leads to a split picture of how they are performing. One interviewee mentions the benefits of using spreadsheets since it provide a possibility to see the complete structure behind the models, but highlights the risk of the human factor impacting the result. The general idea and hope is that FuturMaster will facilitate their work in the future and create a more aligned picture. Representatives from production highlight that they want more insight into the updated forecast at all times which a new system could facilitate, this he means could be solved with the current setup if only updated and implemented.

4.3.5 Rules and guidelines

When discussing how the interviewees feel about the rules and guidelines regarding the current S&OP process, many points and ideas were brought up. More generally, most people think that there is a lack of routines and coordination, especially regarding the meetings. The agenda must be more clear and there is a need for follow-up after the meetings. Furthermore, the meetings must be streamlined and more efficient. Many interviewees pointed out that most people involved want to be engaged in the process, but they lack a structure of responsibilities, and that there is a need of an explicit role description.

One more specific issue that was raised during the interviews was the lack of connection and coordination between the forecast and the budget. This issue was pointed out for all product categories, and it was highlighted that for the cheese category it is better than in the remaining categories. This issue arises due to the fact that there is no "official" forecast in many of the categories, i.e. the planner creates a forecast that is sent to production, but sales and controlling have another one that is sent to TCG. Many interviewees highlight that controlling should play a larger role in the process than they currently do. Especially regarding the cheese category, in which the products have already been produced when the budget is planned, the process would benefit from more involvement from controlling. Some interviewees point out that this will result in a more unified forecast and hence a more unified company. The interviewed controllers agree with this but underline that the the fact that there are current set dates on which they need to send the forecast to TCG puts a constraint to their work and hence the potential S&OP process.

Another department of which there are opinions about its involvement is marketing. Most argue that their current involvement is too small, and that they are not aligned with the rest of the company. The estimated volume forecast that marketing creates in connection to new product launches is considered to be misaligned with the rest of the company's view. There is hence a desire from many people that marketing is more involved in the process. However, there are some that have mentioned that marketing's current role in the *Forecast Review* is redundant. One interviewee mentions that he thinks that marketing should own the whole life cycle of a product. Currently they put much effort into product launches, but not that much once it has been established on the market. However, he mentions that in the cheese category this is not as much of a problem as in other categories.

4.4 Other relevant observations

Besides all previously mentioned answers, inputs and thoughts from interviewees, the authors have gotten a general perception of TC. It is a traditional, and in some matters even conservative company. Even though there has been many changes lately,

and there is a drive to be more innovative with their products, the processes and systems are not that modern. There has been several previous attempts to implement S&OP in which there has been no success. However, there are new members in the Management Board who are willing to take actions and move forward with the process. Additionally, people generally see themselves as open to change, although they often mention others who they believe are rather resistant to change.

Chapter 5

Analysis

This chapter will cover the analysis that has been performed on the current process at TC. Firstly, a gap analysis is presented. The gap analysis has been focused on imminent issues found by the authors, followed by the five key aspects and ending with other relevant gaps. The gaps are then summarized in a table. After the gap analysis, the current maturity phase of TC's process is determined. The authors' developed maturity framework is presented, and then TC's position in each area is displayed and motivated. This analysis will lay the ground for the suggested solution that will be presented in a later chapter.

5.1 Gap analysis

In this section the issues and gaps seen with the process of S&OP at TC will be analyzed. The section will end with Table 5.1, summarizing the gaps analyzed and discussed.

5.1.1 Imminent issues with the current setup

This section will cover the most imminent problems seen by the authors of this thesis in the current process.

TC is a relatively traditional company and the process of matching supply with demand has not changed that much for several years. The Cheese Planner has performed this matching in the same way for a long time and the label of S&OP has just recently been put on this already existing process. This has resulted in an inadequate malfunctioning process that does not fulfill the demands described in literature that should be put on an S&OP process. The cross-functionality and scheduled meetings that several authors discuss as crucial are not in place. However, the situation is not hopeless. There is a will to change and the forecast has improved its accuracy by becoming more detailed and these cornerstones will aid TC to improve and do better.

The most imminent issue observed prevents the process from reaching an adequate level of strategic importance. It is the lack of monthly scheduled meetings mentioned as crucial by for example Wagner et al. (2014) and Pedroso et al. (2016). The lack of an executive meeting and a pre-meeting is today preventing the process from becoming decision-driven and from being on the right strategic level. The five-step process is designed in a way that makes sure that all necessary decision partners are active. This is the first step TC needs to take, i.e set up all meetings. The process needs to achieve the level of dignity that it can only get when it is prioritized by the Management Board. Therefore they need to be the ones conveying the message of how TC should work. Today the involvement of controlling, marketing and the executives is too low. Controlling and marketing should have a more active role earlier in the process since S&OP needs to have a more wide perspective including a financial budget and trends. Wagner et al. (2014) suggest that controlling should take part in the pre-meeting held before the final executive meeting. Involvement of product development and marketing could also be suiting in this step to decide upon long-term goals and forecasts.

According to many authors, including Aparajithan et al. (2011), the process is today wrong with regards to the order of the meetings. The supply planning meeting is scheduled before the demand planning meeting, which have been referred to by the Cheese Planner as insignificant. The explanation for this has been that the forecast very often changes anyways and therefore what is discussed during the meetings is just a snapshot of the forecast at that point in time. Even if this is true the importance of all departments working with the same numbers and goals cannot be stressed enough, and without this cross-functionality it will be hard to direct the business in a certain direction. The current agenda of the meetings is on a rather operational level, which also could be seen in the study about other food and dairy companies, presented in section 3.2. This prevents the meetings from having the long-term perspective that is needed in S&OP. Today the meetings are sometimes on a too short time horizon and in addition to this the meetings have a more informational and discussion focused setup than decision oriented focus. Each meeting needs to end with a closure that can be distributed in the organisation (Lapide, 2004b). Having a clear agenda and KPIs that are discussed and acted upon during each meeting can help with this. The organisation should make a structure of what data or information to bring and what to leave with. Examples of this can be unforeseen customer activities, new products, trends seen on the market or production problems.

This master thesis has the scope of looking at the process for the cheese category, but TC has plans to roll out S&OP on all product categories. A risk with starting only with one category can be that when adding on another category the executive meeting will have the wrong design. This can lead to a need of additional meetings, one for each category. Since executives' time is limited this needs to be avoided (Stahl & Wallace, 2012). Therefore the design that is proposed in this master thesis will

be short and concise to leave space for additional product families to be discussed in the future.

The imminent issues seen at TC can be summarized as the lack of a communicated and determined S&OP process. TC needs to schedule and design the meetings, assign responsibilities and restructure who attend the meetings. In addition to this an educational program needs to kick-start the initiative. The fact that the supply chain department is the only department aware of the process is unsustainable. This will make it hard to avoid the process from being owned only by supply chain.

5.1.2 Gaps connected to the key aspects

This section will be divided into the five key aspects that have been central throughout this thesis. TC's performance will be analyzed within each of the aspects and grounded with theoretical and empirical findings.

Leadership

Leadership is one of the key aspects of which many authors agree to be of utmost importance to have in place in order to succeed with S&OP. Top management support is crucial and should have a high priority in a process implementation. When asked whether there is top management support or not at TC, the interviewees gave a unified answer. There is support and the leaders are open and willing to change. At first, this was also the perception of the authors. The first interviewees from top management were driven, open and positive towards the project. They are relatively new to the company and have an energy that permeates their way of working. However, when discussing the meetings, not all of the interviewees from top management were completely aware of the whole current setup, including its inputs and outputs. Since the process lacks the two S&OP meetings that should involve executives, this could be a sign that the involvement in the process is not that high as it may seem at first glance. The positive attitude towards the change is important, but there must be an understanding from all directors of the whole process, not only the part of the process in which their department is affected. Naturally, a member of top management does not have the time to be fully involved in each step of the process, especially not in the operational decisions, which is also supported by Stahl and Wallace (2008). Nonetheless, in order to minimize silo-thinking, top management must take responsibility and create a cross-functional mindset that will reach their employees.

Additionally, when the empirical study was performed, two of the respondents from top management were not able to prioritize an interview for this research. Since this thesis is a step towards the implementation of a full S&OP process at TC, this lack of engagement shows that there is still much to be done within the leadership as-

pect. S&OP is a cross-functional process and all department leaders, not only supply chain, must show engagement in order to encourage employees to work accordingly.

Another angle on the leadership aspect is the concept of an S&OP leader or champion. There is no doubt that TC lacks an appointed S&OP champion, which is both observed by the authors as well as expressed by the interviewees. For this initiative to succeed, TC must choose a designated leader (or leaders), which is emphasized by many authors, including Grimson and Pyke (2007) and Apics (2013). The authors of this thesis believe that since the concept of S&OP still is unknown to large parts of the company, and the initiative has not had an explicit and straightforward launch, the need of an enthusiastic leader to guide the rest of the company is essential. As been emphasized by authors in literature, e.g. by Johnston et al. (2017), the authors of this thesis suggest that the leader or leaders of the process both feel and have such a responsibility that they may suffer consequences if they fail. This will create a larger prioritization of the S&OP process, which will reflect on how it is received and accepted by the employees.

A suggestion is that TC appoints an S&OP team rather than one single leader, however the team must have an internal leader. This leader will be responsible of the formalities around the S&OP team, but also act as the official S&OP leader at TC. The team should consist of representatives from all affected departments. Even though some departments may take larger roles than others, it is still important that everyone is involved in order to show a good example. The authors argue that TC would benefit from having an S&OP team rather than a single leader due to many factors. Firstly, it is often less of a burden when acting as a team instead of being alone. A team with representatives from all departments would gain respect from all employees and have more weight in discussions. It would drive the initiative from being a supply chain project to being a company-wide project. Secondly, this strengthens the concept of cross-functionality, which is a cornerstone of S&OP (Schneider, 2013). It would unite the departments, and potential issues regarding the performance of the process could be raised during their internal discussions. The representatives would act as a bridge between their own department and the S&OP process, and the authors believe that this would give the employees a larger understanding, both of each other but also of the process. The process would not be as unreachable if one of their close colleagues is present and engaged. Additionally, the concept of having a team instead of a single person has been raised during several interviews and many interviewees are positive to it.

The role of the S&OP team would be divided into two fields of responsibility. Firstly, they would have a facilitating role. By acting as support and someone their colleagues can ask questions as well as report issues to, the cross-functional philosophy of S&OP can be attained. Secondly, they would work actively with the process, participating in the meetings that are relevant for the specific representatives and manage the

communication regarding the process.

In summary, it can be said that although management at TC in general is positive and encouraging towards the S&OP implementation, there is much left to do. Furthermore, TC does not have an appointed S&OP leader or team, something the authors believe is essential in order for this project to reach its full potential and succeed. However, there is a fundamental will to change and the authors do see much potential for TC to advance within this key aspect.

Focus on the people

The fact that S&OP is a people-oriented process has been emphasized by many authors, including Implement Consulting Group (2014) and Williams (2016). The importance of investing in people, and hence reduce silo-thinking, increases as businesses meet new demands and challenges. Concerning TC there exists, to some extent, a silo-thinking culture, as common within many companies. Within the cheese category, it is not as much of a problem due to the efforts that have been taken with regards to S&OP. However, although the silo-thinking has decreased in the cheese category, it is still an issue that is spread throughout the company and should be handled. The authors believe that the S&OP initiative is an appropriate action against silo-thinking, but emphasize that there is no simple solution. Silo-thinking is a fundamental problem that is faced by many companies and in order to reduce it, TC must continuously work with cross-functional meetings, social events and other people-oriented activities.

Another gap at TC connected to this key aspect is that there is little awareness of the fact that there is an actual process. People go to the same meetings as they have always done, but they do not realize that it is a part of an overall process. Apics (2013) highlight how important it is that the affected personnel is aware of the process. Without this awareness it will be difficult to succeed with S&OP. By creating awareness, people will see their actual purpose in a more holistic perspective and hence work in a more united way to reach the common goals of the company. The authors believe that for TC a key is to communicate the initiative in an unanimous way. There should be no doubts about what S&OP is, what the specific person's role is and what value it will bring to the company. Due to mixed ages and backgrounds among the employees, one must adjust the way of communicating the concept. By only using diffuse English expressions, there is a risk that the initiative will be received as a "fad", as was described by Näslund (2013), by more people than the interviewee who referred to S&OP as "simply fashion". Instead, one should put emphasis on the fundamentals, namely the cornerstones, of S&OP. The presentation of this thesis will be one step towards creating the awareness, and further on in the implementation the employees should be empowered with knowledge of S&OP through customized educational programs and workshops. The implementation should start

off slowly in order to establish a foundation of awareness and willingness, so that a trust and open-mindedness can be built among the employees.

To conclude, there exists a silo-thinking culture at TC that should be handled through continuous, cross-functional activities. S&OP is a great step in order to manage this issue. Moreover, there is a lack of awareness of the process that needs to be handled, which could be done through a thorough educational program.

Incentives and Key Performance Indicators

Incentives and KPIs is another key aspect that has been observed and analyzed at TC. Interviews show that there are some misaligned KPIs resulting in counterproductive activities, and this is something that TC should work on. The authors have also noticed that in the current meetings, there is no clear review of the KPIs. However, in the scope of this thesis, the authors argue that TC initially should focus on getting the S&OP process in place. After the meeting structure has been set, the KPIs should be worked through and adjusted to the process. Nonetheless, the authors see the benefit from having separate KPIs to boost the working spirit in each department, but it is important to find a balance. The solution presented in this thesis will however give suggestions of relevant KPIs for TC to consider.

Regarding KPIs to measure the performance of the S&OP process, the authors suggest that TC takes time to develop relevant and concrete KPIs that will encourage employees to actively participate and communicate in and after meetings. For instance, as proposed by Tuomikangas and Kaipia (2014), one can evaluate the *degree of communication* and *level of planning efficiency*. Naturally, these must be clarified and adapted to the process of TC so that there are no doubts of what is expected from the employees. A scorecard to measure the process performance has been developed by the authors of this thesis and will be presented in Chapter 6: Proposal.

To summarize, the current KPIs are not completely discussed in the meeting agenda. Additionally, there are no KPIs measuring the performance of the process. These two issues are important for the upcoming maturity advancement of the process.

Communication and information sharing

When asking the employees about how the communication between departments is performing the general answer was positive. The employees' daily or weekly contact with other departments is working in an acceptable way. However, some information is shared in an ad hoc way and there is currently no fully structured way to share it. Connected to communication, Jacquemont et al. (2015) mention the importance of communication from leaders. They are responsible to reach the employees about changes and important decisions. Today the employees at TC are satisfied with the

way leaders are communicating, but a large part of the organisation are not aware of the process of S&OP. This could nonetheless be specific for this process since it is in its initiation phase, but by introducing a structured S&OP process in which the executives are involved, the potential communication issues could be breached. An S&OP team in which each department has one person responsible as discussed above could also enhance the communication between departments and their leaders.

The information sharing at TC has according to the employees improved the last years, but the current structure of the spreadsheets is making it difficult to succeed with full transparency. TC wants to achieve a scenario where the KAMs have full responsibility over the customer-specific forecast but this is hard to reach with the current structure. They are not able to receive live updates or make changes themselves since this has to be manually done by the Cheese Planner. If the customer-specific forecast files were the foundation to the total forecast and transmitted automatically, it could help in reaching the scenario where the KAMs have full responsibility. This means that changes could be made in the customer-specific forecast that then would be transferred and linked to the total forecast instead of the other way around. However, in a longer perspective a system supporting S&OP could be beneficial and Wallace (2013) mentions that a successful S&OP project has a communication system embedded in the daily work. This could facilitate communication between employees connected to for example changes in dates connected to product launches. This is something that interviewees have raised as an issue, that the introduction of new products is communicated badly and that the forecast in which the demand is decided upon is groundless and misguided. However, to keep spreadsheets as the forecasting tool can still be the most appropriate decision since it is easier to implement and understand for the employees. With some adjustments to the structure of the spreadsheets, a more holistic view is provided due to the fact that the employees will be able to see the inputs, the algorithms and the outputs more clear.

Concluding the gaps within communication and information sharing one can say that it is working adequately but it can become better. The biggest issue observed is the information sharing connected to the forecast files since the structure of these manual files creates complexity and unnecessary work. A better system to share these files in real time should in the long run be implemented to make sure that the appropriate employee can update the forecast. The communication between departments as well as top management can improve by implementing all five steps in the S&OP process as it creates a natural setting to share information.

Rules and guidelines

That the process today lacks clear rules and guidelines is the single most discussed issue during the interviews with the participants of the meetings. What is expected of the participants is unclear and the agenda during the meetings is not sufficient

and sometimes not followed. "We need structure" is a sentence said by many. Who does what and which responsibilities they have before and during the meetings have been unclear which also has made the meetings less effective and non-prioritized by the participants. By deciding on a clear agenda for every meeting fitted both to the process of S&OP and the specific requirements of TC can help in breaching this issue. Clear rules communicated during adequate education or workshops will make it clearer for all participants what is expected of them. However, even if clear guidelines will ease the process to move forward, the other key aspects discussed will be crucial for this to succeed. When the process has been set and a new meeting structure is decided upon the leaders need to make sure that the rules are followed. It is their responsibility to take decisions when consensus cannot be reached. As Stahl (2010) mentions, running a business is not a democracy. Pressure to be prepared, active and follow up what is decided during the meetings should be put on the participants to make sure the full potential of S&OP is reached.

To summarize, rules should be set, written down and communicated to all employees. When this is done leaders have the responsibility to make sure they are followed and take action when they are not. Inputs, agenda, outputs as well as additional formalities of the process will be suggested by the authors in Chapter 6: Proposal.

5.1.3 Other gaps

Beyond the gap analysis that has been performed on the process as well as on the key aspects, the authors have noticed further gaps that are important to discuss in order to obtain a holistic view of the current situation at TC.

Firstly, there is a lack of a detailed level of the forecast in the other product categories. This is something that TC is working with since it is necessary in order to implement S&OP throughout the company. This is the level of detail that has made it possible for the initiative to start within the cheese category. The reason for why it is necessary for TC to have their forecast on a detailed level is because it enables the S&OP process to be understandable and clear to all departments. Without "one set of numbers" that are sufficiently detailed, the KAMs cannot trace volumes connected to their specific customers, and can hence not participate actively and make decisions in meetings. However, the way that the numbers are handled and the forecast is executed within the cheese category is customized according to the preferences of the Cheese Planner. He has built up the forecast files by himself and as long as he is still on his position, it will work well. However, having only one person with knowledge and experience of the process is a risk and it can be difficult for a new person to take over. Hence, the authors of this thesis highlight how important it is that the transition to a more detailed forecast within the other categories is performed consistently. If these numbers are transferred in a systematic way, the building of the S&OP process will be more straightforward and accessible for everyone. It will not

only create a more united way of working among the planners, it will facilitate for other departments, not at least for the KAMs. If all planners use the same system for forecasting and planning, their way of working will be more systematic and less confusing. They will hence be able to help each other with heavy workloads, and the introduction for new co-workers will be more standardized.

Secondly, the authors have seen a gap in the handling of root cause actions. During one KAM 1:1 meeting, which was attended by the authors, there was a positive deviation regarding the sold volumes of a specific product. Neither the KAM nor the Cheese Planner could explain the reason for this surge in demand and it did not seem as if it would be investigated further. Although this was a positive deviation, the authors argue that a systematic monitoring system should be introduced, so that one can track the reason for the overshoot. If it was simply a coincidence, it may be misleading for the next year's forecast if it would be based on this year's numbers. Additionally, the authors found that there is a lack of documentation of adjustments that are made during the meetings, especially during the KAM 1:1. For instance, when the Cheese Planner proposes a change in the forecast for a specific product, either to increase or decrease the volume, it is based on the last weeks' numbers in combination with his intuition and experience. These increases and decreases should be documented and commented, either in a separate sheet or directly by using the commenting tool in the spreadsheets. By doing this, it will make it easier to track positive or negative results, as well as facilitate for the next year's forecast, since one can see that the decisions were rooted in something and not only based on guesswork.

As a conclusion, it can be said that beside the gaps found related to the process and the key aspects, there are other gaps that must be addressed by TC. The level of details and the way these are handled must be consequent, and a report system for adjustments made during the meetings needs to be established.

5.1.4 Summary of the gap analysis

In Table 5.1 the gaps analyzed above have been summarized under their respective area. These gaps and how they are breached will be summarized and presented in Chapter 6: Proposal.

Table 5.1: Summary of gap analysis

Area	Gaps
Imminent issues with the current setup	Lack of executive meeting
	Lack of pre-meeting
	Inadequate participation from marketing and controlling
	No awareness of the process
Leadership	Lack of S&OP team
	Not full management support in the process
Focus on the people	Silo-thinking
	Lack of understanding of the process
Incentives and KPIs	KPIs are not discussed during meetings
	No KPIs measuring the performance of the process
Communication and information sharing	Insufficient information sharing connected to the forecast files
	Not all changes and decisions are communicated systematically
Rules and guidelines	Lack of guidelines of the how to perform the process
	Lack of explicit inputs, agenda and outputs
	Lack of clear responsibility distribution
Other gaps	Misaligned way of working with forecasting within different product categories
	Lack of report system for adjustments

5.2 Current maturity phase of the S&OP process

In this section a description of the developed framework based on the maturity frameworks described in section 3.1.3 will be presented. This framework is then applied on the process of matching supply with demand on the cheese category at TC, and the current maturity level of TC is established.

5.2.1 The developed maturity framework

With inspiration from already existing maturity frameworks and the researched articles, a new S&OP maturity framework has been developed by the authors. The model constitutes of 5 stages where stage 0 represents the phase before the S&OP process has been developed. Stage 4 on the other hand is the ultimate goal, the ideal stage which in practice can be almost unreachable. This stage should however drive the organisation towards excellence. Stage 4 is important, in order to encourage continuous improvement and change. Figure 5.1 displays this framework, which is

a model for self-evaluation or a diagnostic tool in order to estimate how well the current S&OP process is performing in the following areas.

	Stage 0 Before S&OP	Stage 1 Initiation	Stage 2 Established process	Stage 3 Developed S&OP	Stage 4 Excellence
Mindset	•Silo thinking •Individualism amongst employees	•Awareness of the idea of collectivism •Reluctance to change	•Respect for dissimilarities between individuals •Willingness to adapt	•Large part of the organisation understand the purpose •Positive to S&OP	•Complete team spirit •Full collectivism and symbiosis
Meetings	•No scheduled S&OP meetings	•Demand & Supply meetings •Sporadic attendance •Low level of activity	•All five steps are in place •High attendance •Inadequate decision making at meetings	•Clear agenda and decision making •Relevant inputs and outputs •Collaboration	•Full recognition of the importance of the meetings •Complete efficiency during meetings
Leadership	•No appointed S&OP leader	•S&OP initiator acts as facilitator •No strong leadership achieved	•Appointed S&OP leader drives the process •Change is communicated	•S&OP champion or team •Top management support •Employees are encouraged	•Full top management support •Full leader commitment
Information sharing	•No elaborate information shared •Separate spreadsheets used	•Communication between departments •Spreadsheets are shared	•Forecasts aligned between departments •Common language	•Real time updates •ERP system connected •Systematic communication	•S&OP software •Full transparency between functions
Measurements	•No measurements connected to matching supply with demand •Counterproductive KPIs	•Measures connected to financial performance and alignment between sales & operations	•Forecast accuracy •Organisational metrics (attendance, preparation, monitoring)	•S&OP performance is based on all departments •KPIs are aligned	•Measure the efficiency and effectiveness of the S&OP process

Figure 5.1: S&OP Maturity framework (Geelmuyden & Rasmusson, based on Grimson & Pyke (2007) and Lapide (2005))

The developed framework can be used to evaluate the current maturity level of an organisation in order to understand where efforts need to be focused. When using the model one should not rate a company on a certain stage if not all criteria in the previous steps are fulfilled. When the criteria is stated as the lack of something, for example lack of an S&OP leader, this issue needs to be breached and corrected in order for the company to advance to the next stage.

Mindset

This is the dimension that evaluates the participants' attitude towards the process. In the first stage, the knowledge of the process is equal to nothing and the willingness to adapt one's ways is not present. As an organisation moves along the stages, the employees become more and more aware of the process as well as positive towards the change it is driving. The final step is characterized by collectivism and an "we are all in this together" spirit.

Meetings

Scheduled and routine meetings are important in order to drive the process and reach cross-functional alignment. Attendance and active participation is emphasized as well as participation of executives as the process develops. For higher scores the meetings need to be efficient, clear and collaborative. In the final stage, the process has evolved to become more advanced and recognized.

Leadership

This area emphasizes the difference between a facilitator and a leader and to score high, the leaders need to empower the employees and top management support should be present. Additionally, in the later stages, an S&OP champion or an S&OP team is present.

Information sharing

Information sharing is crucial in the process of S&OP. Within this section both communication and information technology are grouped. The way that information is shared becomes more advanced and standardized as moving up through the model. Spreadsheets are common in many organisations but in an undeveloped process these are not shared correctly. Stage 3 emphasizes the importance of a "common language" since departments often speak with different units, such as money, volume, units etc, see Figure 3.1. This contributes to confusion and misalignment.

Measurements

To measure is to know, and to know how the S&OP process is performing is crucial. As discussed in section 3.1.2, measurements could both be focused on measuring the operational performance, as well as how well the S&OP process is achieving its goal. In the lower stages of the model, measures are focused on profit and financial results. Further on, the measures focus on forecast accuracy and finally the efficiency as well as the effectiveness of the process. These are crucial to evaluate in order to ensure that one does the correct things, and that one does them correctly.

5.2.2 The developed maturity framework applied on TC

The authors have used the developed framework to evaluate the maturity level of the S&OP process for the cheese category at TC. The result of the rating can be seen in Figure 5.2 below, and the ratings will also be motivated and explained. The assessment is based on the information gathered through interviews and participation during meetings presented in Chapter 4: Empirical study. This rating will further on be used in order to guide TC in their continuous work to develop a full functioning

S&OP process. TC's position on the framework has been validated by the Head of Planning.

	Stage 0 Before S&OP	Stage 1 Initiation	Stage 2 Established process	Stage 3 Developed S&OP	Stage 4 Excellence
Mindset	•Silo thinking •Individualism amongst employees	•Awareness of the idea of collectivism •Reluctance to change	•Respect for dissimilarities between individuals •Willingness to adapt	•Large part of the organisation understand the purpose •Positive to S&OP	•Complete team spirit •Full collectivism and symbiosis
Meetings	•No scheduled S&OP meetings	•Demand & Supply meetings •Sporadic attendance •Low level of activity	•All five steps are in place •High attendance •Inadequate decision making at meetings	•Clear agenda and decision making •Relevant inputs and outputs •Collaboration	•Full recognition of the importance of the meetings •Complete efficiency during meetings
Leadership	•No appointed S&OP leader	•S&OP initiator acts as facilitator •No strong leadership achieved	•Appointed S&OP leader drives the process •Change is communicated	•S&OP champion or team •Top management support •Employees are encouraged	•Full top management support •Full leader commitment
Information sharing	•No elaborate information shared •Separate spreadsheets used	•Communication between departments •Spreadsheets are shared	•Forecasts aligned between departments •Common language	•Real time updates •ERP system connected •Systematic communication	•S&OP software •Full transparency between functions
Measurements	•No measurements connected to matching supply with demand •Counterproductive KPIs	•Measures connected to financial performance and alignment between sales & operations	•Forecast accuracy •Organisational metrics (attendance, preparation, monitoring)	•S&OP performance is based on all departments •KPIs are aligned	•Measure the efficiency and effectiveness of the S&OP process

Figure 5.2: The S&OP process within the cheese category at TC modelled in the S&OP Maturity framework (Geelmuyden & Rasmusson, based on Grimson & Pyke (2007) and Lapide (2005))

As one can see in Figure 5.2, TC is currently positioned in Stage 1 within most areas, resulting in an overall maturity level of Stage 1. In some areas they are in Stage 2, but there are many issues that need to be solved in order for TC to reach a full Stage 2 maturity level.

Mindset at TC

The awareness of S&OP is today low at TC and the individuals that know of the term and understand the concept have all worked with the process at previous workplaces where the companies had a more developed and communicated process. Since the insight into the process is low, the whole organisation does not today understand the benefit and the importance of a well-functioning S&OP process.

However they are not negative towards a transformation since they are not satisfied with the process as it is. Hence TC has solved the issues on Stage 1 and are

therefore placed at Stage 2.

In order to move up to Stage 3 TC first and foremost needs to educate and inform all employees of the concept of S&OP. Today the supply chain department has named the process as S&OP, however not many of the remaining participants are aware of this. As the transformation from a non-structured process to an S&OP process is ongoing, the affected employees need to be continuously informed about the updates to feel involved and seen.

Meetings at TC

Today three meetings are held with the purpose of matching supply with demand, these are however not performing satisfactorily. Two of the meetings, the Forecast review and the Supply review, have been arranged in the current setup for a long time by the Cheese Planner without a label of S&OP. The meetings that are held do not follow the time line that is recommended in the literature and all meetings that should be established in order for the process to be called S&OP are not in place. When the meetings are held they are controlled by the Cheese Planner who is responsible for both planning the demand and supply. In addition to this, the meetings are not decision-driven. The time horizon discussed is at times only on short-term and the long-term perspective gets less attention and is today too short considering the long planning horizon needed within cheese. During the meetings the attendance can be sporadic, participation in discussions is low and the term "one-man show" has been used by several employees. Therefore TC is placed on stage one. The first step to take in order to advance in the maturity framework is to schedule all meetings with appropriate agendas, inputs, outputs and responsibilities.

Leadership at TC

There is today no appointed S&OP leader or team that can support the process and its participants. This is visible both between and during the meetings as the focus is unclear as well as the division of responsibilities. Who does what and what decisions that should be taken during the meetings are unclear, which is a sign that the leadership is not sufficient.

Top management support are in most cases in place. However, not all members of the Management Board were able to prioritize an interview. The directors that do prioritize the initiative are eager to get started and to select a team that can direct the process on both operational and strategic levels, which is not in place yet. Today there exist plans to communicate the initiative of S&OP further. However, this has not occurred yet which contributes to the low maturity level on their leadership connected to the S&OP process, i.e. och Stage 1. In order to reach a higher level of maturity, there is a need for a more unified and thorough support, which should

include a common communication about the current change project.

Information sharing at TC

The way that information is shared at TC regarding matching supply with demand is today manual and inadequate in many ways. The structure of the spreadsheets makes updating forecasts an unpractical task that is not shared in real time. Several employees have mentioned this as an issue, which makes it harder for them to stay updated and participate in the process. However TC seems to be in the right direction regarding information sharing in the cheese category since improvements have been seen by the employees.

Achieving a common language has been on the agenda for TC for a time and recently they have started to talk in comparable numbers, which has eased their communication in many ways. However, during the meetings there have been times when units have been confused with tons when it comes to quantity, and therefore TC is placed in the beginning of Stage 1. In addition to this, today there is a lack of a cause and effect relationship. When something unforeseen has happened in demand or supply, the cause for this is not always investigated and documented which decreases the amount of information stored and shared.

Measurements at TC

Regarding measurements, the authors have positioned TC at Stage 1. They have measurements that are connected to financial performance, and they measure how well-aligned operations is with sales, for instance through service levels. They do measure forecast accuracy, which is a criteria for the next stage, but due the lack of organisational metrics there is a long way to go in order to reach Stage 2. Currently, as has already been mentioned, the attendance at meetings are in many cases sporadic and there seems to be no real consequences for those who do not show up. By introducing a measurement system regarding attendance but also preparation and monitoring, there will be more extensive incentives for participants from each department to attend and participate actively. Furthermore, there is a lack of official KPIs that are fully aligned as well as an understanding of them.

5.2.3 Summary of the current maturity phase

As a conclusion, the authors consider TC to be positioned in Stage 1. They have, as already mentioned, reached Stage 2 in some areas and they are in some areas on their way to reach an even higher level. However, there is much to be done in order for TC to mature in their process.

Certainly, one should aim to reach a higher level within all five areas. Nonetheless, it is of importance to slowly establish a grounded and stable process in all

areas, instead of rushing within only one. Training employees is a must and one must be patient, which has been emphasized by an interviewee from top management as well as by literature. The authors do for instance recommend TC to build a meeting structure that is reliable and substantial, before allocating resources into a more connected ERP system. These recommendations will be further discussed in Chapter 7: Recommendation.

Chapter 6

Proposal

This chapter will display a proposal of the suggested solution as well as a gap follow-up that shows how the gaps are breached. The proposal contains suggestions on how to use an S&OP team, an S&OP process scorecard and the five steps and their structure. It also consists of a suggestion of the timeline of the process, documentation methods and some additional elements that the authors recommend TC to keep.

The authors have built the process on the theory presented in Chapter 3: Theoretical Framework, and then customized the steps according to what have been presented in Chapter 4: Empirical study, i.e. to what has been said during interviews as well as during meetings. The KAM 1:1 was met with a positive attitude according to the empirical study, and the authors share this perspective. Hence, the format of this meeting has been kept in its current setup, with a few adjustments. However, the Forecast review in its current composition was not performing in a satisfactory manner and will hence be removed. It will be replaced with a new meeting which will be performed after the KAM 1:1. This meeting will focus on the total forecast and be on a higher authority level. These two meetings (KAM 1:1 and Total forecast review) will together represent the Demand planning step. As for the Supply review, the meeting itself will be kept but revised and restructured in order for it to be streamlined and more relevant for the attendees. Furthermore, two new meetings will be introduced, in order for TC to complete their process meeting-wise and hence advance on the maturity framework so that they can be able to call themselves an S&OP company. Additionally, the authors suggest the forecast to be on a rolling 24 months time horizon.

The Cheese Planner is as mentioned in section 4.2.1 responsible for planning both the demand and supply within the cheese category. To make the roles more clear in the suggested solution below the authors have chosen to separate these two responsibilities into the two roles of Demand Planner and Supply Planner. This will make the solution more transferable to other product categories and hence more sustainable.

6.1 S&OP team

The authors suggest that a dedicated S&OP team will be introduced at TC. This team will have one member from the following departments: sales, marketing, supply chain, production, finance and top management, and they will facilitate the process. They will also be the first point of contact when questions are raised at each department regarding the S&OP process. In addition to this a process owner should be introduced in order to lead the group and attend relevant meetings, a so called S&OP leader. This person will be ultimately responsible for a successful implementation of the S&OP process. He/she will also be responsible to assure that eventual deviations between the forecasted demand and the outcome is reviewed. By doing this, the root cause of the deviation can be identified, and in case of the cause being the structure of the process, he/she is responsible to take action and prevent this from becoming a problem further on. The S&OP team will have a continuous dialogue within the team, as well as with their respective departments, in order to assure that the process is running smoothly. They will also be responsible to measure KPIs connected to the S&OP process, for instance attendance and participant satisfaction with the process. Participant satisfaction can be measured through a scorecard, which will be presented in section 6.2.

The authors emphasize that TC should look for the following qualities in their employees when appointing the S&OP team:

- Leadership skills: this person should have the knowledge to be a great leader, and to inspire, encourage and empower their colleagues into making decisions and taking actions that will lead to a well-performing and solid S&OP process.
- Ability and a willingness to learn new things: the people who are selected to be members of the S&OP team may not initially have the knowledge that is fundamental for the success of the project. They should hence be eager to learn how to practice S&OP.
- Respect amongst the employees: in order to drive a change, it is important that the leaders are respected by their employees. A good balance between having the authority to make difficult decisions and having a good relation with employees is key in order to succeed.
- A will to take on extra responsibility: the most important thing is of course that the chosen individuals want to take on the role, since without their engagement the process will likely fail.
- A knowledge and an understanding for the company: by being aware of how the different departments work, as well as knowing the overall strategy, goals and direction of TC, the S&OP team member will have the means to work in the cross-functional spirit that is needed for S&OP.

6.2 S&OP process scorecard

The authors have developed the following scorecard, that can be seen in Figure 6.1. It provides TC with a tool to use, at least initially, in order to measure how well the S&OP process is experienced by the participants.

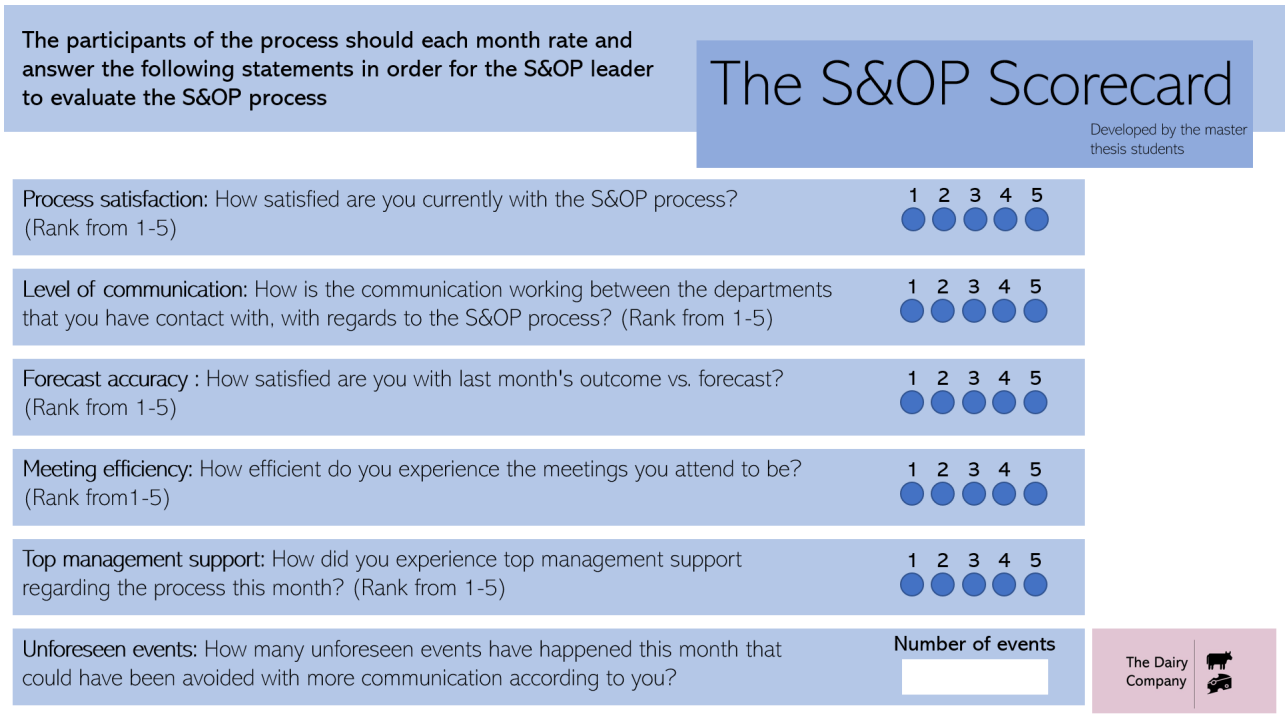


Figure 6.1: The developed S&OP scorecard

Each month, at the end of the S&OP process, the S&OP leader is responsible to ensure that all participants complete the scorecard. The S&OP leader should then consolidate the answers and bring them to the Executive meeting. This scorecard is meant to be used during the initiation of the implementation phase until the S&OP process is established. It can then be phased out.

Additionally, the authors recommend TC to every month monitor the attendance on the meetings as well as how actively people participate during discussions. If the attendance and active participation on the meetings are too low, measures and actions should be taken in order to keep the S&OP process relevant and adequate.

6.3 Step 1: Data gathering

Purpose

The purpose of this step is to ensure that the participants have enough of relevant information with them to the upcoming meetings, in order to prevent the meetings from becoming reactive rather than proactive.

Meeting formalities

Length: Two days to prepare

Leaders: The S&OP member of sales, the S&OP member of supply chain and the S&OP member of production

Participants: This step is concerning the people who will attend the three first meetings, i.e. KAM 1:1, Total forecast review and Supply planning. These are: sales, supply chain, top management and production.

Inputs

The inputs to this step consist of information that must be available for the participants in order for them to complete their preparations.

- The last month's outcome of results
- Information from customers about unforeseen events
- Customer information regarding future events (e.g. suggestions for campaigns, new listings, removal of listings, new stores)
- Information about planned campaigns
- Last month's planned two-year forecast
- Information about the current inventory status
- Capacity plan in the production for the three following months
- Milk Balance status

Agenda

The agenda is divided into the preparations that must be done before the two different steps. There is no specific order in which the tasks should be executed.

Before Demand planning

- The KAMs observe the outcome of results from the last month and see whether something extraordinary has happened that differs from the forecast. If so, see if there is a reason for this by contacting the respective customer.
- The KAMs look at the coming months, does any information received from customers influence the planned two-year forecast? E.g. new products, change in listings or stores that can have an affect. The short term forecast (3 months) should be reviewed in more detail.
- The Demand Planner performs an analysis on how well the outcome matched the forecast.
- The KAMs and the Demand Planner make suggestions of revisions to the current short and long term forecast.
- The Demand Planner creates a suggestion of the 24th month's forecast (baseline).
- The KAMs create a suggestion of the 24th month's forecast (uplift).
- The Demand Planner calculates the necessary KPIs (forecast accuracy, service level, stock volumes).

Before Supply Planning

- The Plant Director gathers the current capacity plan for the upcoming months, and identify potential bottlenecks or other issues.
- The Supply Planner and the Plant Director calculate the necessary KPIs (Overall Equipment Efficiency, plant service level, plan adherence, safety stock, stock volumes, forecast accuracy).
- The Plant Director performs a root cause analysis on issues that eventually occurred the last month. Bring a plan on how to mitigate the risk of this happening again.
- The Milk Balance Manager prepares a presentation about the milk balance.

Additional comments

The Data gathering step is crucial in order for the other meetings to be efficient and relevant. It is positioned as the first step in the process due to the fact that the activities within it prepares the participants for the upcoming meetings, by letting them become proactive rather than reactive. However, the authors want to highlight that the employees should, daily, pay attention to various information provided to

them through different contexts and thus note if there is anything that could be of relevance to the S&OP process. I.e., the data gathering is something that should be on-going all the time.

Additionally, the authors want to emphasize the importance of documenting and investigating reasons behind unforeseen events. Even if a reason cannot be found, this information is still valid and can help the planning forward. It is better to know that there was no particular reason for an unforeseen event, than to not know at all.

6.4 Step 2: Demand planning

The Demand planning step will, as already mentioned, be divided into two different meetings. This setup will increase the efficiency of the meetings and focus will be set on the appropriate elements. It will catch the essence of the meetings and prevent this step from becoming too large and irrelevant for the participants.

According to Aparajithan et al. (2011), the purpose of the Demand planning step is to "review and approve demand plan for short and long term". The authors have taken this into consideration and suggest two purposes for the two Demand planning meetings at TC.

6.4.1 Step 2.1: KAM 1:1

Purpose

The purpose of this step is to decide upon a forecast for the following rolling two years, as well as reviewing and revising the forecast for the upcoming three months.

Meeting formalities

Length: 1 hour (x the amount of key customers)

Leader: The Demand Planner

Participants: The KAM, the Demand Planner and the Campaign Planner

Location: The TC head office

Invitation: Standing booking twelve months in advance. Time and place predetermined, with reservation for changes.

Actions before the meeting: The KAM and the Demand Planner should one day before the meeting send one suggestion each of potential changes to the short and long term forecast to all participants.

Inputs

- Suggestions of eventual changes to the 23 months forecast, with a more detailed level on the closest three months. (*KAM, Demand Planner*)
- Suggestion of an unconstrained forecast for the "new" twenty-fourth month. (*KAM, Demand Planner*)
- KPIs: Forecast accuracy, service level, stock volumes (*Demand Planner*)
- Documentation of customer or supply related events that affected the forecast in the past month. (*KAM, Demand Planner*
- Information about customer events and supply issues that can have an affect on the upcoming unconstrained two-year forecast. (*KAM, Demand Planner*)

Agenda

1. Check in: all participants give a report regarding their responsibility area, e.g. news from customers and campaigns. Information provided by the Supply Planner about the production status is presented, in order to maintain cross-functionality between departments.
2. KPI presentation: the Demand Planner presents the KPIs and opens up for a discussion regarding improvement strategies. A file displaying the budget vs. outcome vs. planned forecast is used.
3. The forecasts on relevant articles are reviewed and revised according to suggested changes, both in a short and a long term perspective. The short term perspective concerns the upcoming three months and this should be discussed on a detailed level. The changes on long term are on a more aggregated level and concerns the next rolling two years. The reasons behind the revisions are documented.
4. Action points to be brought to the Pre-meeting are documented and responsibilities are distributed.
5. Wrap up: the meeting is summarized in order to confirm that all participants are aware of the decisions made and actions to be taken.

Outputs

- An unconstrained two-year rolling forecast
- Unsolved issues to be brought to the Pre-meeting

KPI/Measurements

The chosen KPIs are: forecast accuracy, service level and stock volumes. These are currently used in the Forecast Review meeting and the authors considered them important to keep in both the Demand Planning steps. They are relevant for most attendees at the meeting and provide a good picture of how the company currently is performing.

6.4.2 Step 2.2: Total forecast review

Purpose

The purpose of this meeting is to review and approve the consolidated total forecast gathered through Step 2.1: KAM 1:1. Gaps between the forecast and the budget will be discussed and strategies to reach the desired result will be determined.

Meeting formalities

Length: 1 hour

Leader: The Retail Commercial Director

Participants: The S&OP leader, the Retail Commercial Director, the Commercial Director Food Service, the Head of Planning and the S&OP team member of sales

Location: The TC head office

Invitation: Standing booking twelve months in advance. Time and place predetermined, with reservation for changes.

Actions before the meeting: The customer-specific forecasts agreed upon during KAM 1:1 is consolidated into one total forecast. These numbers are by the Demand Planner transferred into the file presenting the budget/outcome/forecast file and sent and discussed with the Head of Planning who sends it to all participants one day in advance. Both files will be reviewed by all and questions should be brought to the meeting.

Inputs

- The total two-year forecast (*Demand Planner*)
- The updated budget/outcome/forecast file (*Demand Planner*)
- Documented questions regarding these two files (*All participants*)
- KPIs: Forecast accuracy, service level, stock volumes (*Head of Planning*)

Agenda

1. The Retail Commercial Director does a follow-up from last month's action points regarding gaps.
2. KPI presentation: the Head of Planning presents the KPIs and opens up for a discussion regarding improvement strategies
3. The Retail Commercial Director presents the budget/outcome/forecast file. All participants raise their questions and actions to breach potential gaps in forecast vs. budget are discussed and decided upon.
4. The unconstrained total two-year forecast is discussed and decided upon, and aligned with the strategy of TC.
5. Wrap up: the meeting is summarized in order to confirm that all participants are aware of the decisions made and actions to be taken.

Outputs

- Strategies and action points to breach gaps between budget and forecast. Responsibilities are assigned.
- An updated total unconstrained two-year forecast and demand plan. Customer-specific updates are sent to concerned KAMs and the Demand Planner.

KPI/Measurements

The chosen KPIs are: forecast accuracy, service level and stock volumes. They are currently used in the Forecast Review meeting and the authors considered them important to keep in both the Demand Planning steps. They are all relevant for most attendees at the meeting and provide a good picture of how the company currently is performing.

6.5 Step 3: Supply planning

Purpose

According to Aparajithan et al. (2011), the purpose of this step is to "review and approve supply plan for short and long term". The authors have taken this into consideration and suggest the following purpose for the S&OP process at TC:

The purpose of this step is to review the unconstrained forecast to verify that this can be met by the production plants and the milk balance, and suggest changes if necessary.

Meeting formalities

Length: 1 hour

Leader: The S&OP team member of production

Participants: The S&OP leader, the S&OP team member of supply chain, the S&OP team member of production, the Milk Balance Manager, the Supply Planner, the Plant Director for the cheese plant and the Plant Manager for the cutting plant

Location: The TC cheese plant

Invitation: Standing booking twelve months in advance. Time and place predetermined, with reservation for changes.

Actions before the meeting: The forecast from step 2.2 is reviewed by the Supply Planner who creates an unconstrained production plan and sends it to all participants one day in advance. The unconstrained production plan is reviewed by everyone and questions to be brought to the meeting are prepared.

Inputs

- The unconstrained production plan (*Supply Planner*)
- The two-year unconstrained forecast (*S&OP leader*)
- Report of the milk balance (*Milk Balance Manager*)
- Production capacity plan for the cheese plant (*Plant Director for the cheese plant*)
- Production capacity plan for the cutting plant (*Plant Manager for the cutting plant*)
- KPIs: Overall Equipment Efficiency (OEE), plant service level, plan adherence, forecast accuracy, safety stock, stock volumes (*Plant Director, Supply Planner*)
- Documentation of unforeseen events the previous month that has affected the production plan (*Plant Director*)

Agenda

1. Check in: all participants give a report regarding their responsibility area, e.g. planned maintenance periods and raw material availability.
2. KPI presentation: the Supply Planner and the Plant Director presents the chosen KPIs. This is followed by a discussion regarding improvement strategies.

3. Discuss potential production or supply constraints that can affect the unconstrained production plan and hence the unconstrained forecast. This results in a supply plan.

4. Wrap up: the meeting is summarized in order to confirm that all participants are aware of the decisions made and actions to be taken.

Outputs

- Supply plan based on the unconstrained forecast with regards to constraints within production. The constraints are highlighted and motivated.

- Potential unsolved issues to be brought to the Pre-meeting.

KPI/Measurements

The chosen KPIs are OEE, plant service level, plan adherence, forecast accuracy, stock volumes and safety stock. The first four are currently used in the Supply Review meeting and the latter ones were found in literature, and the authors considered them important. They are relevant for most attendees at the meeting and provide a good picture of how the company currently is performing.

Additional comments

Although the main purpose of this step is to work with how to meet the unconstrained forecast, the authors want to underline that this meeting also is an opportunity to meet colleagues from the two different production plants (the cutting plant and the cheese plant) as well as different departments. By doing this, an understanding and a respect for one another will grow, which will strengthen the cross-functionality at TC.

6.6 Step 4: Pre-meeting

Purpose

According to Aparajithan et al. (2011), the purpose of this step is to "align supply with demand plan". The authors have taken this into consideration and suggest the following purpose for the S&OP process at TC:

The purpose of this step is to balance the demand plan, supply plan and the financial budget to decide upon adjustments that need to be made with regards to constraints in supply and financial objectives.

Meeting formalities

Length: 1.5 hours

Leader: The Supply Chain Director

Participants: the S&OP leader, the Supply Chain Director, the S&OP team member of top management, the Retail Commercial Director, the Commercial Director Food service, the Controlling Director, the Industrial Director, Plant Director, the Marketing Director and the S&OP team member of controlling

Location: The TC head office

Invitation: Standing booking twelve months in advance. Time and place predetermined, with reservation for changes.

Actions before the meeting: Before this meeting, the demand plan and the supply plan should be sent out to all participants, who should read it and hence be prepared. Additionally, it is important that the respective directors take responsibility and ensure that their departments have provided them with all necessary information in order for them to take grounded decisions.

Inputs

- Demand plan (*Retail Commercial Director*)
- Supply plan (*Plant Director*)
- Questions from the demand planning and supply planning meetings (*The S&OP Leader*)
- KPIs: Forecast accuracy, financial result, OEE, service level, waste, stock volumes (*Supply Chain Director*)
- Budget and income statement (*Controlling Director*)

Agenda

1. The Commercial Directors present the demand plan.
2. The Plant Director presents the supply plan and gaps between it and the demand plan are displayed.
3. The Marketing Director presents changes in product portfolio.
4. The balancing of demand and supply is made - differences in opinions are resolved.

5. The financial plan is presented by the Controlling Director with regards to the demand plan and potential misalignment is raised.
6. KPI presentation: the different representatives present the KPIs regarding their departments.
7. Potential unresolved issues are documented to be brought to the Executive meeting. Different scenarios that handle the issues are created by displaying diverse supply and demand actions. The expected outcome of these are documented.
8. The decisions are grounded in the long term strategies of TC.
9. Wrap up: the meeting is summarized in order to confirm that all participants are aware of the decisions made and actions to be taken.

Outputs

- A balanced demand and supply plan with regards to the budget
- Documentation about unresolved issues and misalignment with the balanced plan and the financial plan to be brought to the Executive meeting

KPI/Measurements

The chosen KPIs for this meeting are: forecast accuracy, OEE, service level, waste, financial result and stock volumes from previous month. They were chosen because the authors considered them to be relevant for all participants, and because they provide an overall view of how to company is performing.

6.7 Step 5: Executive meeting

Purpose

According to Aparajithan et al. (2011), the purpose of this step is to "approve financial and operational targets". The authors have taken this into consideration and suggest the following purpose for the S&OP process at TC:

The purpose of the Executive meeting is to approve the balanced plan of demand and supply with regards to the long term strategic goals of TC.

Meeting formalities

Length: 1 hour

Leader: The S&OP leader

Participants: The Management Board and the S&OP leader

Location: The TC head office

Invitation: Standing booking twelve months in advance. Time and place predetermined, with reservation for changes.

Actions before the meeting: The agenda, including the previous unresolved issues, should be sent out two days in advance in order for the participants to be prepared.

Inputs

- The balanced demand and supply plan (*S&OP leader*)
- The unresolved issues together with the developed scenarios from previous meetings (*S&OP leader, Supply Chain Director*)
- Consolidation of process measurements (*S&OP leader*)
- KPIs: forecast accuracy, service level, plan adherence, OEE and waste (*Supply Chain Director*

Agenda

1. A follow-up from last month's meeting is presented by the S&OP leader.
2. KPI presentation: the Supply Chain Director presents the KPIs. This is followed by a discussion regarding improvement strategies.
3. The process measurements are presented by the S&OP leader and potential issues are discussed.
4. The balanced plan is presented by the S&OP leader and discussed.
5. The unresolved issues and their scenarios and potential outcomes are presented by the Supply Chain Director and these are solved by the group.
6. The official balanced plan is signed off by the CEO. His signature is placed on the approved demand and supply plan.
7. Wrap up: the meeting is summarized in order to confirm that all participants are aware of the decisions made and relevant information is distributed to concerned departments.

Outputs

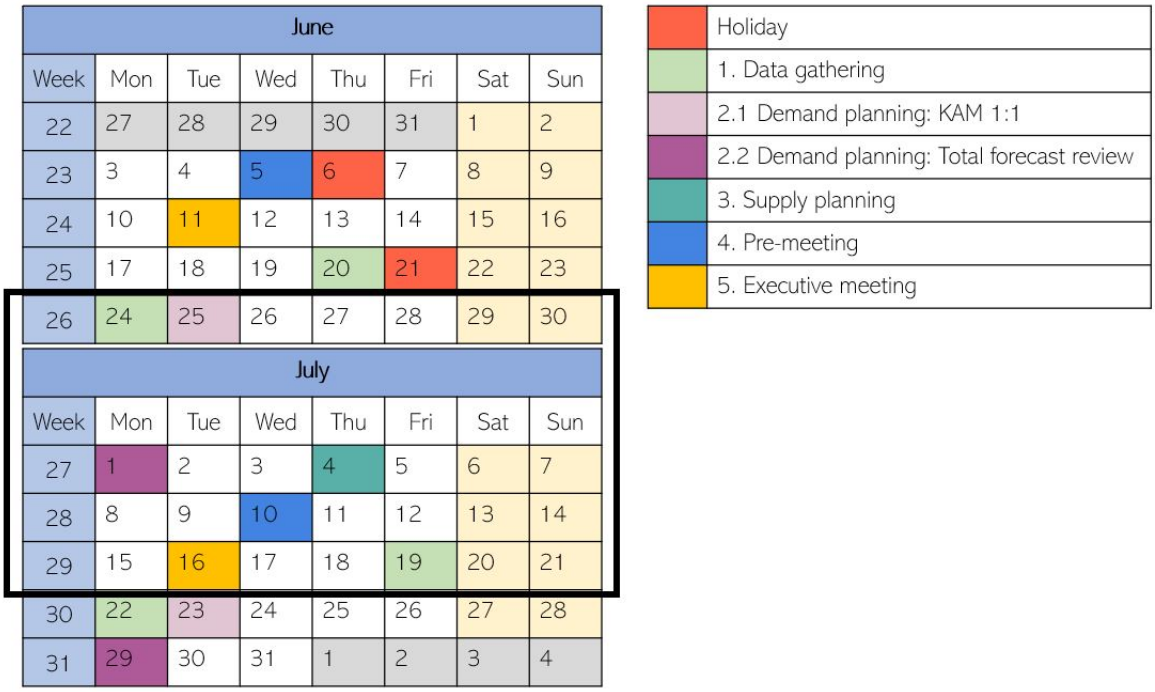
- An approved balanced plan

KPI/Measurements

The chosen KPIs for this meeting are: forecast accuracy, service level, plan adherence, OEE and waste. Additionally, the S&OP leader brings process measurements that he/she has collected from the participants , in order for the executives to see whether the S&OP process is performing satisfactorily or not.

6.8 The timeline of the process

Figure 6.2 shows a schedule of how the S&OP process could be scheduled in time. The process starts with *Data gathering*, which is scheduled during two days in the second half of the month. However, this step is not limited to these two days, but can be worked on also later within the process. During this step, the responsibility lies on the participants of *Demand planning* and *Supply planning* to adequately prepare for their respective meetings as mentioned under section 6.3. Data gathering is followed by the two parts of *Demand planning* which are scheduled with three work days in between each other in order for the Demand Planner to adequately prepare the consolidation. In the following weeks, *Supply planning, Pre-meeting* and *Executive meeting* are scheduled, ending the process in the middle of the next month. The black frame in the figure shows the start and finish of one monthly process.



June							
Week	Mon	Tue	Wed	Thu	Fri	Sat	Sun
22	27	28	29	30	31	1	2
23	3	4	5	6	7	8	9
24	10	11	12	13	14	15	16
25	17	18	19	20	21	22	23
26	24	25	26	27	28	29	30

July							
Week	Mon	Tue	Wed	Thu	Fri	Sat	Sun
27	1	2	3	4	5	6	7
28	8	9	10	11	12	13	14
29	15	16	17	18	19	20	21
30	22	23	24	25	26	27	28
31	29	30	31	1	2	3	4

Figure 6.2: Monthly schedule of the S&OP process

The reasoning behind this placement in the month is as follows. Each month TC has a report duty towards TCG which occurs the third Wednesday of each month. To fit this into the process, the authors have chosen to end the S&OP process before this date in order to place the sign-off at the Executive meeting appropriately.

The fact that the meetings are scheduled in the middle of the month does not have a large impact. The focus of S&OP should be on long term and the small changes that are made at the KAM 1:1 meeting in the closest month can still be performed due to their minor impact on the strategy and financial result. In the end of Appendix A.2, a suggestion of how the S&OP process could be scheduled over a longer time period is presented.

6.9 Documentation of changes and decisions

Through the presented process, documentation has been mentioned as a crucial step for the participants to undertake. To document thoughts, strategies and changes made to the forecast can help in making the decisions taken more grounded and profound. In addition to this, the documentation should be easily accessed in order to guide future decisions in the S&OP process. To know why a change was made can help in making better decisions in the future. In addition to this it will guide new participants to the S&OP process since they can follow the history of decisions

and information and therefore quicker understand the current forecast.

In *Data gathering*, the KAMs and the Demand Planner are asked to investigate and document "Customer or supply related events that effected the forecast in the last month" and "Information about customer events and supply issues that can have an affect on the upcoming two year forecast". The authors suggest that this documentation is made in the same document, potentially a spreadsheet with two sheets called "Past" and "Future". The responsible participants should write down their notes each month, and it should be done in a simple way in order to facilitate the follow-up.

Furthermore, the suggested solution states that TC should document the changes and revisions that are made on the forecast during the KAM 1:1 meetings. The authors propose that this is done in the current spreadsheet file, either as a comment or in a separate column/line. By writing down a motivation to why a certain article's forecast was turned up or down, it will facilitate the work of following up outcomes. TC should introduce a so called code system, that will make it easier to write short and concise comments that everyone can understand.

Finally, the authors recommend that the potential unresolved issues and the scenarios created around them are documented in a file that all relevant people can access. For instance, this could be in a new spreadsheet file.

It is however recommended that TC tries different ways of working with the documentation in order to find a way that is optimal for them. The most important aspect is that all the people who are going to use the system are educated, and that they like and understand how to use the configuration.

6.10 Additional elements to be kept

In section 4.2.1, other meetings that are scheduled weekly or monthly at TC were described, including the *Delivery Status Review*, the *Operational Review*, the *Innovation Steering Committee*, the *Commercial Planning* and the *Monthly Commercial Review*. These are not a part of the S&OP process and are hence out of the scope of this thesis. However, the authors believe that these meetings do contribute to the cross-functional spirit at TC and hence facilitate the S&OP process. Accordingly, the authors suggest that these meetings are kept in their current setup, as long as the participants find them relevant and informative.

6.11 Gap follow-up

The suggested solution corrects most of the identified gaps in the S&OP process at TC. However, the solution is a suggestion of a process. There lies a large responsibility on the Management Board to convey the message and support the implementation.

"Not full support from leaders" is a gap that is not directly solved with the suggested solution. As is stated in Table 6.1, this is an issue that must be handled and initiated by the leaders themselves.

There are two gaps that are marked with a yellow colour: "Inadequate information sharing connected to the forecast files" and "Unaligned way of working with forecasting within different product categories". The reason for why they are not marked as solved is that the authors argue that the suggested process does not directly lead to a solution to the problems. However, TC is currently working with a solution that will breach these gaps and is hence on the right path.

Table 6.1: An illustration of how the gaps are breached with the suggested solution

Gap	Breached?	Solution
Lack of executive meeting	Yes	Established executive meeting
Lack of pre-meeting	Yes	Established pre-meeting
Inadequate participation from marketing and controlling	Yes	Participants in pre-meeting and executive meeting
No awareness of the process	Yes	Customized educational programs and workshops
Lack of S&OP team	Yes	Established S&OP team
Not full support from leaders	No	This must be initiated by the leaders themselves
Silo-thinking	Yes	A cross-functional S&OP process
Lack of understanding of the process	Yes	Customized educational programs and workshops
KPIs are not discussed during meetings	Yes	KPI discussion is on the meeting agenda
No KPIs measuring the performance of the process	Yes	Established S&OP scorecard to evaluate success and perception of the process
Inadequate information sharing connected to the forecast files	Halfway	Suggestions are presented but the issue of communicating the forecast files is not yet solved
Not all changes and decisions are communicated systematically	Yes	An established S&OP process facilitates in verifying that changes are communicated to all parts
Lack of guidelines of the how to perform the process	Yes	A hands-on framework of how to execute the process
Lack of explicit inputs, agenda and outputs	Yes	Inputs, agenda and outputs are in place
Lack of clear responsibility distribution	Yes	Responsibilities are distributed
Misaligned way of working with forecasting within different product categories	Halfway	The suggested solution can be used on other product categories
Lack of report system for adjustments	Yes	The suggested agenda includes documentation of adjustments

This solution is a suggestion that will provide TC with guidelines and a structure in order to commence the process, firstly within the cheese category, and then within all categories. However, the authors want to underline that there is a need for a large commitment from all participants in order for this solution to breach the gaps. The process must be monitored and continuously improved.

Chapter 7

Recommendation

This chapter will provide the reader with a proposition and a recommendation regarding the implementation of the process at TC.

7.1 The authors' proposition

The authors recommend TC to implement a new S&OP process according to the suggested solution that has been presented in section 6.3. This is a suggestion that can be modified if TC believes this is needed. The authors also want to emphasize that the process should not be rigid and can continuously be modified in order to improve and reach a higher maturity level. Pictures showing a summarized and illustrative way of performing the suggested solution can be found in Appendix A.2. This will be an important deliverable to TC.

7.2 Implementation

This section presents a suggestion to an implementation plan for TC's S&OP process. It will be focused on the cheese category, but the last part will cover some thoughts on how to implement the solution in other categories.

7.2.1 The cheese category

As was described in section 3.1.4, S&OP can be difficult to implement. It may be simple to understand, but it requires a large change which must be implemented with care. One has to implement it gradually, and not throw a large amount of new tasks on the employees' desks. Nonetheless, the authors want to underline that the implementation should be kick-started in order for all participants to truly understand that a change is about to happen. During previous attempts at TC, the change initiation has not been successfully communicated to all involved parties, which has resulted in an incomplete process.

In order to establish an implementation plan that is suited for TC, the authors wish to ground the suggestion based on the maturity level in which TC is positioned. As Figure 5.2 displayed, the current maturity level of the S&OP process within the cheese category at TC is Stage 1. In two areas, *mindset* and *information sharing*, they are positioned in Stage 2, which gives an indication that these are two areas in which TC is performing well and may be eager to continue to improve in. However, the authors believe that it is more important for TC to place their focus within the other three areas and reach a total maturity level of Stage 2. Having an established process with all five steps in place, an appointed leader and adequate metrics are all criteria that will lead to a stable process. Once all of these are in place, and TC can say that they have an established S&OP process, they can start with activities to reach Stage 3 and develop the process further. One is only as strong as one's weakest link, and having an outstanding performance in one area does not guarantee a well-functioning S&OP process. Instead, one should invest in a stable process development.

The suggested implementation plan will not include the time aspect since the authors argue that TC has a better possibility to create a plan that will suit them time-wise. Instead, this suggestion will be divided into three phases, which all will cover important aspects in the implementation. In order to firmly ground the propositions, the already mentioned maturity framework will lay the ground for the suggestion by displaying with which areas TC should commence their work. The suggestion is also based on the three areas that were presented in section 3.1.4, namely *change in behaviour, change in processes* and *change in IT structure*. Due to TC's current position on the maturity framework, the latter will not be prioritized.

Educational phase

This phase has the objective to empower the employees by giving them all the tools and knowledge that is necessary for them to fully participate in the process.

- Find and establish the S&OP team:

Headhunt individuals within all departments and find people who are willing to take on the mission of becoming an S&OP team member. Ensure that they would make a good fit, and adjust their workload so that this initiative will not become an extra burden. Define their responsibilities early, and write down expectations.

- Educate the team:

Ensure that the team has all required tools in order for them to lead the S&OP work at TC. Provide them with knowledge connected to S&OP, and ensure that they comprehend the reason behind the initiative as well as the goals of S&OP at

TC. Assure that the team members are committed to the change and has an eager to drive the project further.

- Educate the employees that will become participants:

Define the roles of each participant and educate them about the process. They must understand their own purpose, and how their individual performance will contribute to the whole picture. One should be aware of all meetings in the process, not only the one that is concerning oneself. It is important that an individual understands that the action which he/she takes early in the process will be brought to the Executive meeting, since it provides the participants with incentives to perform their best. By letting the employees participate in active workshops with for instance simulations of the process, they will be provided with a foundation for their upcoming S&OP work. The presentation of this thesis will be a first step in educating the employees at TC.

- Ensure change awareness at the company:

In order for S&OP to truly reach a breakthrough at TC, the authors suggest that not only the actual participants of the process are educated. There should be a common awareness, at least amongst the office workers. This will strengthen the initiative and increase the perception of TC as an S&OP company.

- Involve top management:

In order to reach leadership commitment, TC must make sure that management are involved in the process. They should participate in workshops just as the employees, but also take an active role in defining their expectations of the process. These expectations should be written down and distributed to the rest of the participants in order to bring more significance to the initiative. Furthermore, the authors suggest that all members of the Management Board read, approve and sign a paper describing how the process will work at TC. This will give the S&OP leader and his/her team more substance and something to stand on in future discussions and arguments. Without top management involvement, it will be more demanding to encourage employees to perform their best.

- Inform participants about KPIs and the scorecard:

The KPIs and the scorecard that are suggested by the authors should, after being approved by management, be distributed to the process participants. The process measurements should be emphasized, since this will be the first time the employees will be measured in this way. In order to increase the cross-functionality at TC, one should make them understand the KPIs that other departments are measured on.

Process initiation phase

This phase aims to put the actual process in place by establishing the necessary activities.

- Schedule the meetings:

The meetings should be scheduled preferably one year in advance. The time and location should be set early and the meetings should be an integrated part of the participants' calendars. The S&OP leader should be a part of all meetings initially, in order to be able to answer potential questions.

- Enable the conditions:

In order for the process to at all perform satisfactorily, there are some conditions that should be put in place. For instance, it is crucial that the information described as input to the *Data gathering* step is available for the relevant people.

- Establish a change documentation tool:

One of the gaps identified in this thesis was "Lack of report system for adjustments", and the suggested agenda includes documentation of the adjustments. The way of documenting the changes must hence be established, and it does not have to be advanced. It is more important that it is easy to follow and use. It must also be incorporated in all meetings. A discussion about documentation tools can be found in section 6.9.

- Get started:

Start the process! Be humble: the process will not perform perfectly in the beginning. It is also important to be responsive to feedback from participants. Work together and have patience! The S&OP team should be prepared on many questions and issues in the beginning.

Continuous improvement and monitoring phase

Although it will be of most relevance after a couple of months, this phase is endless and should never stop. It has the goal to ensure that the process is constantly evaluated and improved. Although S&OP has a clear setup according to theory, it must be adapted to fit TC and it will and has to take time.

- Be open-minded about changes:

While the process runs, the participants may encounter issues that easily could be solved with small changes. It is important that they feel encouraged to report these issues and that someone will listen to them. Be open to listen and adapt according to their suggestions! What seems to be the most optimal on paper might not work in practice. Try new versions of the process!

- Kill your darlings:

Do not hesitate to question the current setup. Although it worked initially, one cannot be afraid to remove elements that have lost their relevance. It is essential to continuously ask oneself "Is this relevant?" and "Does this add anything of value?".

- Evaluate KPIs and process measurements:

Since the KPIs and the process measurements are tools to evaluate the process and the company, naturally these must be evaluated themselves as well. When they are discussed during meetings, one should assess how much they actually contribute. A KPI should not be kept without a purpose.

- Use the maturity framework:

TC should always strive to steadily advance in the maturity framework. Use it regularly and take actions to reach new stages of maturity. Although the last stage of the maturity framework might be ideal and hard to reach, TC should always strive to reach it in order to never lose the will to improve the process.

7.2.2 Other categories

The scope throughout this thesis has been the cheese category at TC. That is what the empirical study as well as the analysis has been based on. However, since TC has the objective to implement S&OP in all product categories eventually, the authors have gathered some other thoughts that are necessary to consider.

Firstly, in order to be able to implement S&OP in other categories, TC must make an effort in securing the right level of detail on the forecast on all product categories. With the current setup, the numbers are not on an article and customer level, which makes it impossible to discuss the forecast in the same way as it is possible within the cheese category. In other words, this is a prerequisite for the future implementation of S&OP at TC. The authors want to highlight that the division of details should be done in the same way for all categories, since this will facilitate future work.

Secondly, there is a need for some adjustments in the suggested solution in order to make it transferable to other categories. For instance, the list of participants should be reviewed. The authors suggest that the *KAM 1:1* is kept on product category level, since it requires a certain level of detail. However, there should only be one *Total forecast review* in order to minimize the amount of meetings for the Commercial Directors. Furthermore there should only be one *Supply planning* meeting, since there are not as many production plants that are concerned. This will also yield a larger convenience for the Milk Balance Manager, since his interest is on a higher level than product level. The same should apply for the *Pre-meeting* and the *Executive meeting*, since the number of meetings otherwise would be too many.

Chapter 8

Conclusion

This chapter will present a conclusion of this thesis, by displaying the purpose and answering the research questions. Suggestions for future studies will also be presented.

8.1 Concluding words

The purpose of this study was to *investigate the current S&OP process within the cheese category at TC in order to suggest improvements as well as a framework of how the process should continue on.*

In order to fulfill this purpose, the thesis work was performed in the following manner. After having carefully chosen the appropriate methodology, the authors began the literature study, which resulted in Chapter 3: Theoretical Framework. This chapter covers a description of S&OP in a general view, including a description of the process, five key aspects, maturity frameworks and a section regarding implementation. This is followed by a presentation of what current literature say about S&OP in the food and dairy industries, and ends with a section regarding the importance of change management.

The literature study work was followed by the empirical study, which aimed to gather a wide and deep foundation to stand upon in the upcoming analysis. By interviewing 19 employees from different departments at TC, participating in meetings as well as partaking in guided tours, the authors were provided with necessary information, inputs and insights. These were all useful when performing the analysis and developing the solution. This resulted in Chapter 4: Empirical study.

When knowledge had been acquired from both the theoretical framework and the empirical study, the authors began with the analysis, in which they aspired to find a solution for TC and hence fulfill the purpose. Chapter 5: Analysis, commences with a gap analysis, in which 17 gaps are identified and summarized. This is followed

by a section describing a maturity framework developed by the authors, and the positioning of TC in it.

The analysis resulted in Chapter 6: Proposal, which includes the suggested solution. It consists of a description of the S&OP team, process measurements, the meetings' structure, and a timeline. The chapter ends with an illustration of how the gaps from the gap analysis are breached with the suggested solution, seen in Table 6.1.

Chapter 7: Recommendation, includes a proposition from the authors, followed by a section consisting of an implementation plan. This plan is first and foremost aimed at the cheese category, but it also includes a brief suggestion of how to think when taking the implementation further, to other product categories.

Research questions

During the initiation of the project, the following research questions (RQs) were designed. The authors have throughout the project sought for answers and means to solve the problem, in order to finally reach the purpose.

RQ1: *How is the newly implemented process of S&OP in the cheese category performing?*

The process of matching supply with demand at TC within the cheese category has been thoroughly analyzed by the help of extensive literature search and interviews with participants to the process at TC, as well with other relevant employees. It was clear that the participants of the process were not satisfied and that the process did not follow the traditional five step process found in literature. The most imminent issues seen by the authors is the lack of guidelines, the lack of meetings and the too low authority level on the existing meetings. The current process is highly operational as common within the food industry, and is therefore on a low maturity level. In the developed framework TC was hence placed at Stage 1. The fact that executives are not present in the process gives it an inadequate importance level and the participants do not see the process as an integrated part of their daily work, rather as an extra task to perform and inefficient meetings to attend. To conclude, the current S&OP process is under-performing in several aspects. The authors would therefore not like to call today's process S&OP at all but do see a large potential in the mindset of the employees and their ability to adopt the suggested solution.

RQ2: *What does TC need to improve and develop in order to be successful in their S&OP process?*

In order to investigate in which areas TC was under-performing a gap analysis was

performed, divided into the key aspects found in literature. Many gaps were found and the suggested solution was then designed in order to breach these gaps. Six steps have been developed constituting of data gathering and five meetings, each with their own inputs, agenda, outputs and participants. The solution has the aim of giving a comprehensive solution that TC with the help of the implementation plan in Chapter 7: Recommendation, can follow and have as a guide in their continuous work of implementing S&OP. This solution has had the focus on the cheese category but the authors would like to highlight that if TC want to achieve all benefits that can be found in S&OP, the implementation of the rest of their product categories is needed. Therefore the solution has been designed with the mindset of an easy transfer to the rest of their product categories. With small adaptions to the list of participants and agendas this solution can be used for the rest of TC.

By answering these two research questions through the work of this report, the purpose of this master thesis have been fulfilled. To conclude, the authors believe that although TC has many issues to solve and a long way to go, there is a definite potential in succeeding with the implementation of S&OP throughout the whole company. The will to change is large and TC seems to be ready to kick start this journey. With the right means and an amount of patience, nothing will stop them from becoming a true S&OP company.

8.2 Suggestions for future studies

This study could be difficult to follow on and investigate further in future research since it is highly directed to the company of TC. However, since TC is in the beginning of their S&OP journey, it could be of interest to follow up this process in a few years to investigate how a company handles a completely new process and see if it is performing satisfactorily. The developed maturity framework could be used in order to analyze how far TC has come and analyze potential reasons for why they have not come further.

Regarding future studies within the S&OP area, the authors have come to the conclusion that current literature within the field is extensive and covers many aspects of the general S&OP. However, there seems to be a lack of industry-specialized S&OP research. It could be of interest to either focus on a specific industry, or perform a study on how it differs between different industries. By performing this study on a dairy company, the authors have seen some characteristics that have been of great importance in the process, such as the uncertainty of supply. The S&OP research has reached a level in which it is now time to further develop the concept, and hence help more companies in matching their supply with their demand in a more streamlined way.

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Appendix

A.1 Interview guide

This appendix contains the interview guide which was used during the empirical study. The questions were adapted depending on the interviewee's background, role and knowledge of S&OP.

Introduction

- What is your role in the company and what are your daily tasks?
- For how long have you worked here?

S&OP

- Do you know what S&OP is?
- Would you say that Company X works with S&OP today?
  - For how long have you been working with it?
- Do you think that S&OP can help Company X to perform better?
- Is there a clear S&OP team who leads and guides the process?
- Is there today a clear meeting process?
- What do you contribute with to this process?
- How does the process work today?
  - Which meetings do you attend?
    - Do you know why you go to this meeting?
    - Do you find the meeting relevant for you to attend?
  - How is the meeting structured?
  - Is there a need of preparation in advance?

        * Are people prepared?

- Which time horizon is the process focused on?
- Is this meeting a *discussion meeting* or a *decision meeting*?
- Do you have insight to the meeting which you do not attend?
- Have you seen any positive effect so far of S&OP within the cheese category?
- When you give input during the meetings, do you feel that you get heard by the rest of the attendees?

Communication

- Do you think the communication between departments is working?
- Do you have a common system to communicate or is communication solved through verbal conversations in the office corridors?
- How is potential changes communicated between departments?

Change Management

- Why do you think the initiative of S&OP was brought up?
    - Do you think the initiative is needed?
        * Why? Why not?
- Do you feel that there is a will to implement changes and perform better?
- What do you believe is needed for this initiative to reach a break-through? Investments? Specific measures?
- Do you experience any negative tension between departments?
- Do you have any insights in what other departments do, and what they are measured upon?
- Do you feel that management is supporting, and is driving the S&OP work forward?
    - In general, do you think that management is encouraging and shows good examples?

Concluding words

- Do you have anything to add to this interview?
- Do you have any advice for us regarding our continuous work with this thesis?

A.2 An illustration of the summarized solution

This appendix consists of the "pamphlet" that will be handed to TC as a part of the deliverable of this thesis. It will serve as introduction material to their S&OP work.

This is a suggestion of how the S&OP process could be designed

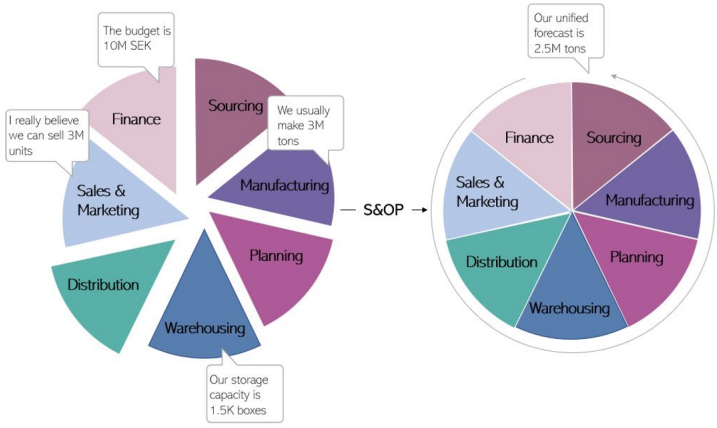
Cheese category

The suggestion was developed during spring 2019 as part of a master thesis project at TC: *Improving the Sales and Operations Planning process at a Swedish dairy company* at Lunds Tekniska Högskola.

Authors: Caroline Geelmuyden & Emma Rasmusson

LUNDS UNIVERSITET | LTH LUNDS TEKNISKA HÖGSKOLA

The Dairy Company



S&OP is a process that facilitates the decision-making of successfully aligning supply with demand in an organization

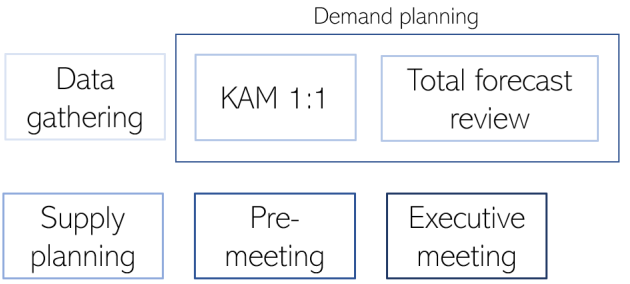
The Dairy Company

The S&OP process

Participants of the process

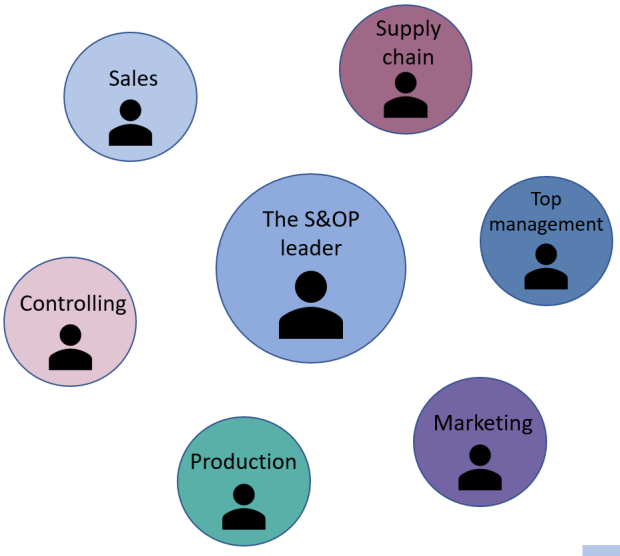
- **Sales**
- **Supply chain**
- **Marketing**
- **Controlling**
- **Production**
- **Top management**

Each department is equally important for the S&OP process to fully work. All participants can benefit from a structured way of communicating.



The process consists of five steps, each important for the function of the next step to come

The Dairy Company



The S&OP team facilitates the process and can answer questions regarding the process for your respective department

The S&OP leader is ultimately responsible for the process and will continuously evaluate its progress and success

The S&OP team

Data gathering

Purpose

Ensure that the participants have enough of relevant information with them to the upcoming meetings, in order to prevent the meetings from becoming reactive rather than proactive

1

Participants:
This step is concerning the people who will attend the three first meetings, i.e.
KAM 1:1,
Total forecast review and
Supply planning

Leaders:
S&OP team member of sales
S&OP team member of supply chain
S&OP team member of production

Inputs:
- Last month's outcome of results
- Customer information regarding past and future events
- Information regarding planned campaigns
- Last month's planned two-year forecast
- Inventory status
- Production capacity plan
- Milk balance status

Agenda:
Before Demand planning
- KAM analyses previous month's result and deviations from planned forecast
- KAM reviews planned forecast, contacts customer regarding eventual changes
- Demand Planner performs analysis of forecast vs. result of previous month
- KAM & Demand Planner each make a suggestion of revisions to forecast
- KAM & Demand Planner each create a suggestion for the 24th month's forecast
- Demand Planner calculates necessary KPIs

Before Supply planning
- Plant Director gathers the current capacity plan for the upcoming months, and identifies potential bottlenecks or other issues
- Supply Planner & Plant Director calculate necessary KPIs
- Plant Director performs root cause analysis on deviations on plan vs. outcome
- Milk Balance Manager prepares presentation about milk balance

Comments: Data gathering should be performed continuously throughout the month by all participants

The Dairy Company

Demand planning: KAM 1:1

Duration: 1h

Purpose

Decide upon a forecast for the following rolling two years, as well as reviewing and revising the forecast for the upcoming three months

2.1

Participants:
KAM
Demand Planner (DP)
Campaign Planner

Leader:
Demand Planner

KPIs:
Forecast accuracy
Service level
Stock volumes

Inputs:
- Suggestions of eventual changes to the 23 months forecast *(KAM & DP)*
- Suggestions of an unconstrained forecast for the 24th month *(KAM & DP)*
- KPIs *(DP)*
- Documentation of customer or supply related events that affected the outcome in the past month *(KAM & DP)*
- Information about events that can have an affect on the upcoming unconstrained forecast *(KAM & DP)*

Agenda:
1. Check in: All participants gives a report regarding their responsibility area
2. KPI presentation + discussion regarding the file "budget/outcome/forecast"
3. Forecasts on relevant articles are reviewed and revised, and the reasons behind the changes are documented
4. Action points to be brought to the Pre-meeting are documented and responsibilities are distributed
5. Wrap up: The meeting is summarised and decisions confirmed

Outputs:
- An unconstrained rolling two-year forecast
- Unsolved issues to be brought to the Pre-meeting

Comments: The KAM 1:1 is performed for each key customer and the planning horizon is 24 months on the cheese category

The Dairy Company

Demand planning: Total forecast review

Duration: 1h

Purpose

Review and approve the consolidated total forecast gathered through Step 2.1: KAM 1:1. Gaps between forecast and budget are discussed and strategies to breach the gap are determined

2.2

Participants:
S&OP team leader
S&OP team member of sales
S&OP member of supply chain
Retail Commercial Director
Food Service Director
Head of Planning

Leader:
Retail Commercial Director

KPIs:
Forecast accuracy
Service level
Stock volumes

Inputs:
- The total two-year forecast *(DP)*
- The updated budget/outcome/forecast file *(DP)*
- Documented questions regarding these two files *(All participants)*
- KPIs (*Head of Planning)*

Agenda:
1. Retail Commercial Director performs a follow-up from last month's action points regarding gaps
2. KPI presentation by the Head of Planning
3. Retail Commercial Director presents "budget/outcome/forecast" file and gaps are discussed
4. The unconstrained two-year forecast is reviewed and decided upon aligned with the long term strategy
5. Wrap-up: meeting is summarised, decisions are confirmed

Outputs:
- Strategies and action points to breach potential gaps between budget and forecast. Responsibilities are assigned
- An updated total two-year forecast and demand plan. Customer specific updates are sent to concerned KAMs and the Demand Planner

Comments: Updated files and forecasts should be sent to participants one day in advance for them to review

The Dairy Company

Supply planning

Duration: 1h

Purpose

Review the unconstrained forecast to verify that this can be met by the production plants and the milk balance, and suggest changes if necessary

3

Participants:
S&OP leader
S&OP team member of supply chain
S&OP team member of production
Milk Balance Manager
Supply Planner (SP)
Plant Director (cheese production, cutting plant)

Leader:
S&OP team member of production

KPIs:
OEE, plant service level, plan adherence, forecast accuracy, safety stock, stock volumes

Inputs:
- The two-year unconstrained forecast
- The production plan based on the forecast *(SP)*
- Report of the milk balance *(Milk Balance Manager)*
- Inventory status *(Warehouse Manager)*
- Production capacity plan, cheese + cutting plant *(Plant Director)*
- KPIs *(Plant Director + SP)*
- Documentation of unforeseen events the previous month that have affected the production plan *(Plant Director)*

Agenda:
1. Check in: All participants give a report regarding their responsibility area
2. KPI presentation by Plant Director and SP
3. Discuss potential production or supply constraints that can have an affect on the unconstrained production plan, results in a supply plan
4. Wrap up: the meeting is summarised, decisions are confirmed

Outputs:
- Supply plan based on the unconstrained forecast with regards to constraints within production. The constraints are highlighted and motivated.
- Potential unsolved issues to be brought to the pre-meeting

Comments: The forecast from step 2.2 is reviewed by the Supply Planner who creates an unconstrained production plan and sends it to all participants one day in advance.

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Pre-meeting

Duration: 1.5h

Purpose

Balance the demand plan, supply plan and the financial budget to decide upon adjustments that need to be made with regards to constraints in supply and financial objectives

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Participants:
S&OP leader
Supply Chain Director
S&OP team member of top management
S&OP team member of controlling
Retail & Food Service Commercial Directors
Controlling Director
Industrial Director
Plant Director
Marketing Director

Leader:
Supply Chain Director

KPIs:
OEE, forecast accuracy, service level, waste, financial results, stock volumes

Inputs:
- Demand plan *(Retail Commercial Director)*
- Supply plan *(Plant Director)*
- Questions from steps 2 and 3 *(S&OP leader)*
- KPIs *(The Supply Chain director)*
- Budget and income statement *(Controlling Director)*

Agenda:
1. Commercial Directors present the demand plan
2. Plant Director presents the supply plan, gaps are highlighted
3. Marketing Director presents changes in product portfolio
4. Balancing between demand and supply plan is performed
5. Controlling Director presents the financial plan, gaps from balanced plan are highlighted
6. KPI presentation
7. Potential unsolved issues are documented
8. Wrap up and decisions are grounded in the long term strategy

Outputs:
- A balanced demand and supply plan with regards to the budget
- Documentation of unresolved issues with regards to the balanced plan and the financial plan to be brought to the Executive meeting

Comments: Before the meeting both the demand plan and the supply plan should be sent to all participants. Directors are responsible of ensuring that they receive all relevant information

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Executive meeting

Duration: 1h

Purpose

Approve the balanced plan of demand and supply with regards to the long term strategic goals of TC

5

Participants:
S&OP leader
The Management Board

Leader:
S&OP leader

KPIs:
Scorecard presentation
Forecast accuracy
Service level
Plan adherence
Waste

Inputs:
- The balanced demand and supply plan *(S&OP leader)*
- The unresolved issues from previous meetings *(S&OP leader & Supply Chain Director)*
- Consolidation of process measurements *(S&OP leader)*

Agenda:
1. S&OP leader presents a follow-up from last month's meeting
2. S&OP leader presents the process
3. The balanced plan is presented and discussed
4. Unresolved issues are presented by the Supply Chain Director
5. The official balanced plan is signed off by the CEO
6. Wrap up: the meeting is summarised, decisions are confirmed. Relevant information is communicated to concerned departments

Outputs:
- An approved, signed off balanced plan

Comments: S&OP leader brings process measurements that he/she has collected from the participants, in order for the executives to see whether the S&OP process is performing satisfactorily or not

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The participants of the process should each month rate and answer the following statements in order for the S&OP leader to evaluate the S&OP process

The S&OP Scorecard

Developed by the master thesis students

Process satisfaction: How satisfied are you currently with the S&OP process? (Rank from 1-5)	1 2 3 4 5
Level of communication: How is the communication working between the departments that you have contact with, with regards to the S&OP process? (Rank from 1-5)	1 2 3 4 5
Forecast accuracy : How satisfied are you with last month's outcome vs. forecast? (Rank from 1-5)	1 2 3 4 5
Meeting efficiency: How efficient do you experience the meetings you attend to be? (Rank from1-5)	1 2 3 4 5
Top management support: How did you experience top management support regarding the process this month? (Rank from 1-5)	1 2 3 4 5
Unforeseen events: How many unforeseen events have happened this month that could have been avoided with more communication according to you?	Number of events

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The S&OP Time schedule

The following two slides shows the schedule of the monthly meetings, the black square to the left shows the start and end of one S&OP monthly process

June							
W	Mon	Tue	Wed	Thu	Fri	Sat	Sun
22	27	28	29	30	31	1	2
23	3	4	5	6	7	8	9
24	10	11	12	13	14	15	16
25	17	18	19	20	21	22	23
26	24	25	26	27	28	29	30

July							
W	Mon	Tue	Wed	Thu	Fri	Sat	Sun
27	1	2	3	4	5	6	7
28	8	9	10	11	12	13	14
29	15	16	17	18	19	20	21
30	22	23	24	25	26	27	28
31	29	30	31	1	2	3	4

Holiday
1. Data gathering
2.1 Demand planning: KAM 1:1
2.2 Demand planning: Total forecast review
3. Supply planning
4. Pre-meeting
5. Executive meeting

Remember to schedule the meetings a long time in advance to make sure you can participate!

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June 2019							
W	Mon	Tue	Wed	Thu	Fri	Sat	Sun
22	27	28	29	30	31	1	2
23	3	4	5	6	7	8	9
24	10	11	12	13	14	15	16
25	17	18	19	20	21	22	23
26	24	25	26	27	28	29	30

July 2019							
W	Mon	Tue	Wed	Thu	Fri	Sat	Sun
27	1	2	3	4	5	6	7
28	8	9	10	11	12	13	14
29	15	16	17	18	19	20	21
30	22	23	24	25	26	27	28
31	29	30	31	1	2	3	4

August 2019							
W	Mon	Tue	Wed	Thu	Fri	Sat	Sun
31	29	30	31	1	2	3	4
32	5	6	7	8	9	10	11
33	12	13	14	15	16	17	18
34	19	20	21	22	23	24	25
35	26	27	28	29	30	31	1

September 2019							
W	Mon	Tue	Wed	Thu	Fri	Sat	Sun
35	26	27	28	29	30	31	1
36	2	3	4	5	6	7	8
37	9	10	11	12	13	14	15
38	16	17	18	19	20	21	22
39	23	24	25	26	27	28	29

October 2019							
W	Mon	Tue	Wed	Thu	Fri	Sat	Sun
40	30	1	2	3	4	5	6
41	7	8	9	10	11	12	13
42	14	15	16	17	18	19	20
43	21	22	23	24	25	26	27
44	28	29	30	31	1	2	3

November 2019							
W	Mon	Tue	Wed	Thu	Fri	Sat	Sun
44	28	29	30	31	1	2	3
45	4	5	6	7	8	9	10
46	11	12	13	14	15	16	17
47	18	19	20	21	22	23	24
48	25	26	27	28	29	30	1

Holiday
1. Data gathering
2.1 Demand planning: KAM 1:1
2.2 Demand planning: Total forecast review
3. Supply planning
4. Pre-meeting
5. Executive meeting

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December							
W	Mon	Tue	Wed	Thu	Fri	Sat	Sun
48	25	26	27	28	29	30	1
49	2	3	4	5	6	7	8
50	9	10	11	12	13	14	15
51	16	17	18	19	20	21	22
52	23	24	25	26	27	28	29
1	30	31	1	2	3	4	5

January 2020							
W	Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	30	31	1	2	3	4	5
2	6	7	8	9	10	11	12
3	13	14	15	16	17	18	19
4	20	21	22	23	24	25	26
5	27	28	29	30	31	1	2

February 2020							
W	Mon	Tue	Wed	Thu	Fri	Sat	Sun
5	27	28	29	30	31	1	2
6	3	4	5	6	7	8	9
7	10	11	12	13	14	15	16
8	17	18	19	20	21	22	23
9	24	25	26	27	28	29	1

Mars 2020							
W	Mon	Tue	Wed	Thu	Fri	Sat	Sun
9	24	25	26	27	28	29	1
10	2	3	4	5	6	7	8
11	9	10	11	12	13	14	15
12	16	17	18	19	20	21	22
13	23	24	25	26	27	28	29
14	30	31	1	2	3	4	5

April 2020							
W	Mon	Tue	Wed	Thu	Fri	Sat	Sun
14	30	31	1	2	3	4	5
15	6	7	8	9	10	11	12
16	13	14	15	16	17	18	19
17	20	21	22	23	24	25	26
18	27	28	29	30	1	2	3

May 2020							
W	Mon	Tue	Wed	Thu	Fri	Sat	Sun
18	27	28	29	30	1	2	3
19	4	5	6	7	8	9	10
20	11	12	13	14	15	16	17
21	18	19	20	21	22	23	24
22	25	26	27	28	29	30	31

Holiday
1. Data gathering
2.1 Demand planning: KAM 1:1
2.2 Demand planning: Total forecast review
3. Supply planning
4. Pre-meeting
5. Executive meeting

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