Tampere University of Applied Sciences

Enhancing Communication Efficiency

Case Normiopaste Oy

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ABSTRACT

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This thesis was conducted for Normiopaste Oy, a Finnish company specialising in traffic and infrastructure production with its main premises located in Tampere, Finland. The company which has been operating for 37 years has currently gone through significant managerial changes. New management is seeking to review and enhance its internal communication processes. The primary focus of this study was placed on evaluating and improving communication between four critical departments: sales, design, production, and dispatch.

A mixed method approach is employed in this research, combining both quantitative and qualitative data collection. Surveys were administrated across all four departments to quantitatively assess the existing information flow, with key areas where communication is lacking being identified. Additionally, in-depth interviews were conducted with representatives from each department to provide qualitative insights into the specific challenges and inefficiencies encountered in daily operations. The findings from both methods are then analysed within a theoretical framework to develop actionable recommendations.

The results indicated several critical issues, including poor communication at the employee level and insufficient utilisation of information technology tools which are found to hamper efficient communication across departments. Notably, communication between the design and sales departments is identified as particularly problematic, often requiring follow-ups due to missing or unclear information.

Based on these findings, several recommendations are made to improve internal communication at Normiopaste Oy. Chief among these is the adoption of the supply chain operations reference (SCOR) framework, which would provide a structured approach to standardising communication processes. Additionally, the integration of IT solutions, such as Microsoft SharePoint, is suggested to facilitate better information sharing and maintain transparency across departments. The implementation of these strategies is expected to reduce lead times, improve clarity in communication, and ultimately support the company in reaching its full operational potential.

Key words: supply chain management, information, communication

CONTENTS

ABBREVIATIONS AND TERMS

B2B	Business To Business
CRM	Customer Relations Management
EU	European Union
ERP	Enterprise Resource Planning
IM	Information Management
KPI	Key Performance Indicator
MS	Microsoft
SCM	Supply Chain Management
SCOR	Supply Chain Operations Reference

1 INTRODUCTION

Communication is key in all operations of a business and supply chain management, not to mention our everyday lives. Without properly structured communication channels and methods, the supply chain cannot extract its maximised value to its customers. Communication is the transaction of information from one party to another. In a company, these parties are different departments and operations of the supply chain. This paper is a bachelor's degree thesis written for a commissioning company looking to identify room for improvement in its communication between the specific departments of sales, design, manufacture, and dispatch, thus enabling improvement of their communication and supply chain as a whole.

Normiopaste Oy, a company specialising in road safety and signalisation, is the commissioner company for this thesis. At the time this thesis is written, the commissioner company has just gone through managerial changes resulting in a reviewing of the company processes, including the communication and manufacturing processes. This resulted in the idea for the topic of this thesis: "internal information flow within a manufacturing company." The author of this thesis has been working in the manufacturing department of the commissioner company for three years in the past.

This thesis is research-based to identify room for improvement and give suggestions on how to better the interdepartmental communication of the commissioning company. The thesis researches the company's current state of information flow through two qualitative group interviews and four quantitative surveys. With the help of a theoretical framework, research, and its analysis, the thesis creates suggestions for improvement of the interdepartmental communication at Normiopaste Oy. The company aims to start utilising the thesis by the beginning of the year 2025.

1.1 The objective of thesis

The objective of this thesis is to create research-based recommendations and enhance the current internal information flow between the sales, design, production, and dispatch departments of the commissioner company, Normiopaste Oy. The objective is attained by first mapping out the current information flow of the company by researching and identifying the areas of criticality. After clarifying the current state of the information flow of the respective departments, the thesis author can develop recommendations with the help of a theoretical framework. The secondary objective is to help the commissioning company improve its business operating process as a whole by mainly improving its communication.

1.2 The purpose of the thesis

The primary purpose of this thesis is to enhance the information flow between different departments of the supply chain at the commissioning company, thus unlocking their full potential. These departments are mentioned in the previous section. The purpose arose from the author's idea to help Normipaste Oy, a company he has worked for three years in the past. A secondary purpose is to help other manufacturing companies improve their information flow and give relevant data and results for future research and thesis, given this thesis is published for general use.

1.3 Thesis topic

The thesis topic is internal information flow within a manufacturing company. It especially focuses on renewing information flow and researching for better information flow models and concepts. This topic was found by the new production manager of the commissioning company, as he saw improvement points within the first week of starting in his new position.

1.4 The research questions

The research questions are based on the above-mentioned purpose, objective, and most importantly, the topic of this thesis. There are two main research questions and one sub-question. These together guide the research keeping the thesis clear and helping reach the objective and purpose. Moreover, the thesis gives a mapped-out current state of the company's information flow, which in essence will help the production planner to better the production process on his part later on.

The research is done by surveying the departments mentioned in section 1.1 and by doing one group interview with the sales and design departments. These departments were brought up by the company representatives as the ones with the most difficulty with communication. Moreover, theoretical research is done to define needed concepts and frameworks, thus supporting the recommendations of the thesis and helping the reader to understand the vocabulary and terminology.

The main research questions:

How can the commissioner company improve the information flow between their sales-, design-, production-, and dispatch departments?

What aspects should be improved in the information flow of the commissioner company's sales-, design-, production-, and dispatch departments?

The sub-research question:

What is the current state of the information flow between the dedicated departments at the commissioner company?

1.5 Thesis structure and schedule

The thesis consists of key theory and concepts, methodology, research, analysis of the current state of information flow at Normiopaste Oy, and lastly discussion and recommendations for the commissioning company. The first chapter, introduction, includes the objective, the purpose, the topic, and the research questions. The second chapter introduces the commissioning company of the thesis. The third chapter of the thesis encompasses the theoretical framework needed later in the thesis, meaning definitions of supply chain management and its theories, as well as communication and information management, with theories, and operations process. These together with the research questions will guide the thesis and the research analysis. The fourth chapter presents the research methods used in the thesis with the validity and reliability of the methods used. The fifth and sixth chapters focus on the research and outline the current state of the information flow at Normiopaste Oy. Lastly, the final two chapters, seven and eight, focus on the recommendations for the improvements to be done, followed by the conclusion. The structure is based on clarity so that the reader, e.g. the commissioning company representative and other audiences, can have all the necessary information at the beginning of the paper to best understand the research and recommendations of this thesis.

As for the schedule of the thesis, the commissioning company, Normiopaste Oy, can utilise the thesis only after about a year from the publication of the thesis. This is because the company is heavily focused on seasonal operations and the start of the thesis does not align with the more recessive and current season of the company.

The thesis project started with the idea of doing a thesis for a company the author had previously worked for to give it a stronger purpose. The thesis topic was found rapidly after first contact via email. The topic was sent for approval a few days after the topic discussion with Normiopaste Oy. After topic approval, the author had his first meeting with his thesis supervisor. The meeting was set to make clear the brut schedule of the thesis project. After everything was made clear, the author started the initial texts of the thesis, such as the thesis plan, schedule, contract, and table of contents. However, the author set the brut

schedule of the thesis based on the three thesis project milestones of the Tampere University of Applied Sciences, which are the initial thesis plan, rough thesis structure, and tuning the thesis in for assessment.

The thesis kicked off a meeting with the commissioner company representatives to discuss the outlines of the thesis. After agreement on the topic and subject, the thesis topic proposal was approved by the thesis supervisor. Once the thesis contract signing the thesis work began. The author began by outlining a rough structure and plan for the thesis, which led to the completion of the first milestone in about one month. Next, the data acquisition process was carried out and approval for data sharing was obtained. This phase proved to be the most challenging aspect of the thesis, as it required extensive coordination with the commissioning company, demanding significant effort from all parties involved. The second milestone of the thesis took two months to achieve, with one month dedicated to data analysis and integrating it with the research. After submitting the first draft for review, in the meantime, the author successfully passed the maturity test on the thesis. Finally, the author completed the finishing touches during the last phase of the thesis work, which took one month. The thesis was submitted at the end of August 2024.

2 THE COMMISSIONER COMPANY

Normikilpi Ky, currently Normiopaste Oy, is a Finnish limited company founded in 1987 by Tommi Saarni. Normikilpi started with installation contracting for the traffic sign factories of that time. In the beginning, Tommi's father started by selling traffic signs and Normikilpi Ky installed them. The name Normikilpi came from the sole idea of doing traffic sign installations while respecting all possible norms and standards effectively. In 2008, Normikilpi Ky became Normiopaste Oy and has operated in the road safety industry since. It is Finland's leading specialist in the contracting, sale, and manufacture of transport and sign products. During that time, Normiopaste Oy was the 2nd in the world to purchase the Durst traffic sign printer, while others still worked with the traditional method of cutting and gluing all pieces by hand. By 2012, Normiopaste Oy became the biggest traffic signalling company in Finland. (Latonen 2024.)

The modern-day products manufactured by the company are traffic signs, panels, and intelligent road works, such as traffic lights, signage, and overhead gantries. The manufacturing facilities and home office of Normiopaste Oy are located in Tampere, Finland. Not long after Normikilpi Ky was founded, Tommi Saarni expanded into rock drilling and blasting operations by establishing Normilouhinta Oy. Normivalaistus Oy was established in 2005 and specialises in road and street lighting, intelligent urban transport, telematics, and electricity networks. Varala Engineering Oy (currently Normi Consulting Oy) was established in 2020, providing solutions for traffic management and intelligent mobility needs. Normiopaste Oy acts as the mother company in the Normi Group. Normi Group consists of four separate companies: Normiopaste Oy, Normivalaistus Oy, Normilouhinta Oy, and Normiconsulting Oy (Latonen 2024.)

Fast forward to the present time, and Mika Nurmi, a non-family member, operates as chief executive officer (CEO) of the Normiopaste Group. In total, Normiopaste Oy alone employs approximately 40 people, with a 10 million euro turnover in 2022. (Finder n.d)

The company holds two certificates: a Conformite Europeenne (CE) certificate and a RALA certificate. The CE certificate is mandatory for goods marketed in

the European Union (EU). The certificate indicates that the product meets the EU safety, health, and environmental requirements. (Your EU 2024.) The RALA certificate, on the other hand, is a certificate established for the specific needs of the Finnish construction sector. The certificate is non-partisan and corresponds in content to the ISO certificates 9001, 14001, and 45001. The RALA certificates are polished to mirror the company's ability to operate in the real estate and construction sector rather than the ISO requirements. (RALA n.d.)

3 THEORETICAL FRAMEWORK

When writing a thesis about supply chain management with a focus on communication, it is relevant to define what supply chain management and communication are. This chapter defines all theories and concepts needed later on in the research and such.

3.1 Supply chain management definiton

There are many definitions for supply chain management (SCM). However, one definition stands out in the eyes of the author. According to the Council of Supply Chain Management Professionals (CSCMP), supply chain management is “the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Importantly it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers.” (CSCMP n.d.) This definition helps the reader understand the subject and contents of this thesis.

3.1.1 Supply chain management theory

The Supply Chain Operations Reference (SCOR) is a framework provided by the Council of Supply Chain Management Professionals (CSCMP). The SCOR is a framework that links processes, KPIs (key performance indicators), practices, and technology to help companies improve their supply chain. It was developed as a cross-industry standard for supply chain management. The SCOR can be used on a supply chain level or only on a department level. The reference is built around the five primary management processes: plan, source, make, deliver, and return. The reference can be used in all stages of the supply chain, including internal communication. The reference model encourages all stages of the supply chain to:

1. Standardise communication

In the case of this thesis, this means the channels and conduct of communication are standardised across the whole supply chain or different departments.

2. Process map
   Process mapping is recommended to better plan and visualise the supply chain. Several strategies can be used to map out processes. One strategy is vertical mapping, where the whole process and all operations are mapped out from start to finish. Sections where no added value is found are pinpointed with vertical rises.

3. Performance metrics (KPIs)
   The SCOR provides Key Performance Indicators (KPIs), or standard metrics, that help measure performance in communication. They indicate when and what creates delays or miscommunications.

4. Information technology integration
   Information technology integration is encouraged by the SCOR model in the form of management systems, such as enterprise resource planning (ERP), customer relations management (CRM), or data sharing. These systems facilitate communication and bring transparency to the operations.

5. Enhancing collaboration
   Enhancing collaboration is done by defining clear roles within and between all departments. This way there is no repetition of information nor having a sender without a receiver.

The author chooses the SCOR as a reliable and efficient part of the theoretical framework, which is used later on in the research and recommendations as the main theoretical framework of this thesis. (CSCMP 2005.)

3.1.2 Lean

Lean thinking is a process improvement concept that is carried out by eliminating waste and focusing on things that create value. This way of thinking has long been used by the car manufacturer Toyota. Lean thinking can be applied to management, production, communication, sports, and all sorts of other practices. Lean thinking is relevant in terms of cost savings, which all businesses should aim to do. (Womack & Jones. 1996, 15.)

Lean thinking has its risks, such as focusing too much on savings as a whole and forgetting value-adding savings. This can be compared to the red queen effect- running hard but for all purposes standing still. This effect comes from the fictional book Alice in Wonderland, where Alice is running faster and faster but stays in the same place (Caroll 1871). In a business context, this metaphor illustrates how a company might be expanding a great deal of effort streamlining processes, cutting costs, and optimizing operations failing to make meaningful progress toward its strategic goals. Just like Alice, who runs faster but doesn't move forward, a company might find itself working harder without gaining a competitive advantage or improving its market position. This underscores the importance of ensuring that cost-saving measures align with the overall strategy and contribute to long-term value creation rather than merely maintaining the status quo.

Lean management utilises lean thinking in managerial practices. It consists of managing with as little effort and time as possible while still ensuring maximised work or production value, which is exactly what Toyota has done to revolutionise production management. They identified which operations were not bringing value to the end product, and got rid of them by making their car production into a line production, taking away the unnecessary moving of the unfinished cars inside of the manufacturing facilities. (Sartika 2021, page 63.) Lean thinking can be applied to communication and many other aspects of doing business.

The author sees that to keep up with modern concepts of business and SCM, Lean thinking is perfect for improving old operations and upkeep of more mod-

ern ones. The author has worked in many companies on the routine tasks of operations and has seen the positive impact lean thinking has had on employee workload and pressure.

3.2 Communication and information definitions and concepts

When looking at the definition of supply chain management in the previous section of this paper, the focus is on managing the links inside of a supply chain, not the work inside the respective departments of the supply chain. One core feature of a link in a supply chain is information management and communication. Given the objective of this thesis, it is only relevant to define communication and its linked theories.

3.2.1 Communication theory

Effective communication is essential in a production company where the need for clarity and efficiency is paramount. The transactional model of communication as described by Dean C. Barnlund, offers a robust framework for understanding and improving communication within such environments. This model emphasizes the simultaneous and continuous exchange of messages between communicators, highlighting the importance of feedback and the dynamic nature of communication. (Sereno & Mortensen 1970, 83-102.) In a production company, this can translate to regular structure interactions between team members, the use of visual aids to enhance understanding, and the integration of feedback loops to ensure that messages are correctly interpreted and acted upon. By adopting these strategies, production companies like Normiopaste Oy can foster a more responsive and collaborative environment, ultimately leading to improved operational efficiency.

3.2.2 Information management definition and related concepts

Information management refers to the structured process of collecting, storing, managing, and distributing information. Information management (IM) is done to control information so that it is available in the right place at the right time. IM concerns a cycle of organisational activity: collection, storage, management, distribution, security, and disposal. These activities ensure the correct handling of information. Information management (IM) in companies and organisations is vastly done through computing. IM activities are the same in computing as they are without it. Without IM, information is only data, i.e. unstructured information. (Morga 2023.)

IM is done through computing. Businesses use enterprise resource planning (ERP) systems. Enterprise Resource Planning systems are software tools that are based on large databases that enable companies to automate processes and share information and practices. An ERP software can integrate tailored modules for different purposes, such as inventory, production planning, etc. (Investopedia 2024.) The definition of ERP is needed later on in the analysis section and onwards. The commissioning company utilises Microsoft NAV as its ERP software. The author knows this having worked at the company before.

3.3 Business operations definitions

As the thesis' goal is to improve parts of business operations, one must first understand what business operations are. Once business operations are defined, it is easier to understand the process mapping methodology later on. According to the Corporate Finance Institute, business operations refers to "activities that businesses engage in on a daily basis to increase the value of the enterprise and earn a profit". These activities are sales, marketing, production, logistics, and so on. All activities create a process altogether; however, each activity has its processes. (CFI n.d.), This section of the theoretical framework considers the processes of sales, design, production, and dispatch departments. These departments in particular are the ones concerned in this thesis. These are defined to better understand the following sections of the thesis.

The sales process refers to a sequence of actions a salesperson typically goes through when making a sale (Dubinsky 1981, 26). The sales process of Normiopaste Oy is defined in the group interview with sales and design departments in section six of this thesis. Furthermore, these definitions help the reader understand the overall process of Normiopaste Oy.

In a company like Normiopaste Oy, there are a few different categories of selling being used, mainly consultative sales, inbound sales, and business-to-business (B2B) sales. Consultative sales is an approach in which the salesperson acts as a consultant for the customers' needs and problems (Nielsen 2024). Inbound sales is where the customer makes the first contact with the salesperson (Boggs 2024). B2B sales is where a business sells goods or services to another business (Thiele 2024). Undoubtedly, there are other forms of sales categories; however, because of the topic of the thesis and the way the commissioning company is operating, the focus is on the aforementioned ones.

Friis Dam (2024) states that the design process can be seen as a five-step process based on the design thinking methodology. The five steps are:

1. Empathise (research and know the customer’s needs)
2. Define (state the user’s needs and problems)
3. Ideate (create ideas)
4. Prototype (start creating the solution)
5. Test (test the proposal)

In a company like Normiopaste where the operations are heavily based on goods, which themselves are based on standards. The phases are modified to be seen from the perspective of the goods. For this instance, the author is using a highway panel as an example:

1. Empathise
   -Know what somewhat setting the traffic panel will be set on (customer need)
2. Define

-State the needs of the customer in terms of the product and its standards (size of panel, reflector tape type)

3. Ideate
   -Sizes of the pieces that will create the panel as a whole, which parts of the panel can not be cut off etc.
4. Prototype
   -Start creating the solution virtually to see room for improvement
5. Test
   -Come back to the first step and see the result from the customer's point of view

This model has its limitations in terms of national standards when it comes to traffic signs and panels. Furthermore, the designers at Normiopaste have gone through specific higher degree education to be qualified to design such products.

The production (manufacturing) process is the creation of ready-to-ship products and goods by the use of machinery and tools (Kenton 2024). At the commissioner company, the production process includes cutting chosen material into shape as well as tidying the edges of the sign so that it follows the regulations set by the Finnish transport agency. Next, the sign is taken into surface treatment, i.e. painting or coating. Lastly, the sticker is glued onto the sign and is ready to be handed to dispatch. Finally, the dispatch process is defined as the preparation and packaging of goods ready to be shipped out or picked up (Britannica n.d.).

4 METHODOLOGY

This section of the paper goes over the methodology used to conduct the research. The official research method used in this thesis is “mixed methods research,” or a combination of qualitative and quantitative research methods (Östlund, Kidd, Wegström & Rowa-Dewar 2011, 369).

For the quantitative method, the author chose to conduct surveying, while for the qualitative method, focus groups, specifically through interviews were selected. In addition to these methods used, process mapping is also introduced. To conclude this section of the paper, the author will have a critical eye on the methodology chosen and go over its validity and reliability. The methodology aims to gain qualitative and quantitative research to best answer the research questions. Qualitative research is research that investigates and provides deeper insights into real-world problems, and the gain is of quality (Tenny S. et. al. 2022).

However, quantitative research, on the other hand, is “a means for testing objective theories by examining the relationship among variables. These variables, in turn, can be measured, typically on instruments, so that numbered data can be analyzed using statistical procedures” (Creswell 2023, 22-23). In more simple terms quantitative research is numerical data collection for research purposes. Data means unstructured information, as defined in section 3.2.

4.1 Surveys & group interviews

In this section, the author defines what surveys and group interviews are and then goes over the structures and contents of the surveys and interviews used in this research.

4.1.1 The surveys and their contents

According to Check & Schutt (2012), survey research is “the collection of information from a sample of individuals through their responses to questions.” This is precisely what is needed in this thesis research to identify the points with room for improvement. This is done by formulating the questions in a manner that the moment of communication or information transfer is included in the questions. The author chose survey as one of the methodologies of the thesis because the subject to be examined is people-centered, meaning that in this case, there are persons behind the subject of communication. From the author's point of view, when aiming to better a process for somebody else, it is important to hear the people included in the process. When examining the communication between people and groups of people, the best way to do so is by asking the people themselves and thus gaining information straight from the target group. This way, the source for change is the people concerned, and the implementation is far easier. The survey aims to answer the main and sub-research questions mentioned in section 1.4 of this paper by using mainly quantitative data structured into information.

The surveys are structured so that there are general questions about communication within the supply chain in the first part and department-specific questions in the second part. Three questions are asked of each department. The surveys were made and answers were collected with a website called Surveypal.com (Surveypal 2024). All departments’ surveys are structured in the same way. This enables the identification of the general views on the supply chain's communication and digging deeper at a department-specific level in the second part. The survey questions are scalable questions without any neutral scales to falsify and throw off the data, since the aim is to identify areas for improvement. These questions form the quantitative part of the research. Surveys were approved by the company CEO and representatives before send-out, which is part of IM, defined in section 3.2.2 of this thesis. Some employees do not have an email address, which called for manual surveying. This is done by printing out the survey for those with no email address and inputting answers manually. After the thesis is published and fully brought to an end, the answers will be disposed of. The only place this data can be found afterward is the thesis itself.

4.1.2 The group interviews and their contents

An interview, or focus group interview, is a qualitative research method that aims to collect data by asking questions directly. The author chose this method as the qualitative method because it is used to “gather opinions, perceptions, attitudes, and beliefs based on participants' experiences in a defined area of interest” (Chang 2006, 67-72), which is perfect for the objective of this thesis. There are three types of interviews: structured, unstructured, and semi-structured. A structured interview has a preset order of questions. An unstructured interview is very flexible, and there is no order for the questions asked. A semi-structured interview is a blend of both structured and unstructured interviews. Usually, one half of the interview is structured and the other is not. (George 2023.)

The author decided on a semi-structured interview with structured questions throughout the interview and adding clarifying questions and free words that come to mind. This way, the qualitative data is more vast. The group interviews’ aim is to get the needed information to create a process map of the commissioner company’s process as well as act as a deeper qualitative insight into the communication between the sales and other departments, as this setup was explicitly given by the company managerial level, who brought up the desire to go deeper into the communication between sales and other departments since this is where the idea for the thesis came from. Process mapping is defined in the following section of this paper.

The group interviews were set to be on June 20th, 2024. The other departments’ interviews gave vast qualitative data to the questions asked. The interviewees were a production planner, designer, and design manager (who gave his answers via email), the factory manager, and two dispatch department workers. The interviews were recorded and transcribed with the help of Microsoft Teams, an online videocall and co-working platform. The author did a clean transcription manually for clarity.

The nine questions asked in the group interview for design, production, and dispatch aimed to gain qualitative information on what information is gained from the customer at different points of the order, where or when the information

changes, and why it changes if it changes. How changes in the order were communicated was also investigated.

These seven questions to the sales department, on the other hand, were meant to gain qualitative information on what information is usually missing from the order. Where and when it goes missing in the supply chain was also investigated. In addition, four questions to create the visualised process map were introduced.

After group interviews, the surveys were sent to each employee of each department. This way, the employees are already in the right setting to answer individually without the author or other distracting components on the spot. The group interviews and surveys were done in Finnish, given that the target group and interviewees speak Finnish for the most part. The questions and answers are translated by the author, a native Finnish speaker, studying a three-year higher degree in English.

4.2 Process mapping

Process mapping is a method used to create a visualised understanding of a process to identify its areas of improvement (IBM n.d.). Process mapping is used to map out the current operations process of Normiopaste Oy with a focus on the topic of the thesis, communication. This way, the analysis of the research can later take these into account.

4.3 Validity and reliability of the methodology used

The methodology chosen has its limitations just like any other methodology. The aim of analysing the validity and reliability of the methodology used combined with the purpose of the thesis is to identify the falsifying factors. This way the analysis of the research later on can take these into account and provide the best answers to the research questions.

In the context of this thesis, surveying is a good way to analyse areas for improvement. However, the surveys need to be done so that the questions, i.e. content, cover the relevant aspects of the communication between departments. The surveys need to be constructed so that there is a clear way to measure effectiveness, clarity, and frequency of communication. The reliability of surveys lies in the consistency of the data. For instance, the more consistently an answer is given, the more reliable it is. However, if all answers do not show room for improvement in communication channels, there cannot be suggestions made for improvement when analysing the data.

As for the group interview, it needs to be done in a relevant setting, i.e. the facility at Normiopaste Oy. This way, the interviewees are set in the right mindset and are already thinking about the subject. If the group interview should be done in a different setting, the interviewees might not be fully present, resulting in distractions and inaccurate answers.

The main risk factor in surveying and interviewing is bias. The target group of the survey and the interviewees might be biased when answering questions. For instance, two departments answer in a way that makes their department seem to have minimum flaws in communication. This bias can be regulated in the way questions are formed, leaving less possible room for bias. However, bias cannot be fully terminated, which means that it must be taken into account in the analysis of the data acquired. Another risk with surveying is how well the responders understand and interpret the questions. This also can be minimised with the question formatting. Another risk involved in surveying is the sampling size. Some departments had only three people to answer the survey. This means that only one vastly differing answer does have a massive impact on the percentages and results of the answers given.

The risk with the process map is that the author might not fully understand the process and may rely on their imagination. Therefore, process mapping needs to be checked by a representative for validity. Reliability demands the interview to be the most accurate- if not, the map will falsify analysis, results, and so forth.

When looking at the methodology as a whole, the best would be to have parallel measures for all methods so that comparison can be done to evaluate the reliability and validity. However, the set scope of this thesis limits this implementation.

5 SURVEY RESULTS AND GROUP INTERVIEWS' ANSWERS

This chapter consists of the research done to better map out the current state of Normiopaste Oy's information flow between its sales, design, production, and dispatch departments and pinpoint the areas of improvement. The research was done by using multiple-choice questionnaires as a quantitative method. Each department had its own survey. This is because if there were one generic survey for all departments, the data would also be generic, and creating department-specific suggestions would not be possible. The qualitative research also contains two group interviews: one with the sales department and one with the other three departments. These are used to map out the current state of the information flow and operations process.

5.1 Group interviews of sales and other departments

This section of the chapter only goes over the answers of the surveys and group interviews. No analysis is done yet. Stating the answers and results helps the reader form their own vision of the state and compare it to the author's vision. In addition, the data is formed into information.

5.1.1 Design, production, and dispatch departments' answers

The design, production, and dispatch departments' group interview answers were transcripted with the help of Microsoft Teams and the transcription feature. The transcription made by Microsoft (MS) Teams is only a rough one. The author created a clean transcription for clarity. Otherwise, the author would have to go over each word said such as pausing words, etc. which are not relevant to this research. The design manager was on vacation at the time of the survey; however, his answers were taken into account via email. Some names were mentioned, which forced the author to remove some answers from the clean transcription. The interview took in total of one hour.

The interview reveals several critical communication gaps between sales and other departments leading to inefficiencies and disruptions in the workflow. For example, multiple team members pointed out that key information such as customer names order numbers and design criteria is often missing or incomplete when orders are passed from sales to production or dispatch. In one instance the design manager mentioned that orders sometimes arrive with only a number and no customer name or without clear instructions on whether the request is for a quote or a finalised order. This lack of clarity forces teams to operate in the dark leading to mistakes and delays, such as when an order was nearly sent out with incorrect specifications because the sales department failed to communicate a last-minute change.

Moreover, the absence of standardised process exacerbates these issues. The suggestion made during the interview to implement a checklist for sales to fill out when initiating an order could address this problem for example if a checklist were in place it could ensure that every order includes necessary attachments, accurate delivery addresses, and clear design instructions before it moves forward. This would prevent situations like the one described by a dispatch worker, where the shipment was delayed because the sales team failed to update the delivery address in the system after it had changed resulting in goods being nearly sent to the wrong location.

Additionally, the reliance on physical paperwork creates a further bottleneck as production and dispatch often work with outdated information. The production planner highlighted how this leads to rework such as when they must track down and replace old order tickets with updated ones a task that could be avoided with an IT system allowing real-time updates. For instance, if an IT system was in place, production workers could immediately see any changes made to an order reducing the risk of starting work based on obsolete information. A perfect example of why the setting needs to be right with the interview, as said in section 4.3, is that one designer came in late because of a hurry and his answers were not as nearly as clear and coherent in the beginning versus at the end of the interview. (See Appendix 1.)

5.1.2 The sales department's answers

The sales department interview was held one month after the other group interview. The sales department's group interview was set to be on June 20th, 2024. However, the department did not get the memo at all, and many summer holidays were in the way forcing them to postpone the interview. On July 19th, 2024, the interview was held with 3 salespersons.

The interview with the sales department reveals key issues in communication and order management that affect workflow efficiency. Sales representatives often receive incomplete order details such as missing delivery methods or product specifications like colours and font sizes which leads to delays as they have to follow up with customers. Despite this, there is resistance to implementing a standardised checklist with the team preferring to rely on their experience rather than rigid processes.

A significant issue highlighted was the lack of communication between sales and other departments particularly when product changes are made without notifying sales for example a modification in a sign designed by the production team was not communicated to sales leading to potential customer dissatisfaction. (See Appendix 2.)

5.1.3 Process map

The process map was made with the help of the three questions asked in the group interview with the design, production, and dispatch departments excluding sales. The internal communication process is visualised in the process map so that the room to improve can be tied to a phase or transaction. The process map visualises the business operations of Normiopaste Oy, trimmed down to the four selected departments.

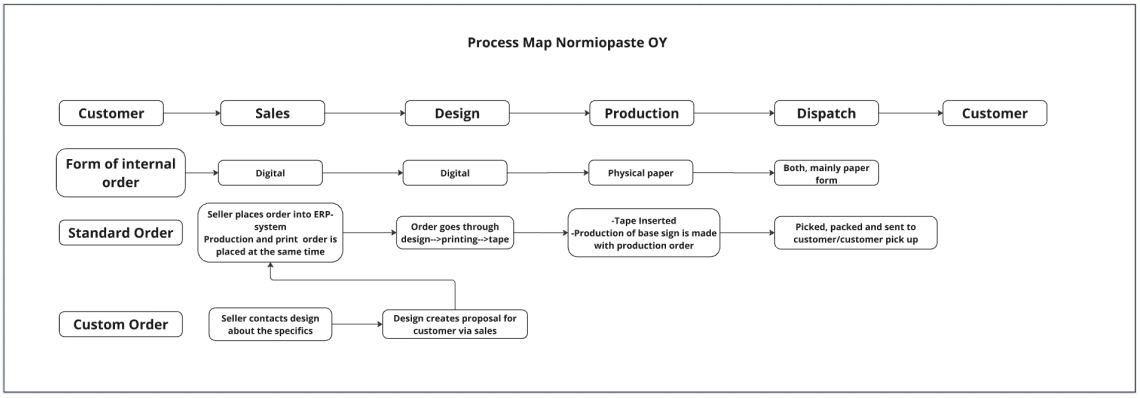

FIGURE 1. Process Map of the order process at Normiopaste Oy (created by author)

The process starts with a customer contact made to sales. The contact typically takes place via email, but sometimes phone calls are used. The customer then describes their needs. Based on that, the order can be a standard order or a custom order. A typical example would be the commonplace use of signage, such as crosswalk indicators or stop signs. A custom order, on the other hand, is all bigger signs on a highway, for example. A standard order is first placed digitally by the salesperson into the ERP system alongside the production order and a sign print order for the design department. After order placement, the production planner takes over and plans the production. At this point, the order takes a physical paper form. The paper is divided into design, production, and print order. As soon as the paper finds its way to the right place, design starts (if need be), and production starts on the base of the sign and printing of the tape. After the base and tape are ready, the tape is put on the base and taken to dispatch. Dispatch will have the goods with the paper order.

A custom order is the same process; however, after initial contact with the customer, the salesperson will contact design first. Design then creates a proposal for the customer. After the customer has accepted the proposal, the salesperson places the order into the ERP, and the process continues like a standard order.

The design process usually goes the same way as the design process defined in section 3.3 of this paper. The final step, the test step, is placed back to the customer for approval. This is to help understand the design process even more thoroughly. (See Appendix 3.)

5.2 Survey common questions and answers

There were four common questions in total (n=16). The first question of the common part was: “How would you rate the overall efficiency of internal communication at Normiopaste Oy?” The respondents were split evenly between two inputs with 50% on “effective” and 50% on “ineffective.” Other choices were “very effective” and “very ineffective.” The second question of the survey was: “How often do you receive relevant updates on your role from other departments?” Respondents had the choice between: “daily, “weekly”, “monthly”, “rarely”, and “never.” Most inputs were “daily” with 37.50% of answers. Next came “weekly” with 31.25%, followed by “rarely” at 18.75%, and finally “monthly” with 12.50% of answers. The third question was: “Do you feel you receive timely information from other departments? “Input choices were between “yes” (56.25% of inputs), “no” (12.50% of inputs), and “sometimes” (31.25% of inputs). The final question was: “How often do you encounter problems due to misunderstandings or lack of information?” with four choices: “often”, “sometimes”, “rarely”, and “never.” The most inputs from respondents were “sometimes” with 56.25% of total inputs and “often” with 43.75% of total inputs. (See Appendix 4.)

5.3 Sales department-specific questions and answers

All possible respondents answered the survey. (n=3) The first question was: “How clear are the instructions and information you receive from the design and production departments about your work?” One hundred percent of respondents answered “clear”, with options “very clear”, “clear”, “unclear”, and “very unclear.” The next question was: “How often do you need to follow up on gaps in information from other departments?” with 66.67% of the answers on “sometimes” and 33.33% on “rarely”. The respondents had the choice between the options “often”, “sometimes”, “rarely”, and “never.”

The third question was: “How would you rate your department’s communication to other departments?”. All three respondents answered “stable”, with options “very stable”, “stable”, “weak”, and “very weak.” (See Appendix 5.)

5.4 Design department-specific questions and answers

(n=4) The first question is: “How clear are the requirements and feedback from the sales department?” Answers options were: “very clear”, “clear”, “unclear”, and “very unclear”. The answers were divided 50-50 between “clear” and “unclear”. The next question was: “How efficiently do you get the information you need from sales to finalise your plans?” Answer possibilities were: “very efficiently”, “efficiently”, “inefficiently”, and “very inefficiently.” 75% of all answers were on efficiently and the rest 25% on very inefficiently. The final department-specific question for the design department was: “How would you rate your department’s communication to other departments?” Answer possibilities were: “very stable”, “stable”, “weak”, and “very weak.” One hundred percent of answers were on the “stable” option. (See Appendix 6.)

5.5 Production department-specific questions and answers

As for the production department, there were three department-specific questions. (n=6) The first question was: “How clear are the production instructions from the design department?” With options “very clear”, “clear”, “unclear”, and “very unclear.” None of the respondents answered very unclear. 50% of the inputs were on “unclear”, 33.33% on “clear”, and 16.67% on “very clear.” The second question was: “How clear are the production instructions from the sales department?” with options “very clear”, “clear”, “unclear”, and “very unclear.” No inputs on “very clear.” Most inputs on “unclear” with 50% of the respondents, then “clear” with 33.33%, and finally “very unclear” with only one input. The final question was “How would you rate your department’s communication to other departments?”. Options for this final department-specific question were very “stable”, “stable”, “unstable”, and “very unstable.” 50% of the respondents felt that their communication with other departments is stable, 33.33% felt it is “very stable”, and 16.67% “weak.” (See Appendix 7.)

5.6 Dispatch department-specific questions and answers

All respondents answered the survey. (n=3) The first question was: “How clear are the shipping instructions from the sales department?” Answer possibilities were options “very clear”, “clear”, “unclear”, and “very unclear.” 66.67% of inputs were on “clear” and 33.33% on “unclear.” The second question was: “How efficiently do you get information from the planning and production departments to manage shipments?” With the answer choices of “very efficiently”, “efficiently”, “inefficiently”, and “very inefficiently”. One hundred percent of respondents answered inefficiently. The third question for the dispatch department was: “How would you rate your department’s communication to other departments?”. The respondents had the choice between the following: “very stable”, “stable”, “weak”, and “very weak.” One hundred percent of respondents answered “stable.” (See Appendix 8.)

6 ANALYSIS OF CURRENT INTERDEPARTMENTAL COMMUNICATION AT NORMIOPASTE OY

This chapter of the thesis maps out the current state of the information flow at Normiopaste Oy with the research made in the previous chapter. After mapping out the information flow alongside the process of the four departments involved, the author can analyse and find the improvement possibilities in the following chapter. Interpretations are derived from data and information gathered in the previous section.

6.1 Communication of the sales department

The data obtained from surveys and group interviews from a salesperson's point of view shows that information coming from design and production departments toward sales is unanimously clear with some little room for improvement. The second question of the sales department-specific questions reinforced this, with respondents feeling that sometimes and rarely they need to follow up on a lack of information from other departments. When comparing the view of other departments on how well they communicate with sales, the majority of respondents from the production department think that their communication is stable towards other departments (such as sales). Some thought the communication was very stable, and only one respondent saw it as weak. When considering the point of view of the design department and their communication with sales, all of the respondents think that their communication with other departments is stable. This fully matches the data from sales.

When analysing the communication from sales to other departments, from the sales point of view, data shows that all of the respondents think that their communication is stable with little room for improvement. The inputs were on ‘stable’ instead of ‘very stable’, indicating the possibility for improvement. When comparing this with other department's views on the issue, two-thirds of dispatch workers think that the send-out instructions are clear, and one-third think that they are unclear. Overall, the instructions from sales to dispatch could be much clearer. From the production point of view, half of the respondents think that

production instructions from sales are unclear, about one-third think they are clear and one respondent thinks they are very unclear. The responses are overall more on the unclear side of input choices, giving room for improvement. The design department is quite divided on the topic of information clarity from sales. Half think that information from sales is clear, and the other half think that it is unclear. This could be a neutral point of view or highly task or product-specific. What is meant by this is that a designer who designs for projects might have a different view on the clarity view of a standard sign designer. The design department was also asked how efficiently they receive information from sales to finish their designs. Half of the design respondents thought that they received the information efficiently, and only one thought that very inefficiently. This also can be highly task-specific views. The main improvement to make in the sales department's communication is dispatch and production instructions that are unclear, and the communication effectiveness with the design department.

6.2 Communication of the design department

As mentioned in the previous section, all of the design department respondents think that their communication with other departments is stable. However, when looking at answers from other departments, this is not the case. Only the sales department is fully matching. Half of the production respondents think that production instructions from the design department are unclear, one-third think that they are clear, and only one thinks that the instructions are very clear. The overall view on the issue from the production department is quite neutral or a bit unclear. Lastly, the dispatch department sees that the design department is inefficient in providing information regarding send-out. The main point of improvement on the design department level is communication with production and dispatch.

6.3 Communication of the production department

Production department-specific questions show that half of respondents saw that production instructions from the design department were unclear, one-third

thought that they were clear, and only one respondent thought that they were very clear. This indicates that mostly unclear instructions from design are given to production. This could be due to unclear orders from sales to begin with. As for the production instructions from sales, as seen in section 6.1, there is also room to improve communication with the production department. The production department in itself does not communicate that much with other departments unless rarely asked. The communication of the production department is not dependent on them which means the information going out of production is information asked from production. The main point of improvement, in communication goes into the design department, which is the clarity of production instructions provided by the design department to the production department. The production department could communicate more with other departments; however, this issue would be for the production manager to handle, since it is a production process issue.

6.4 Communication of the dispatch department

The dispatch department is unanimous when it comes to their communication to other departments with all respondents thinking that their communication is stable. When it comes to the information coming from the design and production departments, the dispatch department thinks that information and updates are given inefficiently. The clarity of dispatch instructions given by sales are clear with a little more than half of respondents thinking they are clear and one respondent thinking they are unclear. This difference between the communication with sales versus other departments is worth noting since overall the communication in the supply chain is poor mainly due to sales; however, with dispatch it is different. These points leave the most room for improvement in the whole information flow with clearer and increased efficiency while preserving rapidity. To finalize, the main points for improvement with the dispatch department are the efficiency and clarity of communication from the design and production department to the dispatch department.

6.5 Overall interdepartmental communication

To answer the sub-research question mentioned in section 1.4 of this thesis, the overall internal information flow at Normiopaste Oy has a lot to improve. However, the common questions from the surveys indicate that there are efforts made. The efforts made remind of the Red Queen effect. Much effort, i.e. running is done, but the results are weak, which makes the purpose, i.e. the operations stand still. Even if the clarity or the efficiency of communication is not flawless, the information mostly comes in on time and often. The overall problem would be the clarity and lack of information on the updates given inter-departmentally. Commonly seen is that all respondents face problems due to misunderstanding and lack of information often and sometimes, none responded rarely or never.

To answer the research question of what aspects should be improved in the information flow between the departments chosen, the communication from design and production to sales could improve clarity and consistency. Sales needs to follow up often due to lack of information. This absence of information relates to message acknowledgments provided to the sales team, as highlighted in the final question of the group interview. The communication from sales to dispatch could be improved by increased clarity and frequent updates. The biggest area for improvement regarding sales communication is the production instructions. The design department's communication towards other departments than sales is inefficient and unclear. This might be because of the constant back-and-forth clearing of information between design and sales. This could also explain why the instructions from design for production are unclear.

The group interviews gave qualitative examples of these areas of improvement. When the sales department was asked what might be missing and what is for certain on the customer's initial order for certain the author could create a basic customer order. The basic order coming from sales includes information on what is being ordered, quantities, and where, how, and when to deliver. Often, the customer fails to give more precise information such as the reflection class of the sign, where will it be used, colour, size, and contact information. Also, attachments might be missing according to the design department. This matches

quite well with what other departments mentioned on what is missing. The customer might add quantities often, which might confuse and call for reorganising the whole production. An example of this is when the production planner has already put out the production paper and needs to fetch it back, hoping that production has not been started yet. This could be diminished by converting all future production orders into electronic format. This might also be seen in dispatch if the quantity changes only so late that the order is ready to be shipped. In addition to this, the actual signs might change after production is done, forcing dispatch to do partial send-outs. These partial send-outs make the dispatch department fetch the old production orders. A late request to modify the quantities should not be accepted in the first place since it is throwing off the whole production. However, when asked if sales ask for that missing information, they say yes. This is a bit misleading. Of course, sales might not have time to ask for all of this information right away. For instance, sales get little acknowledgment of their information, and they are not necessarily kept in the overall company information updates. One traffic sign fastening was changed without informing sales. According to all departments, sometimes the item code might be faulty. This could be the fault of the overall ERP system and product management not being in order.

When asked if sales should have a checklist for the orders that they put out, all were unanimous that there should not be one, and more trust should be put into the skills and knowledge of sales. When the same question was asked to the other departments, they all said that there should be one- this way the order is for sure correct. The one shown in the group interviews was from 2017 and is quite extensive. This could be shortened and used in a way that the customer fills out the needed information and the salesperson is only there to give information to the customer.

The dispatch department also indicated that sometimes the dispatch information changes without updating the dispatch department itself about it. Things such as an order is changed to a pick-up and the order is not yet picked. This makes the dispatch department stop their ongoing work to fulfill the pickup order, for which the customer is already waiting at the door.

When asked what should be changed in the current communication between departments, the sales department wished for acknowledgments and updates on changes and production progress. In contrast, other departments wished for clarity of information regarding their work and more interactivity from sales.

All in all, the areas of improvement include more clarity and consistency in the communication from production and design to sales, reducing the need for sales to follow up due to lack of information, improving message acknowledgment practices from design and production to sales, the clarity and frequency of instructions from sales to production and dispatch. Design could also improve the instructions given to production and dispatch; however, this is not the biggest room for improvement, since this might be the cause of the lack of information put out by the customer and sales in the first place. The dispatch department needs to get the information at the same time as other departments and not receive it at the last minute. This could also be diminished by not accepting changes in orders that have already been put on and accepted by design and production.

7 DISCUSSION

This chapter consists of recommendations for enhancing the communication of Normiopaste Oy's supply chain. The action plan is established by the author, basing it on the research and analysis of the current state of the information flow within the four departments of sales, design, production, and dispatch.

There is one research question left to answer: "*How can the commissioner company improve the information flow between their sales-, design-, production-, and dispatch departments?"* As analysed in previous chapters there is quite a lot to improve. The author has chosen the Supply Chain Operations Reference (SCOR) as the main theoretical framework for this thesis, which is defined in chapter 3.1.1. The SCOR is a profound reference that is used in all stages of supply chain management (defined in section 3.1.). The five stages of the reference are used to better the communication between the selected departments, on a case-by-case basis.

1. Standardise communication

   This means the channels and conduct of communication are standardised across the whole supply chain. The commissioner company is using too many communication channels for various parts of the supply chain. One order might have three different forms across the supply chain, i.e. three different channels.

   The SCOR framework encourages Lean-thinking, thus Lean communication and management (defined in section 3.1.) to lower lead times. Standardised communication trims down the time used to change the form of the internal order, and the time used on information discrepancies born from changing the internal order's form. Using SCOR, the author suggests, that all forms of order would keep the same channel throughout the supply chain. In addition, one chosen channel should be set up for all discrepancies. Whether it would be a form of ticket solving or a general mail/group on one of the MS Office platforms. A ticket solving could be for example FastTrack. FastTrack is a platform where different support tickets can be created for a whole department, a group of

employees, or just one person. The tickets have all the information about what is wanted etc. For instance, dispatch could create a ticket for the design department to give missing information about the sendout. The design department would have its line of tickets to solve and handle the same way all other departments would. This way discrepancy communication is standardised. Another discrepancy-solving platform could be MS Sharepoint which works in the same manner as FastTrack.

A lot of face-to-face transactional communication (defined in section 3.2.1.) is currently being used to solve information discrepancies; however, the risk of making the discrepancy-solving more IT-based is what sales is already experiencing -the acknowledgment of the message sent is often missing. Of course, the less information missing from the initial order the fewer information discrepancies. The transactional model of communication would ensure that the feedback loop is continuous and message acknowledgments are given when information is received.

2. Process map

   Process mapping is recommended to better plan and visualise the supply chain. One way of doing so is to do vertical mapping, where the whole process is mapped out from start to finish and all operations where there is no added value are pinpointed with vertical rises. SCOR's five management processes are used to map out the supply chain as a whole or only a part of it. One form of Process Mapping has been made for the commissioner company to utilize; however, the author sees that vertical mapping should be made for the whole supply chain. This way the non-communication related, non-value-adding phases, can be trimmed off and communication is thus already improved since discrepancies increase lead time in itself.

3. Performance metrics (KPIs)

   Key performance indicators can be as simple as lead time tracking. The author suggests setting up a lead time calculator. This can easily be made by making the order fully electronic and keeping it in the ERP sys-

tem. This way order completion and lead time can be tracked on the system itself. Right now there is no track of how long different phases take. Another information flow KPI suggested by the author is customer satisfaction surveys. This way the lead time and order updating in the eyes of the customer can be tracked, because all failed internal communication is seen immediately by the customer. Whether it is in delayed delivery or not receiving updates during the order process. One major KPI is to follow the use of all communication platforms. For example, how many tickets are sent out and solved on FastTrack. Without properly tracked information and communication, it is very difficult to follow the operations, especially during peak production time. This is from a managerial perspective.

4. Information technology integration

   The SCOR model encourages information technology integration in the form mentioned in the first bullet point of this section. To help communicate the progress of one process even better. IT tools such as Microsoft Sharepoint could be introduced to cut off discrepancies in the internal news, which in essence degrade internal communication. For instance, when the product-related reform was made, no one knew about it except a few employees. These systems facilitate communication and bring transparency to the operations. These systems also have message acknowledgment features, which essentially are KPIs themselves. In addition, the systems are a building block for information management within the company, making it more efficient than managing and disposing of information that is mostly on paper.

   Utilising more of the already set up ERP system in production and design could cut off last-minute changes made to orders and connect sales to design and production by cutting down on the lead time of the changed information to arrive at design and production. In addition, the item codes and overall state of the ERP system need to be up-to-date. When the system is up-to-date it leaves no room for guessing the product or materials on the internal orders. Including the ERP system more into the supply chain, information flow would also affect the form of the internal order.

(See Figure 1 in section 5.1.3.) The source of all information, i.e. the customer needs to give all needed information upon initial order or point of contact. If not, it is the salesperson's responsibility to get the information, so that faulty information is not put on to other departments.

5. Enhancing collaboration

   As said in the theoretical framework, enhancing collaboration is done by defining clear roles within all departments and between them. This way there is no repetition of information or having a sender but no receiver. The company does have somewhat clear roles already set. However, the author suggests reviewing the roles in each department and creating support roles for sales. As the interview with sales indicated the sales department might not have enough time to fetch missing information from the customer or update relevant changes to other departments. The same thing was seen with the design department. Because the source of the information is lacking, the design needs to follow up often. These two create a whip-like motion, where a small fluctuation at the beginning of the supply chain, (the whip) is seen as massive discrepancies, (big movements at the end of the whip) at the end of the supply chain. A sales-support/customer service department could be created to stop the whip-like effect. However, first going over and setting up all aforementioned changes should help the internal communication quite a lot. If still after changes are made the sales department experiences a lack of time the support processes should be established.

Lastly, the SCOR model is very similar to Lean management, which is what the supply chain of the commissioner company needs. Cut down on excess time used in communication, so that it can fully focus on the essential work and maximum value creation. To avoid the Red Queen effect. Only after the work done on the actual physical processes can show their impact.

8 CONCLUSION

Communication is the founding block of conducting business. We communicate with each other inside the business, we communicate with the customer, with partners, shareholders, and so on. Without properly managed internal communication, a business cannot run properly and at its full potential, let alone grow. The definition of supply chain management in section 3.1 focuses on the processes that go into a supply chain. However, there is no mention of what ties these processes together: communication and information. Normiopaste Oy, a company for which the thesis author has worked in the past found the topic for this thesis; internal communication. The thesis project started in May 2024 and went on until August 2024. To conclude this thesis the author will sum up all research questions and go over his suggested answers to them. In addition, one further research suggestion is introduced with critique and bias the thesis has as a whole.

This thesis gathers qualitative and quantitative data to analyse the internal communication between the sales, design, production, and dispatch department at Normiopaste Oy. This together with the theoretical framework gathered, the thesis gives recommendations, answering the two research questions and one sub-research question, and needed knowledge to understand the subject.

The research questions are stated below:

How can the commissioner company improve the information flow between their sales-, design-, production-, and dispatch departments?

What aspects should be improved in the information flow of the commissioner company's sales-, design-, production-, and dispatch departments?

The sub-research question:

What is the current state of the information flow between the dedicated departments at the commissioner company?

The recommendations for improving the information flow between the sales, design, production, and dispatch departments at Normiopaste Oy are multifaceted and structured around the SCOR framework. The initial step involves standardising communication, ensuring that all channels and forms used with the supply chain are consistent, thus reducing lead times and discrepancies. For instance, using a platform like FastTrack for managing discrepancies can streamline communication. Process mapping is crucial for visualising the supply chain, identifying non-value-adding operations, and eliminating them to improve communication efficiency. Key performance indicators such as lead time calculators and customer satisfaction surveys should be implemented to track performance and identify more areas for improvement. Integration of information technology with tools like Microsoft SharePoint is essential to facilitate communication and maintain transparency across departments. Enhancing collaboration by defining clear roles and possibly creating support roles in sales and design will help prevent information bottlenecks and the bullwhip effect. These recommendations, grounded in the SCOR framework and lean management principles, aim to streamline communication and enhance the overall efficiency of normal supply chain operations.

There are several aspects to be improved in the information flow between the sales, design, production, and dispatch departments at Normiopaste Oy. The communication from design and production to sales could improve clarity and consistency to reduce the need for follow-ups due to a lack of information. Instructions from sales to dispatch could be improved by clarity and frequent updates. The biggest area for improvement regarding sales communication is the production instructions. The design department's communication with other departments than sales is inefficient and unclear. Possibly due to the constant back-and-forth clearing of information between design and sales. Ensuring the dispatch department receives information at the same time as other departments and not at the last minute is crucial. These can be managed by not accepting changes to orders already in progress and ensuring all departments receive updates simultaneously. Enhanced utilisation of the ERP system to connect sales, design, and production will reduce lead times for updated information and maintain up-to-date item codes and system data. Gathering comprehensive and accurate initial information from customers is vital and it is the

salesperson's responsibility to obtain this information to prevent faulty information from spreading to other departments. Implementing checklists for sales, orders, and acknowledgment systems for changes and production progress will enhance the overall information flow and coordination across departments. With this implementation, the source of information needed for daily operations is much more reliable and discrepancies are minimized. By addressing these areas, Normiopaste Oy can improve efficiency and reduce operational delays across departments.

The current state of the information flow between the sales, design, production, and Dispatch departments at Normiopaste Oy reveals several issues and areas of concern. From the sales department's perspective, information from design and production is generally clear but occasionally requires follow-ups due to missing message acknowledgments. Sales communication with other departments is considered stable but not optimal, with some dispatch and production instructions being unclear. This unclear information is partially because all information is not fetched from the customers. Production’s communication is largely reactive, indicating minimal proactive engagement with other departments. The dispatch department believes their communication with other departments is stable, but they often receive inefficient and unclear updates from departments, mostly due to sales’s faulty and ever-changing orders. Overall, frequent misunderstandings and lack of timely updates characterise the internal information flow, leading to inefficiencies and delays.

As a further research suggestion, the author has chosen the qualitative method of action research. Action research is studying one’s work as a professional and trying to find better solutions to their work. Action research is based on cycles of research and work. The cycle first involves doing research, implementing the findings, and coming back to research. More information on this suggestion can be found in the book Action Research by Patrick Costello. (Costello, 2003, 4-8.) Furthermore, the other concepts and theories could be used in depth in further research on this specific topic.

This thesis has its downsides. As for the methodology, the group interviews should have been all together and not separately. A lot of examples were stated

after the interviews, making them unqualified to add later on. Many were still trying to fetch examples during the interviews, making the qualitative data quite narrow. The surveys should have been filled all at the same time to minimise possible tampering, in terms of discussing between the ones that have responded and the ones that have not yet responded. One might give a heads up of the other departments' questions and answer in a manner that makes other departments look “bad”. When it comes to bias, the author might have sub-consciously his perspective on the internal communication of the commissioner company, having worked there previously.

All-in-all the thesis gives valuable information on the communication and its improvement points for the commissioning company. These recommendations on enhancing internal communication are a good start to working on a stronger and more resilient supply chain.

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APPENDICES

Appendix 1. Interview framework for the group interview with design, production, and dispatch departments

Group Interview for Design, Production, and Packaging Departments

We will start by discussing the schedule and purpose.

THE INTERVIEW WILL LAST 1 HOUR.

THE PURPOSE OF THE INTERVIEW IS TO GATHER INFORMATION FOR THE INTERVIEWER'S THESIS. THE THESIS EXAMINES COMMUNICATION AND INFORMATION FLOW BETWEEN SELECTED DEPARTMENTS AT NORMIOPASTE OY.

1. Describe the information you need from sales.

- **Design:**
- **Production:**
- **Packaging:**

2. What kind of information do you usually receive from sales regarding a new order initially?

3. Describe the information that is often missing from the orders you receive from sales.

4. Should a checklist be created for sales to fill out when initiating an order?

5. Can you describe a situation where there was a disagreement between the sales and other departments regarding an order? How was it resolved? Or was it resolved at all?

6. How do changes made by the customer to an order affect your work?

7. If you could implement one change to improve the collaboration between the sales and design departments, what would it be?

Appendix 2. Interview framework for the group interview with the sales department

Sales Group Interview

We will start by discussing the schedule and purpose.

THE INTERVIEW WILL LAST 1 HOUR.

THE PURPOSE OF THE INTERVIEW IS TO GATHER INFORMATION FOR THE INTERVIEWER'S THESIS. THE THESIS EXAMINES COMMUNICATION AND INFORMATION FLOW BETWEEN SELECTED DEPARTMENTS AT NORMIOPASTE OY.

1. What kind of information do you usually receive from customers during the initial contact regarding an order?
2. What is the most common piece of information missing from the customer order that the design department needs?
3. What information is always included with the order when it leaves sales?
4. What information is most commonly missing from the order when it is passed on from sales?
5. Does the customer order often change after the order confirmation?
6. Should a checklist be created for sales to fill out when initiating an order
7. Can you describe a situation where there was a disagreement between the sales and other departments regarding an order? How was it resolved? Or was it resolved at all?
8. If you could implement one change to improve the collaboration between the sales and design departments, what would it be?

Appendix 3. Interview questions for process map creation

Questions Related to Visualising the Process

1. When a customer contacts and wants to order a standard sign, how does the process proceed from sales to shipping?

2. How does the order move from one department to another?

3. When a customer contacts and wants to order a custom sign, how does the process proceed from sales to shipping?

4. How does the order move from one department to another?

Appendix 4. Common survey questions 1(2)

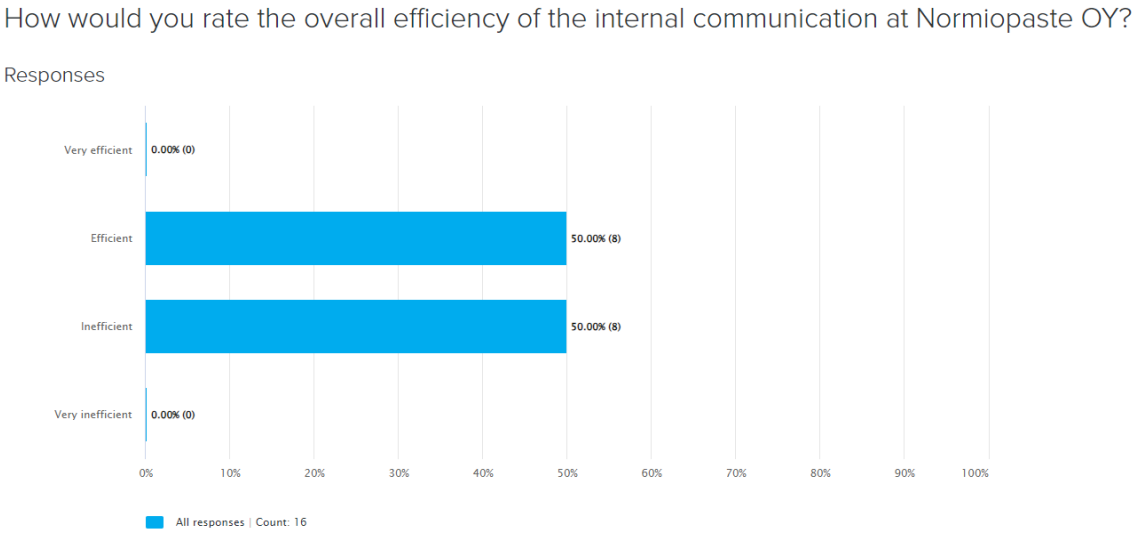

Figure 2. Question 1 of the common survey questions.

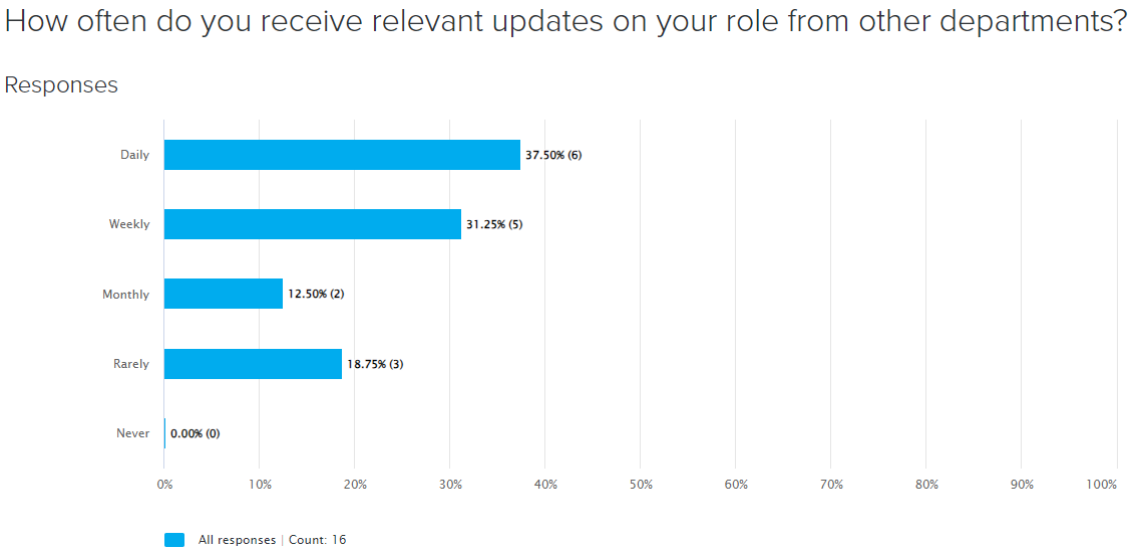

Figure 3. Question 2 of the common survey questions.

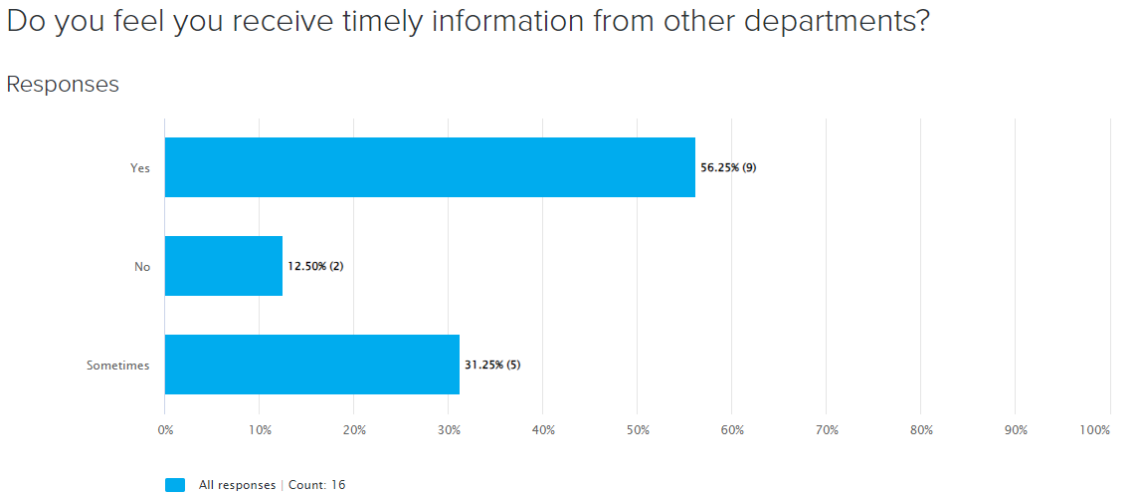

Figure 4. Question 3 of the common survey questions.

2(2)

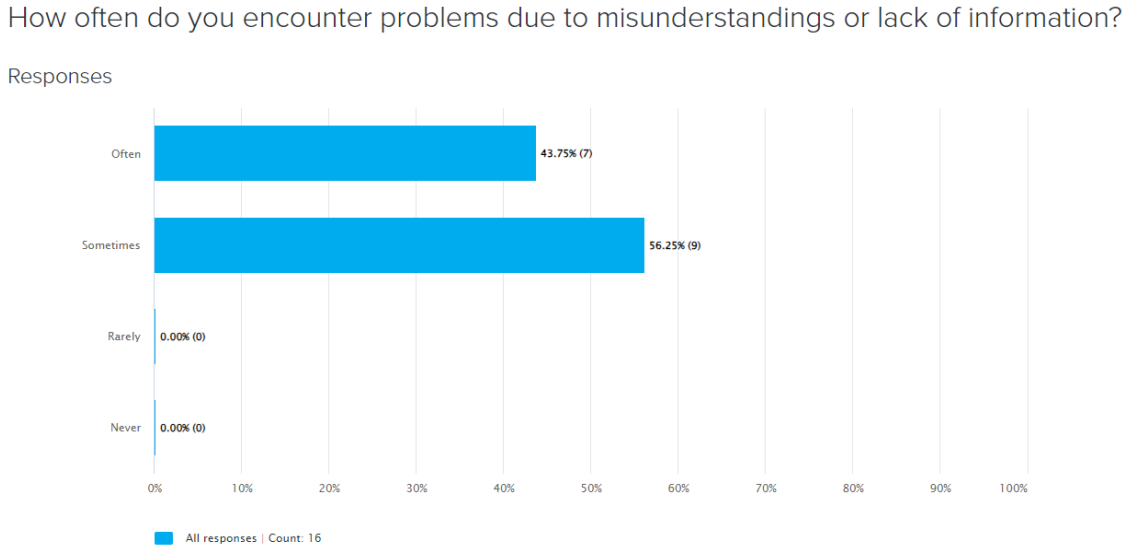

Figure 5. Question 4 of the common survey questions.

Appendix 5. Sales department-specific questions

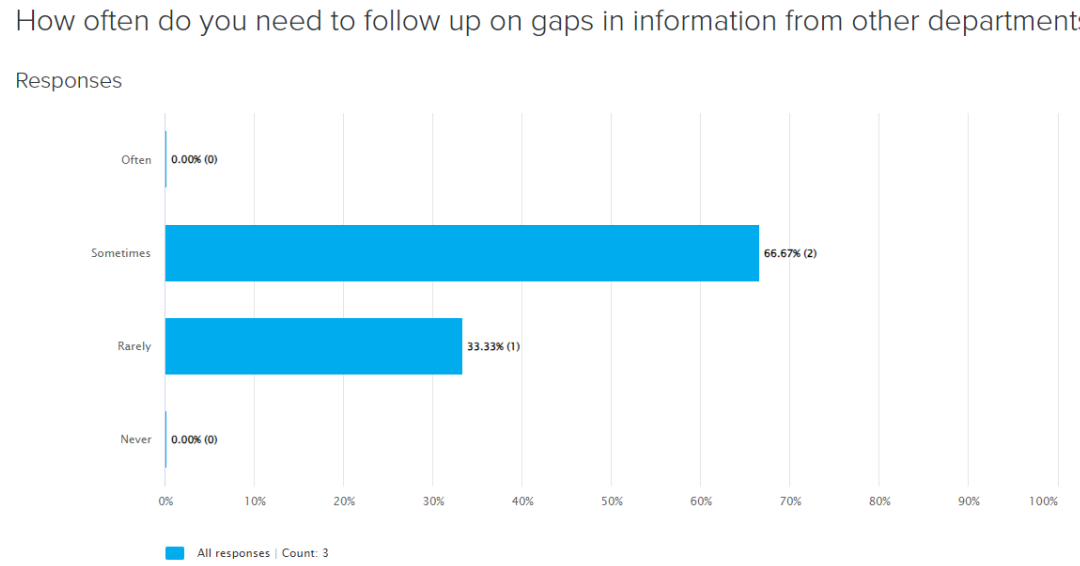

Figure 6. Question 1 of the sales department-specific questions.

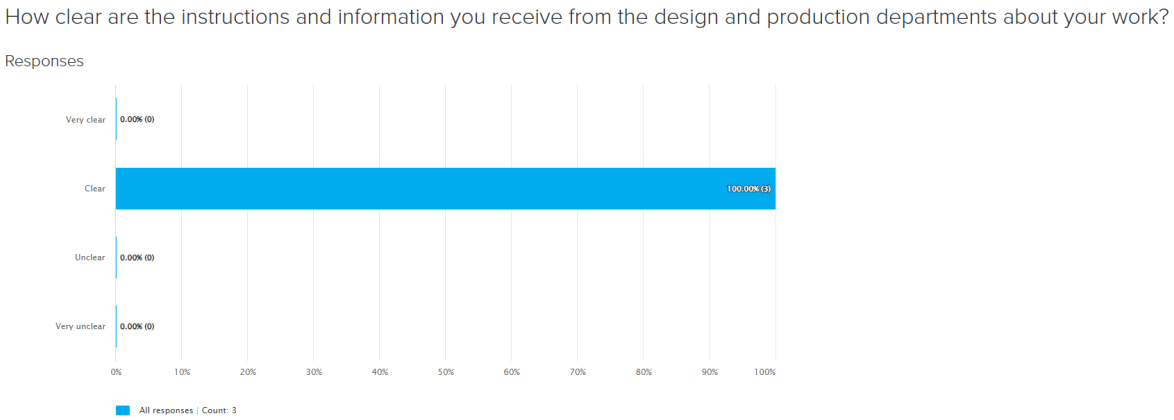

Figure 7. Question 2 of the sales department-specific questions.

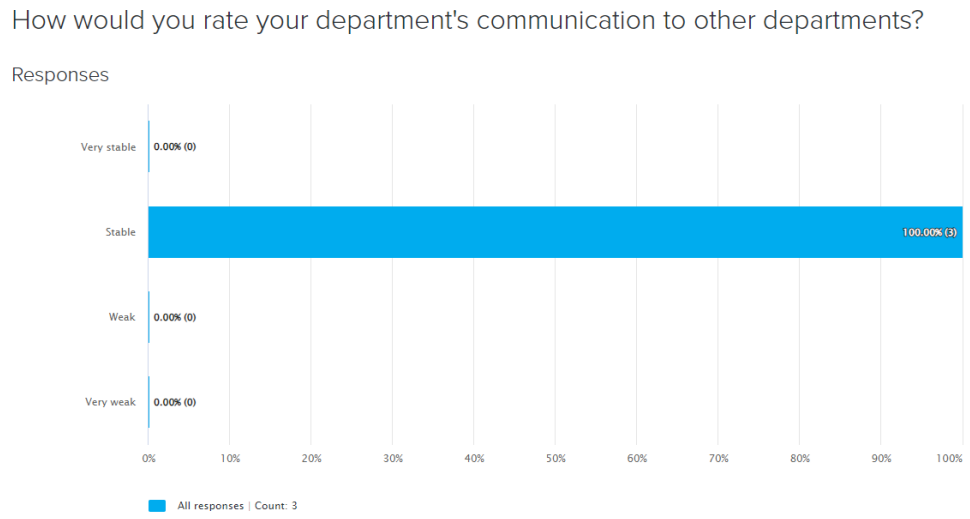

Figure 8. Question 3 of the sales department-specific questions.

Appendix 6. Design department-specific questions 1(2)

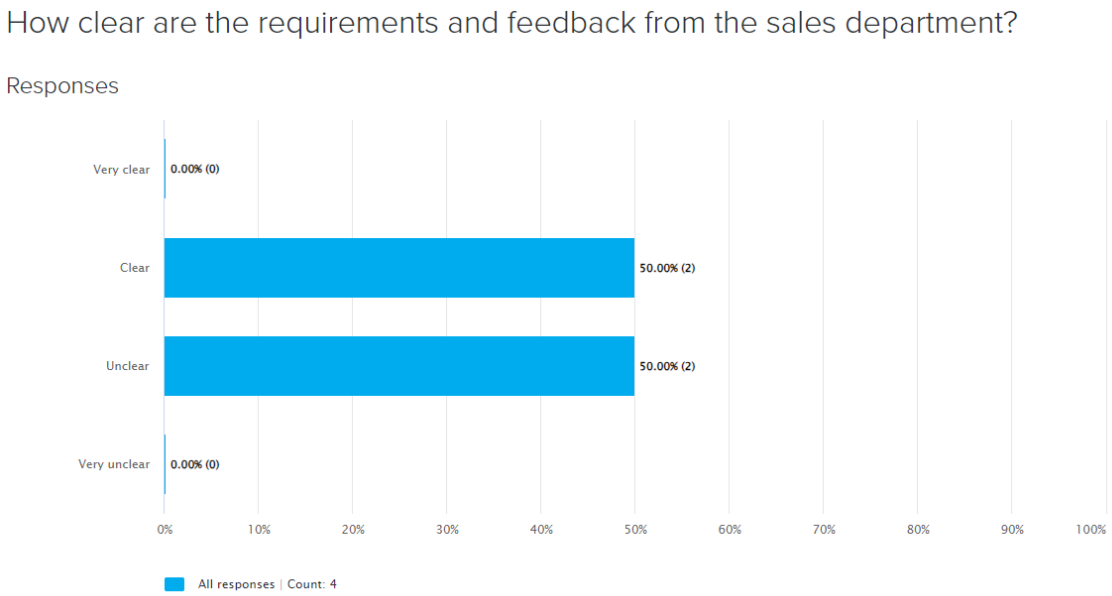

Figure 9. Question 1 of the design department-specific questions.

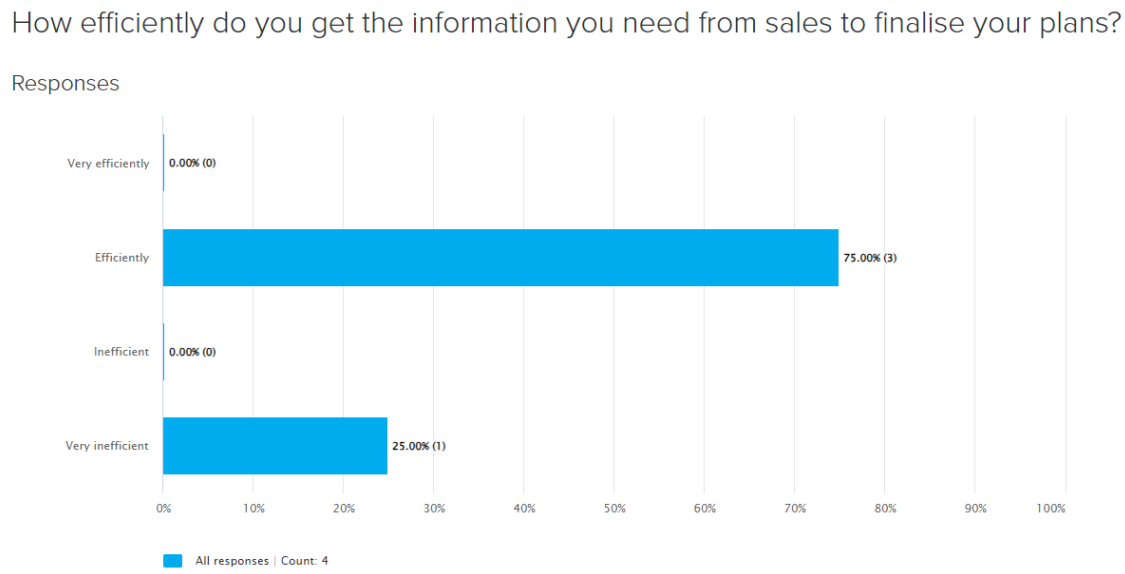

Figure 10. Question 2 of the design department-specific questions.

2(2)

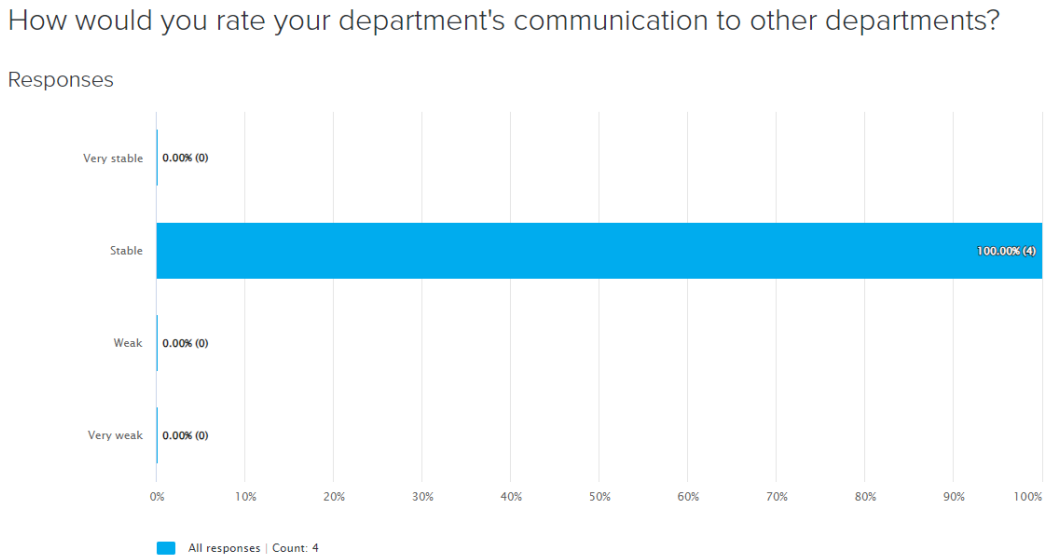

Figure 11. Question 3 of the design department-specific questions

Appendix 7. Production department-specific questions

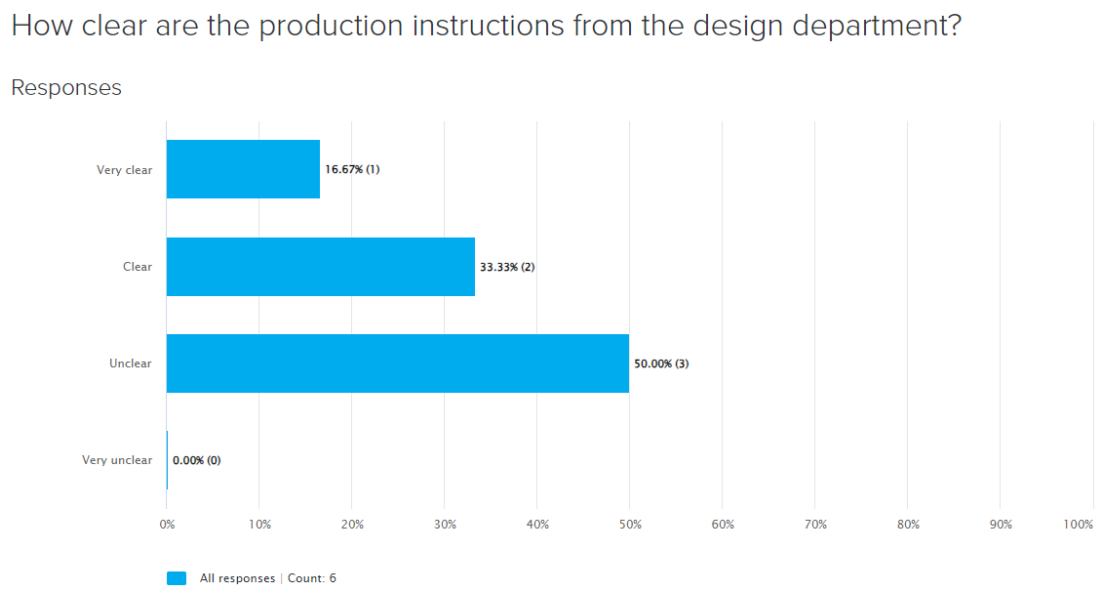

Figure 12. Question 1 of the production department-specific questions.

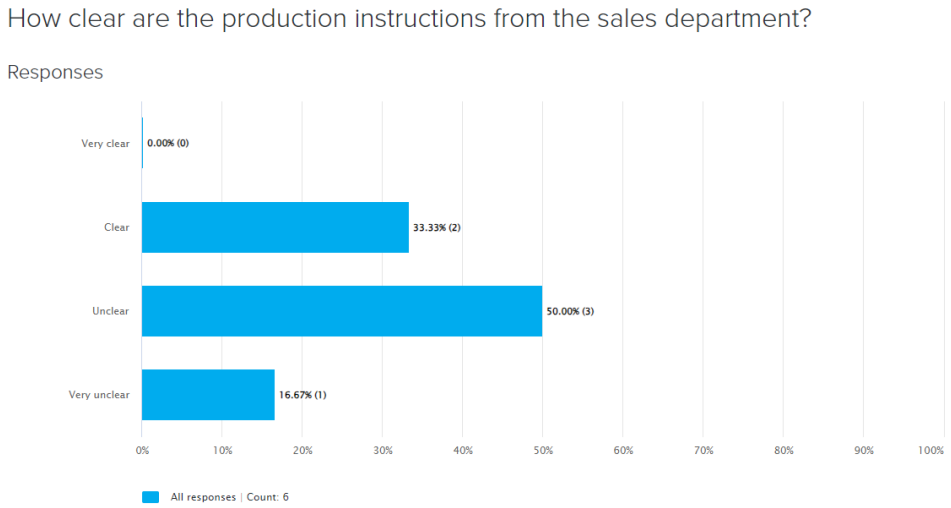

Figure 13. Question 2 of the production department-specific questions.

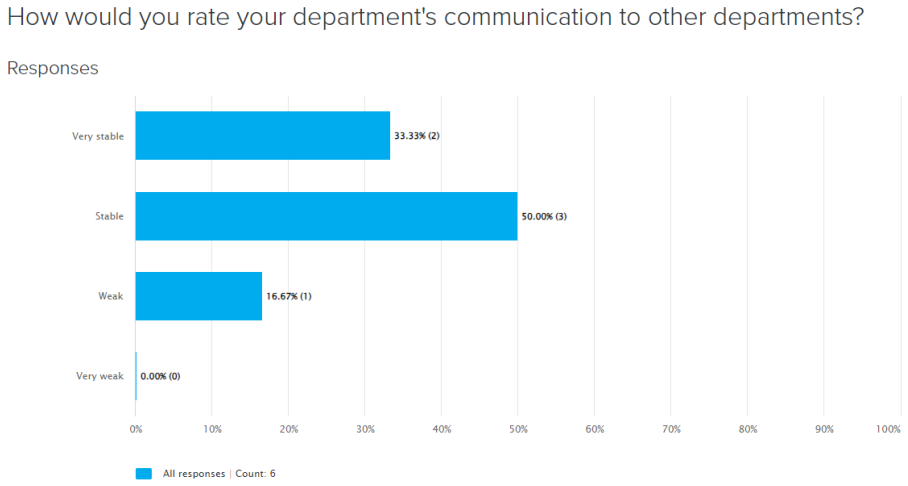

Figure 14. Question 3 of the production department-specific questions.

Appendix 8. Dispatch department-specific questions 1(2)

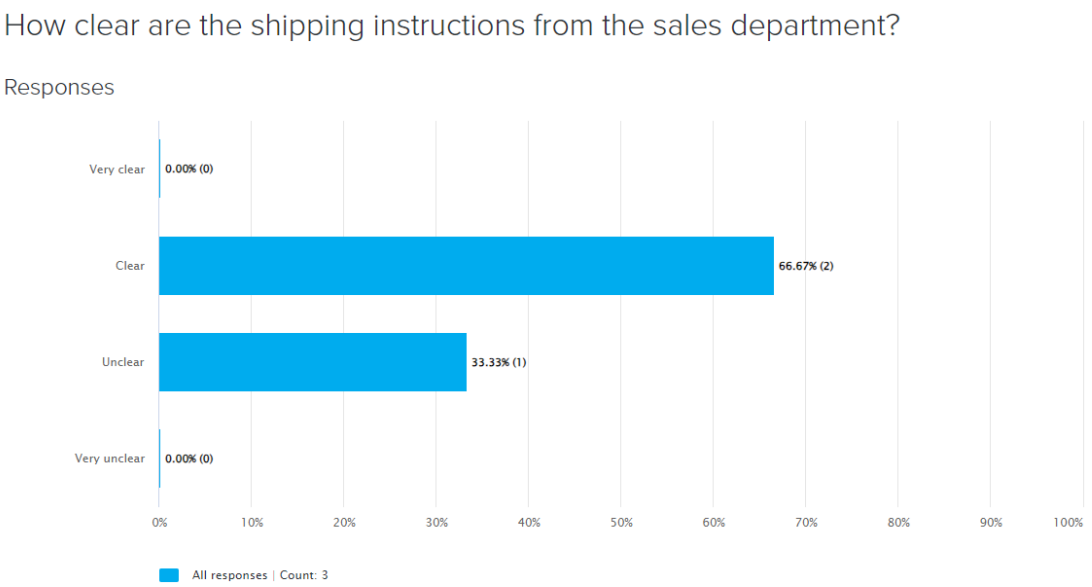

Figure 15. Question 1 of the dispatch department-specific questions.

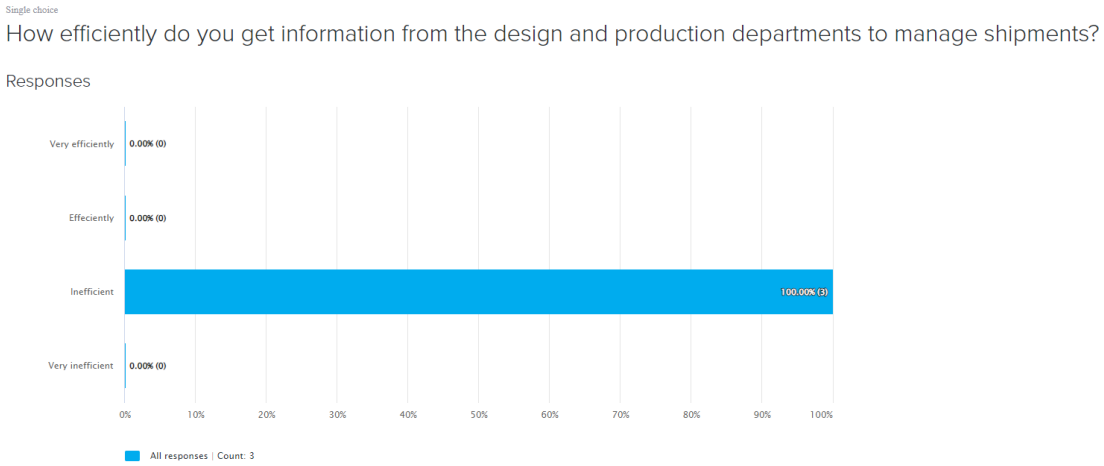

Figure 16. Question 1 of the dispatch department-specific questions.

2(2)

How would you rate your department's communication to other departments?

Responses

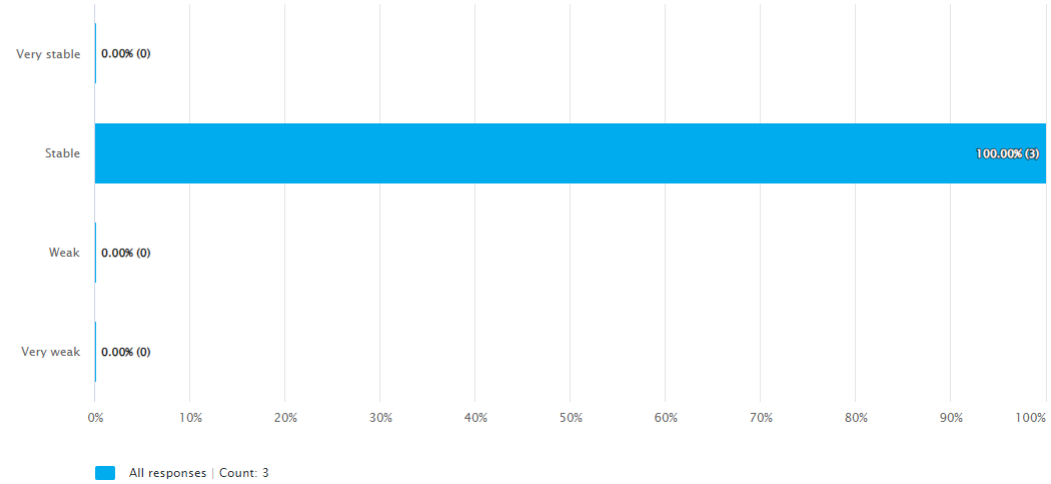

Figure 17. Question 3 of the dispatch department-specific questions.