IDENTIFYING THE KEY ACTIONS OF CROSS-FUNCTIONAL PROCESS MANAGEMENT IN A CONFECTIONERY MANUFACTURING COMPANY

Lappeenranta-Lahti University of Technology LUT

Production management master's thesis

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ABSTRACT

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Identifying the key actions of cross-functional process management in a confectionery manufacturing company

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The aim of the thesis is to identify key points for confectionery manufacturing company's management of cross-functional processes. Emphasis points for cross-functional process management are gathered by conducting a process development project for an identified problematic cross-functional process for the company, promotion planning process. Prior to the thesis, company's process management focused on production process improvement. Multiple methods have been utilized for managing processes, but determining a clear focus area would help allocate process management resources on focal points.

Qualitative data regarding the promotion planning process was gathered from the process participants in the case company. The current process was mapped in a swimlane diagram format. Value created by the process, challenges related to the process and development ideas were identified. Seven proposed process improvement actions were determined based on the gathered data. A new process model was developed from the improvement actions. Two of the seven improvement actions, responsibility analysis and process metric determination were conducted in the thesis as well.

Process for promotion planning process development helped identify five points of emphasis for cross-functional process management. First was gathering data and feedback from the process participants themselves. Second was to identify focus on relevant challenges, which are the most impactful in regard to process outcome. Third key point was evaluation of teamwork for the cross-functional team. Fourth was to conduct a responsibility assessment and determine an owner to the process. Fifth and final key point was to identify key process indicators for monitoring process successfulness in the long run.

TIIVISTELMÄ

Lappeenrannan–Lahden teknillinen yliopisto LUT

LUT Teknis-luonnontieteellinen

Tuotantotalous

Toivo Lignell

Avaintoimenpiteiden tunnistaminen poikkifunktionaalisen prosessin johtamiselle makeisteollisuuden yrityksessä

Tuotantotalouden diplomityö

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89 sivua, 7 kuvaa, 7 taulukkoa ja 4 liitettä

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Työn tavoite on tunnistaa merkittävimmät toimenpiteet poikkifunktionaalisen prosessin johtamisen kannalta makeisteollisuuden yritykselle. Avaintoimenpiteet tunnistettiin työssä kohdeyrityksen haasteelliseksi koetun poikkifunktionaalisen prosessin, promootionsuunnitteluprosessin, kehittämisen myötä. Erilaisia työkaluja ja menetelmiä hyödynnettiin jo prosessijohtamisessa yrityksessä. Selkeiden avaintoimenpiteiden tunnistaminen tekee prosessijohtamisesta jouhevampaa kohdeyrityksessä.

Laadullinen data promootionsuunnitteluprosessin kehittämistoimenpiteiden tunnistamiseksi kerättiin prosessin parissa työskentelevien henkilöiden avulla. Prosessin nykytila kartoitettiin uimaratamallin muotoon. Tämän jälkeen tunnistettiin prosessin luomat arvot, havaitut haasteet prosessissa sekä kehitystoimenpiteet. Näiden pohjalta määritettiin seitsemän kehitystoimenpidettä promootionsuunnitteluprosessille sekä uuden prosessin kartoitus. Kaksi toimenpidettä, vastuuanalyysi sekä prosessimittareiden määritys, toteutettiin myös diplomityössä.

Promootionsuunnitteluprosessin kehitysprosessi auttoi tunnistamaan viisi avainkohtaa poikkifunktionaalisen prosessin johtamiselle. Ensimmäinen oli datan kerääminen ja vuorovaikutus kehitysprosessissa prosessin parissa työskentelevien henkilöiden kanssa. Toinen oli oleellisiin haasteisiin keskittyminen kehitystyössä. Kolmantena oli nykyisen poikkifunktionaalisen tiimityöskentelyn arviointi ja kehittäminen. Neljäntenä oli vastuuanalyysin toteutus sekä prosessiomistajan määritys. Viidentenä ja viimeisenä prosessijohtamisen avainkohtana oli oleellisten prosessimittareiden tunnistaminen prosessin onnistuvuuden seuraamiseksi.

FOREWORDS

These last five years at university was an unforgettable time for me. A challenging period in the form of a pandemic loomed over most of my bachelor's studies which set new standards for working and studying. Looking back at it, it feels like those five years went by very quickly. I do have fond memories however and I feel like I learned a lot as well as grew as a person during my studies. I met great people and worked on multiple interesting assignments.

I want to thank the entire institution of LUT for giving me the best possible tools in preparation for the professional career that is ahead for me. I want to give special thanks to my master's thesis instructor Petri Niemi. In regards of the thesis, I also want to give thanks to the case company, and especially Melina Koullias, for providing an intriguing subject to study and guiding me throughout the entire thesis. Finally, I want to give a mention to the special person in my life for undying support.

Now it is time for a new chapter in my life. I am excited to find out what the future holds for me!

Toivo Lignell

Helsinki, June 4th, 2024

LIST OF ABBREVIATIONS

3PL	third-party logistics
BOM	bill-of-materials
BPM	business process management
ERP	enterprise resource planning
IT	information technology
KPI	key process indicator
MOQ	minimum order quantity
MRP	material requirements planning
OOS	out of stock
OTIF	on time, in full
POS	point of sales
PPP	promotion planning process
RACI	responsible, accountable, consulted, informed
SC	supply chain
SCM	supply chain management
VSM	value stream map

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1 Introduction

Main motive of a company is to create maximal value for their customers and to achieve an above average financial performance (Muras & Szczepánska-Woszczyna 2024). From the company's point of view, the main emphasis is on capturing the created value in supply chains (SC). Value creation and capturing is the basis of all supply chain operations and supply chain management (SCM). (Yücesan 2023, 25-27.) The trend of process thinking has made companies seek to maximize the created value from developing their business processes. Understanding the business processes is essential to understand how companies operate.

1.1 Background of the thesis

Business process management (BPM) has gained traction since the early 1990's with process-based thinking. Since then, it has gained popularity in literature as companies are organized based on various business processes. (Weske 2019, 4.) Customer-centric organizations base their process improvement on improving the created customer value in the process. Process management also aims to identify the key processes for the company and find future possibilities for processes to improve the created value.

This thesis' case company has adopted process thinking principles in their operations. Process thinking has been integrated especially well into the company's production processes. Case company's operations consists of numerous processes. Some processes perform well, while others require more attention from a development standpoint. Process management and development has seen significant investments and the value of it has already been identified in the company.

1.2 Objectives and limitations

Thesis' main subject areas are process management and process development. The objective of the thesis is to create main actions that improve the current process management for cross-

functional processes. The first objective is to demonstrate the current process management methodology in the case company. This refers to the actions, methods and focus areas on the case company's process management prior to the thesis. An example of a challenging cross-functional process, the company's promotion manufacturing planning process, is utilized to identify these process management key actions. The challenging example process is documented, modelled and an improved version of the process is presented. The main objective of the research is summed up to the following three research questions:

- Research question 1: What is the current state of the case company's cross-functional process management?
- Research question 2: What does the company's promotion planning process consist of and how it should be improved from the current state?
- Research question 3: What are the key actions for cross-functional process management?

The "key actions" which are referenced in research question 3 were identified during the promotion planning process development. From the case company's actual processes, only the promotion planning process is thoroughly examined in this thesis. Other processes within the supply chain (e.g. manufacturing process, logistics process) are not researched in this thesis due to content restraints. Processes are mainly viewed from a cross-functional process standpoint. This is because the company's supply chain processes are mostly cross-functional. Development actions of process management are chosen based on the case company's needs. The theory of the thesis focuses on process management and process development. In the theory phase, the process management methods and development models that are explicitly mentioned are the ones utilized in the promotion planning process development as well.

1.3 Research execution plan

Methods to reach the thesis objectives are gathering the data required for knowledge on company's process management policies and on the process that is developed in the thesis. Methodology of process development are found from scientific literature and are modified to suit the required objectives for the research. The data is then analyzed and utilized in the

thesis accordingly. Thesis is conducted as a case study. Case study is an in-depth research of the complexity and uniqueness of a specific company, project, policy, institution, system or programme in a real life context. Ultimate goal of a case study is to create an understanding of the specific topic in order to generate knowledge. (Simons 2009, 21.)

Main research method of the thesis is qualitative research. Qualitative methods of research are a scientific approach where the used data consists of textual or visual materials (interviews, documents or photographs) instead of numerical data. Goals of qualitative research typically include analytic synthesis on the data, new insights and understandings on the matter and critique of existing methods. (Saldaña 2011, 3-4.) In this thesis, the objective of the research is to create a synthesis on the process and its phases, and to identify the main points of improving challenging cross-functional processes, thus bringing new insights on case company's process management.

The theoretical methods and frameworks of process management and development were researched from scientific literature. Critical consideration was used for source material credibility and selection. Main source materials for the theoretical background were scientific literature (books and journal publishes). Databases used for scientific literature search were LUT Primo, Scopus and Google Scholar. Internet sources were selected with the focus on credibility of the web page publisher.

Qualitative data for the company's promotion planning process documentation was collected through group meetings with the company's employees. Besides the group meetings, individual discussions with employees were also used for data gathering. These topics also helped the thesis writer understand the entire process. Some quantitative methods (numerical data collection) was also utilized for e.g. process metric performance demonstration. Quantitative research methods uses numerical data and measurements as a basis of the research. They are viewed in contrast with qualitative research. (Williams et al. 2021, 3.) Numerical data was collected from ERP systems utilized by the case company and company-internal data analytics tools.

1.4 Thesis structure

The structure of the thesis is depicted as an input-output chart in figure 1. Input-output chart visually exhibits the main information that is required for a chapter (the “input”) of the research and what are the main outcomes from that particular chapter (“output”). The chart visualizes how the input data is processed in the chapter and how they lead to the output of a chapter. In a systematic research, the output of a previous chapter is constantly utilized as the input of a disparate succeeding chapter. The purpose of the input-output chart is to display to the reader the motives of each chapter and what the chapters roughly consists of (how the input data is processed in the chapter).

Input	Chapter	Output
Requirement on relevant thesis background, why the research should be conducted and how the research has been executed	**Chapter 1: Introduction** Relevant conventional information about the thesis summarized	Reasonings why the thesis is important for the company, what is the objective and limitations and how the research is conducted
Requirement of relevant explanations, methods and frameworks for the process management. Thesis theory limitations.	**Chapter 2: Process management theory** Identifying and processing of relevant process managementreference materials	Relevant theory and understanding on processes as a concept, cross-functional processes and planning process characteristics
Requirement of relevant explanations, methods and frameworks for the process development. Thesis theory limitations.	**Chapter 3: Process development & modelling theory** Identifying and processing relevant reference materials, theory on process development & modelling	Relevant theory framework and understanding on process development methods, phases and main points on process measurements
Specification of general information about case company and current state of the process management in the company	**Chapter 4: Process management in the case company** Presenting the case company and analysis on process management	Establishment of general information about the company, how process management is conducted prior to the thesis and the the key co-operation methods
General information about the company, process management and cross-functional process collaboration	**Chapter 5: Promotion planning process description** Describing how the research is conducted, the studied company process and the key challenges.	Understanding of how the research is conducted in the thesis, what does the company's promotion planning process consists of, the main value of the process and noted challenges
Understanding of how the research is conducted in the thesis, what does the company's promotion planning process consists of, the main value of the process and noted challenges	**Chapter 6: Improved promotion planning process** Identifying development possibilities for the process, modelling the improved process and applying development actions	Knowledge on how the process can be improved and what does the improved process model consist of. Responsibilities in the process stages and key process metrics.
Establishment on how process management is conducted in the company. Knowledge on how the process can be improved. Responsibilities in the process stages and key process metrics.	**Chapter 7: Process management action suggestions** Analyzing the process management and development process and identifying the main actions from process management standpoint	Understanding what should be the focus areas and key actions on cross-functional process management and development.
Understanding what should be the focus areas and key actions on cross-functional process management and development. The utilized research methods.	**Chapter 8: Conclusions** Critical analysis about the thesis execution and results.	Comprehension of how the results of the thesis should be interpret and what research opportunities are created moving forward.
Requirement of comprised version of the entire study including the key points from each chapter.	**Chapter 9: Summary** Comprising the entire thesis main points: research methods, results and conclusions about the outcomes	Summary of what stages the research consisted of, what were the main points of each research phase and key conclusions of the thesis

Figure 1. Input-output chart of the thesis

Objective of the introduction chapter is to give insight on why this research topic is important for the company, how the research is conducted and what segments does it consists of. Background on the research topic is explained. The primary objectives and three determined research questions of the thesis are presented as well as the limitations that are set for the research.

Introduction is followed by two theory chapters. Both theory chapters make use of scientific publications for conducting the theory framework relevant to the thesis. The first theory chapter focuses on explaining the processes, relevant process subcategories from the thesis perspective (cross-functional teams and processes as well as planning processes in general). Process management as a concept is also defined and main ideas, objectives and frameworks on process management are presented. The second theory chapter focuses on process development and modelling of processes. The chapter is meant to explain what phases the development of a process consists of (the "process development process") and various process development methodologies presented in scientific literature. The concept of process modelling is also clarified in this section. The purpose of the theory sections is to give a credible theoretical insight on important topics of research from the thesis subject's perspective (output of chapters 2 and 3 in figure 1).

Theory chapters are followed by the depiction of the case company as well as the current process management structure for cross-functional processes. This chapter is meant to explain how process management is conducted, what have been the key points in case company's process management and at what state the cross-functional team collaboration practices were prior to the thesis. Analysis on the current status of process management depicts the background and the "starting point" before the thesis was conducted. After this section, the current state of a challenging cross-functional process, the promotion planning process is described. That section begins with an explanation of what are promotional products in the case company, followed by the description of the promotion planning process "as-is" state. The research execution and phases of gathering the qualitative data is explained thoroughly. The current process model is displayed and each significant stage of the promotion planning process is detailed. Lastly, the section displays the gathered data on identified process challenges. Output of these two sections is to help understand the current status on both the process management policies as well as how the promotion planning process operated in reality prior to the thesis.

Process definition and explanation is followed by process improvement chapter. In this part of the thesis, the mentioned development possibilities of the process are established. Out of the mentioned ideas, seven of them are finally chosen to be suggested process improvement actions for the case company. The criteria of proposed action selection are also explained. Based on the suggested improvement actions, a new process model is displayed taking into account these seven improvement points. Improvement actions are given a priority ranking on how critical the changes seem to the process. Two out of the seven suggested actions where such kind that they can be implemented to the thesis itself (responsibility analysis and process metric definition). Suggestions are conducted for these two based on process participant feedback. Finally, the results of the process development process are analyzed.

Process management actions are conducted based on the most notable areas of the example process' development phases. Five key areas of emphasis which the case company should mainly take into account when conducting process improvement plans for other challenging cross-functional processes are identified. Actions are generalized for the sake of common utilization in other types of processes. In conclusions sections, the preceding chapters results as well as the entire research execution are analyzed and discussed. Limitations regarding the research execution of the thesis are also identified. Future research possibilities based on this thesis are determined. The final chapter is the summary of the key points from each major section throughout the process. The summary contains the relevant background, research execution explanation, main results from each section and critical analysis on the final results. Output of the summary is a condensed version of the entirety of the thesis.

2 Process management

A process is determined as a logical sequence of actions that are required to create an object in a certain state. Ultimate objective of the process is to create some sort of value to the company, to the customer or both of them. Companies are organized based on processes. This is called a process-oriented approach to business. Business processes are determined as a network of activities that are needed to accomplish a certain business function. (Ivanov et al. 2021, p. 53-54.) Weske (2019, 5) notes that each business process is usually executed by a single organization or a company, but the process can also interact with other organization's business processes.

Supply chains are seen as a sequence of varying processes. Examples of processes within a supply chain are sourcing, logistics and warehousing operations. Thus, supply chain management is viewed as a process-oriented field. (Chopra 2019, 22.) Projects and processes are easily mixed between each other due to the similar characteristics between the two (both consists of multiple phases, follows a logical pattern and both may include a variety of actors). The main difference between a project and a process is the fact that processes usually are continuous or follow a certain cycle of repetition. Projects are typically one-time activities. (Gadatsch 2023, 7.) Process lengths and cyclic frequency of process occurrences may vary between different processes.

2.1 Process characteristics

According to Dumas et al. (2018, 3-4), typical process consists of activities, actors, physical objects, and informational objects. Activities are happenings of an event that takes time to complete. Activities usually require actors to complete them as well. In a process context, actors are defined as the ones responsible for executing a process activity. Internal actors of a company's process are called "process participants". Physical objects refer to equipment, materials, products or similar object that are utilized for the final outcome in a process. Informational objects refer to electronic documents or records, such as numeric data, that is

also either involved in process activities or the ultimate output on a process. (Dumas et al. 2018, 3-4.)

Processes consists of “flows”. Process flows indicate the advancement of the process and direction of process stages towards the final output. The flow determines the order of process stages. Flow is meant to represent the development of the process final product throughout the process. Typically, there are two different types of flows: material and information flow. Material flow of a process indicates the development of a physical objective and its stages between process stages. An example of a material flow could be in a manufacturing process, consisting of phases such as material gathering, assembly and finalization. Information flow refers to data or info that is a necessary output of a certain process stage for the process to continue. Information can also be an end output of a process. (Stoesser 2023, 6.) Partially automated business processes are referred to as workflows. Workflows include temporal, professional and resource-oriented specification required for the automatic control of work process at an operational level. The requirement of a human actor is seen as the distinguishing detail between a workflow and a business process. (Gadatsch 2023, 14-15.)

Processes can be divided into different categories dependent on the value that they bring to the customer or to the company. The three categories in question are control processes (also referred to as management processes), core processes and support processes. Control processes strive to get involved in interaction between business processes. Control processes are meant to ensure that all other processes maintain a goal-oriented objective for all processes. They are meant to provide directions for core and support processes. Examples of these kinds of processes are strategy planning and budgeting. (Dumas et al. 2018, 41.)

Essential value creation for the company comes from core process outputs. Core processes aim to produce the goods and services which the company sells to the customers. Manufacturing, sales and development processes are considered as core processes for companies. Support processes do not create value for the customers directly. Rather, they enable the correct and efficient execution of core processes. Legal services and human resources among others are categorized as support processes. (Gadatsch 2023, 10-11; Dumas et al. 2018, 41-42.) Each of the three process types are equally important for companies. Clinical performance of core processes requires adequate core processes and relevant and efficient control processes as well. Sub-processes refer to processes “within a process”. For example,

maintenance processes may include different specific sub-processes of machinery maintenance. All sub-processes equate to the entire machinery maintenance process.

2.2 Cross-functional process

Processes in a supply chain usually have multiple different actors and these actors are usually from different parts of an organization. “Cross-functionality” refers to cooperation between team members in which the team is comprised of various functional areas of the company (Malhotra & Ahire 2017). The actors on a cross-functional team can also be from different companies that are related via the supply chain (eg. supplier and buyer in a procurement process), extending over several business functions (Gadatsch 2023, 8). Types of processes in which actors form a cross-functional team are referred to as cross-functional processes.

In a cross-functional process, the actors form a cross-functional team between them that communicates with each other throughout the process. It is common for SC’s to have business processes that have cross-functional teams from multiple different organizations within the supply chain (Sharp & McDermott 2009, 5). Oliva & Watson (2011) mentioned the following about cross-functional team’s collaboration: “cross-functional collaboration facilitates an assessment of the state of the supply chain, of the needs of the organization, and the determination of an approach for creating and sustaining value based on that collaborative assessment”. Cross-functional interactions between elements or actors play a major role in effective process operation (Son et al. 2018).

Cross-functional integration refers to the capability of how well a firm can incorporate its strategies and practices into synchronized as well as collaborative processes across functional departments. The main goal of effective cross-functional integration is to improve customer value. (Zhao et al. 2011) Company’s capability of cross-functional integration is nowadays seen as a great competitive advantage. Oliva & Watson (2011) distinguished four key constructs for cross-functional integration support. These constructs were information quality, procedural quality, alignment quality and constructive engagement. Information quality is defined as the degree of which process enables the information that is used to decision making to be appropriate for the decision maker and the decision. Procedural quality means the capability to which a process continuously ensures that the rules of inference used to validate information are adequate. Alignment quality is defined as the degree to

which a process ensures that organizational and functional goals are supported. Constructive engagement means active involvement by relevant participants in collecting, validating, and processing information and defending their interpretations. (Oliva & Watson 2011.)

Kang et al. (2021) studied the effect of cross-functional integration in a cross-functional product development process of 297 different manufacturing companies. In their study, they found that cross-functional integration has a positive effect on project success, customer involvement in the process and supplier involvement. In the case of Swink & Schoenherr's (2015) study, research showed that internal cross-functional integration has driven process efficiency. The increase in efficiency has in turn had positive effects on the company's profitability. These studies validate the importance of high quality cross-functional integration to the company.

2.3 Planning process

Production planning (or manufacturing planning) refers to the process with an objective of ensuring the continuous and properly scheduled operation of a manufacturing company's production. The aim of the production planning process is to fulfill demand, maximize company profits, attract, and retain customers. Planning processes typically involve multiple company departments, making it a cross-functional process. Production planning process output is a production plan, which determines what products are to be manufactured, in what quantities are the products in question manufactured and what order the products are to be manufactured. (Er et al. 2018.) Conventional inventory control is a major part of supply planning. Improper inventory control policies can lead to either product shortages or excess stock levels and, in extreme cases, product disposals. (Dolgui & Prodhon 2007.)

Master supply planning is defined as a set of multiple business processes that include activities, such as supply management and master scheduling (Proud & Deutsch 2022, 32). Production plan usually is comprised of a long-term plan that strives to equal the manufacturing capacity with the customer demand. Medium-term plan breaks the aggregate plan down to a master production schedule. (Er et al. 2018; Jacobs et al. 2018.) Master schedule refers to the manufacturing format that consists of time periods, forecast, customer orders and the master production schedule (Proud & Deutsch 2022, 31). Short-term plan determines the

production quantities of certain products and which products are to be manufactured (Er et al. 2018; Jacobs et al. 2018).

In a supply chain, typical views that determine the production characteristics are “push” and “pull” process views. Pull processes are processes determined by a customer order. Push processes are initiated in anticipation of customer orders. Both process views have their advantages: pull processes allow companies to be more responsive while maintaining lower inventories. On the other hand, push manufacturing allows shorter delivery times to the customer and more flexibility when it comes to demand fluctuation. (Ivanov et al 2021, 158.) In addition to push and pull views, Chopra (2019, 22) mentions a “cycle view” which is explained as processes of a supply chain that are divided into several cycles. Each cycle is performed at the interface between two successive supply chain stages. The number of cycles differs between various supply chain fields.

Since the pull view on supply chain processes is related to the customer demand, the manufacturing planning based on pull view of supply chain management is referred to as “demand-driven planning”. Demand-driven views to manufacturing are common in modern supply chains, as these are seen as agile ways of manufacturing planning. Agility in the context of SC’s is described as the ability of a supply chain to be autonomously responsive to fluctuations in real-time demand at a short notice. Agile methods utilized in supply chains are building adequate-sized buffers for final products and fast responsiveness to changes in demand. (Eagle 2017, 22-23; Ptak & Smith 2019, 52-53.)

The requirement of production planning in supply chains has further sparked the needs for material requirements planning (MRP), material resource planning (MRP II) and later enterprise resource planning (ERP). Modern planning processes are heavily supported and involved with ERP systems. ERP systems are IT-programs that support decision making concurrent to business planning and controlling. It is a software approach that integrates application programs in finance, manufacturing, supply chain management, sales and marketing, human resources, and other relevant business functions. ERP systems allow integrated planning between different company functions and locations. (Jacobs et al. 2018.) ERP systems combines an integrated database that is shared between company functions (Ivanov et al. 2021, 60; Jacobs et al. 2018). The systems data is divided to “master data” and “process data” (Ivanov et al. 2021, 60). Master data refers to the data in ERP that defines the functional and essential business operations of a company. Master data is stable, typically

unchanged data in the ERP systems, such as bills-of-material (multi-level hierarchical representation of parts and components required to assembling or manufacturing) for manufactured products (Väre 2019: Ivanov 2021, 60; Schramm et al. 2023). Unlike master data, process data is the data utilized in routine processes. This type of data is altered regularly. An example of process data would be single customer order quantity, which can fluctuate over time due to changes in customer's product needs (Ivanov et al. 2021, 60).

2.4 Managing a process

Hammer (2015, 3) states that "business process management (BPM) is a comprehensive system for managing and transforming organizational operations, based on what is arguably the first set of new ideas about organizational performance since the Industrial Revolution". vom Brocke & Rosenman (2014) described it as using an integrated set of corporate capabilities, like strategic alignment, methods, technology or people, to analyze, redesign, implement, improve and innovate business processes. Business process management consists of concepts, methods and techniques that support the design, administration, configuration, and analysis of business processes in the company. The basis of business process management is the detailed representation of processes including the activities and execution constraints between processes. (Weske 2019, 5.) Profound process management allows the creation of high-performance processes. Process management also has strategic benefits, such as enabling the company to respond better to rapid changes and enhancing internal innovation through process development ideas. (Hammer 2015, 7; Dumas et al. 2018, 488-489.)

Hammer (2015, 4-5) presents the essential process management cycle, displayed in figure 2. The cycle begins with the creation of a "formal process". Organizations have discovered that lacking a well-defined end-to-end process leads to certain aspects of operations being characterized by erratic variation. Process can be managed through target setting and defining metrics. The reasons for shortcomings in process metrics needs to be studied to develop the process further and to learn from made mistakes. After measuring the process and understanding what the customer needs and what value the process is meant to create, the process performance targets can be set. The metrics indicate or validate if the process is problematic. Gap in metrics creates a need for process innovation. In development, the problem can be discovered and fixed. If the problem is fundamental, then a new process design is required.

This new design will replace the old process and the results of the new process will be measured to find out if the new process is an improvement to the old one. (Hammer 2015, 5.)

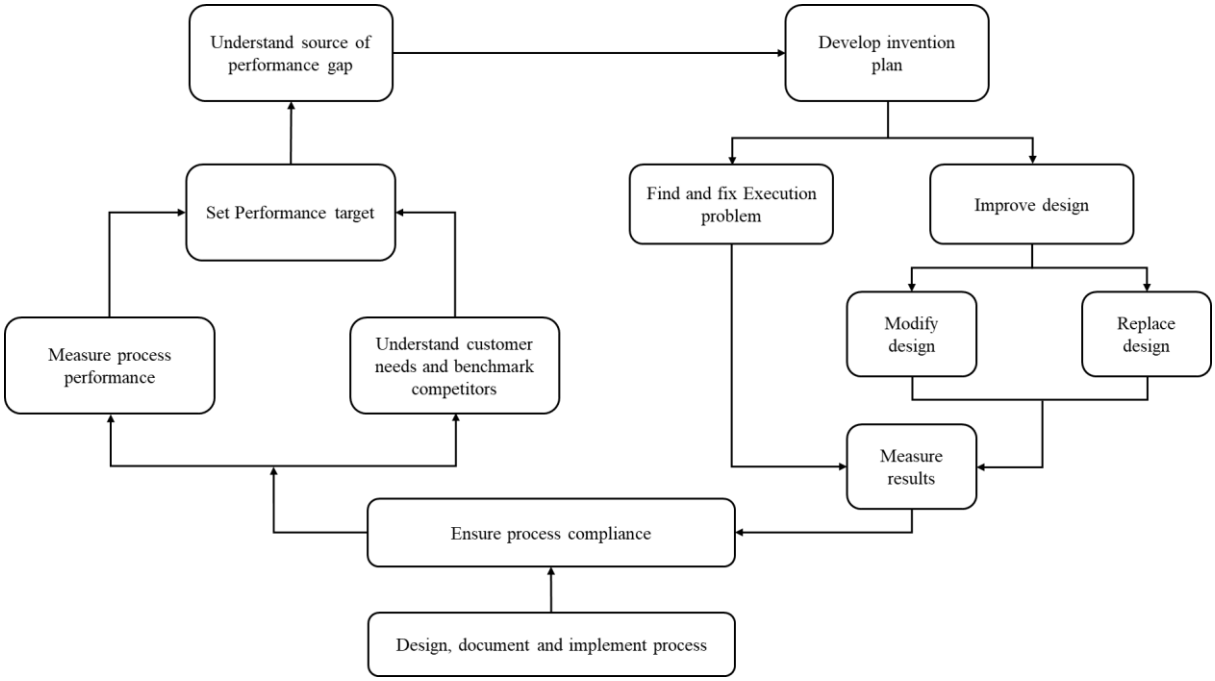

Figure 2. Process management cycle (Hammer 2015, 5)

Trkman (2010) presented three main critical success factors for a company's business process management in his case study of a middle-sized bank. The first success factor theme was "contingency theory", which refers to the fit between the process and the business environment. The second theme was dynamic capabilities, meaning the continuous improvement for assuring sustained benefits in the business process management. The final theme of critical success factors was the task-technology fit. This referred to the fit between information technology (IT) and business processes. Dumas (2018, 476) mentioned that focusing solely on process management methods instead of objectives, believing that process management is the single source of truth, having process management project that are managed as isolated projects and overall inability of change in a company are the most common reasons for process management failure in a firm.

Rosemann & vom Brocke (2015, 110-112) stated that business process management can be divided into six "core elements". Core elements depict necessary organizational areas that

factor in the successfulness of process management. First is strategic alignment. Process management must align with the organization's strategy for it to be successful. Process management also requires adequate governance to establish appropriate accountability for roles and responsibilities. Process management methods must support and enable activities during the process lifecycle. IT -based solutions are significant for process management initiatives. People as a core element refer to the fact that individuals and groups continuously enhance their skills to improve process management and business performance. Culture in essence should create a facilitating environment that complements the process management initiatives. Culture-related activities tend to have a significantly longer time period than the other five mentioned core activities. (Rosemann & vom Brocke 2015, 110-112.) The six core activities are depicted in table 1.

Table 1. Six core activities and capability areas of process management (Rosemann & vom Brocke 2015, 111)

Factor	Strategic alignment	Governance	Methods	Information Technology	People	Culture
Capability areas	Process improvement planning	Process Management Decision Making	Process design & modelling	Process design & modelling	Process skills & expertise	Responsiveness to process change
	Strategy & process capability linkage	Process roles and responsibilities	Process implementation & execution	Process implementation & execution	Process management knowledge	Process values & benefits
	Enterprise process architecture	Process metrics & performance linkage	Process monitoring & control	Process monitoring & control	Process education	Process attitudes & behaviors
	Process measures	Process related standards	Process improvement & innovation	Process improvement & innovation	Process collaboration	Leadership attention to process
	Process customers & stakeholders	Process management compliance	Process program & project management	Process program & project management	Process management leaders	Process management social networks

Each of the six core activities have five designated capability areas, also shown in table 1. Some capability areas are shared between multiple core activities. Strategic alignment is the

linkage of organizational priorities and enterprise processes. Strategic alignment enables effective and continuous action to improve business performance. Its capability areas include process improvement plan, linkage between the strategy & process capability, enterprise process architecture, process measurements and priorities of key customers and company's stakeholders. Process management governance is dedicated to transparent accountability in terms of the roles and responsibilities of different process management levels. Capability areas of governance are related decision-making processes, defining process roles and responsibilities, finding the correct process metrics, well-defined process management standards and controlling the process management for maintaining the process management quality. (Hammer 2015, 113-115.)

Third core activity related to process management is BPM methods. Methods are defined as tools and techniques that support and enable activities in all levels of BPM. Process design and modeling, process implementation and execution, process control and measurement, improvement and innovation and project and program management in the process are seen as capability areas for this core activity. Information technology (IT) is the fourth core activity. It refers to the software, hardware and information systems which enable the process activity support. Capability areas consist of process design & modelling related IT systems, IT-enabled process implementation and execution, process control and measurement, process improvement and innovation tools and project and program management systems. (Hammer 2015, 115-117.)

The fifth core activity, people, conveys human resources in process management. The skills and expertise on a process, management knowledge, process education and learning, collaboration and communication in a process and process management leadership skills are the capability areas in this core activity. The sixth and final core activity is culture, which refers to the organization's process-related beliefs and business performance improvement behaviors. Responsiveness to process change, process values and beliefs, attitudes and behaviors towards processes, leadership's attention to process management and lastly process management social networks are the five capability areas of culture core activity. (Hammer 2015, 117-119.)

3 Process development & modelling

The essence of process development is to upgrade the value creation of processes. Methods of process improvement are defining expectations and accountabilities, setting process performance standards and measures and lastly, assessing the results of a completed process (van Aartsengel & Kurtoglu 2013, 155). Gadatsch (2023, 41) mentioned in his book that process optimization aims to sustainably improve the competitiveness of the company by aligning all essential company workflows. Due to the customer-orientated nature of modern businesses, the focus is on those specific processes which are directly triggered by customer actions, e.g. customer complaint or ordering a product (Gadatsch 2023, 41).

Numerous methods of process optimization have been introduced in scientific literature. Examples of process development practices include lean ideology (eliminating "waste" in processes to make to reduce the process lead time), process mapping (visual representation of a process to make complex systems more manageable) and process simulation models (computer simulation of a process to acknowledge the challenging process stages, as well as quick method to test the viability of an improved process model) (Hänggi et al. 2022, 1-14; Vidrova et al. 2021; Stoesser 2023, 9-14).

3.1 Process development phases

Sharp & McDermott (2009, 9) determined a "process for process development" in their book. The process is pictured in figure 3. The first phase of process development is to establish the process context, scope and objectives. Project scope needs to be articulated clearly and people should identify the business processes as their own. The first phase can be further divided into three sub-phases. First is discovering a related set of processes that ensure context. Next part is to establish the scope of each process that will be studied. Final part of phase 1 is to determine the as-is issues and to-be process goals. (Sharp & McDermott 2009, 93-94.)

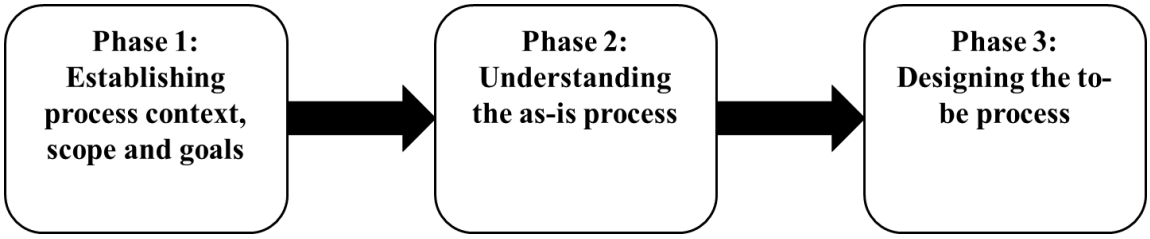

Figure 3. Process for process development (Sharp & McDermott 2009, 9)

Phase 2 of the process development process is to understand the current process through workflow modelling. The workflow model shows the flow of work throughout the process and the actors related to process stages. A swimlane diagram format is commonly used for process modelling. (Sharp & McDermott 201-202.) In a swimlane model, the process flow is depicted horizontally while the department, location or person responsible of a particular process stage is visualised vertically. Swimlane shows which process actor is responsible of a particular process task. Swimlane models should include all relevant actors in the process. (Burns 2007.) Swimlane models also show the "routes" or flows of process that connect the process steps between each other. Swimlane models can be utilized either for current process modelling or future "to-be" process modelling. (Sharp & McDermott 2009, 202-203.) Hänggi et al. 2022 (53-54) notes that the process mapping phase should include input from all the process participants for the final process model to be comprehensive and of good quality.

Phase 3, designing the to-be process, is the final step of the process development process shown in figure 3. It needs to be accounted that assessing the process should not only focus on the parts of process that are deemed challenging but also on the stages of the process which are executed well. Key parts of presenting and creating the improved process model is to capture the first impressions (hearing other ideas from people) and to identify leverage points (parts of process which have the most impact when it comes to process goals). (Sharp & McDermott 301–304.)

Role and responsibility assignment is a key part of BPM governance (Dumas et al. 2018, 66). Even if a responsibility analysis had been conducted before the new process design, it naturally requires an update likewise. The improved process design may involve newly formed process stages or new definitions for process actors' roles.

A viable method of conducting a responsibility analysis in process and project management environments is by using a RACI chart (also called as "RAM" chart). This method determines which actors contribute to each process stage and in what way they are contributing or involved in them. The name "RACI" is an abbreviation of four different roles that the analysis methods categorize actors in process stages. "Responsible" is the main actor on a process stage. This actor has the responsibility of delivering the process stage task. "Accountable" is a role which ultimately answers on the correct execution of a process stage. The responsible actor can also be accountable on a process stage. Stoesser 2023, 76-77; Cordell & Thompson 2018, 16-18.) Costello (2012) thinks that single process stage should not have more than one accountable role. Processes can have multiple people in a responsible role, however. "Consulted" process actors are ones who are in two-way communication in regard to process stage completion with the responsible actors. Persons in an "informed" role are least involved in the process stage. This is a "one-way communication", meaning they are only informed on e.g. the process stage completion. (Costello 2012; Stoesser 2023, 76-77; Cordell & Thompson 2018, 16-18.) Roles and notable points of RACI chart are comprised and summarized in table 2.

Table 2. RACI chart roles (Stoesser 2023, 76-77; Cordell & Thompson 2018, 16-18)

Role	**Definition**	**Further description**
R - Responsible	Responsible of completing the process stage	Main actor of a process stage
A - Accountable	Responsible of correct execution of the process stage	Is not physically involved in process stage execution
C - Consulted	Two-way communication with the process responsibles/ accountables	Not directly involved, but share the interests of process success
I - Informed	One-way communication with process responsibles/ accountables	Least involved role in a process stage, but also sharing success interests

3.2 Process mapping

A process model is a conscious construction to achieve a specific goal beyond creating a model for a process (Krogstie 2016, 28). The process model is constructed accordingly: chronologically the first process step is on the left side of the process map. The recurring process stages are connected to each other. Connections indicate the process flow throughout the process. It is represented typically as lines. Then according to the logical process pathway, processes that precede or succeed each other are connected to each other. On the right side of the model exists chronologically the last required process step. Examples of process maps are illustrated in von Rosing et al. (2015, 444), Hänggi et al. (2022, 50-51) and Francis (2020).

Process maps are useful tools for visualizing the process flow as well as determining the average process lead times. By knowing how long each process step takes, the total process lead time can be estimated. (Bradley 2015, 31-35.) Hänggi et al. (2022, 53) mentions in their book that at the beginning of a process map, there needs to be a consideration on which process is the analysis based on, which departments or company areas are involved, and which particular process is being examined.

Multiple variations of process maps with differing information provided and process-related objectives exist. The swimlane diagram (example shown in Sharp & McDermott 2009, 204) is typically used in a process development setting. The best feature of a swimlane diagram is the clear indication of who is responsible for each process stage. Stoesser (2023, 70-71) presents a “process flow diagram”, which is similar to a swimlane diagram. Stoesser (2023, 70) further mentions that process flow diagram is “preferably used to represent the information flows”.

Another commonly used process mapping method is a value stream map (VSM). VSM is created after the process has been mapped. It is part of a value stream analysis, which in turn is a lean method for process efficiency improvement. VSM deep dives to each process stage with the objective to find which stages of a process especially require rework. VSM is based on “takt time” which indicates the average amount of time which passes between the sales of a product. (Stoesser 2023, 62; Hänggi et al. 2022, 54-63.) VSM usually includes both the material and information flows. Value stream analysis helps determine which parts of the process stages require the most attention when it comes to efficiency improvement. VSM is

seen as a beneficiary method to improve efficiency in various fields of industry (Henrique et al. 2015; Zhu 2022; Lödding & Koch 2020). VSM is more suited for processes related to material flow (e.g. production process) since it requires numerical data. That type of data is usually easily collected in material flow processes (how long an assembly phase takes, what is the material capacity on a production line etc.). For strictly information-flow-based processes, value stream analysis is likely not as suitable.

Krogstie (2016, 189) presented a framework for increasing process modeling value. The first part is to identify the process context. This refers to expressing the circumstances of determined modeling need for further communication, prioritization, and planning. Identification usually coincides with the creation of an application for project funding or development of a project plan. Identifying the potential value succeeds context identification. The objective of this stage is to capture the positive effects of process modeling. After the value of the model has been identified the next stage is to choose the practice. When practice is chosen after context and value research, the practice used is in line with them as well. This stage refers to choosing both managerial and modeling practices. The final part of the framework is to manage the modeling capabilities. This is the work that is performed at the organizational level that is meant to ensure the long-term capability of obtaining value from models utilized and created by the company. (Krogstie 2016, 189-191.)

3.3 Measuring a process

A simple way to monitor the success of processes is determining process measurements. Measurement refers to assessing the performance of a certain thing or a process (Wealleans 2017, 3). Joint Committee for Guides in Metrology (2021) determined measurement as "process of experimentally obtaining one or more values that can reasonably be attributed to a quantity together with any other available relevant information". Process measurements are meant to provide information about the process, let management know how the process is performing, allow prioritization when it comes to action and initiatives related to the process and allow to take actions to improve customer expectations of process outputs. Measurements are primarily utilized for immediate process control. (Wealleans 2017, 29.) Measurements also make it possible for companies to learn from past experiences to improve their process performance in the future (Sánchez Gonzales et al. 2010).

Four generic dimensions of measurement exist when it comes to process performance: time, cost, quality, and flexibility (Dumas et al. 2018, 59). Time is usually measured as process cycle time, which refers to the lead time of an entire process in question. Process efficiency metrics which are time dimension-based focus on the reduction of time values. Cost is a metric of a financial nature. Cost-related KPI's typically focus on turnover, capital yield or revenue. Process quality can be viewed from two different sides: from customer's perspective (external) or process participant's (internal) perspective. External quality can be measured in the form of customer satisfaction while internal quality is measured through process level variation among others. Flexibility measures the effect of process redesign to the initial process. In general, flexibility is defined as the ability to react to changes. (Dumas 2018, 59-61.)

Process metrics which are considered of high importance for the company in question are called key process indicators (KPI) (also called business process indicators) (Dumas et al. 2018, 59). KPI indicators support the process strategy and target values are set for the indicators. KPI indicators actual performance are then analyzed for processes and actions are conducted based on the deviation of target values and actual values for KPI's. KPI indicators can be divided into absolute and relative indicators. Absolute indicators are countable facts, such as the number of employees required in a process. Relative indicators consist of multiple indicators. They aim to create relationships between different process aspects. (Gadatsch 2023, 87-90.) For a measurement to function as a true indicator of process performance, it must also be defined precisely. Otherwise, recognition of an incorrect measurement may lead to a re-evaluation of a process metric. (Stoesser 2023, 29; Gadatsch 2023, 90.)

4 Process management in the case company

This thesis' case company is a large-sized Finnish confectionary and bakery product manufacturing company. In confectionaries, the company mainly focuses on chocolate and sugar candy production. Company is one of the main industry sectors of a Finnish food manufacturing industry organization. In 2024, the company had three main production sites in Finland. Case company's manufactured products are sold worldwide. Major markets besides Finland include Sweden and Denmark. The company also has operations in those countries as well as in the Baltic countries. Case company's most significant customers are retailers who further sell the company's products in their stores. The company also upholds an online store where consumers can order the products directly.

4.1 Supply chain description

Case company manufactures, markets, and sells the end products to customers. Production materials for product manufacturing and material refinement are bought from other suppliers. Company has suppliers around the globe, differing between various raw materials. This may result in a large lead-time variety for material deliveries between material groups. Production is mostly automated and performed using machinery. The company has multiple production lines within one production site. In 2024, the company had a total of 70 active production lines between the three production facilities. The basis of production is that each production line is configured to manufacture production line-specific product outputs. Some products are able to be produced in multiple lines, however.

Raw materials (candy and bakery ingredients) are refined to make the candy mass, bakery mass or chocolate used in production. Masses differ between products, but this stage is universal for all semi-finished products. Semi-finished product refers to a singular, non-packaged candy, or a bakery good. Finished products are packages containing semi-finished products which are considered as "end products".

All products go through two major manufacturing stages: Semi-finish product manufacturing and finished product packaging. Some production lines include the entire manufacturing

process in one stream and in short time frames. Due to the nature of some semi-finished products and production lines, some product's manufacturing process goes through multiple production lines. In these instances, semi-finished product is molded on one production line and then packaging is conducted on another production line. They may even utilize intermediate storage for semi-finished products before the packaging process phase. There also exist products which utilize the intermediate warehouse in two occasions. These types of SFP's are for example candies which are individually wrapped after they have been molded and before they are packaged into consumer-sold final product. Packaging materials are also not self-made, they are bought from suppliers and stored at the facility as well. Differing manufacturing processes between products leads to variance in product manufacturing process cycle times: some products have a lead time of under an hour whereas some have multiple days.

Case company mainly utilizes third-party logistics (3PL) services for end product warehousing and transportation. Third-party logistics is a supply chain strategy where the company utilizes another, logistics-focused company to manage their logistics processes or operations. The company which provides such services is called a "3PL provider". (Blanchard 2010, 147-151.) The 3PL provider is responsible for transporting the products from the production sites to their self-owned warehouse. Case company is responsible for warehouse management regarding their owned products. Similarly, the company is responsible for product delivery arrangements to their customers.

The 3PL provider is also responsible for packaging case company's display package products. These are consumer-sold products which are packaged in, for example boxes mixed with other end products or on pallets as display purposes. They utilize already packaged products and specified packaging materials. Display packagings are conducted for marketing purposes to make the products stand out to the consumer and ultimately boost sales. The packaged amounts and warehouse inventories are managed by the case company's supply planning department. Promotion display packages can have one singular product or multiple end products. Figure 4 displays the case company's proportion of the supply chain, including the key stakeholders from a supply chain standpoint (suppliers and 3PL providers). It also depicts the four different production process types for company's end products.

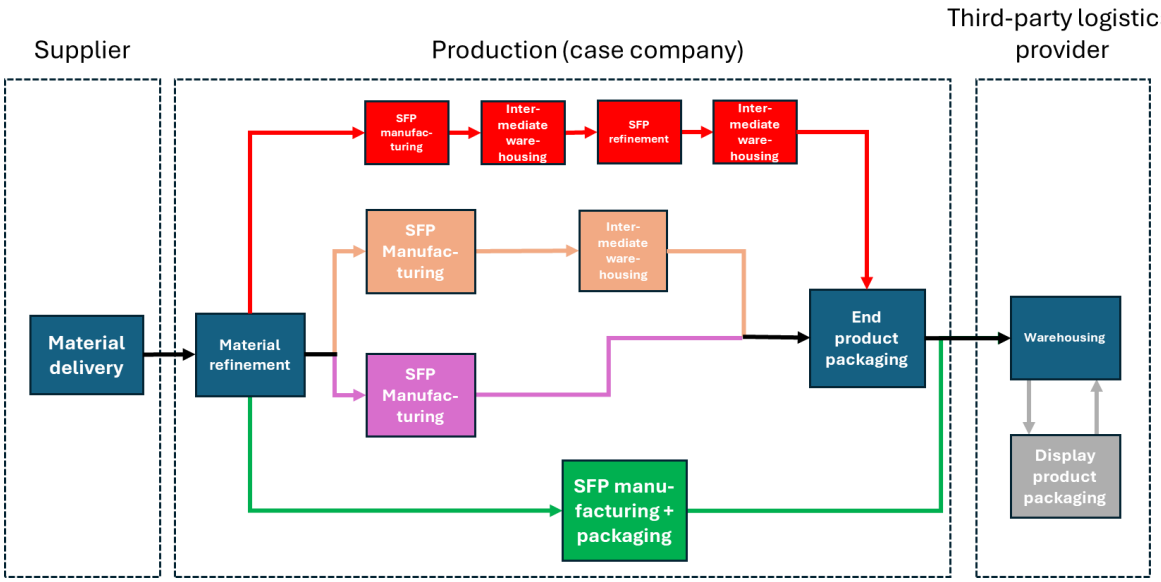

Figure 4. Supply chain process map

The figure shows that there exist 5 separated production process types. The process map is constructed in the following way: each process stage in production reflects a different production line with the exception of intermediate warehousing. This means that SFP's which have a two-stage intermediate warehousing process (depicted in red color in figure 4) goes through four different production lines (mass refinement, SFP molding, SFP refinement and end product packaging) before final product output. Display products utilize the consumer-sold packages and they are warehoused by the same 3PL logistics after production. It is to be noted that these steps in production depict only the types of production processes and not any individual production lines. This means that not all of the three types of SFP's (red, orange and purple-colored processes in figure 4) go through one exact end product packaging unit.

4.2 Current state of process management

Manufacturing process development is an aspect which is well-resourced in the company. Lean methodology, such as VSM, kaizen and six sigma, are applied practices within the company for mechanical process improvement (manufacturing processes). These types of practices' development are easily trackable and clear data is available for them. Case company has set production oriented KPI's for manufacturing which are regularly tracked and

analyzed. Company has its own process developers for production efficiency improvement and maintenance. The company has multiple ongoing production development projects. The focus of company's process management is on manufacturing processes.

Product development is significant in the food industry for distinguishing the company from other competitors. Even though a singular newly-introduced product development is considered as a project, they all follow a standardized pattern and pre-set responsibilities. Therefore product development projects can be considered to be processes as well. New products excite the consumers and make the company stand out. Product development also has major investments from the company as the product portfolio constantly sees changes to it. There are typically multiple product development projects ongoing simultaneously in the company.

However, it is not for planning processes (and information flow-based processes in general). They do not have as clear of a direction when it comes to process management. Development projects for planning processes are not as common. Some processes lack clear definitions when it comes to process roles or process owners. Since the process owner is responsible for the management of the process, this definition is the primary requirement for process management improvement for planning processes. The main reason is the fact that unlike product development and manufacturing processes, the created value for the company in planning processes is not as distinct. The product development process creates a new product and the sales of that product depict the successfulness of said process output. Production amounts and the demand requirements can be compared to review the production capability. Planning processes are typically in between the sales forecasts and the production amounts since their end goal is to cater to both directions of the supply chain. This makes KPI-focused management difficult for such processes. Some KPI's have been identified for planning processes, but they could be improved and further developed.

4.3 Co-operation in cross-functional processes

External processes are typically cross-functional, since they include company stakeholders in addition to the company's own entities. In a large-scale company, most internal processes also include actors from multiple departments. Job tasks are highly specified, meaning that responsibilities are divided to a wide spread of employees. Some processes include actors from differing production sites and possibly even from different countries. Number of

departments involved in cross-functional processes varies between processes. Responsibilities are divided between employees in such a way that in one cross-functional process, there is approximately one person per department as an actor in that process.

Cross-functional processes highlight the importance of effective communication for efficient process operations. The process responsibilities need to be clear as well, since in uncertain responsibility situations it might not be simple to determine what is each function's role in said process stage. Ideally, the responsibilities would be determined before process introduction if possible. Requirement for information about a process stage completion varies. Typically, in a material flow-centric process, the output of a preceding process stage is clear to see and therefore the transition to the following process stage is straightforward.

In the case company, communication between actors in a cross-functional process happens mainly vie company-used communication channels. E-mail and direct messages are commonly used communication methods. Regular projects, such as new product launches, have standardized meetings where the process progression is documented. Some process stages include regular check-up meetings, in which relevant process participants gather to discuss about the process inlet and possible challenges that should be noted and discussed. Check-up meetings are not the standard in some processes however. This leads to varying methods of communication between different cross-functional processes.

5 Promotion planning process

Promotion planning process (PPP) refers to the process of planning the demand and supply of promotional products. PPP is a cross-functional process, involving multiple departments. It is a company-internal process since the process does not directly involve external actors or departments. PPP is distinct as being a fundamentally challenging cross-functional process. This process is used as an example on this thesis as to how a challenging process improvement could be approached. There are multiple factors that affect the difficulty of the PPP and this leads to multiple views of developing the process. Next two chapters of the thesis focus on mapping the current state of the process, possible improvement methods and their effects on process output and flow. The PPP management is also lacking currently. There exist multiple process models but a consensus model for the process is required. Main process stages and responsibilities have been identified. The responsibilities, however, require a more in-depth analysis.

5.1 Promotion product

Promotion products are a distinguishable type of product that the case company manufactures and markets. They are the centric product type that the PPP focuses on. In a technical standpoint, promotional products are already existing end products. The difference between the original and promotional version is in visuals of the packaging. Promotional products have a unique-looking packaging that is distinguishable. Promotional products are attached to the marketed promotional campaigns. The promotional packaging makes the product tied to the promotional campaign. The campaign schedule is pre-determined but it is subject to change if seen reasonable. The company arranges around 40 different promotional campaigns annually. They consist of both regularly held promotional campaigns (for a specific holiday or annual marketing campaigns) as well as one-off promotional campaigns.

The company’s goals of promotional campaigns are to increase sales of specific products and product types in general. It also increases the specific brand value to the customer. The special packaging also makes them stand out from other products in retail stores. Promotional products are a good way to increase sales without the need for new product innovation.

However, promotional products are typically products that are already popular among consumers to make them as profitable as possible. The markets that are included in the campaign are also campaign-specific. Some may only include the Finnish market while some campaigns are international. The markets included in the campaign are also predetermined. The included markets affect the need of simultaneous production for both original and promotional product, so this information is therefore relevant for planning departments as well.

Promotional campaigns can be categorized by their types and scheduling. The first type is the longer and more flexible campaigns. These campaigns do have a preset schedule, but they are possible to be either prolonged or cut short depending on the changes in demand. These campaigns are usually for a longer timeframe (several months) and they are typically recurring campaigns. The second campaign type are campaigns with a fixed schedule. Campaigns of this type are tied to a specific holiday or a specific consumer competition. These have a set time when the promotional product sales are planned to end. These campaigns are not seen as logical to extend from the set time frame.

Promotional products and new product launches share many similarities when it comes to supply planning. A “new product” is a product containing a newly introduced flavor or a new mixture of SFP’s launched to the market by the case company. Both new products and promotion products are of high importance when it comes to product availability to customers. This is due to both being introduced to the consumers with vast marketing campaigns. The differences are that promotional products, especially with the regular promotions, have existing sales data that can be utilized in supply planning. Former sales data is not extremely reliable, but e.g. demand peaks can be estimated by utilizing existing sales data. The second difference is that promotion products are overall planned for a smaller time frame than new products. New products are usually planned to be available on the market for at least four months. Promotional campaigns very rarely last that long. Third difference is that promotional products are directed in ERP to a specific “promo storage” location. This is a practicality for differentiating the original products from promotion products since promotion campaigns can be market-specific or even customer-specific for company’s largest customers. Promotional storage and regular storage exist physically in the same end product warehouse, but promotion storage has its own set warehouse stock locations.

Case company’s manufactured products are considered as food. Food items are strictly regulated and monitored in regards of possible contaminations, best before dates for products

and achieving legislated nutritional values. Quality monitoring is conducted for raw materials and throughout the production process to ensure that the items remain edible and non-hazardous. Depending on the semi-finished products, the legal service life of consumer-sold promotion products ranges between 6-12 months (this is the same for original products). The products is to be disposed of once they have reached the end of their service life. Customers typically want the items to have a minimum amount of shelf life left because then they have more time to sell the products to consumers in turn. These signify the fact that end product storages can not be over capacitated because there might be a risk of end product disposal. That in turn means unnecessary losses for the company.

Confectionary and bakery good demand is typically quite fluctuating. This can be explained by the changing consumer behaviors related to global and national consumer-affected policies and events. Most of case company's end products contain high amounts of sugar. These types of products have also received government-level attention on taxation increase in Finland (Yle News 2024). This added to the increasing product prices (due to material price increase) and global phenomena and trends, the consumer behavior may change very rapidly. This leads to the company's demand forecasting accuracy to currently being on a moderate level. The nature of the company's forecast accuracy makes it necessary to review the demand forecasts continuously so that the customer demand can be addressed while maintaining reasonable storage levels for products.

5.2 Research execution

Research data for promotion planning process was done using multiple methods: meeting for process modelling and workshop for further process understanding and development. The process modelling was first completed in a meeting. All meeting attendees had experience in working in a promotion planning process. Most participants worked in a subordinate position, and one worked in a managerial position. Company departments that are directly involved in the PPP are marketing, customer delivery (in charge of end product logistics planning), demand planning, production planning, operative purchasing (in charge of materials procurement and delivery scheduling) and packaging development. The amount of involvement in the PPP varies between departments. This meeting was hosted by the thesis writer.

After the modelling, a "workshop" was also hosted by the writer of the thesis and planned with the aid of case company's thesis supervisor. Main emphasis of the workshop was to get a deeper understanding of the process-created values (to the customer and to the company), challenges and improvement possibilities. The workshop had attendance from the same departments as in the process modelling phase. Some employees participated in both the modelling session and the workshop. The workshop was conducted in multiple groups, their sizes ranging from two to four participants. PPP development workshop focused on following aspects: process value creation, process responsibility analysis, process challenge distinction, communication and co-operation-related challenges and risks, improvement possibilities and lastly the process KPI metrics. Responsibility assignment matrix was utilized for process responsibility analysis. Other workshop subjects were brainstormed in a group. Everyone listed their ideas on topics, and they were then discussed in the group. Figure 5 shows the phases and agendas of the hosted data gathering sessions.

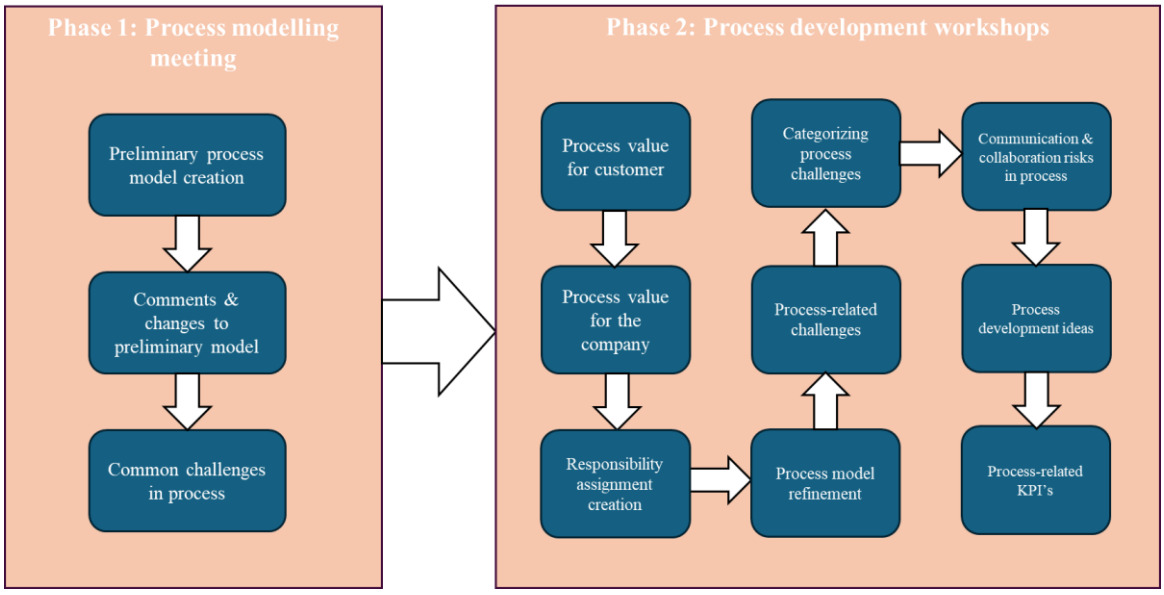

Figure 5. Qualitative data gathering process

One session was hosted for the modelling meeting that lasted one hour. Phase 2, the workshops for PPP development, was completed in a total of 7 sessions, with each session lasting 1-2 hours. Each stage of both phases, apart from preliminary process model creation, included all the people participating in that session. Data gathering phase 1 (figure 5) had a

total of 8 participants and the workshops (phase 2) consisted of 9 different participants, including the thesis writer.

5.3 Process stages

The preliminary process swimlane model was created according to two existing promotion process models. One was from a marketing perspective and the other from a planning & logistics perspective. Aspects of both models were combined into one preliminary process model. Participants commented on the model and discussed about possible changes accordingly (what needed to be changed, what process stages should be redefined and what process stages are missing from the model). By getting input from process actors on the process map, the finalized process map is a comprehensive description of the process that takes all relevant participating departments into account.

The process itself is strictly information flow based. This means that there is no material output on the process. Instead, the output of the process is a production plan for the promotional product which considers the promotion schedule, demand requirements and other possible things of note (production capacity, customer requirements etc.). Information transfers between processes either via informing relevant participants or as a data entered in the ERP system. All the promotion planning process participants have access to the necessary ERP databases. The process output, production plan, is also inputted and maintained in the ERP system.

The finalized current promotion planning process swimlane model according to the process participant inputs is displayed in appendix 1. PPP stages are divided into three main sections in the appendix 1 model chronologically: process phases that are conducted before the promotion campaign launch, stages that happen during the promotion launch and ones that occurs after the campaign has ended. The “during launch” phases are executed multiple times during the promotion with a frequency of approximately one week. The amount of how many times these phases are repeated vary depending mainly on the promotional campaign length. Frequent revision is typical for demand and production plans.

The process begins with a promotion starting meetings which includes the following: process schedule, preliminary forecasts for promotion products and which markets are involved in

the process. The project launch meeting is typically arranged 26 weeks before the launch of promotion campaign. It involves all the departments that work in the process except for the customer delivery planner. In this meeting, things of note are also discussed, such as material availability or the possible challenges that can affect the project in question. This is the only regularly arranged meeting. Further form of communication differs between promotion projects. A new meeting can be arranged if there is a sudden issue which requires addressing multiple participants involved in the PPP.

After the meeting, the packaging design process stage begins. This is conducted by marketing and packaging designers. Simultaneously, after the meeting, operative purchasing representative creates the promotion packaging materials to ERP database. This is required for tracking the materials in the ERP database as well as creating the bill-of-materials for promotional product in ERP. After the meeting, demand planning also has the required information to transfer the promotion campaign information to the ERP system. This information makes everyone aware of the promotion and the promotion-related specifics can be found from the ERP database.

Once the operative purchaser has opened the material code, packaging development can create the bill-of-materials (BOM) for the product. BOM is also maintained in the company's ERP system. Production planner chooses which BOM will be used in production. BOM creation is usually confirmed directly since production planning does not get a specific notification from the program once the promotional product BOM is added. Once BOM and the promotion schedule are known, the production planner can create a production version for the promotional product manufacturing.

Typically, each product item has a unique material code in ERP for product differentiation purposes. This also applies to each semi-finished products, including different variations of a semi-finished product. Promotional products utilize the same material code as the original reference item. They are distinguished by using a differing production version in the item's master data which has the promotion specific BOM. Figure 6 displays how the original product and promotional product are differentiated in the ERP system and what this means in practice. Under a specific material code in ERP, there exists different maintained production versions. Besides the BOM usage, production versions can determine the production line and material consumption "location" as well.

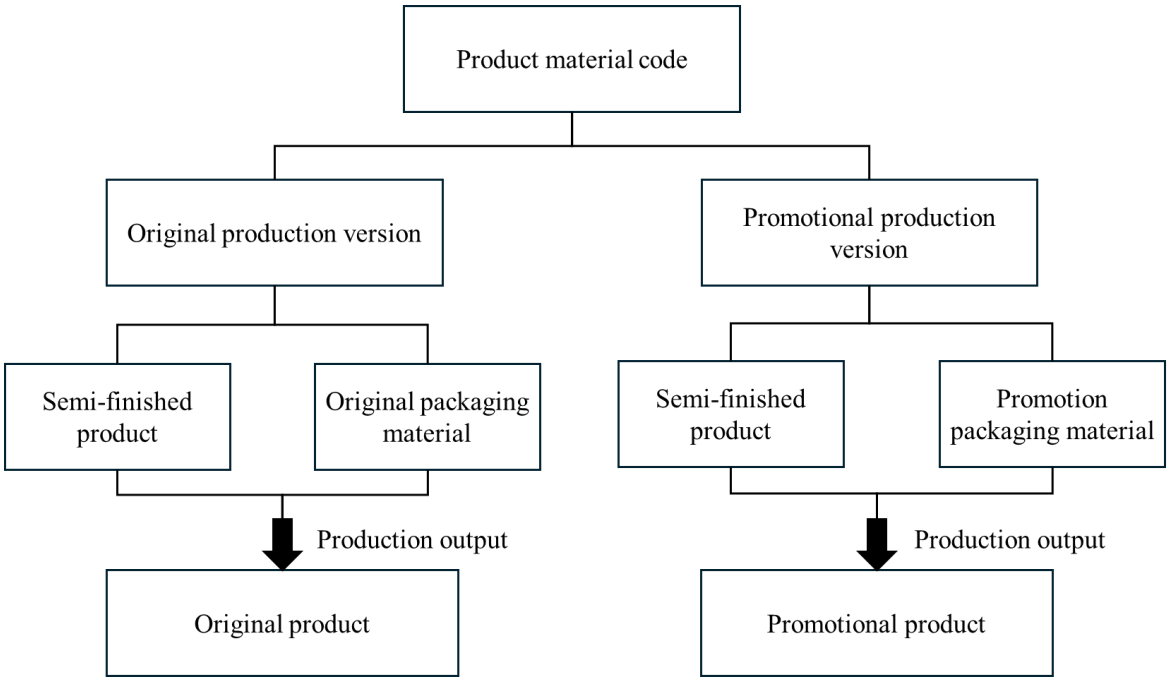

Figure 6. Production control logic for promotional product and the original product in ERP

Production version creation step also includes checking the promotion storage location. It is also required to make a change in the promo material master data since to conduct the warehouse location to promo storage instead of original storage. This can not be automatically set under the promotional production version in ERP. It is a material specific master data change. The creation of production version makes it possible for production planner to create production orders (production events that specify the production line, quantity, and specific time and date when the item is scheduled for production) for promotion product in the production plan.

When production version is created and the promo storage location determined, the demand planner can link the customers that are involved in the promotion campaign in ERP database. This phase is required for determining the forecasted promotion product quantities from each customer involved in the promotion campaign. The sales and marketing department is responsible for validating the customer forecast amounts and inputting them into the ERP system. Once this is conducted, the demand planner can inform about the forecasts to production planner. Once the demand is informed the production planner can plan the promotion product manufacturing in the production schedule, taking into account the designated promotion

campaign time period and production line capacities. Production is usually planned to start multiple weeks before the promotion depending on the demand and the length of promotion campaign. After creation, the promotion plan is monitored and changed if necessary (if there are changes in demand). Demand planner can also inform beforehand if the demand has changed significantly.

Creation of production plan in ERP makes it possible for the operative purchaser to see the promotional material required amounts. Typically, in the promotion project start meeting an estimated demand is informed and from that the promotional material preliminary requirements can be calculated as well. This stage however confirms the planned amount required and operative purchasing department can make order arrangements according to the production plan. The objective is to order all the required amounts in one batch, since this is cost-effective from a material purchasing standpoint. In longer promotions, the material orders are usually split to multiple delivery orders since the demand fluctuation can have a major effect on material requirements over a longer time span.

Operative purchaser typically confirms the amounts in this stage from the production planner and the demand planner since data provided in ERP might not be up to date. Material orders also depend on the packaging design process stage. The design must be complete and sent to the packaging material manufacturer before the materials order takes place. In addition, the material order amounts must be confirmed to the supplier well before the actual delivery. The final packaging design should be sent 7 weeks before the first material delivery. It takes around 2 weeks for the supplier to process the packaging design data and 5 weeks is a typical lead time for material delivery.

PPP stages during the promotion campaign focus on upholding the production plan and the customer demand. Demand planner assesses the availability of product and the customer demand. They communicate the necessary changes to production planners. ERP data does not update instantly when demand changes. In the case of promotional campaigns, the short time frame requires quick reactions to changes in demand. Quick reaction requirement added to the fact that promotion product production ends a few weeks before the campaign is meant to end, the production planner needs the information about promotion demand changes rapidly. Production planner then adjusts the promotion plan accordingly. Prolonging or shortening the promotion schedule also affects heavily to the promotion product promotion plan.

Operative purchaser evaluates the need for extra materials according to the updated production requirements. It needs to be noted that small extra material orders are usually costly to the company, and these are to be avoided unless necessary. This is why promotion material orders aim to be of few amounts and in large batches. Extra material delivery schedule might possibly affect the production plan. Operative purchasing if any out-of-stock (OOS) situation are in danger of occurring and informs the production planner about them. In worst cases, OOS situation for packaging material may even lead to OOS for the end product. End product OOS is to be avoided to keep the service level and customer satisfaction at a high rate. Like mentioned above, the "during the campaign" occurring steps tend to repeat frequently, since product availability tracking and production plan are evaluated weekly by the demand planner and production planner respectively.

At the end stage of the promotion, customer delivery planner checks the status of the promo storage and informs the demand planner when it is empty (meaning that all manufactured end products have been delivered to the customer). Once demand planner receives the confirmation about the promotion storage being empty, they can end the promotion in SAP, deleting the participating customers from the promotion information.

After the promotion campaign has officially ended, the promotion planning process still has a few phases in it. Demand planner checks if the promotion storage is empty with the help of the customer delivery planner. Then excess end products after promotion are added to the "product speed-up list" which is a database controlled in the ERP system. It shows products that have excess stock and needs to be sold to customers quickly. Products in the speed-up list typically have risk of outdating due to the regulated best before dates for food items when considering the future product demand. The sales of these products need acceleration so that product disposals due to expiry is avoided.

Operative purchasing handles the surplus material disposals. They document the value of disposed materials and then arrange the disposal. Out of the end-of-promotion process stages, only the promotion storage emptying check is deemed necessary for process output. All the other phases in this stage of promotion campaign lifecycle are surplus stages which are only conducted if necessary. The unnecessary steps are to be avoided in the process. However, they are extremely frequent when it comes to PPP in practice. Process development should aim to decrease the probability in the future to conduct these extra process stages.

5.4 Value created by the process

Process-created value can be viewed from two perspectives. First is the value that the process output, the promotion production plan, itself aims to create. The second view is the indirect value that is created by the promotional product. Although the value created from the manufactured product is not the exact output of the process, those value aspects amplify the significance of a successful promotion planning process for the case company. For that reason, it is important to bring forth the created value of the promotional products themselves.

From the customer's perspective, the value created by the process refers to the fluent and flexible deliveries by the case company for promotion products. The process aims to please the delivery schedule for the customer during the promotion campaign. It is extremely important for the customers to have the promotion products available before the promotion campaign starts. Customers also have required best before dates limits. Therefore, it is important that the products sold to them match those as well.

The fluency of the process can possibly lead to clients valuing the case company more and improving credibility. Optimal product delivery schedules ensure that the customer takes the company in high regard after the promotion campaign as well. For consumers, the promotion campaign itself ties the promotional product to a special occasion, since the products and packaging usually appeal to customers or are tied to a special event.

Value created for the case company is a different way to view the promotion planning process' value. The company aims to increase sales with the promotion campaign. The campaign's objective is to differentiate the company's end products from competitors. Offering a high service level to customers throughout the promotion campaign is what the PPP's main objective is from a value-creating perspective. Successful promotional campaigns also indirectly increase the company's total sales for the entire product group of a promotional product. It also increases customer interest to the case company and its brands with such marketing techniques.

5.5 Process challenges

Data for process challenges were gathered at the workshop. Participants listed the challenges they had noted in the process. Some challenges were mentioned by multiple different people. Number of times a similar challenge was mentioned by different participants is also mentioned. Out of all the challenges presented, they can be separated into three main categories. The first category is fundamental challenges, resulting from the process workflow logic or from non-process related occurrences. These types of challenges require more fundamental changes to processes and work behaviors in the company. The second category is technical challenges, which refers to manual labor requirements and IT program related difficulties. Communication and collaboration challenges is the last category. This category consists of challenges which are due to communication, collaboration or co-operation between process participants and other relevant departments from the view of promotion planning process. Categories were created to classify the mentioned challenges and to distinguish similar process challenge types.

5.5.1 Fundamental process challenges

The most significant fundamental challenge is related to changes in promotional product forecast. Changing forecasts have multiple effects on the promotional planning process and how they affect in the process. Demand changes have multiple effects, and they are especially relevant for planning functions such as the departments that are involved in the promotion planning process.

Changing forecasts are not an atypical sight since the demand in the industry itself is typically rather intermediate. The reason why it is especially problematic for promotional product is the short time frame of the promotional product manufacturing. Most product types are on the market for at least a four-month timespan. Promotion campaigns of similar length are very rare and they can be significantly shorter. This makes the reaction time for demand changes minimal compared to original products. Significant and sudden changes in demand may lead to several problems in the process. If the demand decreases, the risk of packaging material disposals increases. If the demand increases, the product availability can be at risk. This is since material orders and production orders are balanced to demand to avoid

overproduction and excess costs. Changes in demand especially affect the cyclic frequency for reviewing the supply plan. When the demand changes, the demand planner and the production planner review the supply plan and operative purchaser reviews the material orders based on the updated production plan. Changing demand directly affects to the workload of these functions in the promotion planning process. Implementation of required production changes can not be taken for granted. The production schedule, packaging material lead time and production capacity all may hamper the possibility of fulfilling changing demand. A short time frame makes the fulfilment of sudden demand change very difficult.

Promotional packaging material deliveries are planned to be large batch sizes to be as cost effective as possible. The supplier does typically have an option to deliver smaller batches but with an increase in price relative to the material volume. The suppliers may also have quite large minimum order quantities (MOQ's). If the extra material requirements are lower than the MOQ of the packaging material supplier, then there is a major risk of material disposal increase. Increasing demand requirements need to be reviewed from the extra cost effect standpoint. Another thing to note is that if the material is required urgently (making it a priority), this also typically leads to extra costs as well.

If promotional campaigns are in major markets of the company, the case company also has MOQ's for the original products. This is due to the production line base hourly quantities (line capacity) which are designed for large production batches. MOQ's are therefore dependent on the line they are produced but typically the MOQ's are rather high. It might be difficult to provide smaller markets that are not involved in the promotional campaign without overproducing the original version of the product. This problem does not occur in every promotional campaign. Mainly on the longer campaigns where the smaller market customers have strict best before date requirements, so that the original product must be produced simultaneously while the promotional product manufacturing is active.

Another occasional problem in the PPP happens in the case of promotional campaigns where the materials indicate a specific time frame for the promotion. This hinders the leeway of the promotional campaign extension. Extending the campaign is typically used as a method to extend the sales period of promotional product if the supply appears to exceed the demand in the originally approved period. Products with non-flexible campaign time frames are for example consumer competition campaigns (which typically have the competition time limits in the packaging) and promotions that are tied to a specific holiday (consumers do not

typically want the product once the holiday has passed). These types of campaigns are typically not resilient on demand changes. They require constant demand revision while it is still possible to affect the material and production orders of said promotional products. For these reasons, these types of promotional campaigns have a real planning risk of overproduction, excess packaging materials or OOS situations.

Promotional packaging materials have a unique visual look. In the case of packaging material manufactured by the supplier, they require the information about the finalized visuals well before the first delivery. Typically, they require the new base packaging information 2 weeks in advance of the manufacturing. The suppliers also have a lead time of 5 to 6 weeks, since they have various other customer orders as well, making the total lead time of material delivery 8 weeks. The delivery lead time may become a risk if the packaging design is not decided early enough, or the promotional campaign is required to start earlier than originally anticipated. All the five explained fundamental process challenges are comprised in table 3.

Table 3. Identified fundamental process challenges

Challenge	**Short description**
Changes in demand during the promotion campaign	Affects most process operations workload, mainly planning and purchasing. Root cause of this is moderate forecast accuracy.
High material delivery costs and disposal risk for extra material requirements	Non-planned material deliveries are typically small in batch size and expensive (wanted at a faster lead time, which is more expensive) for the company
High minimum order quantities of original product during the promo production	Smaller customers that want the original version of the product are harder to please during the promotion campaign due to the MOQ requirements set by production (affects promos including multiple markets, where some smaller markets are not involved in the promotion campaign)
Promos with specific materials makes some campaigns less flexible when it comes to supply planning	Promotion campaigns related to e.g. single holidays or are part of a consumer competition have specific materials, hampering the promo flexibility when it comes to demand and product availability changes
Promo packaging material supplier lead times in first deliveries	The suppliers typically require to specifics of the promotional packaging visuals 8 weeks in advance to the material delivery date.

Besides the demand change challenges, two of the four other mentioned fundamental problems in the PPP on table 3 are orchestrated by them as well. Demand changes can lead to extra, non-planned material orders of relatively high prices. Demand changes also highlight the challenges of "non-flexible" promotional campaigns. The MOQ issue is very situational, but still can be an important issue, as the case company naturally tries to fulfil customers' expectations.

5.5.2 Technical challenges

Technical challenges on the process mostly relate to the ERP system application abilities and troublesome tasks on the PPP. The company's ERP system lacks the proper capabilities for specific and simple promotional product monitoring for various departments and phases. ERP systems distinguishes products mainly with the product code. Since the original product and promotional product share the same product code, the separate monitoring of these product versions becomes more difficult. System-built monitoring tools are easy to understand but some of them lack possibilities of distinguishing the promotional product from the original product. One method of separating them is with the warehouse location, which is a different input for promotional and original products, but this is not possible for all monitoring transactions. This leads to manual tasks for promo production tracking which requires more time.

If promotions are only tied to specific markets or customers, they typically also require the simultaneous production of the original product while the promotion is active. This requires manual creation of production orders with differing production versions and following the demand changes for multiple versions of the same product. These types of promotions can be tedious to handle, since the products involved in the promotional campaign require extra attention. Planning functions typically have hundreds of different end products in their responsibility area. Effective monitoring and planning are therefore very important. In these promotional campaign cases, one product code takes a significant amount of time for it to be handled correctly. Furthermore, there is a risk of mixing between the promotional product and the original product in this case. These promotional campaigns require special carefulness for them to be handled adequately.

One of the main issues mentioned is the overall amount of required manual tasks, which increases the workload of each department when it comes to the process. Promotional product handling procedure leads to multiple manual tasks required. These include the production version upkeep for specific time period (and changing the production version after the promotion campaign ends to the original product), manually applying the customers to the promotion table in ERP, bill-of-materials maintenance for promotional products and utilization of promotional products for promotional display packages (for display promotional packages, the 3PL provider responsible of the packaging are not automatically directed via the ERP system to utilize the promotional products in the promo storage and needs to be informed separately about it). These tasks in the process require manual inputs and need to be memorized. There is a risk of forgetting a task which affects the entire PPP outcome and flow. The manual tasks are time-consuming but necessary for the process stream. Manual tasks and monitoring are the main reasons why the process is seen as tedious currently. Besides promotional products, this type and amount of manual operation on ERP is very rare. Promotional products, however, require these tasks constantly.

Table 4. Mentioned technical process challenges

Challenge	**Short description**
Required manual monitoring in the process	Lack of proper ERP tools for simple monitoring for e.g. promotional product demand changes
Planning of original product simultaneously with the promotion product	ERP system tools and promotion planning methods make the planning of original product with the promotion product have multiple manual work steps
Various manual tasks throughout the process	Multiple process stages include manual tasks that depend on actors memorizing the steps. These include changing the location to promotional storage, production version upkeep for promo campaign and utilizing promo product for display promo packages.

Most of the manual tasks mentioned in table 4 are performed in the ERP environment. Although all of the company's products are managed in ERP, the promotional product monitoring has more manual task requirements than most end products. Manual tasks affect the difficulties in the process since they require memorizing. Usually, they also require separate

information for other functions involved since the promotional product specified monitoring tools are scarce and not in general knowledge.

5.5.3 Communication and co-operation related challenges

Processes that focus on information flow such as the PPP, communication and co-operation related challenges are typically highlighted. Efficient information sharing between the participants and other relevant departments and stakeholders is the key for process successfulness. A vast amount of communication and co-operation related challenges was brought to light in the process improvement workshop.

Communication about the changes in the promotion campaign is not always clear. On some occasions the information is not provided to the PPP participants as soon as the schedule change has been decided. Promotion campaign schedule changes requires changes in the promo table tool and, most likely, changes to promotion product production plans and promotion material deliveries. These facts make it extremely important that the process participants are informed about the schedule changes immediately. On some occasions the information does flow smoothly to the planning department. This should be standard practice since it affects the process and requires actions in the process as well. Unclear information about the launch dates of promotion was also mentioned as an individual challenge. The start should especially be clear since timing the promotional product promotion to the start is important to avoid excess inventory levels or product OOS situations. Also, by knowing if there is a possibility of prolonging the promotional campaign, the production planning principles can be adjusted accordingly.

Another mentioned challenge were situations where mixed product promos (multiple end products are in a packaged display promotion product) containing products have been unclear. Since mixed product promotions use multiple different products, it is important for the planning department to know which products are utilized. Inclusion of products in the promotional display product has effects on products availability. The 3PL provider, which storages, and packages the display products, needs the information about the products included so that they can reserve the end products to display promotions as well (if the products have the original packaging, they also have demand as well as required quantities for the display packaging). Since the storage level of materials varies according to their individual demand,

some products have significantly smaller stock quantities. Display promotion product BOM's (consisting of multiple end products and display packaging materials) needs to be specified in early stages so that the product requirements are shown in ERP correctly. The ERP systems of the 3PL provider and case company are the same and they have a synchronized database. This allows the planning department to correctly see the requirements for each product and adjust the supply plans accordingly.

Information about the changes in promotional product demand in general is not seen to travel to planning departments as quickly as hoped. The typical process is that demand planners adjust the demand changes to ERP where the production planner can see the change in demand. However, promotional product characteristics make it important to inform about the changes in demand once they occur. This allows the reaction time for production plan revision and simultaneously material delivery adjustments to be as long as possible. Although it is not a normal procedure to inform about each change in product demand, the promotional products nature makes it necessary for them. The ERP system does not have a tool for informing about certain changes in demand right as they have been input to the system. It was felt by the participants that demand planning does not get the information about demand changes as quickly which leads to the fact that relevant process actors (mainly production planning and operative purchasing) does not get the information as well.

Multiple participants felt that the responsibilities of the participants in the promotion planning process are unclear to them. Main problem was that they are not aware who in which department is the contact person in the promotion planning process. In an ideal situation, there would be one contact person per department regarding a particular promotion project. However, internal changes in responsibility areas between functions or crossing responsibility areas (promotion product includes materials where multiple operative purchasers are responsible, or the production process involves multiple production planner's planning areas) makes the contacting more difficult. Some process participants mentioned in the workshop that they were not even aware of all the process stages involved in the PPP. Clear responsibility setting makes the process follow-through simpler and more efficient.

In the current process model, customer delivery planner gets the information about the promotion campaign later than other participants. It was felt that they could be included in the process all the way through to give their input on the matter. Although they are mainly involved in the process during the campaign and after it has ended, they still would like to be

informed about the campaign earlier to know the promotional storage future changes. Promotional products are prioritized due to the marketing investments in them, and the priority products availability is important knowledge to customer delivery teams who reserve the product amounts to the customers.

The workshop also brought out that not all process participants seem to be aware of the promotional campaign timeline and flexibility. Some promotional campaigns do not clearly indicate their flexibility, meaning how changes in demand can be handled during the PPP. All process participants should be aware after the project launch meeting how time sensitive the promotional campaign is, if the campaign can be either preponed or postponed, and what procedures need to be done throughout the promotion planning process. This would help avoid uncertainties in the process. Some of the workshop participants also felt that not everyone involved in the process understand the entirety of the process. By understanding the entire promotion planning process, the participants understand all the workload that is put into the process, who are the key actors that they have to co-operate with in the process, what actions are required for the process to continue and what changing process circumstances require from each participating function among other important points.

Project launch meeting is an adequate way of informing all relevant parties about the specifics of a promotional campaign. However, there are no standards on how communicating throughout the process should be conducted. Since the process involves multiple manual tasks, it would be reasonable to also have a clear communication method for informing about the process progression. The information varies between e-mails and direct messaging. These methods might have a risk that other relevant functions are not aware of how the process has progressed. This is why clearly standardized communication methods would be viable to utilize in future promotion projects. All the expressed communication and co-operation related challenges are compiled to table 5.

Table 5. Mentioned communication and co-operation related process challenges

Challenge	**Short description**
Information about demand or promotion campaign schedule changes should be communicated quickly and consistently	Changes in demand affect many process stages and requirements for product availability revision. From time to time the information about promo changes is not rapidly communicated to the planning & logistics organization

Unclear of promo product BOM's for mixed package promos	In some cases regarding mixed packaging promotions, it has been unclear which particular products are to be included in the promo
Pace of demand change communication	Communication about changes in demand to the promotion planning departments should be quicker for maximum reaction time to the changes in supply
Unclear responsibilities in the process	Participants are not always sure who in which department is responsible on the process and who are even involved in the process at all.
Customer delivery team does not get the info about the promotional campaigns earlier	Customer delivery planner typically gets the promo information a while after the project launch meeting. The promotional schedule is essential information for them as well.
Participants are not on the same page about the promotional campaign timeline and when the customer requires the product	It was mentioned that not all participating functions are aware of the promo timeline and when the customer wants the product and why they want in that specific timespan.
Information about the start of the promotion should be clearer	Promotion campaigns should have a clear indication by how much the campaign can be preponed/prolonged
Participants should comprise the entirety of the process better than they currently do	It was felt that not everyone involved in the process are as aware on the different process stages and what it requires from each function for the process to flow adequately
There is no regulated method of communication after the project launch meeting	Communication in the process past the project launch meeting varies between promotion planning processes dependent on the participants involved

In total, 9 different communication and co-operation related challenges were distinguished, which more than either technical or fundamental process challenges. This highlights the importance of improving the collaboration of process participants in the process. Some participants felt that even though cross-functional processes like this requires collaboration between participants, all parties involved are still too independent and not very aware of other functions responsibilities. Focus should be on co-operation development on the cross-functional process but also paying attention to the biggest technical and fundamental process challenges. Development ideas should be created with the idea that a singular idea can answer multiple issues related to the process. Too many improvements may make the entire process development complex. It is important to distinguish the key areas of improvement and focus on them. Improvement in key areas may also help further process development through positive outcomes.

6 Improved promotion planning process

After the occurred challenges in the PPP was identified, the brainstorming of development possibilities followed as per figure 5. First phase of data gathering, the process modelling meeting, already resulted to a preliminary process challenge identification. From these challenges a few development ideas were suggested by the thesis writer to the workshop participants. Besides listing their own ideas, the participants gave input to the already proposed ideas as well. Development ideas aim to answer the mentioned challenges in the workshop.

6.1 Development possibilities

The mentioned development possibilities mainly focus on the technical and communication related challenges within the promotion planning process. Fundamental process challenges are not affected by the process itself, instead they are external events and restrictions that affect the process as well. However, some development ideas also can indirectly improve the fundamental issues by improving the resiliency for the planning process stages. All the development ideas that were discussed and mentioned in the process improvement workshop are summarized in appendix 2. The table in appendix 2 also indicates which challenges each development possibility aims to address.

One clear technical change would be creating a unique product code for the promotional product instead of using an alternative production version. Monitoring products by their product code is a more standardized practice than the differing production versions. Furthermore, no individual production versions need to be updated and the promotional product number can just be adjusted. The usefulness of unique promotion product number is signified especially in the case of regular promotion products. In those cases, the same steps need to be completed: the production version upkeep and directing the products to the promotion storage. With the unique product number, the promotion products can be automatically directed to the promotion storage location. Unique product numbers help storage level and demand monitoring for the product as well as lessens the manual tasks related to the ERP master data that is included in the promotion planning process. This development possibility

also helps the planning of simultaneous production for original version and the promotional version.

Another possibility to develop the process would be adding new ERP tools and improving the current ones to help distinguish the demand and inventory amounts between the original version and the promotional version of the product. These would simplify production and demand revision for only promotional products. This would be extremely helpful for situations where the promotional product and the original product are manufactured simultaneously. Company recently developed a tool to their ERP system that can specifically give the promotional product version's demand, production amounts and inventory levels based on the promotional storage location and the customers added to the promo table in the ERP system. This is a step in the right direction of developing promotional product specific ERP monitoring tools. This could be expanded to other relevant system and programs used in planning as well.

Methods that help specific promotional campaign types were also introduced in the workshop. For promotional campaigns with a "non-flexible" schedule (e.g. consumer competitions and single holiday or event specific promotions), a fixed production quantity procedure was suggested. This refers to agreeing that the produced amount is a specific amount or based on forecasted demand at a specific time. No changes to the production amount are made so that the material requirements stay the same. The customers will be clearly informed about the nature of the promotional product and that there is an OOS possibility if the demand rises. This procedure is utilized from time to time in promotional campaigns but could be more standardized for campaigns that have a sensitive time frame. This method especially helps decrease the amount of promotion production revisioning as well as avoiding excess inventory levels and extra material ordering.

It was also suggested that no specific dates would be printed on the promotional packaging for e.g. consumer competition promos. This gives flexibility to promotional campaigns which typically have a strict life cycle. The dates on the packaging could be replaced with a quick-response (QR) code that guides the consumer to a website with more information. The competition dates could be modified on the website if the promotional campaign schedule is seen suitable to be changed.

The department responsible for demand input to the ERP system within the case company is the sales department. They inquire with the customers about the quantities they are willing to purchase each product. Sales and demand planning review the demand and the supply of the company. Since promotional products are extremely sensitive to demand changes due to their nature, one development possibility presented would be to include the sales department more in the promotion planning process. This means that they could be explained and presented the actions required to make the demand changes or schedule changes possible from a production point of view. Promotional products will most certainly require extra attention for successful planning and therefore more special involvement from all related departments compared to other product types. By knowing the limitations and actions related to demand changes the information might progress more quickly about the demand changes and therefore the reaction time to changing demand for planning organization would be maximized. The sales department could also consult the planning department about the possibilities of increasing demand, or the risks involved in possible decrease in demand.

A suggested method for making the communication and collaboration between PPP actors more continuous that was mentioned in the workshop was conducting regular check-up meetings while the process is ongoing. Standardizing this method would keep all relevant parties involved in how the promotion project is ongoing and about the possible troubles affecting the process. These check-up meetings should involve all process participants (from the planning department) so that everyone can give their view on the situations and suggestions. Check-up meetings could be arranged at a set time (e.g. monthly or bi-weekly) or on certain process stages. Time-based occurrence of the meetings might be an easier method for arranging since the process stage pacing can differ between processes. Check-up meetings help avoid missing process stages, figure out problems occurred or changes in demand or people participating in the promotion planning process from each department. The meeting participants can be adjusted while the process progresses since some departments have a scarce number of actions responsible for after the promotion campaign is launched and when it has ended.

To help clear the responsibilities of each function within the process, a responsibility analysis is required for the promotion planning process. The already mentioned RACI chart would be a good solution, since it shows not only the responsible actor for a process but also the main supporting departments and the ones who require knowing the status of individual

process stages. RACI matrix should be conducted on a process stage level, meaning that each identified process stage would be determined the responsible, accountable (if necessary), consulted and informed roles. Another mentioned development possibility related to this one was revising each function's roles at the start of the project so that everyone involved would be on the same page about the responsibilities. The responsibility matrix would be a good way to display the roles as well and it could be an agenda on the project launch meeting.

Determining the process owner is also important. Having an accountable on the entire process progression and especially the future development on the process is important for allowing continuous improvement. The promotion planning process is currently clearly lacking guidance and attention when it comes to developing. It is best that the determined process owner is from one of the acting departments in the process since they have the most knowledge about the entire process and its nuances.

A few of the mentioned developed possibilities in the workshop do not directly solve the identified process issues but are still ideas that could improve the process. It was mentioned that the point-of-sales (POS) data of promotional products could be a possibility to identify the demand peaks for the products. POS refers to the exact time and location where the product payment occurs. The retailers can transfer this data to the manufacturers which helps the product demand forecasting in the long run. POS information is seen as an important approach to increase the visibility on downstream SC. This helps the manufacturers, such as the case company, to forecast the retailers' orders more accurately. (Abolghasemi et al. 2022.) Overall improvement to the forecast accuracy would help the promotional product demand forecasting as well.

Last of the mentioned improvement possibilities were conceptualizing the promotional campaigns, learning from previous campaigns, improving the teamwork of the cross-functional process team and cross-training in the departments to increase the competence on PPP. New campaign idea conceptualization could consider the challenges that the promotion planning process currently has and mitigate the effects of those challenges. Learning about the mistakes and challenges that previous promotion projects had in the process would help avoiding the same mistakes if plausible. Teamwork improvement between teams would especially affect the communication and collaboration skills within the cross-functional process team. Cross-training in the PPP departments helps avoid employee-related risks such as lack of competence in conducting process tasks. The functions should alternate their responsibilities

regularly inside the team to avoid risks as such. Appendix 2 has all the declared development possibilities in the workshop listed in a table format. It also shows which mentioned challenges each improvement idea mainly resolves.

6.2 Proposed actions for process improvement

Out of the mentioned development possibilities in appendix 2, selected amount is proposed for the company to be implemented. The suggested actions for PPP improvement are selected on few criteria: how glaring are the challenges it strives to improve, how realistic the development action is to implement and how multipurpose the development action is (does it improve multiple challenges). Some development possibilities are combined as a singular improvement action. Another thing of note is that when choosing the final proposed actions, the actions that had an overall improvement on all future PPP's were selected as actions. Certain process type developing ideas can also be applied but they were not proposed as the actions aim is to improve the overall process.

Most mentioned challenge was the manual monitoring and tasks that are included in the process. Although having a unique product code for promotional products would solve many of the challenges presented, it was viewed that this would require massive fundamental changes to other company areas. Product codes separate different products and promotional products are very similar to the original product. New product codes also require customer acceptance and introduction as a "new product". Case company has a protocol on new product code opening which would be bypassed if promotional products would have a unique product code. Display package promotional products has utilized a unique product code since the 3PL provider does not utilize alternative production version in their manufacturing. The promotional product unique codes could be a future possibility but would require changes in ERP master data management policies inside the organization.

This means that the focus on promotion planning process technical improvement needs to be on new monitoring tools for ERP systems and other relevant software to make the controlling of demand and supply more efficient than currently. The above-mentioned tool for promotion product inventory control is a great example. These types of tools could be utilized in other systems that are used for demand monitoring. ERP tools that simplify the control or inventory levels and demand changes ease the load of manual inputs currently

required. These tools also need to be informed so that each participant is aware of them existing. ERP systems are extremely comprehensive and as such it consists of multiple transactions. Finding the right one, especially if it is not commonly used, can be difficult. Specifications of future ERP system improvements should listen to the opinion of the PPP participants.

The regular meetings between process participants would be an adequate method of communication throughout the process. Process check-up meetings would help with multiple process challenges. Regular meetings would unify the teamwork between the cross-functional process team. It also simplifies communication throughout the process and makes sure of the people involved in that process. Meetings are better than direct communication because that makes all parties informed of the progression. Meeting agendas should involve the current actions on a process, discussion on the difficulties that have been detected in the planning process as well as possible future challenges. The frequency of these meetings would vary depending on the length of the promotional campaign. Multiple meetings should be before the launch since it is important to stay on schedule and get all process stages completed in the accepted time frame. Required participants involved in the meetings can be evaluated in the later stages when some departments do not have a real role in the process anymore.

A suggestion for improving communication about the changes in demand would be to involve the sales department to the process as well. This means that they would be familiarized with what actions it requires to make the demand changes possible and what planning-related limitations there is for promotion campaign changes. The objective of this is to improve the communication about demand changes to the planning organization. Even though this is not a normal operation in the company, the nature of promotional products and the planning process requires special considerations.

In the launch meeting, the characteristics of the promotional campaign should also be expressed clearly. By knowing the limitations, the PPP participants can point out the limitations of the campaign. Planning departments can inform people about how much the demand can change and what is the last possible time to react to the demand changes. The limitations regarding the material deliveries can also be expressed (what is the earliest possible campaign start and when are extra material orders still possible). Most important characteristics are the preliminary demand, campaign schedule, the possibility of campaign schedule to

change and flexibility of the schedule. These factors determine how the supply planning is conducted during the process and can inform the limitations from product availability view.

The responsibility analysis should also be made for each process stage for clear role definition. It also displays the process stage actors who they should be in contact with regarding the task and its completion. The promotional planning process includes various steps that are not typically done in e.g. new product launch process or planning of standard product manufacturing. This means that the responsibilities are not as clear for these process stages as well. Process owner is also suggested to be determined. The process owner should be from a department that is well involved in the process. According to appendix 1, demand planning function has the most different process stages responsible for completing (8 different steps in total). They are also the main planning department in communication with the demand changes and schedule changes. Demand planners also have responsibilities on all process chronological phases (pre-campaign launch, during the campaign, after the campaign). They are the most viable department in taking the responsibility of owning the promotion planning process.

The last suggested action is the definition of the KPI metrics for the PPP. Determining the process metrics helps tracking future promotion planning process' success. With metrics the difficulties in the processes can be distinguished. The KPI's help focus on the most relevant improvement points in the process and provides a method of prioritizing certain process stage development if the resources are limited. However, it needs to be remembered that the development and monitoring should not be conducted purely by the KPI's since they might not tell the whole story. Process metrics need to be carefully analyzed and developed so that they truly focus on the process and its key outcomes. All of the suggested actions are summarized in table 6.

Table 6. Suggestions for promotion planning process development actions

Development action	**Effect on the process**	**Limitations**
Developing ERP tools that help planning and monitoring of promotion planning products	Decreases manual labor on ERP system management for promo products. Simplifies multiple process tasks (demand and supply revision and adjusting)	• Company resources for ERP development projects • Program capabilities

Arranging regular process progression meetings	Unifies the cross-functional team. All relevant participants are informed about the progression. Standardizes communication methods for future projects as well.	• Time constraints • Relevancy of meetings for all participants • Meeting occurrence cycle
Involving the sales department to the promotion planning process	More efficient communication on demand and promotion schedules	• Identifying the appropriate proportion of involvement
Conducting a responsibility analysis using a RACI matrix	Clears process roles for all participants	• Not conclusive but a guiding analysis
Making demand planning department the process owner	Process owner determination helps the further development of the promotion planning process.	• Time constraints when it comes to development projects
Clear definition of campaign-related limits from the planning view	Planning organization is made aware how the promotional products can change and can inform about the limitation from a planning standpoint regarding a specific promotional campaign	• Campaigns where limitations are not easily recognized
Defining key process indicators	Allows tracking the process successfulness. Helps identify if development possibilities have effects and recognize key difficulties	• Effect of non-process-related matters on metrics • Difficulty of identifying relevant metrics

In total, 7 different actions were suggested from the original 11 development ideas (appendix 2). The actions aim to cover all 3 recognize process challenge categories (fundamental, technical and communication related challenges). Table 6 also includes the limitations and notable possible challenges for each development action. Resources and time limitations relate to the current workload of different departments. Work models need to be adjusted so that some development actions can be adopted.

6.3 New process model

After the development actions have been determined, the new process model can be determined considering the improvements. Designed to-be model supposes that all the suggested actions have been successfully implemented to the promotion planning process. Some

improvement methods do not make a visible change to the process model itself. They rather aim to simplify the process stages. The new process model is presented in appendix 3.

The new model has added the sales department to the process. They provide the information about the preliminary promotional product demand to the project launch meeting. In the new process, the sales department also reviews the demand and informs about them to the demand planner before they likewise inform the production requirements to the production planner. This ensures that the production plan created before the campaign keeps up with the actual demand forecasts, which may differ between the real promotional product requirements and the requirements shown in the ERP system. Sales also has a process stage while the promo is active to inform about changes in demand immediately. Since demand may vary a lot, it would be best practice to determine a borderline on how big of a deviation of previous demand should be informed. Like other process phases during the campaign, the demand review should happen regularly while the campaign is active.

The second change to the original process model in appendix 1 is that marketing has been given the responsibility to arrange the check-up meetings after the packaging design. As mentioned, the frequency of these meetings is promotion campaign specific. At least these process points should follow a check-up meeting: when the master data of promotional product is inputted to ERP (material codes opened, BOM updated, production version created, and promo added to the table) and when the demand is confirmed by sales department right before the launch of promotion. Additional check-up meetings could also be considered, or the frequency can be determined in days instead of process stage progression. Marketing is also responsible for arranging a project end meeting. This meeting is meant to revise the process KPI's on this process, reflect on the difficulties that occurred in the project and considering the improvement possibilities in the future promotional campaigns. This would be important to conduct right after the campaign has ended while the problems are still memorized.

Other improvements aim to simplify the process tasks related to process stages, make the information flow throughout the process more efficient and to ensure continuous development and teamwork throughout the process. These improvements are not visible to the process model itself since they do not eliminate the requirement of certain process stages. Compared to the current process, the new process model enhances cross-functional teams

communication and collaboration across the process. Changes are also made to the project launch meeting agenda by determining the promotion campaign's flexibility.

If the resources on project development are limited, a prioritization ranking for proposed actions is determined. The prioritization of development actions signifies which development actions would be most urgent to be implemented. A few factors affect the priority rankings: how simple it is to implement, how important is it deemed and how much fundamental change does it require (major changes may take time to implement and get everyone on board on the development action). Since all the 7 proposed actions were selected based on realism, none of them require a major fundamental change. The process requirement change is relative to other proposed actions. Table 7 shows the priority ranking of proposed actions (table 6) implementation. Table 7 has two criteria besides the priority ranking, these being the simplicity of implementing the action (simple, moderate and difficult) and current importance (high, moderate, low) of said action to be implemented.

Table 7. Priority ranking of proposed process development actions

Action	**Simplicity of implementation**	**Importance**	**Priority**
Arranging regular process progression meetings	Moderate	High	High
Defining key process indicators	Simple	High	High
Conducting a responsibility analysis using a RACI matrix	Moderate	High	High
Developing ERP tools that help planning and monitoring of promotion planning products	Difficult	High	High
Involving the sales department to the promotion planning process	Difficult	High	High/moderate
Making demand planning department the process owner	Simple/moderate	Moderate	Moderate
Clear definition of campaign-related limits from the planning view	Simple	Moderate	Moderate

As table 7 displays, five out of the seven proposed actions are deemed to be of high importance. Simplicity varies between the actions. Process progress meeting implementation is important because improving the information flow distribution is key for the promotion planning process. Key process indicators are required for tracking the process success in the future. Responsibility analysis via a RACI matrix clears the roles and helps departments involved in the process understand their involvement in the entire process. Even though the ERP tool development is of high importance, it might not be quick to implement since they require projects of their own. However, since advancements have already been made regarding the promotional product ERP tool development as mentioned, this improvement action is deemed realistic. Involving the sales department in this process requires new working models and increases the cross-functional team. The involvement might prove to be difficult especially in the beginning. However, it is deemed highly important. Determining the demand planner as the process owner is simple on its own. However, learning the responsibilities and accepting as well as embracing the process ownership is not as simple. Compared to other actions, this was deemed of moderate priority currently.

Two of the seven proposed actions are conducted in this thesis. Process measurements and responsibility assignment were both the topics of the workshop (second phase of data gathering, figure 5). These were notified challenges in the process already during the phase 1 preliminary challenges collection stage.

6.4 Responsibility assignment

One of the agendas of the process improvement workshop was to conduct a responsibility analysis using a RACI chart. Participants gave their comments on responsibilities in the process and the role determination was therefore made for each process stage. The responsibility assignment version was made based on the current process design. Responsibility assignment was conducted based on the ideal outcome of dividing responsibilities within the process. Since the new process model does not remove any previous process steps, only adding new ones, then the current process model-based responsibility assignment was used as a basis for the new one. Appendix 4 includes the responsibility assignment of the to-be process model. The persons responsible of conducting each process stage (noted with “R” on the chart) are in line with the swimlane diagram’s (appendix 3) responsible department.

As appendix 4 shows, only one responsible acting department has been determined for each process stage. Out of the total of 24 unique process stages, 6 of them have an accountable role as well as a responsible role. In the process stages without an accountable role, the responsible department is also accountable. None of the process stages include a role for all participants (note that this is the case only if the sales department is involved. If they are not included, the process meeting arrangements includes a role for each department).

Responsibilities regarding new process stages are divided as follows: The demand change checks are conducted by the sales department. Before the project launch meeting, sales informs the preliminary demand to the marketing department, who then know to add that to the project's estimated demand. Sales department also informs the possible changes right before the preliminary production plan is planned to be formed. Then, during the promotion campaign, all significant demand changes should be directly informed to the demand planning, promotion planning and operative purchasing. This allows the maximum reaction time to revise the plans and enquire about the possible extra material deliveries if necessary. Besides the launch meeting, the marketing department is also made responsible for arranging the project progression meetings and the end meeting. Participants involved in the end meeting may vary if some departments are not viewed as necessary. End meeting should involve all organizations apart from the sales department.

6.5 Identification of process measurements

As well as the responsibility assignment, the process measurement identification was also part of the process improvement workshop agenda. Ideas about possible KPI's for this process were brainstormed in workshop groups. Thesis writer also gave ideas about process KPI's. In total, 4 process metrics were selected that depict the successfulness of a promotion planning process. As mentioned, the project end meeting is a good place to go over on these metrics performance for each individual promotion campaign project. Relevancy was the main motivator on choosing the final metrics. Four measurements were eventually chosen based on the process core values and workshop discussions. These four metrics were delivery reliability, material disposal value, product excess after the campaign schedule and forecast accuracy.

6.5.1 Delivery reliability

Delivery reliability is an important metric when it comes to customer satisfaction. Delivery reliability is also called “on time in full” (abbreviated as OTIF). The promotion planning process aims to please customer demand and to have the deliveries on right time, in right quantity and in the right location. This is the core objective of the entire promotion planning process. The case company already measures their delivery reliability percentage, and it is noted as a KPI in the organization’s data analytics. Delivery reliability is measured using the following equation:

$$OTIF - \% = \frac{Total\ orders - OTIF\ error\ orders}{Total\ orders} * 100 \quad (1)$$

In equation 1, “perfect orders” refers to the amount of orders that have been successfully delivered to the customer without deviances (desired quantity, schedule and location). OTIF-% in equation 1 is measured as a percentage of total orders and depicted as percentages of total orders. Delivery reliability can be focused on certain time periods or specific products, e.g. delivery reliability for one promotional product throughout the campaign. Customers report the order errors if they have deviancies. These are referred to as OTIF errors. Errors mostly occur due to the product not being available for orders in the warehouse. This in turn can be caused by an unexpected rise of demand, material shortages or production challenges.

Delivery reliability is currently tracked for all the case company’s end products and is reviewed on a weekly basis. It is therefore a natural metric of choosing. Target level of delivery reliability is set for 96 % for entire production units. Since promotional products have a priority due to the investments in marketing and product launch as well as the objective of boosting sales, the target level should be set to a higher value to emphasize their importance to the case company.

Since delivery reliability is already tracked for products in the company, the data can be used to showcase how delivery reliability has been for former promotion campaigns. Figure 7 depicts the OTIF-% of promotion products from former promotional campaigns. 6 different promotion products were selected for this examination. All the utilized example promotion

products have been renamed for this thesis. Products A and B are an annually conducted promotional campaign for chocolate candies. Products C and D are different sized display promotional packaging and part of the same campaign as product B. Product B is simultaneously used for display products C and D and it is also sold as its own end product to customers. Product E is a packaged bakery promotion product. Product F is a promotion product for sugar candy bags. All of the selected product's promotional campaigns are in the date ranges 1st of January 2023 to the 1st of May 2024. The length of this campaign varies between products.

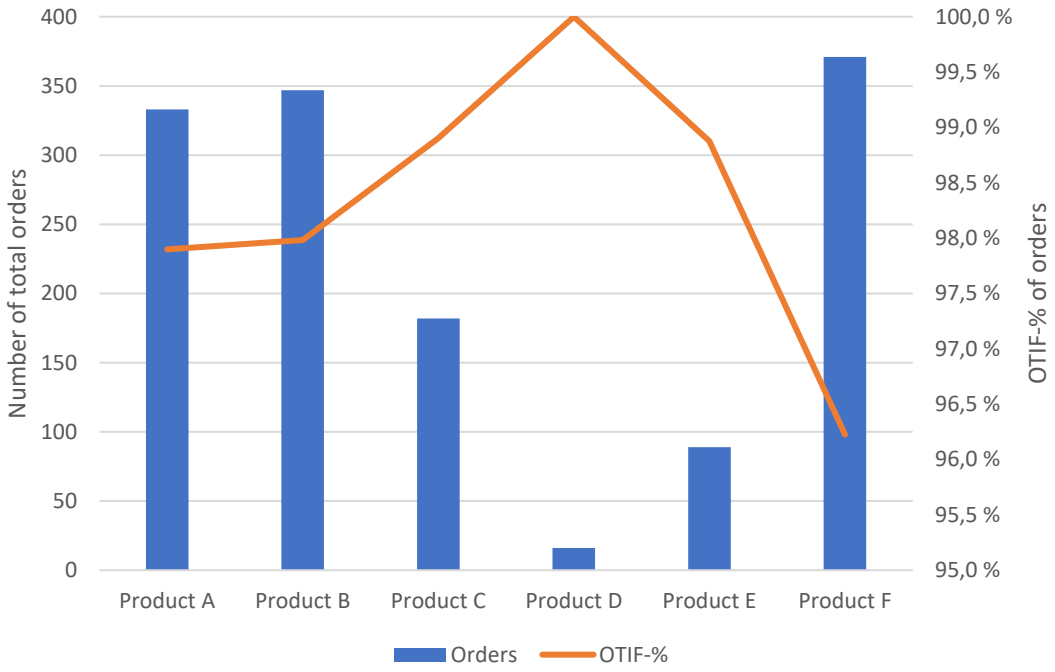

Figure 7. OTIF-% and total order count of selected former promotional product campaigns

Figure 7 demonstrates that Product F had the highest amount of orders as well as the lowest OTIF-% out of all the selected promotion products. Product D was the only promotion with all of the orders being regarded as perfect customer orders. However, with only 16 different orders, product D had clearly the least amount of total orders out of all the 6 promotional products. All of the selected promotion products exceeds the overall target delivery reliability level of 96 %. The average OTIF percentage for these 6 promotional campaigns was 98,3 %.

6.5.2 Value of material disposals

Material disposals is also commonly tracked in the company, mainly by the purchasing department. The disposed material leads to unnecessary costs for the company and therefore it is extremely important to balance the material requirements with the actual product demand requirements. Since promotional packaging materials are not typically reusable later on, the balancing is extremely vital in their case. Successful planning negates the need for material disposal. It is therefore an adequate metric to depict the planning process performance. Equation for material disposals is as follows:

$$Material\ disposal = Total\ material\ delivered - Total\ materials\ required \quad (2)$$

Material disposal is best displayed as the monetary value of disposed items. "Total materials required" refers to the required (promotional) packaging materials for all products planned for manufacturing. In the case of display packagings, there might be multiple different packaging items required for one singular promotion product. All the related promotional material, which can not be utilized for original product packaging, are included for this key process metric. Most promotion processes aim to consume all delivered materials even at the risk of excess stock, since the packaging materials are otherwise obsolete.

6.5.3 Excess inventory after the promotion schedule

Excess end product stock is also something what the planning process aims to avoid. Main objective is to empty the promotional storage locations after the campaign so that no extra items are left there. Balancing the end product is also one of the core values for this process. Therefore, it should also be a key metric. Product excess is a financial metric. It can be depicted as either the product amount or as the value of the product. If promotional campaign end is able to be flexible, it is common practice to extend the campaign's end until all of the promotional products have been delivered to customers (if the demand is lower for the scheduled period than forecasted). This means that extending the campaign is more of a remedial procedure from a promotion planning perspective. The excess production metric should

display how the originally planned time period reflects the manufacturing plans. The equation for this particular metric would be as follows:

$$Excess\ inventory = Total\ production - Total\ demand\ after\ original\ schedule \quad (3)$$

Where "total demand after original schedule" refers to the total demand until the agreed original period. Excess stock and material disposals both are aimed to avoid completely. Especially in the case of non-flexible campaigns, these two metrics performances depend on the quality of the promotion planning process. Implementing these KPI's is a realistic goal as well, since they are either already monitored or the data is readily available from the ERP system. New monitoring methods might be required for thorough process management.

6.5.4 Forecast accuracy

Change in demand forecasts has a major part on the PPP flow and therefore forecast accuracy is determined to be one of the key metrics. Forecast accuracy determines how well the sales forecasts behave over time. Forecast accuracy typically is depicted as follows: The actual sales in a point of time are later compared to the amount forecasted 4 weeks earlier. Forecast accuracy is depicted as a percentage of the actual sales values. The forecasts should have a "finalized date" in which afterwards they can not be changed anymore. The metric is of sensitive nature, since fluctuation of demand affects heavily to its value. Forecast deviancy usually has an error margin, meaning that the fluctuation of actual demand compared to the forecast needs to be of certain significance for it to effect on the forecast accuracy metric.

The uncertain nature of the confectionary sales is clearly reflected in the company's sales forecast accuracy. It is a key strategic metric currently and forecast accuracy is tracked and analyzed in a weekly basis on as small-scale as a singular end product ERP code level. This makes it a real possibility to implement it as a PPP key process metric as well. However, the ability to make a clear distinction between the promotional product and the original product version still needs work.

As a PPP KPI metric, sales forecast accuracy influences the performance of other three determined metrics (material disposal value, perfect deliveries and excess end product stock). Low sales forecast accuracy value may give reasoning on why other metrics perform poorly in a certain promotional project. It is therefore an explanatory metric in this case. Forecasted amount is related to the inquired customer interests in products beforehand. High-quality sales work does have influence on the metric's performance but since consumer behavior can change in an instant, there are multiple environmental factors also involved.

6.6 Review of the results

The involvement in the process varies between departments. Most involved are demand planning, production planning and operative purchasing. Demand planning especially has a part in all three identified chronological phases of the promotion planning process. Production planning does not have a role after the campaign has ended (except in the new model where the project reflection meeting is added). This is why demand planning was chosen to be most suitable for being the proposed process owner.

Most of the proposed actions do not specifically aim to eliminate tasks or process stages. They more so aim to enhance the information flow and the collaboration to all necessary participants and to clear the responsibilities between the cross-functional team members. Most of the emerged problems are related to information disruptions. Thus, the focus on the new process model was on improving the information flow. Setting the standards for communication can be overlooked some times. However, constant meetings increase the cross-functional team cohesiveness and, in long term, will make the collaboration more efficient. Currently all teams work very individually and mostly care about their tasks in hand. The new process model strives to increase the comprehensiveness of the entire process and what value it brings to the case company.

The possibility of unique product codes for all promotion products should be researched in the future. This would avoid multiple manual tasks without the need of ERP tool improvement for promotion products. The effects on new product code introduction policies and the changes to customer storage control affected by unique material codes need to be considered as well. From a planning perspective, the unique material code introduction would be a straightforward method to decrease the amount of manual tasks related to process. In the

case of promotion planning process, unique material codes would simplify multiple process stages and even eliminate the creation or update of a production version for each promotion campaign. Especially if there are difficulties related to ERP tool development, it seems like the most adequate way of improving the current process.

Two of the four proposed metrics depict financial performance. The third, delivery reliability, is related to customer satisfaction. Efficiency and quality-related metrics, which are also main areas for KPI definition, were not proposed. Metrics of these categories could also be considered. The three mentioned are however extremely critical when it comes to the process's success. Considering that the amount of performance metrics should typically be the least possible, it should be avoided introducing numerous amounts of new metrics besides the three already determined ones. The process flow efficiency was not specifically examined in this research.

7 Process management actions

Promotion planning process worked as an example on how the process development can be managed for cross-functional processes. A problematic process such as the PPP might not always have a clear “fix” to it. By implementing an action plan for process development, the management of cross-functional processes is also more efficient. Development tools and methods utilized in the thesis should be considered for validity in other processes. They can be fine-tuned to meet other processes’ development requirements since processes may have different issues between them. The thesis aimed to provide general development actions which can be utilized for other cross-functional processes as well.

7.1 Key concepts for company’s process management

The PPP development example in the thesis also showed the key focus points for cross-functional process management and development. Focus points can be taken as the actions that case company should conduct when it comes to challenging cross-functional processes. The focus points are also explained why they have been chosen out of the many introduced key points of emphasis for process management. Process management focuses on not only the development of processes but also process performance and quality management, process responsibility alignment and comprehension of the entire processes and how they effect on the company.

The case company has already used different methods for process management, such as process models, process cards (which depict the core ideas, objectives and programs utilized on a process, similarly to a business model canvas but in a process view) and process management frameworks (such as lean methodology for production processes). These already standardized methods for managing processes are also utilized because they have been found useful in other process cases. Main point of process management is to comprehend the entirety of the process, what value it strives to bring to the customers and to the company and what are the key points of emphasis. By introducing an action plan for cross-functional process management, the case company has a distinct approach to managing the process in the future and the time is therefore focused on conducting the actual process development and

management rather than pondering the methods how the process management should be approached.

Four key areas of emphasis on process management were recognized based on the conducted development research on promotion planning process. These are felt to be the most important activities and views to the process management itself. The four distinguished key areas make the process management focus on the relevant points about the process management in cross-functional process setting. The presented action plan also tries to be general so that the actions are useful in a wide spectrum of process types.

7.2 Data gathering from the cross-functional process participants

The importance of data gathering from the process participants themselves can not be overlooked. The data referred to means mainly non-numeral data, such as the views and ideas gathered for the PPP development. The data gathering should start with the current process modelling all the way to the process development implementation. They have the best experience of the process flow and especially of challenges within the process. Most likely the same people are the testers on the new process models as well therefore their input on the process improvement is vital. In the PPP improvement process, the input of the participants helped the thesis writer to understand the process as well since they had no former experience on participating in this process. Views of the management and the subordinates related to the process are both important. Participants from different hierarchical positions should be included in the process development.

All cross-functional team members' input is important as they all have very different ways of viewing things. This also helps identify the most significant challenges (if they are identified as issues by multiple departments). The amount of participants involved in the process should be irrelevant when it comes to their input credibility. It is normal for cross-functional teams that some departments focus is only on specific parts of a process. When conducting the PPP improvement, many participants pointed out that they were not formerly aware of what process stages does the entire promotion planning process consist of. Involvement in the data gathering therefore also helps the members knowledge on overall process and may broaden their view on the process itself. Gathering input and discussing with the cross-

functional team participants ensures that the process models are accurate and that everyone is on board with the proposed process changes.

Data gathering process on the PPP included was conducted in a team. This is also preferable to an individual data gathering because group discussions lead to multiple new findings about process and makes the cross-functional team more united. Like mentioned, the PPP had improvement on the cross-functional team cohesiveness to improve the information flow. The group discussions for experience and opinion data gathering are a good start of group cohesiveness improvement and may make participants more likely to improve the teamwork in the future. The topics of the PPP workshop can be utilized for data gathering in generally each type of process. Starting with value creation clears up to the participants what is the process trying to pursue and why is it so important. The workshop agenda can be modified if necessary.

7.3 Focus on relevant challenges

As mentioned, the resources for process development are typically limited, signifying the need of finding the most important issues to tackle. In the PPP improvement process, 7 were finally chosen of the 11 presented challenges (appendix 2). There most likely will occur a situation where the cross-functional process challenges require prioritization. Most critical challenges should have the most attention when it comes to development. Combined solutions are preferable to answer multiple similar challenges.

Relevant challenges may not be simple to recognize. Process participants might be blind to some challenges since they have gotten used to working in a particular way. They might not even know that some action is unnecessarily difficult or too challenging to conduct considering the output it brings to the process. These are a few things to consider when pondering about some flaw's relevancy:

- How big of an effect does it currently have on the process?
- Does the challenge have a clear "fix"?
- Does the challenge affect multiple participants?
- Does the challenge have a direct effect on the process output (main value)?

These four questions could be considered if finding difficulties in recognizing key challenges. They help determine the prioritization, which was conducted in the example process development priority listing in table 7 as well.

When pitching for development ideas, the weight of realism of implementation should not be too massive. It is better to have slightly utopistic ideas compared to current work models, especially if they seem to be a viable solution to a glaring issue in the process. This would make the involved persons in the process view the process more critically and encourages the outside-the-box thinking when it comes to new developments in a process (like the case of new promotional product code for PPP). Process management should encourage creative thinking culture in the company and hinder the type "it has always been done like this so it should always be done like this" type of thinking. Even though the immediate focus on process development should be on the easy-to-implement ideas, the door should not be closed for more fundamental change-requiring ideas to be utilized in the future.

7.4 Evaluate the current teamwork of the cross-functional team

In the case of information flow-based processes, like the PPP, cross-functional process teams collaborative skills can make a noticeable difference for process stage challenges and process outputs. As mentioned, some participants felt that the case company's departments are too separate from each other and mainly focus on their jobs at hand. For the cross-functional team to operate efficiently, the cohesiveness of the team is an important factor. The planned extra meetings for PPP hoped to unite the participants to work for a common goal which is the PPP output in the example on this thesis.

Making a distinction between collaborative challenges and other challenge types is a good method of recognizing what work does the teamwork in particular need. Standardized communication methods and meetings after certain process thresholds are a good method of making the communication continuous and standardized. Meetings are the best practice since these indulge cross-functional conversation. However, they need to be presented in a way that the meeting atmosphere encourages everyone to give their views. Messaging via communication channels is a secondary option and is viable if there are scheduling difficulties.

An optimally working cross-functional team should have the following characteristics: they should be open to the cross-functional team about issues and concerns in the process, everyone has a feeling that they can express their own view and all participants use critical thinking throughout the process. Each department has their own biases and views. Neutrality on the matter is not required, since different viewpoints give new insights to other members of the process team as well. Enhancing teamwork via standardized, regular communication methods may help reach the optimal state of a cross-functional team.

7.5 Conduct a responsibility analysis & assign a process owner

Responsibility analysis does not seem to be a standard practice in the case company in process management. This was a surprise and many of the PPP participants found it to be a great improvement on current process management. Even if unclear responsibilities are not a defined challenge in a process like in the case of PPP, a responsibility analysis such as RACI chart should be a standard action for processes. Many of the PPP participants were pleased that a responsibility assignment was conducted. Swimlane, which show the main actor of a process stage, were utilized already for process management in the case company. However, a clearer role definition helps each function know their responsibilities on the process better.

Responsibility analysis should go deeper than just “who is the one conducting said task”. There are multiple ways a process stage is relevant and how they require involvement from each function. This is why deeper responsibility analysis is supported. They are usually conducted at the start of projects. Each promotional campaign can be considered an individual project, thus making the responsibility assignment analysis relevant to be made a standard practice in the future. The PPP RACI chart (appendix 4) is not an ultimate version. As the process continues to evolve, the responsibility assignments also may vary. Changes may be affected by further process development, new IT programs relevant to process flow or organizational changes. The responsibility analysis should also be updated accordingly if it no longer seems realistic or viable.

Process owners should be clearly informed and their responsibilities should be assigned accordingly. They are mainly in charge of the entire process management. In the case of cross-functional process, a department should be declared as the process “owner” since individual processes may have varying responsible actors from different departments. Like in the PPP,

the determined process owner should have the most comprehensive view on the process as well as being deeply involved to the process. Process owner responsibilities may not be crystal clear, and the determined owner needs to be informed of their duties. Admitting a process owner makes the continuous development of a project. In the case of PPP, the continuous development culture was especially lacking. The entire cross-functional process team should be aiming to develop the process and the responsibility should not be only on the process owner. This mindset requires a development-encouraging culture within the entire organization.

7.6 Implement key process indicators for future process tracking

The means of measuring the process success is also vital. Process indicator data can be tracked with little effort since the case company already has a great data handling infrastructure (organization-wide ERP database, multiple support programs for data handling and reporting). Data-based process tracking supports the development need and can help identify which processes performed poorly. The process indicators require realistic target and limit values. Processes which perform poorly by the metrics view should be examined thoroughly. If the selected KPI's are accurate when it comes to process value creation monitoring, then there should occur deeper process issues and thus new development opportunities arise. In an ideal situation, the selected KPI's would cover all the process metric dimensions (time, cost, quality, and flexibility) (Dumas et al. 2018, 59).

It is best for process management if the process data is analyzed while the individual process noteworthy events are still memorized. This is the main reason the end project meeting was implemented to the new PPP process model (appendix 3). Likewise, in the case of processes which have performed well, the positive parts should also be reported. This brings an example of good execution, and it may even be utilized for other processes management as well. The focus of process management should not only be on the negatives, but the positive aspects should be brought up to the same level.

8 Conclusions

The main objective of this thesis was to find the key focus areas on management of cross-functional processes in a confectionery manufacturing company. The focus areas were chosen based on the development of a process that was found to be challenging. Evaluation of the conducted research and the accounts the limitations related to the research execution as well as the general usefulness of the action plan in the future. Contemplating on how the action plan can be refined for more general utilization on processes is also considered. Focus on this chapter is on the main findings, since the promotion planning process improvement results were already analyzed earlier.

8.1 Results & findings

The 5 identified focus areas all provide a different angle on how cross-functional process management should be approached. Most of them are related to the development of process. However, a major part of process management is the continuous development and progression of processes. Instilling such culture in process management is what the actions also aims to. By implementing clear and precise focus points, the case company has a distinct direction on how to tackle the challenging cross-functional processes. These focus points objective is to provide a guide if there is no previous experience on what to focus on regarding process management.

Teamwork is rarely seamless for cross-functional processes due to seldom collaboration between members besides the PPP. Although company has multiple promotional campaigns, it is possible that each campaign has completely different participants due to different basis of responsibility distribution. Certified cross-functional teams for certain regularly occurring promotional campaigns is also difficult due to the internal changes in company departments. This is why standardized methods of communication and collaboration are highlighted. Setting standardized communication methods assures that information flows through all relevant departments in processes.

Three out of the five focus points (relevant challenge distinction, responsibility analysis, key process indicators) can be utilized for function-internal processes as well. The data gathering and teamwork evaluation are of cross-functional cohesiveness improvement. It needs to be noted that most of the company's strictly function-internal processes are considered to be a "sub-process" of a larger system or process. The cross-functional elements are required since most modern supply chain processes are of cross-functional nature. All five points can be applied to processes of external reach as well. Those types of processes highlight the teamwork focus even more due to the company-varying work habits, programs and internal responsibility differences.

Another important thing of note is that these are not definitive answers for solving cross-functional process challenges. Other focus points might appear dependent on the process which might hold value. It requires situational consideration from the project management team to identify if some areas require more attention than one of the mentioned five areas, then that should be prioritized accordingly. However, in a scenario where e.g. key process indicators have been determined or the process already has a responsibility chart, their relevance should still be re-evaluated. Processes changing over time is natural. This means that support systems, such as the progression monitoring tools and development methods should be updated over time as well. Case company's PPP process already had previous process models created, yet the process modelling session proved that it needed more clarification and consensus opinion on how it the process flow actually works.

8.2 Reliability and validity

The noted challenges of the PPP and the development possibilities can be considered reliable, since they have been discussed and approved by the case company's employees participating in the data gathering. However, due to the sheer total amount of involved people in PPP projects, only a selected few was involved in data gathering. This means that some opinions might have been left out from the qualitative data documentation. The selected people have been involved in numerous promotional projects and therefore their opinions can be considered valid. Some participants also only attended in one of the two stages, which may effect on their views on process development since they had no input in the other data gathering phase.

The PPP development process execution may also have a difference in results. Only the first stage of data gathering, current process modelling, was conducted by a meeting where all participants attended at the same time. The workshops was conducted in smaller groups rather than a longer session involving all participants due to scheduling difficulties. It needs to be noted that had the workshop also been in sessions involving all of the participants, the effect would be seen in the results. The division of groups most likely affects the RACI chart creation, since that, like the process model, would benefit from cross-functional discussion and agreement to have a unified outcome. Input on the RACI chart was enquired after the workshops as well to create a unified solution. If similar methods were to be used in future process development projects, arranging a singular long session with all participants involved should be considered alternatively.

Even though the process management key actions were generalized for future use purposes, they are based on the same process' development process. They may therefore show bias for this process' management. Actions could be redefined based on what seems to be other cross-functional process' key management points. Validity of the noted focus areas can be examined by applying them to another process which have notified challenges. If the challenges are similar to the ones in the PPP, then the focus areas are most likely valid to that process as well.

8.3 Future research

The thesis results present new research opportunities for the company. As mentioned, the application and relevance of the defined focus areas can be analyzed for a completely different cross-functional process. This would show if the focus areas were applicable to other processes as well. It needs to be noted that the state of the process' management should be as similar to the one in the PPP (some process identification methods applied, some development possibilities noted but no updated model or systematic process development plan was instilled).

Since lean methodology is already applied in some company's processes, their relevance when it comes to information flow-based processes could also be applied. Lean focuses on process flow efficiency. The thesis did not explore this opportunity, more focusing on improving the quality and reach of information rather than the time-related efficiency of it.

Even though lean methods are more easily applied to material flow-related processes, possibility of them upgrading the PPP from its current state should not be overlooked. Processes that require manual ERP related tasks might make use of lean thinking.

Generalized methods could also be determined for cross-functional process management. The thesis provided a framework for cross-functional process' management. Based on the action framework, suggested methods could be determined. For example, RACI chart could be a standardized responsibility assignment model. Case company does already use these, e.g. a standardized process description method. Multiple options should eventually be considered since choosing the definite one is best to do when there are other models to compare.

The validity of the new PPP model should also be tested and studied. The first stage is to begin the development of the process itself based on the proposed actions. Thesis already provided the new model, responsibility chart and the KPI determination. After implementing the improved process actions, the effects of it can be monitored in practice. Case company has promotional campaigns throughout the year and therefore testing it in practice is possible rather quickly.

9 Summary

This thesis focused on identifying the key points in cross-functional process management through improving a challenging cross-functional process in a large-scale Finnish confectionery manufacturing company. Case company already utilized different process management methods and focuses on process management, especially for production processes. However, planning processes such as the promotion planning process have been identified as problematic. Case company felt that the promotion planning process could use a detailed development plan on how it could be improved.

Process management tools such as modelling and development of processes are familiar in the company. Planning processes require a different approach however, and they do not have a clear development plan. Communication and co-operation for cross-functional processes, such as the promotion planning process, could use some improvement as well. Promotion planning process refers to the planning of manufacturing for promotional products (standard catalogue products with a specific promotion-related packaging material) according to the forecasted demand.

Thesis utilizes qualitative data from process participants in regard to current process model, process value, challenges and development possibilities in the process. Data collection was divided into two phases: first phase was the current process modeling and initial challenge identification. Current process model is displayed in appendix 1. Second phase was a "workshop" conducted in small groups. Workshop agendas included value creation in the process, challenge distinction and development ideas. Attendance for both meetings was from departments which participate in the promotion planning process.

Out of the mentioned challenges, seven were comprised into process development actions based on the importance and realism of implementation. Main challenges included effects of sudden demand change to the process, uncertain responsibilities, intermittent communication about demand from the sales department and multiple manual process-specific tasks related to product's ERP master data. Seven actions were assigning a process owner, conducting a responsibility analysis, determining key performance indicators for the process, focus on developing ERP and other internal IT tools to improve the monitoring of

specifically promotion product demand and manufacturing, incorporating check-up meetings throughout the process as well as an end reflection meeting, involving the sales department more to the process and clear definition of promotional campaign-related limitations.

After identifying the key process development actions, the new process model was created assuming that these actions were implemented (appendix 2). Out of the development actions, the responsibility assignment was conducted using a RACI chart (appendix 3) and key process indicators were determined (excess end product inventory after promotion campaign, perfect order reliability, packaging material disposal value and forecast accuracy of promotion products). For process ownership, the demand planning department was suggested due to their role in the process as well as responsibilities throughout the entire promotion planning process. A master data-related change in ERP system was also considered, but it was not finally suggested as it would need fundamental changes in company's master data management policies, proving it to be difficult to implement. Priority ranking (table 7) was also conducted for improvement actions if resources are limited or changes want to be implemented by staggering them.

Developing the promotion planning process helped identify the main emphasis points for cross-functional process management. The cross-functional process participants should be utilized for feedback and data gathering for process improvement. This makes the suggested process improvement actions realistic, and the participants committed to the development. Relevant challenge identification is second. It may not be straightforward to identify the key challenges. Focus should also be on challenges designed to answer multiple challenges. The current teamwork status of cross-functional teams should also be considered. Since these departments have different views and perspectives, enhancing the teamwork may eventually lead to making the entire process more efficient. Conducting a responsibility analysis is important as process responsibilities are not self-evident to all participants. Key process indicators should also be determined, since this allows the tracking of process progression and automates notifying challenging processes and learn from them.

The identified key areas of cross-functional process management are not definitive and they can be adjusted accordingly if some processes require attention from other perspectives. Future research possibilities include validity of the framework for other processes besides promotion planning process and improved promotion planning process' validity in practice.

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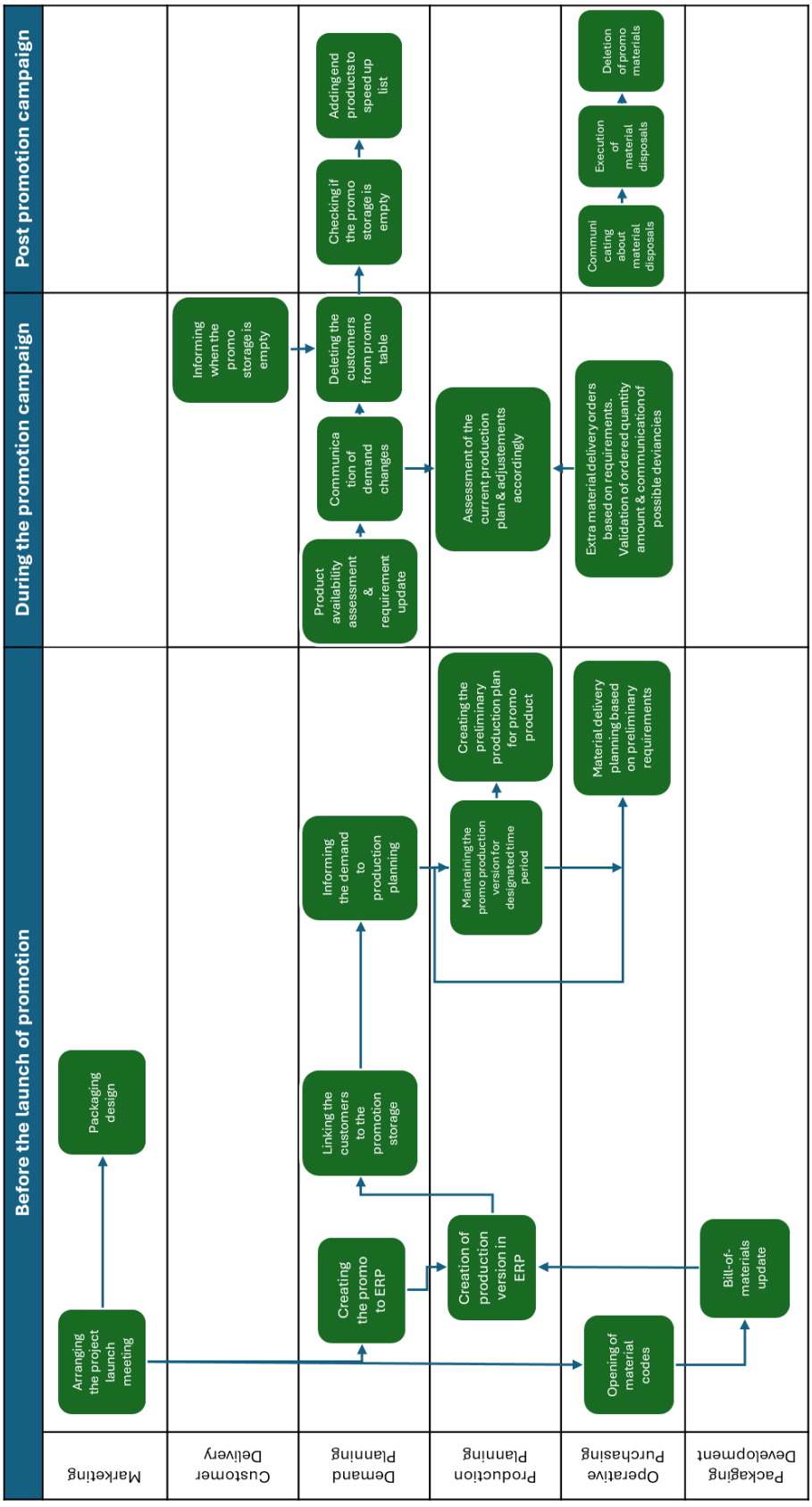
Appendix 1. Swimlane diagram of case company's current promotion planning process

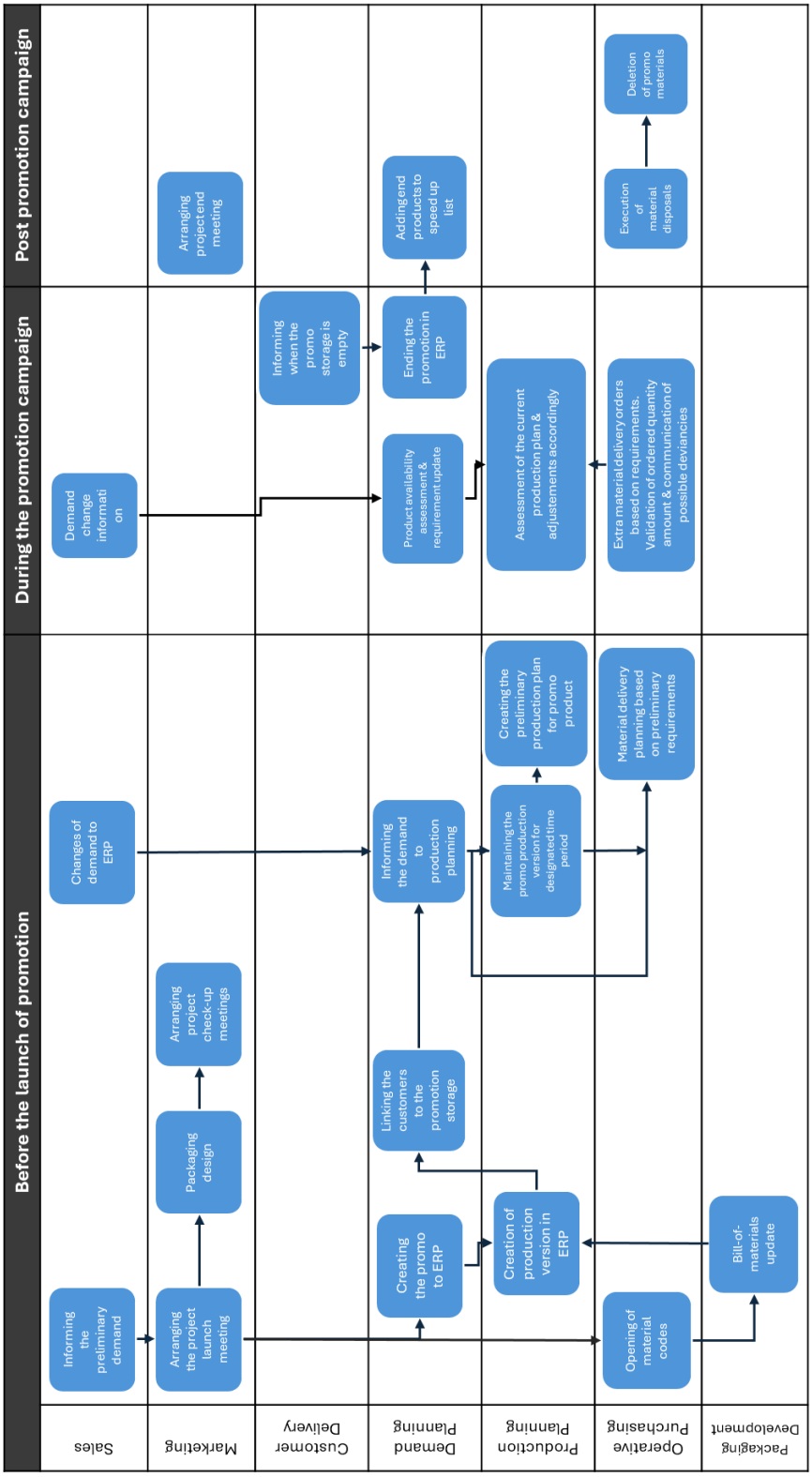


Appendix 2. Mentioned development ideas in the promotion planning process improvement workshop

Development idea presented	**Further description**	**Addresses the following challenges**
Creation of an updated process model	An updated promotion planning process model involving the required and relevant process stages	• Unclear process roles • Comprehension of the entire process
Involving the sales department more to the promotion planning process	Sales department mainly changes forecasts. Them understanding the requirements of changing demand and process stages involved would clarify them the importance of rapid information sharing	• Occasional lack/delay of demand/promotion change information
Agreeing on a fixed quantity of promotion product production for non-flexible promotional campaigns	Fixed manufactured quantity that is arranged prior to the promotion campaign begins. Communicating to the customers about the quantity and the risk of the product being OOS before the promotion schedule ends.	• Costly extra material orders • Challenges related to changing demand
Arranging regular meetings also after the project launch meeting	Short and concurring check-up meetings to know how the process has progressed and for discussions about uncertainties or challenges.	• No clear method of communication after the launch meeting • Unclear process roles • Comprehension of the entire process
Developing the ERP monitoring tools/transactions to apply for promotional products as well	New ERP transactions or improvements that make the promotion product tracking easier.	• Required manual monitoring in the process
Unique product code for promotional products instead of alternative production version	Monitoring the product productions and demand is easier with unique product codes currently in ERP. Especially helpful for reoccurring promotion products.	• Required manual monitoring in the process •

Clear responsibility assignment in the process and defining a process owner	Responsibility assignment would help determining the roles of each actor on process stages. Process owner is responsible of process output quality and especially process development	• Unclear process roles • Comprehension of the entire process
Revision of process roles between participants at the start of the project	Revising who is responsible on what in the process so that the responsibilities are clear for everyone	• Unclear process roles
Utilizing point of sale data for promotional products	Point of sales data helps recognize the demand peaks for the product	
Conceptualizing different promotion campaigns and learning from previous campaigns	Creating new promotional campaign concepts and using past experiences as a reference to the future promotions	
Increasing the teamwork on the process and cross-training between teams	Making the cross-functional team involved more unified. Lessening the risk of being dependent on one individual.	

Appendix 3. Updated promotion planning process swimlane model



Appendix 4. RACI matrix – new promotion planning process

Process stage	Sales	Marketing (brand)	Customer delivery	Demand planner	Production planner	Operative purchaser	Packaging developer
Informing the preliminary demand	R	I		I			
Arranging the project launch meeting		R	I	I	I	I	I
Material code opening						R	A
Bill-of-materials update					I	I	R
Creating the promo campaign to ERP		A	I	R	I	I	I
Creating the production version to ERP			I	I	R	I	I
Packaging design		R				I	C
Arranging project check-up-meetings		R	I	I	I	I	I
Adding demand changes to ERP	R			I	I	I	
Informing the promo product demand	A			R	I	I	
Maintaining the promo production version		C			R		
Creating the preliminary production plan					R	I	
Material delivery plan based on preliminary requirements		I		C	A	R	
Demand change information	R			I	I	I	
Product availability assessment and requirement update	A			R	C	I	
Current production plan assessment and adjustments accordingly		I	I	C	R	C	
Material delivery order assessment based on requirements		I		C	A	R	
Checking when the promotion storage is empty			R	I			
Ending the promotion in ERP				R			
Arranging the project end meeting		R	I	I	I	I	I
Adding end products to the speed up list	I			R			
Material disposal execution						R	C
Promo material deletion from ERP master data						R	