



Vaasan yliopisto
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Improving Delivery Reliability of the International Project Deliveries

Communication, Cooperation, Coordination

School of Marketing and
Communications
Master's Thesis in
International Business

Vaasa 2023

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ABSTRACT:

International projects are complex deliveries with many uncertainties. Culture, location, language, and the cooperation of many parties create uncertainty and challenges. The research discusses how more effective communication, cooperation, and coordination between those working on international projects affects the success of projects. It will also be discussed how increasing delivery reliability in international project deliveries increases customer satisfaction and reduces costs resulting from delays.

The study examines one Finnish international company that delivers projects around the world. The case study investigates how the delivery reliability of international projects can be improved when communication, cooperation, and coordination between teams are enhanced and developed. The goal is to find out if delivery delays will decrease when these three themes are improved between the teams. The research will also find out what kind of effects delays cause. The research was done by interviewing those who work on international project deliveries every day and using the material provided by the company. A total of six people from four different teams participated in the interviews. These teams work together on international projects, and each team has its own role in the process.

The results show that problems in communication between teams can lead to delays in deliveries. Delays in communication and missing critical information in deliveries causes a delay in delivery when teams have to wait for the correct information and answers. Also, incorrect information in the delivery that needs correction takes time to communicate between teams. Due to the different locations of the teams and several responsible persons, communication mainly takes place via e-mails or chat. Communication can be confusing as there are many participants. The time difference and language can also cause problems, but these are perceived as minor issues. The cooperation between the teams is perceived as good, although there is room for improvement. Cooperation is effortless, but the desire to develop the process, present new ideas, and solve problems is considered to be an advantage that could be improved in the future. Regarding coordination, the teams would like more transparency about the process and to improve the overall process. The roles of the tasks are mostly clear, but some work phases could be reviewed to see if unnecessary work phases can be reduced. The allocation of resources can also be improved due to the increasing workload. A large amount of work immediately leads to the fact that deliveries are not collected and processed in time, which causes delays. The effects of delays are mainly financial, but also customer dissatisfaction if critical parts are missing from the project site. This leads to the work stoppage.

KEYWORDS: international projects, project management, communication, cooperation, coordination

VAASAN YLIOPISTO**Markkinoinnin ja viestinnän yksikkö, Kansainvälinen liiketoiminta**

Tekijä:	Mikael Ylitalo
Tutkielman nimi:	Improving Delivery Reliability of the International Project Deliveries : Communication, Cooperation, Coordination
Tutkinto:	Kauppätieteiden maisteri
Oppiaine:	International Business
Työn ohjaaja:	Peter Gabrielsson
Valmistumisvuosi:	2023 Sivumäärä: 70

TIIVISTELMÄ:

Kansainväliset projektit ovat kompleksisia toimituksia, joihin liittyy epävarmuustekijöitä. Kulttuuri, sijainti, kieli sekä monien toimijoiden yhteistyö luo epävarmuutta ja haasteita. Tutkimuksessa käsitellään miten tehokkaampi kommunikointi, yhteistyö ja koordinointi projektien kanssa työskentelevien tiimien välillä vaikuttaa projektien menestykseen. Tutkimuksessa käsitellään myös, miten toimitusvarmuuden lisääminen kansainvälisten projektien toimituksissa nähdään lisäävän asiakastyytyvyyttä ja vähentävän myöhästymisistä seuraavia kustannuksia.

Tutkimuksessa tutkitaan yhtä suomalaista kansainvälistä yritystä, joka toimittaa projekteja ympäri maailmaa. Tutkimuksessa selvitetään yrityksessä, voidaanko kansainvälisten projektien toimitusvarmuutta parantaa, kun tiimien välistä kommunikointia, yhteistyötä ja koordinointia tehostetaan ja kehitetään. Tavoitteena on saada selville, väheneekö toimitusten myöhästymiset, kun näitä kolmea teemaa parannetaan tiimien välillä. Tutkimuksessa selvitetään myös minkälaisia vaikutuksia myöhästymiset aiheuttavat. Tutkimus tehtiin haastatteleamalla kansainvälisten projektitoimitusten parissa päivittäin työskenteleviä sekä yrityksen materiaalien avulla. Haastateltaviksi osallistui yhteensä kuusi henkilöä neljästä eri tiimistä. Nämä tiimit työskentelevät yhdessä kansainvälisten projektien parissa ja jokaisella tiimillä on oma rooli prosessissa.

Tuloksista käy ilmi, että ongelmat kommunikoinnissa tiimien välillä voi johtaa lähetysten myöhästymiseen. Viiveet kommunikoinnissa sekä puuttuvat kriittiset tiedot toimituksissa tuovat heti viivästystä toimitukseen, kun oikeita tietoja sekä vastauksia täytyy odotella. Myös virheelliset tiedot toimituksissa, jotka tarvitsevat korjausta vievät aikaa kommunikoida tiimien välillä. Kommunikointi tapahtuu pääosin tiimien eri sijaintien sekä useiden vastuuhenkilöiden takia sähköpostein tai chatin kautta. Kommunikointi voi olla paikoin sekavaa monen asianomaisen myötä. Myös aikaero ja kieli voi aiheuttaa ongelmia, mutta nämä ongelmat koetaan vähäisiksi. Yhteistyö tiimien välillä koetaan hyväksi, tosin parantamisen varaa on. Yhteistyö koetaan vaivattomaksi mutta halua prosessin kehitykseen, omien ideoiden esittämiseen ja ongelmien ratkaisuun katsotaan olevan eduksi, jotta prosessia voitaisiin parantaa jatkossa. Koordinoinnin osalta tiimit haluaisivat enemmän läpinäkyvyyttä prosessista sekä kokonaiskuvan läpikäymistä. Työtehtävien roolit ovat pääosin selvillä mutta joitain työvaiheita voitaisiin käydä läpi ja katsoa voidaanko joistain turhista työvaiheista päästä eroon. Myös resurssien allokointia voidaan parantaa työmäärästä ja kiireestä johtuen. Iso työmäärä johtaa välittömästi siihen, ettei toimituksia keretä prosessoimaan ajoissa, jolloin tapahtuu myöhästymisiä. Myöhästymisten vaikutukset ovat pääosin taloudellisia mutta myös asiakastytyttömyyttä, jos kriittiset projektiosat puuttuvat projektipaikalta. Tämä johtaa työn seisahtumiseen.

AVAINSANAT: kansainväliset projektit, projektijohtaminen, kommunikointi, yhteistyö, koordinointi

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1 Introduction

In the current global situation with the COVID-19 pandemic and war in Ukraine, companies have noticed a lot of disruption in their supply chain operations. Major changes in the supply and demand of goods during the pandemic, labor and container shortages have caused severe disruption to international logistics and transportation. Due to the disruptions, companies have had to adapt to new supply chain challenges. Prices have risen and at the same time transport times have lengthened considerably (Attinasi, Balatti, Mancini & Metelli, 2021). According to Attinasi et al. (2021), the uncertainty regarding international trade will continue during the years 2022 and 2023. Companies will therefore have challenges on how to keep transport prices at a tolerable level and how to keep delivery times moderate so that customers' trust in the company as a reliable supplier will remain in the future. This brings us to the actual topic of this thesis.

1.1 Background for the topic of the thesis

This thesis aims to develop one big international Finnish company's internal communication between the teams working in the common field of project deliveries. With developed cross-functional communications inside the company, the firm wants to improve its reliability of international project deliveries. Delivery reliability can be the key for the company to increase customer satisfaction as it is a priority for the company. As Matt Drake points out in his book 'Global Supply Chain Management' (2011, p. 3-4), supply chain management exists to ensure customer satisfaction. Another possible outcome of improved delivery reliability is that the company wants to see if it affects the company's expenses that come from inventory costs and other expenses that come from delivery delays. Another theme in the thesis is a cooperation between different departments in the organization. The departments work together with international projects. Cooperation is necessary for project deliveries to be successful (Badiru, 2008, p. 61). In the study, the state of departmental cooperation is mapped, and how it can be

improved so that communication works even more and delivery reliability increases. The third theme in research is coordination between teams working on project deliveries. Coordination between actions and communication is also essential for cooperation.

In this thesis, the author investigates the company's internal and cross-functional communication, cooperation and coordination between the teams who work in the field of international project deliveries. The company operates globally, and the organizational environment and teams are international. Also, the author will study how cross-functional communication, cooperation and coordination between project delivery teams will affect the delivery reliability of international projects. Reliability can be measured with the Key Performance Indicator (KPI) called On Time Loading (OTL) indicator, which tells how many deliveries are left on time from the company's warehouse. Regarding delivery reliability, delays can have causes for customer satisfaction, and delays can cause extra expenses for the company.

Currently, the case company has delays in deliveries which are caused by lack of communication between three different teams working with project deliveries. Lack of communication can be seen with missing information necessary for delivery to departure to the right location, at the right time and with the right components. It can also be seen that the level of cooperation and coordination between teams can be increased. This would lead to better cooperation and information sharing between teams. The fact that each team has the necessary information is especially important so that the parts needed for the projects can be delivered on time.

1.2 Research gap

There are a lot of studies about communications, cooperation and coordination between teams inside the organization and studies about delivery reliability and supply chains. There are only a few studies that connect these things together.

Another main focus area of the thesis is the importance of communication and information flow to the reliability of deliveries. Usually, time and costs are the main things to consider when making distribution decisions, and lead times are important for project deliveries. The firm needs to plan how it can with better communication and information sharing to make distribution more reliable (Durugbo & Alcock, 2013). Also, suppose the communication and information flow inside the company have delays and disruptions. In that case, it affects the reliability of deliveries and can cause unnecessary costs in the warehouse and costs when projects are delayed. Communication is one element of how the project can succeed (Badiru, 2008, p. 47).

Lack of cooperation or problems in the cooperation between teams can cause failures or delays to the projects (Badiru, 2008, p. 61), so it is crucial that cooperation is in good shape and planning together and partnering up for success can be done. Good communication and cooperation can help increase delivery reliability of international project deliveries, but it also needs coordination among the teams working on the projects. Coordination is the aspect that seals the cooperation between partners (Badiru, 2008, p. 81). With coordination, the organization can avoid unnecessary delays that are included in the processes, helps to solve common problems, and focuses on the key elements that are on the table currently in the project.

As the projects are international, that bring more complex and challenges and therefore, better communication, cooperation and coordination are crucial for teams to succeed. In international projects, different teams are located geographically in different locations. That is mostly the reason that communication is happening virtually (Aarseth, Rolstadås & Andersen, 2014). Many parties also work on the international projects, so cooperation with those who participate in the projects is important. The importance of coordination is also emphasized in how complicated the sending of international projects is. In the process, the teams may have different tasks in the projects, but with the help of coordination, the teams can combine their actions and get the shipments to go out on time (Adenfelt, 2009).

1.3 Aim, research questions and objectives

The thesis aims to understand possible problems related to cross-functional communications in an international environment related to project deliveries and how they can be improved in order to develop delivery reliability. At the same time, the study discusses how cooperation works between teams working on international projects and how it can help delivery reliability and communication. Finally, we also study the effect of coordination between teams on communication and delivery reliability. If the delivery reliability can be improved, it can increase customer satisfaction and decrease expenses related to inventory and delay expenses.

As a result, the following questions will guide the research:

1. How does cross-functional communication between teams affect the delivery reliability of international project deliveries and the On-Time-Loading (OTL) indicator?
2. How can better cooperation and coordination between teams improve the performance of the teams, who works on international projects deliveries?

By answering questions above, concrete information about the problem areas of the company's supply chain processes can be observed, especially the communication between different teams within the company. The concrete goal of the thesis is that the company can use the findings studied in the thesis to improve its own supply chain processes. Integration and coordination of processes and better communication and cooperation between teams in the organization can bring both reliability and cost advantages to the company.

1.4 Thesis structure

The thesis is divided into five different sections. The first chapter is an introduction that gives background to the thesis and leads the reader to the topic. The thesis aim, objectives and research questions are presented.

The second chapter is a literature review. In the chapter, key elements and topics of the research are presented. The author has mostly used topical and peer-reviewed articles and literature as sources. Too old literature has tried to be avoided due to the accuracy of the information.

In the third chapter, "Research method", the implementation of the research is presented, and how the research is done. In the same chapter, the case company and its international project delivery process is presented. In the same chapter, limitations, reliability, and validity of the research is discussed.

The fourth paragraph presents the findings of the study. Findings are categorized in three different themes. Also, differences between four different teams are reviewed.

In the fifth and last paragraph, before mentioned research results are discussed and explained where the results come from, what results caused and what they affect. The chapter also focuses on suggestions based on the research on how the teams can use the information from the research and thus improve their own operations. The last chapter also reviews the limitations related to the research and how the subject could possibly be researched more in the future.

2 Literature Review

In this chapter, the author goes through the theoretical basis for cross-functional communication, cooperation, and coordination between teams working on international projects. Triple C Model will be presented. Also, a literature review of international projects and delivery reliability will be looked through.

2.1 International Projects

International projects are often complex deliveries in terms of price, delivery reliability and planning. Projects in themselves are much bigger deliveries than make-to-stock deliveries of individual packages, which also creates variables in delivery. The internationality of the projects also brings challenges (Seifter, 2017). The global business environment also allows companies to develop and find new ideas and approaches to improving efficiency and competitiveness in global operations. Improving efficiency is the first approach to developing global supply chains and why companies want to develop themselves (Muntaka, Haruna & Mensah, 2017).

Project deliveries are usually machines, production equipment, or industrial plants. They also include the installation, assembly, and related construction work of machines. Project deliveries are large, usually international deliveries. They include both internal and external manufacturers, and deliveries usually have long lead times. Project deliveries are a large part of global trade (Seifter, 2017) and are a dominant part of international business (Skaates & Tikkanen, 2002).

Companies that provide large projects need versatile connections to the areas of international business. Projects are usually shared by many actors, and common collaboration between actors is needed in a global network. Cooperation can include different organizational levels within the company and actors in different locations. In addition to the collaboration inside the company that is delivering the project, the global

network usually also includes customers, distributors, and other companies (Momeni & Martinsuo, 2018).

Irregularity in demand, customization according to the customer's wishes and insufficient time, and numerous actors in the process make project deliveries very different compared to normal business-to-business operations. To deliver such a complex delivery, good integration and interaction between different parties working on the project are required. In project deliveries, the company must prepare, organize, and control the specific project and customer. These may also include post-delivery services, i.e., maintenance and spare parts (Momeni & Martinsuo, 2018). A global operator must be able to send projects to clients in different locations around the world.

International and global projects also strongly involve cultural differences, many different organizations, as well as inter-organizational and work between different functions within organizations and challenges related to working between groups (Binder, 2007). There are also five different variables in international and global projects that create challenges and things that must be taken into account: Language, locations, organizations, cultures, and different time zones. In addition to these five, the management level must take into account the teams working on the project, communication, organizational support, and collaboration tools and technology. Those working with project deliverables can be divided into different teams, each of which has its own task (Fossum, Binder, Madsen, Aarseth & Andersen, 2019). Teams located in different locations are also a big characteristic of a global project. When there are teams in different countries, there are challenges such as language, culture, and time differences.

International projects almost always require necessary cooperation between different actors. Whether it is cooperation with external factors or within the organization, cooperation is needed. When international projects involve many teams in different locations, interaction also takes place virtually. Dealing with different actors can lead to

problems. The problems can be in communication or coordination, leading to increased costs or friction between parties involved in projects and time delays in delivering projects. Since international projects are complex and distances can be long, costs or time losses can also be significant. International projects require good preparation, planning, and knowledge of international projects (Aarseth, Rolstadås & Andersen, 2014). Virtual interaction, different cultures, and previous inexperience in working together can cause a lack of trust between actors. It is also important that virtual teams are able to communicate effectively with the help of current information technology (Anantamula & Thomas, 2008).

2.2 Triple C Model

In various projects and their deliveries, communication, cooperation, and coordination are vital to the project's success. The Triple C Model has been developed for this purpose, which consists of the words Communication, Cooperation, and Coordination. In this chapter, the main points of the Triple C model will be presented, as how the model helps and benefits different departments when teams are responsible for projects. Integration between teams is the key to good execution of these three. Everything starts with good communication. As Badiru writes (2008), Communication leads to Cooperation, and then Cooperation leads to Coordination. With better communication, cooperation, and coordination, the project will succeed. The Triple C Model is used in project management as an aid for planning and controlling, organizing, and scheduling. 3Cs, as mentioned by Alaloul, Liew, and Zawawi (2018), is an important model if a company wants to improve its efficiency in operations within the organization. It helps the allocation of resources to be better organized.

Cooperation and Coordination are important relationships within the organization as well as between different departments. (Castaner & Oliveira, 2020). They are also linked together. For example, good communication is not good cooperation or coordination between actors.

2.2.1 Communication

Teams working with global and international projects face a lot of uncertainty about the nature of the projects. International projects are much more complicated because of cultural differences, language, and distances. Communication can be much more difficult, but it is also the key to avoiding complexity and uncertainty (Browne, Dreitlein, Manzoni & Mere, 2016). With communication, people can share information but also create community and commitment to each other and to projects. Communication unites the teams working on the projects and helps set the strategy, goals, and how to act. Poor communication can cause problems and a decrease in efficiency. Communication in projects is successful when each team communicates effectively with the other team. Communication is sharing information and comparing it, teamwork, and integration. Communication should also be continuous (Bizjak & Faganel, 2020).

Anantamula & Thomas (2008) points out that communication is one of the main reasons that can impact international projects. Teams that work on international projects are usually in different locations, so communication between teams is handled virtually and using information technology. Communication is one factor that creates and maintains trust between parties in projects, and communication must be clear and open. When the projects are transnational, they are also affected by the time difference and culture. Effective communication also requires planning, control, and reliable information systems.

With the help of communication, those working on the projects stay up-to-date on how the project is progressing and what is still required for the project. Communication must touch all parties who work with the project and communication must be open in both ways throughout the project and its delivery (Badiru, 2008).

Paul, Drake & Liang (2016) also highlight problems caused by ineffective communication. One example is used when communication takes place virtually and not face-to-face. It

creates temporal and spatial problems and can lead to late responses that momentarily affect the project and its coordination. Paul et al. (2016) highlights task-oriented communication, i.e., when everyone has received the necessary information to perform, which increases trust in others and the project's future when it is known how the team will perform. A flexible environment helps the organization communicate and coordinate projects because it reduces the risk of inefficiency. Flexibility also increases positivity in communication and, thus trust that the project will succeed (Paul et al., 2016).

In the operational work of an international organization, communication between different departments plays a critical role. As Ganapathi (2016) says in the article 'Internal Communication in the International Organizations', communication inside the organization is one of the most important things when considering the organization's development and stability. It eliminates possible obstacles, and most of the problems within the company are caused by poor communication between units. Internal communication is information sharing, participation in collaborative processes, coordination, and cooperation between employees. It is also a tool in the development of the organization. Communicating new ideas, dialogue, handling problems, and joint decision-making (Ganapathi, 2016).

Communication between departments directly affects how the departments perform their assigned tasks. When the right information is received promptly and without problems, communication is effective, and employees can perform their tasks (Pirjol & Radomir, 2016).

Coordination and collaboration between functions inside the company require interaction and clear communication in order to achieve better performance (Mentzer, Myers & Stank, pp. 428-429, 2007). Good communication affects the information flow between two teams which is crucial for good performance. Collaboration links much more to relationships between functions and how teams work for a common cause and share their resources. The company must encourage open dialogue between the

functions inside the company. According to Mentzer et al. (2007), there are three elements that active and integrated coordination between the functions implements: Open communication, Collaboration, and an organizational climate that supports those mentioned before.

Information flow is important because it helps the organization complete its most important business tasks much more efficiently. On the other hand, late and broken information can cause problems in supply chains. Sharing information is essential in managing demand and orders, but also in the organization's dynamic environment, which involves uncertainties and disruptions in supply chains. With the help of information, lead times can be shortened, costs are reduced, responsiveness is developed, and decision-making is helped (Wu, Yue, Jin & Yen, 2016). In general, the information that comes from the customer is more necessary. Other important information for the company is related to storage, prices, transportation, locating, capacity, quality, and technical information. The company is a producer of information but also a user of information. The information flow is information shared between the company and the partners connected to the supply chain, but also internal information.

It is important that in order to develop the availability of information, it is necessary to identify what information both the company and its partners need. Without specific knowledge about what information is needed, it is also difficult to share it in the different phases of the supply chain. According to this, communication would be much more difficult. In order to achieve the necessary benefits from sharing the right kind of information, sharing information also requires integration. Information sharing is one of the key drivers of Supply Chain Performance and how to improve it. A company can achieve better coordination in different areas of supply chains if it develops information sharing. (Wu et al., 2016).

Communicating and sharing meaningful and timely information, whether be formal or informal, gives more motivation to the partners in the supply chain when it is openly and

smoothly done. It also develops better coordination between operators (Wu, Chiag, Wu & Tu, 2004). Communication is also an important part of raising the commitment of different supply chain partners. Open communication is key to high continuity expectations. Increasing communication and commitment is an important link in the integration of the company's supply chain management processes, processes such as customer relationship management, demand management, and new product development. Commitment has a significant role in the company's internal operations and relationships. Short-term sacrifices to maintain their long-term and stable relationship and feeling of belonging and attachment to the firm. Partners share common goals in work. These can create and increase joint coordination internally (Wu et al., 2004).

2.2.2 Cooperation

Many projects fail because there has not been enough cooperation between the actors (Badiru, 2008). Cooperation can be of many kinds, such as Functional or Social cooperation. Functional cooperation is when two functions of different natures and their groups start cooperation in the organization. When these two different functional groups work together, it helps the whole project and its performance. Social cooperation is again the relations between two different groups and the cooperation formed by them. These relationships motivate the groups to cooperate in the project so that it succeeds. The cooperation aims to achieve the project's goals. The priorities of how to proceed in cooperation should also be clear so that each group knows what is most important in the project at that very moment. (Badiru, 2008)

Cooperation is working together with others towards common goals and working together for a common purpose (Mohrana, Murty, Senapati and Khuntia, 2012). Cooperation is also strongly related to commitment, i.e., how well the groups from different functions participate in the project and that it is completed as well as possible.

It is agreeing on mutual goals and shared understanding between partners to pursue the agreed goals (Castaner & Oliveira, 2020).

Cooperation as a concept is, according to Castaner & Oliveira (2020), the desire to create cooperation that brings the common interest before one's own interest and which benefits the parties. The cooperation aims to promote common interests and help cooperation to work more efficiently. It can also be the sharing of resources, the joint fulfillment of the goals of various activities, and the sharing of risks and costs. It can also be the so-called Interorganizational Friendship Ties, i.e., the desire to help one another. It can be a shared desire to share information, as well as a desire to see things from the other party's perspective. Cooperation can also include joint decision-making and joint action in front of tasks. (Castaner & Oliveira, 2020)

Schalk and Curseu (2010) state that cooperation is the thing that separates a well-functioning and a poorly-functioning organization from each other. And not only the cooperation itself but what kind of quality the cooperation is in the organization. With the help of cooperation, the organization can operate more flexibly if changes occur in its environment and its internal connections between the different functions of the organization improve. Also, in the article by Schalk and Curseu (2010), the definition of cooperation is when different individuals act and work together towards a common goal. Also, the definition is that each individual works for the common good. Each individual has a goal they pursue in cooperation and takes advantage of social interaction. Schalk and Curseu (2010) emphasize the importance of cooperation in modern multinational organizations, where cooperation occurs across borders and at different times. Virtual interaction is emphasized, and cooperation must consider the different cultures that can be accommodated in international organizations. Organizational processes are much more complex nowadays in a global environment.

Cooperation is helping, supporting, and joint actions that help the team to achieve common goals and perform their tasks well (West, Tjosvold & Smith, 2003, pp. 3-5). In

cooperation, in addition to accomplishing their own achievements, individuals also want others in the team to achieve their own goals. This interactive collaboration creates the basis for relationships, openness, and increased efficiency. Cooperation and the better allocation of resources it brings, as well as the sharing of ideas, helps to create innovations and bring new value to its customers and other stakeholders. Cooperation also binds the workers to the organization. According to West, Tjosvold, and Smith (2003, p. 287), cooperation is also affected by how diverse teams are, both relation-oriented i.e., in terms of gender, age and ethnicity, but also task-oriented i.e., in terms of work functions and their differences. More diverse teams create motivation and trust in teams. Trust and relationships between teams lead to advanced collaboration, sharing resources, and supporting others.

2.2.3 Coordination

Badiru (2008, p. 81) defines coordination in projects as follows:

Project coordination is a balanced choreography of teamwork across the various elements of a project organization and among several members of the project team.

With the help of coordination, teams that cooperate and work on projects are able to manage the necessary work together, set schedules, and integrate the different phases of the project. With the help of coordination, the aim is to reduce unnecessary work steps, use resources better, and prevent double work. With the help of coordination, the aim is to reduce various disturbances and risks associated with project deliveries. Coordination is also an excellent way to identify and develop processes related to project deliveries (Badiru, 2008, pp. 81-94). Development should also be continuous, and it would be good to identify problems in good time.

Coordination has been used within the organization to achieve similarity between partners and to avoid confusion in, for example, processes. With it, processes are

clarified, and unnecessary waste of resources is avoided. According to Sobero and Schrader (1998, p. 585), coordination can be of two types: Contractual and procedural coordination. Contractual coordination is a cooperation between two actors and the sharing of rights. Procedural coordination, on the other hand, is the sharing of necessary information between actors. Usually, when talking about coordination in the thesis, the author is writing about procedural coordination, i.e., information sharing and communication between actors (Castaner & Oliveira, 2020). Communicating and sharing information is sharing tasks and division of work, cooperation, and combining or sharing resources. All of these require communication within the organization so that the division of work or the coordination of the pooling of resources is successful. Coordination also involves setting common goals and communicating them between actors such as departments. Coordination is the unification of actions in order to achieve common goals.

Coordination is a more active activity of cooperation between two parties. With the help of coordination, two separate functions are made to work together. Coordination is more interactive cooperation, making joint decisions, developing processes, and influencing the other party (Moharana et al., 2012).

Paul, Drake & Liang also present in their article (2016) that coordination aims to combine the activities of two or more different entities within the organization. With the help of coordination, the work of each actor is divided and individualized, the necessary information is shared among the actors, and actions are synchronized. Also, Paul et al. (2016) highlights the connection between communication and coordination. Effective communication between teams is needed for coordination to work, and communication must be clear and on time.

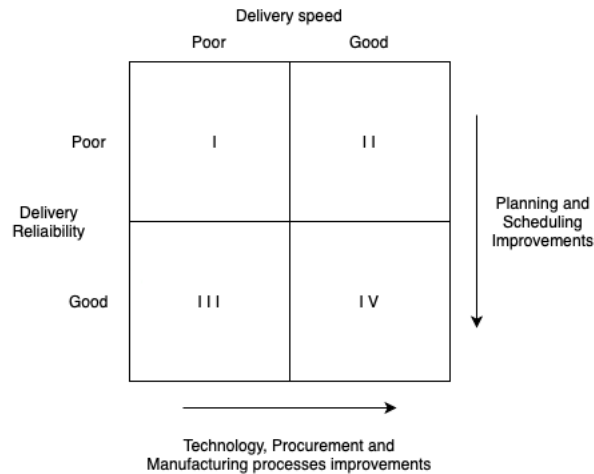
Charles Osifo's findings in his article 'The Effects of Coordination on Organizational Performance: An Intra and Inter Perspective' (2013) also highlight the importance of coordination when an organization wants to improve its own performance. Osifo brings

up how coordination is important in terms of, for example, supply chain management, where the cooperation of everyone involved, the sharing of the necessary information and the integration of functions improve the functionality of the organization. It can also increase efficiency, and Coordination is an important element in increasing reliability between different actors and improving cooperation. In his article (2013), Osifo mentions how the interaction between actors leads to cooperation, and cooperation leads to trust. This is a prerequisite for the organization's performance to improve.

2.3 Delivery reliability

This chapter discusses the reliability of supply chains and deliveries. Salonen (2019) writes that a shortfall in deliveries brings problems to turnover and profitability. Turnover decreases, and problems with deliveries and their investigation also take away profit. Salonen also adds that delivery reliability is the key to customer satisfaction. When the customer receives deliveries on time and at the right price, it hardly affects the image in a positive way – because that's how it should go. But, when the shipment is late, something is missing, or the price is not right, the impact can be very negative. Poor quality reduces customer satisfaction.

Handfield and Pannesi (1992) mention that delivery reliability is the company's ability to deliver on time to the customer, either by the promised date or earlier. The following picture shows how delivery reliability can be improved with better planning and time management. Improving the delivery speed, on the other hand, involves developments in the company's processes.



Picture 1. Delivery Reliability and speed matrix. (Handfield & Pannesi, 1992)

Ngaliman (2019) also discusses about the importance of delivery reliability compared to customer satisfaction and how it increases it. If the company has the capabilities to deliver the products the customer wants, and as agreed, on time and with high quality, it has a positive effect on the customer's satisfaction. The higher the customer's expectation of the company's operational reliability, the more satisfied the customer is if the shipment arrives on time.

According to Ngaliman (2019), in addition to operational reliability, it is important how the company can find the ability to react to changes in deliveries and the desire to help the customer quickly and reliably when getting new and critical information. Also, Melnyk (2010) discusses about Responsiveness in the article 'Outcome-Driven Supply Chains'. According to Melnyk, the goal of responsiveness is the company's ability to respond to changes in demand or, for example, a change of delivery location quickly but also cost-effectively. Melnyk also takes Resilience into account. How the company can identify, monitor and reduce risks and disruptions related to supply chains. This is also related to the company's ability to react quickly. The importance of resilience can be

seen, for example, in the recent COVID-19 pandemic. There were a lot of disruptions in the supply chain market that increased transport prices and lead time (Attinasi et al., 2021). The importance of resilience can be seen in how efficiently and cost-effectively these disruptions are dealt with. Salonen (2019) also mentions the importance of preparation, even if there is no crisis, demand spike, or problems in international supply chains. It is better to be prepared in advance than to start solving problems only after the situation is on.

Through the reliability of delivery, a company can gain a reputation for itself, which can be an important competitive advantage compared to other competitors. Building an Agile or flexible supply chain can not only help a firm handle disruptions due to variability, uncertainties, or catastrophes but also positions the firm to be able to take advantage of positive, unforeseen opportunities to serve customers in new ways (Drake, 2011).

In his book, Jouni Sakki (2014) also highlights quality and certainty in the company's work and operations to satisfy customer needs. Sakki writes about how good Supply Chain Management can improve the efficiency of external matters, i.e., service efficiency. It emphasizes the development of operations so that customers are satisfied. At the forefront are quality and security. Quality comes from the fact that the company is able to deliver the products at the customer's desired time, the delivery includes all the products ordered by the customer, the documents match the order, the launching and using of the products goes smoothly and the product features match the customer's order. If the quality is desirable, the company is reliable in the eyes of the customer because it has the ability to meet the customer's expectations.

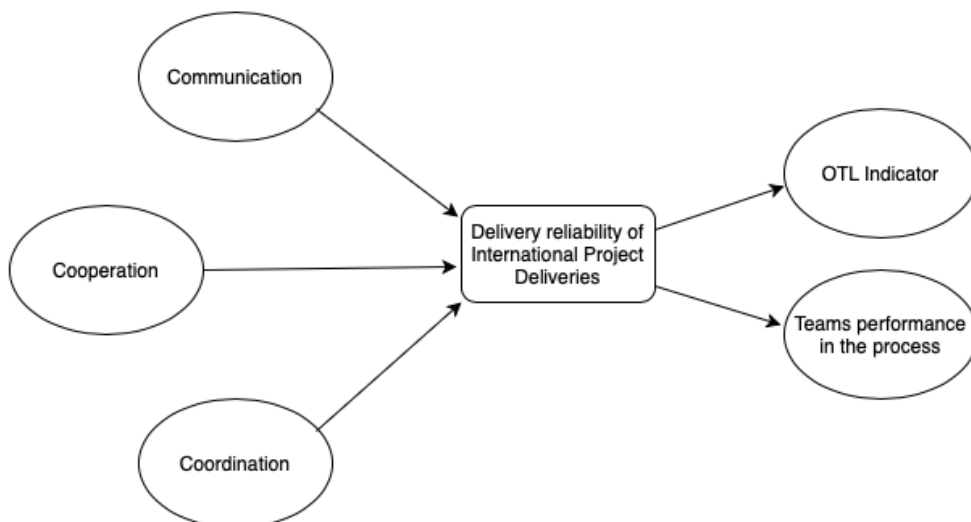
Sakki also highlights the term serviceability. It corresponds to the previously mentioned responsiveness ability. According to Sakki, this should be measured from the customer's point of view. The reliability of deliveries and how customers perceive the reliability are precisely related to serviceability. Also, price competitiveness, ease of process and

delivery, and sustainability are important elements for the customer and should be included in the company's service capability (Sakki, 2014).

Time is also an important element in project deliveries and related issues that require attention and can be negative in terms of deliveries: Delivery delays, delays of key tasks, change of dates, unreliable time estimates, time-consuming problems, and need for escalation (Badiru, 2008, p. 86). In the article presented by Fossum, Binder, Madsen, Aarseth & Andersen (2019), it was found that the majority (49.6%) of global projects have been completed later than the planned schedule (In comparison, according to plan, 40% of projects completed on time and 10.4% ahead of schedule).

2.4 Framework for the study and Hypotheses

As the different theories are presented in the previous sections, based on them, the framework for the study is presented. The theories presented earlier are the base of the framework and it includes the Triple C model and delivery reliability theories tied together with international projects.



Picture 2. Framework for the study

The purpose of the framework is to identify the cause and effect that Communication, Cooperation, and Coordination have on the delivery reliability of international project deliveries. The possible effect can be seen in the Key-Performance Indicator, OTL (On-Time-Loading) Indicator, and the performance of the different teams working on the project deliveries. With the framework, the problems can be identified, and it gives data on what is working and what is not. It can also bring up the issues that the process currently faces, and after that, possible solutions and changes can be made in the process.

With the help of the framework presented, the goal is to get answers to the two research questions mentioned at the beginning of the thesis: “1. How does cross-functional communication between teams affect the delivery reliability of international project deliveries and the On-Time-Loading (OTL) indicator?” and “2. How can better cooperation and coordination between teams improve the performance of the teams, who works on international projects deliveries?”. The framework is the guide for the research and methodology presented in the next chapter.

As a hypothesis in the research, it can be generally assumed concerning the theories presented above that the improvement of all three C's (Communication, Cooperation, and Coordination) between the teams leads to the development of the process and a significantly smoother flow of the project delivery process (Badiru, 2008, pp. 29-31). Active communication, cooperation where the goals are clearly set, and coordination between each team regarding clear actions and improvement of problems leads to a smoother process and thereby reduces the most common problems that occur currently. The reduction of problems and developing process is expected to bring results in the reliability of delivery of international projects and in getting them to go to the customer in good time, as Handfield & Pannesi (1992), points out in their article. As a hypothesis, it can be assumed that with the help of the improved Triple C, delivery reliability improves, and it is also reflected in the company's OTL indicator, i.e., when the goods have left for the customer.

3 Research Method

In this chapter, we go over how the research itself is implemented. The research case company is presented, and the methodology methods are presented. Also, the project delivery process is explained, which this research focuses on.

3.1 Research approach

The research deals with one case company that operates in the manufacturing sector in Finland. The company is a large global and public limited company. The research is related to the project delivery part of the company. Several units in the company work with project deliveries, but this study focuses on three different departments that together plan, coordinate and implement project deliveries. Communication is extremely important between these three departments. Most of the information transmission takes place through communication, which is important in terms of the price of project deliveries, parts, delivery conditions, delivery times, and so on. If there are changes in the deliveries, for example in terms of parts or delivery times, effective communication between the departments is essential so that the delivery is not delayed or, in the worst case, the parts end up in a different place where they are intended.

In the study, key personnel from all departments who work daily with project deliveries are interviewed. Possible problems and botched deliveries are highlighted, and their cause-and-effect relationships are discussed. In contrast, we look at successful deliveries and the reasons that led to success. It is also important that the most important people involved in the process present things that they expect the other department to do in order to improve the smoothness of the process and avoid possible delays.

As Saunders, Lewis & Thornhill write in their book 'Research Methods for Business Students' (2007, pp. 139-140), a case study is a good approach for research that deals with phenomena through real-world examples. It also helps to better deal with a

phenomenon that has not yet been studied by others. A case study helps to tell the answers to the questions why, what and how. As mentioned before, the research questions that are investigated in this thesis are " How does cross-functional communication between teams affect the delivery reliability of project deliveries and the On-Time-Loading (OTL) indicator?" and " How can better cooperation and coordination between teams improve the performance of the three teams, who work on project deliveries?". Yin (2003) also mentions "embedded case studies", i.e., where specific units and groups within the organization are studied. That is why it is good to study this research through a case study because the processing involves three different units within one organization. The research is conducted as a qualitative study. Qualitative research is suitable for a case company because people working on the subject are being interviewed. Possible findings and suggestions for improvement are easier to find when key people are openly interviewed about the topic. Qualitative data is not only numbers and raw data, but more open interviews or surveys, and other sources can be used in addition to them (Saunders et al., 2007, pp. 470-471). In addition to interviews, this research uses materials provided by the case company to support the research.

3.2 Case company selection

The research is a single case study, so only one company is used in the research. The case company chosen for the study was chosen on pragmatic grounds, as Peter Swanborn mentions in his book (2010). A pragmatically chosen case study is chosen when the researcher is interested in the subject and the company for personal reasons or is connected to the company. The researcher has a personal connection to the company, which is one reason the company was selected as a case company for the study. Saunders also mentions (2007, p. 140) that often a single case study is chosen when the researcher has easier access to the company and can observe a phenomenon up close that others may not be able to implement. Of course, the choice was also influenced by the criterion

that the company had to be an international company that delivers projects around the world, and thus the industry involves international projects.

3.3 Case company description

The case company is a global company that operates in innovative technologies and lifecycle solutions for the marine and energy markets. The company emphasizes innovation in sustainable technology and services to help customers continuously improve environmental and economic performance. The company has 17,000 employees in 68 countries around the globe. The company does various marine and energy-related projects around the world. Deliveries are related to power plants and power units used in the ships. The company has exported supplies related to power plants to approx. 180 countries around the world. Customer success and performance are the company's most significant values that guide what it does. The focus is on responding to customer needs and understanding the customer, and that way, making customers more successful. Another major focus is performance and team development. This is guaranteed by continuous learning and collaboration, as well as attracting top talent and creating diverse teams. The company's goal is to constantly improve business operations and the value chain so that it can meet the quality expected by customers, such as delivery time and delivery accuracy. At the same time, the company wants to simplify operations and improve competitiveness (Company, 2023).

3.4 Project delivery process

In this chapter, we will briefly review how the project delivery process works and what the different teams do at different stages of the process. Here, the aim is to show how each team member has their own important contribution in making the process work without problems. Each team has its own tasks and role, what they must do. Actions require the support and information provided by another team so that the team can

perform its own actions as well as possible. If the necessary information is missing at different stages of the process, it can lead to delays in deliveries.

The study deals with the cooperation of three different units in the organization. The communication between the different teams of these units, possible problems in cooperation and their consequences are discussed. The units have their own responsibilities in the process. Team 1 is responsible for delivering the different parts of the projects to the forwarder and doing the documentation for the deliveries. Team 2 is responsible for handling the sales order of the customers. Team 3 and Team 4 are responsible for the projects itself. Each unit has its own task in the project delivery process and their implementation efficiently, on time, and in the way the customer wants. In the next paragraph, everyone's roles in deliveries are discussed briefly.

There are two different project delivery categories: power plants and ship engines. The process is slightly different in all of them, and each department has its own key personnel handling the projects. As for the project team, the process starts when the project has been sold to a customer in some country. The project team is formed, and they start planning what materials are needed for the project and on what schedule. The materials are procured from external suppliers and within the company itself. When the acquisition takes place from within the company, the process that is examined in this study begins. When the project team needs parts for the project as an internal purchase, the project team makes internal purchases from within the company for the materials needed for the project. They send the purchase request to Team 2.

The sales unit (team 2) receives the customer's orders and goes through what the customer wants, where, at what time, and what kind of transport. In project deliveries, all necessary components are not sent to the customer at once but are sent in parts whenever a part is needed. Team 2, therefore, handles the customer's purchase orders and forwards them to team 1. Team 2 records it in the system and makes the 'delivery'. When the delivery date begins to approach, Team 2 releases delivery to the packing. The

parts are packed in a warehouse in the Netherlands in specified types of packaging. When the goods are in the package, team 1's work begins.

This submission will be forwarded to the Delivery unit. The delivery unit takes care of the documents needed for the shipment and takes care of the related transports and transport shipment formalities (for example, customs clearance). Team 1 task is also to make sure that the transport schedules are correct and ensure that the parts end up in the right place and at the right time, as well as that they have the necessary documents. Team 1 can only operate when it has the necessary information about the delivery. Delivery address, required parts, schedule, what project, delivery mode, and what necessary documents are needed (invoice, packing list, shipping mark, export declaration, etc.) In order for Team 1 to function and make the right transportation bookings and the right documents, it needs the information mentioned above. It receives this information from either the Sales unit (team 2) or the Project Department (team 3 or team 4). If any of the above information is missing, the delivery cannot be sent. This creates additional work on the Team 1 side because this information usually needs to be clarified by Team 2 or the project department. Missing information is one of the common reasons why deliveries cannot be made on time.

When the goods are in the package, and team 1 has made the necessary documents for them and checked that the information is correct, they send the documents with the information to the project teams for approval. The project teams check the accuracy of the documents and also check where the goods are sent. At this stage, the address may still change, the package may be different from where it is intended to be packaged, something may be missing from the shipment, or there may be errors in the documents. The necessary repair measures require daily interaction and coordination between different teams in order to get everything done correctly. For example, team 2 updates the information about address changes in the systems, and team 1 is in contact with the warehouse if the package needs to be repackaged or if some material is missing from

the package. After the corrections, new documents are made and submitted again for approval.

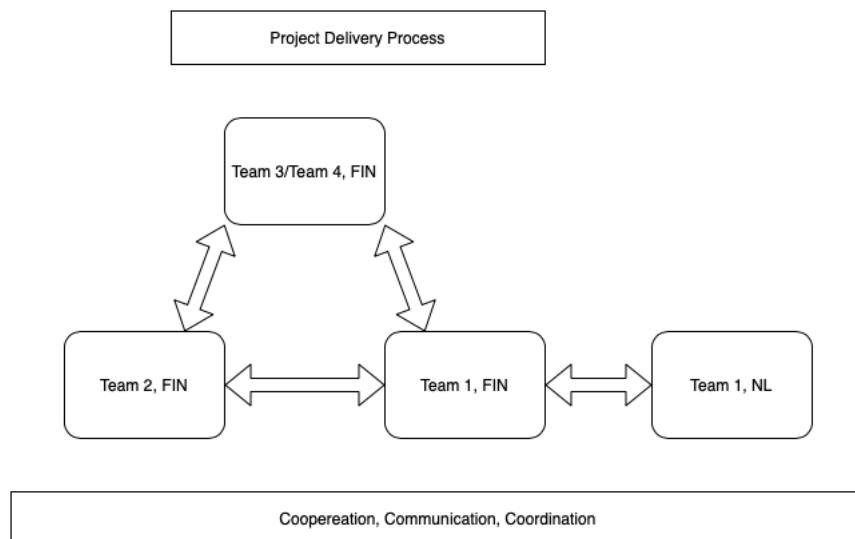
When everything is ok and the project team informs team 1 that everything is approved, the package can be sent on its way. After this, team 1 sends the goods to the shipping address. The goods leave from a warehouse in the Netherlands. At the end of the Netherlands, the people belonging to team 1 do the necessary actions, print the necessary documents for the packages and coordinate them to get on the right trucks. The project materials are either placed in the warehouse of a freight forwarder within the Netherlands, from where they continue their journey by flight or ship to the destination country. Another option is that they are put from a warehouse in the Netherlands to ports in Finland, Vuosaari, Rauma, or Vaasa, from where they continue their journey by ship to the destination address.

OTL (On-Time-Loading) indicator measures whether the shipments are left on time from the warehouse in the Netherlands. The day the deliveries are supposed to leave is requested by the customer or project team. If the shipment leaves on the requested date or before the previously set departure date, the shipment has left the warehouse in the Netherlands on time. If, on the other hand, the shipment is sent after the requested departure date, the shipment has not left on time, and it immediately affects the OTL indicator. Below is a picture illustrating the OTL indicator.

OTL -Indicator		
Requested Departure Date	Actual Departure Date	OTL
26.02.2023	26.02.2023	On time
14.03.2023	21.03.2023	Not on time
16.03.2023	13.03.2023	On time

Picture 3. OTL-Indicator

In the following is picture which visualizes how the communication, cooperation and coordination between teams works. Picture also shows the base country in which teams are located.



Picture 4. Cooperation, Communication and Coordination in International Project Delivery Process.

3.5 Data Collection Method

Since the case company is involved in the study and the implementation is a qualitative study, the data collection is organized as interviews with the case company's key personnel who participate daily in the project delivery process. Interviews are good way to get primary data straight from the sources and therefore, get new information about the issues. Interviews are semi-structured interviews where aim is to listen interviewees and guide the interview to keep the conversation on going in the topic (Farquhar, 2012). Six people participate in the interviews. In the interview, there is one person who works in the sales department, and the interviewee's role in the department is a team leader. The team leader works and is involved in the project submission process on a daily basis. Also, three people in the interview are from the Project teams with different titles. All three work daily in the project delivery process and they all have different tasks. The last one is the delivery coordinator from the delivery team (team 1). The interviewee works daily with the project delivery process, and therefore are able to provide information that is needed for the research (Farquhar, 2012). All interviews take place virtually in Teams and the duration of the interviews varied from 24 minutes to 1 hour and 16 minutes. Interviews are recorded and after the interviews, transcription is written in order to analyze findings more in-depth (Farquhar, 2012). Following is the table showing all the persons who participated to the interviews. In the table, interviewees title is showed, the date interview was done and how long the interview lasted. It also shows in which country the person is located. After the interviews, the author transcribed the discussions, and transcribed pages of the interviews are found in the table.

Interview ee	Title	Date	Duration	Transcripte d pages	Location
A	Delivery Coordinator, Team 1	14.02.202 3	1h 16min	5	Finland

B	Project Supply Chain Team 3	Expert, 3	15.02.202	49min	7	Finland
C	Team 2	Leader, 3	16.02.202	44min	6	Finland
D	Logistic Coordinator, Team 3	3	21.02.202	1h 9min	4	Finland
E	Logistic Coordinator, Team 4	3	28.02.202	56min	4	Finland
F	Key User, Team 1	3	16.03.202	24min	2	Netherlands

Table 1. List of interviewees

In addition to interviews, the research uses material received from the company as support. The materials concern, for example, the exchange of messages about project deliveries and various company KPIs.

3.6 Data analysis

After the interviews, the transcripts of the interviews are written so that it is easier to process the data during analysis. When beginning to do the analysis, the researcher goes through the transcripts and all the results that have been obtained while doing the interviews and on the basis of the materials provided by the case company (Gillham, 2010, p. 94-95). Based on the interviews and materials, an overall picture of the research results is formed. When going through the results, the author tries to find results that are strongly related to the research. It is necessary to try to find results from several sources, in this case, from several interviews and from the material provided by the

company (Gillham, 2010, p. 95). The results can be analyzed by categories, words, sentences, or themes. The categories are then analyzed according to the theory and framework used in the research, and an interpretation is made from them (Farquhar, 2012); (Puusa, Juuti & Aaltio, 2020). The goal is to build a clear and coherent ensemble from many sources, from which interpretations and conclusions about the phenomenon can be made on a general level. The analysis must be truthful and credible.

3.7 Limitations, Reliability and Validity of the research

When a case analysis is conducted in which people who work in the case company and with the subject of the study are interviewed, it may bring problems with limitations, reliability, and validity in the study. In this paragraph, author briefly discuss these.

According to Yin (2003) and Saunders (2007), it would be much better if there were several case companies instead of one case company. If there are more cases, it is possible to draw better generalizations about the phenomenon from the conclusions. Also, Farquhar (2012), states that a small number of case studies does not mean that the research can necessarily be extended to other situations similar to the studied case.

The problem of reliability in a single case study, which is mainly carried out with interviews, the most common problem is its repeatability, i.e. when another person does a similar study, are the research results and findings the same then (Saunders 2007, pp. 318-319; Eriksson & Kovalainen, 2016). One cannot be completely sure of this, which creates a problem in reliability. But when discussing reliability, it needs to be considered that the research is not necessarily intended to be repeatable, or it is not possible to repeat it. The research is done in the present moment and with current information, and things may change in the future. Things are complex and dynamic, and the current information and verity can be outdated later.

The persons in the interviews may also be biased in their answers. (Saunders et al., 2007, p.318; Easterby-Smith, 2002). In the answers, interviewees can also intentionally leave out essential things if they are too sensitive to the interviewee's opinion. These problem areas must also be recognized and considered when conducting qualitative research and analyzing data. The purpose is to create more understanding of the phenomenon and to present cause-and-effect relationships regarding the phenomenon in the case company. The meaning of the research and the results and their analysis must be carried out as transparently as possible and presenting the deliberation to the reader as comprehensively as possible (Puusa, Juuti & Aaltio, 2020).

Validity is, according to Eriksson & Kovalainen (2016), a research evaluation method that assesses whether the research can reliably describe the research result. The validity is also influenced by how the evidence and findings revealed in the research support the phenomenon discussed in the research. Also, a criterion of validity is how reliable the findings and evidence are. Saunders et al. (2007, p. 319) take into account the validity of the evaluations and how the researcher can interpret the issues brought up in the interviews. The problem can be that the researcher interprets the findings incorrectly. It is almost impossible to achieve true objectivity in the interpretations of the research when it is a qualitative study, but the researcher can bring out his reliability by admitting that the research consists of his own interpretations and if the interpretations are tried to do as objectively as possible (Puusa, Juuti & Aaltio, 2020).

Both from the point of view of limitations, reliability, and validity, the problem of case analysis and qualitative research is that it is not possible to make generalizations about the phenomenon from the research results. Qualitative studies are not standardized. On the contrary, each case is new and has its own elements (Saunders et al, 2007, pp. 318-319).

Despite its weaknesses, case analysis in the form of interviews provides a great opportunity to study the phenomenon and activities within the company, and the

research can give a real picture of what is happening. The questions in the case study can be tailored to the company, industry, or location and thus get accurate information about the target. A case study is a good form of research if the information is wanted about certain company activities, such as HR, marketing, or project delivery, rather than researching entities in general (Farquhar, 2012). An individual case study can also be used to compare the phenomenon within the company. For example, the activities of different teams can be compared, which can reduce the criticism that a single case study is only a single case (Puusa et al., 2020). A case study also helps to answer broader questions such as why, how, and what and, through this, brings an understanding of the phenomenon and the topic of the study (Saunders, 2007, p. 139).

4 Findings

In this chapter, the main findings are presented from the interviews and other material received from the case company. The findings are categorized into three main themes: Communication, Cooperation and Coordination. The final section is the other findings that came up when the research was done and are not related to the three themes presented.

4.1 Communication

In the organization, those working on international projects communicate in process-related matters virtually using different tools. This is because the teams are located in different locations, and there are many responsible people involved. The responsible persons are project-related, so in another project, the person responsible may be a different person than in another project. Email and Microsoft Teams are mainly used as communication tools. In rare and especially urgent cases, the phone can be used.

It can be seen that there are multiple issues related to communication in the project delivery process. The main issues are related to information flow and communication between Team 1 and Team 3/Team 4, and this was raised by many interviewees. The biggest problems are related to the uncertainty of communication. Critical information regarding deliveries may be incomplete, for example, regarding delivery addresses and documentation approval. Incomplete information causes an unnecessary increase in communication, while incomplete information needs to be sought from the project departments.

In the interview, C highlights the lack of critical information and how common it is in daily work and shipments. When Team 3 or Team 4 makes a purchase order for the materials needed by Team 2, they must have clear information so that they know how to send it to the right place with the right information and transport mode. "The clearer

the orders are, the easier it is to process them". C points out that, especially with Team 4, missing information needs to be brought up more than others. When you try to query information afterward or already in advance, it causes extra dialogue and work steps in the process. In Team 2's opinion, it would be important that all the information is correct in advance, or if something needs to be changed, it is informed in advance before the order is in the package. This also facilitates the operation of Team 1 in the follow-up chain when they do not have to check if everything is ok, but it has already been checked in advance. An example of this is precisely when Team 1's task is to check with the documents whether all the information is correct, and at that point, it is reported that it is not.

C: When internal customers order parts from us, quite often, the order is missing the address, so it needs to be asked afterward. And also, if the sales order consists of a lot of stuff, we need to ask if we have to wait for all the stuff to be available and packed, if they want a complete delivery, or if we can send all available parts that are ready to be collected and packed and send to the customer and not wait that all parts are available. Missing parts which are not available at the moment can be sent then afterward. This causes a back-and-forth conversation. That could be so-called useless work and interaction, at least in our opinion.

In addition to missing critical information, there may be errors in the orders that need to be corrected and, therefore, also cause a dialogue between Team 1/Team 2 and Team 3/Team 4. Usually, the errors are also related to the fact that the part is not available or that it has been removed from the selection. Teams have to have a discussion about what to do with the situation and whether the orders be replaced somehow with other parts.

C: Of course, there are often cases where there are mistakes in the orders. Then our own systems may report that instead of selling this part, this part has been sold or this part is not delivered, has been removed from the selection, and we then have to inform the customer about these and ask what will be done with them. So it is not so straightforward that an order comes in and a sales order is made, but instead, quite often, there is something that needs to be corrected, something unclear, something that needs clarification. That is the daily thing we do. It doesn't seem like a routine job. There's always something special in the orders.

One big problem in communication is getting answers. Uncertainty about when an answer will be received complicates daily work. When an answer is not received in time, the flow of the entire process of deliveries is interrupted because other departments cannot proceed, for example, when critical information is missing. An answer to their inquiry is not received or when confirmations are requested regarding documents or delivery addresses. In the worst cases, deliveries are significantly delayed when communication is lacking, and responses are not received. The response time is very wide. Sometimes the answers come quickly, but in most cases, the answers can take weeks. The teams often have to send reminders to get even some sort of answer to their own questions. Reminders, on the other hand, create an unnecessary work step, and teams need to monitor older shipments and cannot focus on processing new shipments.

A: I think there are continuous issues on a daily basis with communication between Team 1 and Team 4. You have to wait a considerable amount of time for answers, which makes it seem like we can't do our own work on time. The time range is from five minutes to five weeks at the peak. Communication is uncertain.

According to E, the amount of workload also affects how quickly team can send answers. There is a big workload every day and there are a lot of dispatches that require answers. Due to the workload, it is not possible to answer everyone quickly. Another problem is that due to the workload, some approval messages are overlooked, so this is a question of human errors. The large daily workload is also mentioned by other interviewees which causes delays in responses.

E: I think it's just accidentally overlooked and left among the other emails. They are always quick to acknowledge and respond to team 1 inquiries. And they will send reminders about it if it hasn't been approved. Of course, some things have to be checked from those documents to see if they are correct, and that takes some time.

Another problem of communication is related to confusion of communication. In email chains, many parties may get involved, causing the messages to get mixed up, and it is not always known to whom the message is addressed. The conversation is spreading, and the exact points are missed. Also, all the special requests by the teams aren't always

understood as to whom the requests are, and it is possible to implement the requests. This also causes confusion in conversations. Sometimes the requests of some parties may be impossible to implement. It is also clear from the interviews that the fact that the parties do not always know if they are talking about the same topic adds to the confusion. For the project departments, their own projects are, of course, really important, but the other two departments have many projects at work at the same time. In communication, teams can use the number or name of the projects, but the other two departments can't be sure which project is being talked about. This causes confusion when the personnel don't know what is being talked about.

C: The answers take some time, and we have to wait before we get them. And sometimes, it's a bit difficult to understand if we're talking about the same topic or issue. Project teams have their own important projects, but we have hundreds of projects at work at the same time. Then if someone starts talking about a project in a certain country, that can be hard to understand what project we are talking about. Someone talks about the engine number, someone about the project number, and someone uses the project name. Therefore, you can't always get a clear picture of what this is all about.

Communication between Team 1 and Team 2 and between Team 2 and Team 3 is, according to interviewees, in good shape. Communication is clear, and it is easy to understand. If there is some information missing that is requested from Team 2, the responses are usually quick and valid. Trust in team 2 communication emerges from many interviewees.

A: If I ask them to provide me the missing information or modify if some information is wrong in the delivery, they usually respond quickly, and it is handled in 15-30minutes from the question. We can trust that when requested, it will be handled, and it will not take weeks.

B: We are communicating with team 2 on a daily basis, and to my understanding and my experience, communication is very easy and good in both ways. Usually, the communication happens with emails which can be time to time confusing, especially if there are too many parties involved. Too many people in the same communication chain can cause trouble with who is actually the receiver and who is responsible for the requests

D: Communication has worked well between everyone. Of course, everyone is busy and may not always be able to communicate quickly, but then you can always be reminded. Communication is easy, good, and open. Of course, a common problem is the number of participants and, in connection with that, confusion about whom it concerns.

Due to the international nature of the projects, communication also occasionally involves elements of internationality, such as language and time difference, which can affect communication. The interviewees do not see these elements as very big factors in their day-to-day activities. Due to the time difference, communication creates a challenge in that teams have to wait a little longer for answers. This applies especially to projects that go to North or South America. However, they do not create a big problem. Another element of international projects is communication language. Of course, the language used in everyday work is English, which does not cause major problems in daily work because English skills can be found in everyone.

A: The time difference is perhaps the biggest thing. We may not get answers even if there is a shipment going to south or north America, especially if it is an urgent shipment. It will take days before we can get things going. I send a message, I get a reply to my requirements the next day, then I send a new message, and then the next day I get a reply, and then I send a new message the next day, etc.

From the interviews and materials that have been received from the company, it is clear that when communication is fast and clear, and critical information is available and not missing, the daily work in teams is clear and the deliveries are sent out on time. Communication is mostly like this, and there are no bad delays all the time. However, the above-mentioned problems often occur.

4.2 Cooperation

Many of the interviewees highlight setting common goals for the entire process. Currently, each department has its own metrics to measure its own team's performance.

On the Team 1 side, a lot of the OTL indicator is used as a KPI indicator, which tells how well the goods are made to leave the warehouse on time. On the Team 2 side, the KPI indicator is Response time to Order. It tells how quickly a sale can be made from the order received. On the Team 2 side, the goal has been set that within 48 hours of the order, the sale has been made. This is then monitored with a KPI. For Teams 3 and Teams 4, there is no specific goal to follow in daily work when looking at project deliveries. Each team has its own goals and indicators for measuring the goals, but they are not unified in terms of the entire process and the goals do not necessarily support each other.

Also, on the Team 1 side, the incompatibility of the OTL indicator has been raised to tell about the smoothness of the work and the achievement of the goals. Due to the nature of the projects, the work involves a lot of checking and work steps, and that involves other teams. The work cannot always be done according to one's contribution in such a way that it affects the OTL indicator positively. It is clear from the interviews that the OTL indicator is sometimes considered a so-called as an unfair indicator for tracking the work of Team 1. The work is done as quickly as possible, but it is not reflected in the numbers due to the fact that teams own contribution is not enough to get the shipments sent by the date requested. This is also brought up in the interviews, that with regard to individual numbers and indicators, more focus should be placed on the work and doing it as well as possible and not just looking at the OTL indicator that does not tell the whole story.

D: OTL is not designed for project deliveries; it is not a suitable indicator. Counting numbers is frustrating because you do everything as fast as you can, but the numbers still don't look right. The numbers don't tell the truth. Instead of numbers, the focus would be on doing the job as well as possible.

On the part of the project team, different ways of thinking regarding work are raised in terms of cooperation. It is felt that the teams do not have a unified view of managing entities. All teams don't necessarily know how to see projects as a whole and not just on deliveries at the time. This way of thinking is needed, e.g., Regarding Team 1. Team 1 thinks more about things from the perspective of individual deliveries. Team 1 tries to

send individual deliveries as quickly as possible. It also focuses on its own workflow, where the aim is to get the task list as empty as possible.

B: The basic problem is that Team 1 functions have not been designed and created around project deliveries but instead serve more spare parts functions. One problem is also that Team 1 doesn't think so much about projects as a whole; the way of thinking is based more on individual delivery and management of a single shipment at the time. They should be seen more as wholes, and this also depends on us and the problem from our point of view as well.

The interviewees do not see the big problems in cooperation. The cooperation between the departments generally works well, but of course, there is always room for improvement. Based on the interviews, it is clear that the teams clearly want to deepen cooperation and take all parties into account in the process and not just focus on their own task. The interviewees bring up the organization of joint meetings where they can go over the process as a group and discuss if there is something important to say and bring up so that the cooperation would be as uncomplicated and open as possible. Joint meetings like this are organized between certain departments, but it has not been extended to all parties involved in the process. Individual teams have organized their own sessions, and according to interviews, they have helped the teams to get a bigger picture of the process.

D: The cooperation between the teams is mostly good. You can easily contact others if necessary and this work is done together with others. Of course, cooperation can be increased and we could have more calls with others, where you can discuss issues, ideas and bring up things that are important for yourself.

The desire to help others and to help understand how things affect and how things can be done in different ways is in connection with cooperation. Many people point out that it is easy to approach another department and its people if there are concerns and questions related to the projects and delivering them. Cooperation in that field is uncomplicated, and this is perceived as a good thing that the current atmosphere makes it possible. The team members also know each other, which helps with cooperation and the desire to help and discuss and brainstorm ideas.

Cooperation is also required with the members of team 1 because the team is divided into two locations, Finland and the Netherlands, where the warehouse and logistics functions are. There are delivery coordinators in Finland who coordinate shipments and documentation, but the physical goods themselves leave from the Netherlands. Cooperation between the two is, therefore, essential. Since these two belong to the same team, the cooperation is much closer than with others. Cooperation includes daily communication with each other when arranging rides and checking the status of shipments. Communication is open and good. There has also been a lot of brainstorming between these teams about the process and how to make it smoother. With the help of joint ideas, the teams have been able to reduce several extra work steps and reduce the problems associated with the process and possible delivery delays.

Of course, cooperation is not completely open-ended. According to the information that emerged from the interviews and the company's material, there have been several cases where all the other teams have done their work properly, but still, the shipments have remained in the warehouse without being picked up. These have been investigated together, and it has turned out that there have been human errors on the part of the team in the Netherlands. These are minor and not very common problems but worth mentioning. The problems have been related to a high amount of work, in which case they have simply been overlooked, or due to inattention, some work steps have not been done as they should have been. The teams have reacted to this at the same time, and the root causes of the problems have been reviewed.

4.3 Coordination

When talking about coordination and how integrated and clear the process is in the opinion of the departments and teams, all the interviewees are relatively unanimous that the process is complicated and it could be much smoother. Each department knows roughly what the other departments are doing in the process, but there are also many

examples of not always knowing what the other is doing and how the actions of the other department affect the entire process. International projects involve many different work phases, and the process is complex. In this case, the importance of coordination is emphasized. The teams must coordinate the phases of the shipments together so that the project parts can be delivered to the right place, at the right time, and at a competitive price.

As in communication, it can be seen that the process between Team 2 and Team 1 works, and the parties are relatively clear about what each other is doing. These departments have also organized joint sessions where they have concretely shown what the others are doing from both sides' perspectives. This has taught both departments, e.g., about how they can do things differently to make the other's job easier.

C: Yes, it gave us understanding on what team 1 does, and many stages of work they seems to have as well. We also learned how to do things differently and how that affects team 1 work.

Team 1, which is divided between Finland and the Netherlands, has also gone through processes through joint sessions. The warehouse is located in the Netherlands, where the parts of the projects are left, and from Finland, the parts of the projects are coordinated to where the project parts are delivered and are everything otherwise ready for delivery. The goods are packed and loaded into the trucks in the Netherlands, and the necessary documents are printed. Regarding documents, truck loading, and information missing from documents, team 1 has organized joint sessions where problems occurring in the process have been addressed. After the joint meetings, the problems have decreased, and the process has improved.

F: The new way of working has been going good after the meeting where was discussed about the issues and the changes needed to help the warehouse performing better.

According to the interviewees, when looking at the process between Team 1 and the project teams and Team 2 and the project teams, transparency could be increased more. Not everyone knows what others are doing. Increasing transparency would avoid ambiguities and bring new perspectives to each party's daily work. It can be seen when Team 1 and Team 2 held joint sessions where they went through their own process and showed the process to one another that with the common sessions, teams can improve what they do in order to make the whole process go smoothly and reduce unnecessary manual work in the other department. The interviewees also point out that in the future, within the limits of time and workload, joint sessions can be organized where teams can show other departments what the daily work consists of. This can bring a concrete perspective to characterizing the operation of the entire process and how one's own actions affect the daily actions of another department.

C: There is a certain amount of transparency, but you may not know how to interpret it. It would be good to have joint meetings where everyone shows what they are doing so we get a better overall picture.

Increasing transparency would certainly also increase the characterization of the overall picture of the parties. Now, for example, the work of Team 1 is based on the processing of individual shipments and does not necessarily know how to see projects as a whole. The project team, on the other hand, thinks about projects as a whole and through the project's way of thinking. This puts a big gap between the parties when they don't think about things in the same way. Improving transparency would certainly also help the parties in minimizing unnecessary tasks and avoid ambiguities.

B: One problem is also that Team 1 doesn't think so much about projects as a whole. The way of thinking is based more on individual deliveries and their management. They should be seen more as wholes, this also depends on us since team 1 side doesn't know for sure what we are doing, and here we don't always know what Team 1 is doing, so there could be more transparency on our side, and we could involve Team 1 more in our processes, where we would explain why things are done this way and understand what we are looking for when we do things this way.

The importance of sharing information is also seen in different departments. Especially the fact that the information is available in advance is seen as a solution. When it is known that big projects are coming up and shipments are released for packaging and processing, the movement of information from these departments is important so that they know how to allocate resources and people to do these things and the workload does not become insurmountable. In the interviews, it is revealed that, for example, the warehouse in the Netherlands would know how to prepare for the increasing work amount, and the team located in Finland that prepares the necessary documents and coordinates the shipments together with Team 2 and the Project Teams.

B: From the point of view of the team 1, in that we could say in advance that there will be a lot of packed deliveries, and from that information, they could be better prepared and allocate resources accordingly, especially if big projects are sold and leaving.

D: By increasing transparency and information sharing, it would be possible to prepare better in advance if there are big projects coming up and a lot of stuff is going out. Resources, i.e., personnel, could be better allocated when additional hands are needed when there are a lot of shipments leaving. Joining both the warehouse and those dealing with deliveries.

Team 4 points out that it would be good to get the goods to the place in good time to wait for the onward transport to the project site so that the goods can get on board vessels that depart from Finnish ports. If it is clear that a part will not make it to a Finnish port and onto the ship, in urgent cases, parts are tried to deliver directly to the project site, for example, using air freight. Again, this is more expensive than sea freight. E talks about a 'buffer' a few weeks before the onward transport leaves.

E: It would be good to receive the goods 3-4 weeks before the ship leaves. Max. 2 weeks. There are, of course, cases where the goods arrive at the port, and in the port, they are put directly into the container and the container onto the ship. But we want there to be a buffer in time so that the port has time to load the parts into the ship.

The increase in costs is seen as one of the problems with delays. When Team 1 takes care of the shipment to a certain place, for example, to a forwarder's warehouse or to a Finnish port from the warehouse in the Netherlands, Team 3 and Team 4 book further transportation from these places. If team 3 or team 4 expected the goods to arrive on a certain day, they could have booked follow-up transportation for the same day. Thus, being late means that the goods will not make it to the follow-up transportation, and it will cause financial losses when transportation has been booked but is not used. Another big problem that lateness can cause is the stoppage of work on the project site while waiting for the missing parts. This also causes financial costs and a decrease in customer satisfaction.

B: We should be able to trust that the goods will then also leave on the same day from the warehouse as they are processed. We are often booked onward transportation for these, and if the goods don't even arrive on the follow-up transportation we booked, then there will be a fine and extra payment. It would be really important that when it is booked by Team 1, it leaves on the same day.

D: It is a disadvantage for us because if there is an urgent delivery that should get there on time. And if it doesn't, then we have to figure out where the single delivery is, and the entire shipment is waiting for it. For example, if certain tools are expected on the project site, then the men need to wait on the site to receive the tools, and the whole work comes to a halt.

Also, everyone has different tools available in the process, which are not always compatible and practical to combine. Two of the departments mostly use the SAP system for their tasks, but the project teams rarely use SAP in their operations. The project teams use their own system called Logwis. Because the projects are coordinated in Logwis, and the project team uses it, team 1 has to also use it. With Logwis, Team 1 makes documents, but Team 1 does not have a greater understanding of the use of Logwis. Logwis, on the other hand, is the primary system for the project department. SAP and Logwis are not compatible systems, and using both in the process can be stiff. In addition to this, Team 2 and the project teams use a lot of excel tables when communicating and coordinating different parts of the projects. For example, the availability of parts and components is processed and communicated through Excel. It

appears from the interviews that handling many different ways of working in the process can be confusing, and the same information is transferred from one place to another, from a different system to another. That, of course, creates extra work steps that need to be handled manually by the coordinators.

In the interviews, the different systems' functionality and the operation's uncertainty are also brought up. In almost daily work, there are problems in different systems that create challenges for doing daily tasks. The problems increase the workload, and not all shipments can be completed and sent on their way. Also, the system automatically creates different documents for the shipments, including shipping labels. These documents are missing critical information needed by the warehouse in the Netherlands. The missing information creates confusion when loading the shipments to the trucks. The missing information includes info about the destination, which can create risk on the delivery.

Internationality can be seen in the coordination of shipments and daily work. Of course, the biggest element is that the target countries of the projects vary, and the company is delivering projects all over the world. Some of the teams are also in different countries, and the team members include different nationalities. The main warehouse where the deliveries usually leave is in the Netherlands, and the project team, sales team, and part of the delivery team are located in Finland. Team 1 is divided between Finland and Netherlands, and cooperation between countries is a constant daily activity. The international atmosphere and target countries must be taken into account when coordinating projects. Each country has different requirements that must be followed. According to the interviews, the packaging requirements are different, as well as the export restrictions and sanctions related to certain countries. For example, shipping to Australia needs extra focus on the packaging because of the regulations. Some countries do not allow parts made in a specific country where parts are banned. This causes more work because the countries of origin of the parts have to be checked before sending. An example of specific restrictions is the relationship between India and Pakistan. These two

countries currently have a very hostile relationship with each other, and that causes banning imports of the parts made in the hostile country. Another example of the nature and changes in the international environment of projects can be considered the Russian war of aggression against Ukraine and the sanctions set by other countries against Russia. Since the start of the war, projects to Russia have been frozen in the company.

4.4 Key Findings

For the sake of clarity, the following tables list the main findings for each team and what came out in the research. The findings are divided into three different themes, communication, cooperation, and coordination. With the help of the tables, the differences in how teams experience their daily interaction with others when talking about communication, cooperation, and coordination can be reviewed. In the following, team 1's views on the process.

Main findings, Team 1	
Communication	<ul style="list-style-type: none"> - Team 1 has to wait a long time for answers from other teams, and therefore can't send the deliveries on time. - Sending reminders about old shipments that have not been answered is needed and causes unnecessary work. - Communication to the Netherlands and the warehouse works. The warehouse will also be informed in advance if there is a lot of deliveries being processed. - Deliveries are in the hold when there are missing information. The holds cause delays.

	<ul style="list-style-type: none"> - Lots of delays in deliveries with different checks and approvals, the process is not as straightforward as it could be. - The time difference has a small impact on communication and delays in responses.
Cooperation	<ul style="list-style-type: none"> - The cooperation between the teams is mostly good. Special mention of the collaboration with team 2. Joint meetings were held between Team 1 and Team 2 where the daily work of both was reviewed, which opened up the process to a broader picture. - There are need for additional hands when the workload increases with the bigger projects. - Ideation and process improvement takes place within the team. Unnecessary work steps have been reduced and improvements have been suggested. - The goal used to measure performance is the OTL (On-Time-Loading) indicator, which tells whether the goods leave the warehouse in the Netherlands before the requested departure date. - OTL is not designed with project deliveries in mind. Looking at numbers is frustrating in teams because the work is done as fast as possible, but it is not showing in the OTL numbers.
Coordination	<ul style="list-style-type: none"> - There are occasional requests for things to be done, even though they are not part of the duties of the team to whom request is made. - With team 3 and team 4, it would be better to check what are the responsibilities to avoid misunderstandings.

	<ul style="list-style-type: none"> - Packed in the wrong kind of packages, re-packing cause additional work. Caused by incorrect information in the warehouse. Usually, team 2 gives information to warehouse on which kind of package the delivery is needed. - Team 1 functions have not really been created around project deliveries. - It is stated that team 1 to be able to look at more projects as a whole and not as individual deliveries. - There is a problem with the compatibility of two different systems, SAP and Logwis.
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Table 2. Main Findings, Team 1.

The following table shows how team 2 sees the process through these three themes.

Main findings, Team 2	
Communication	<ul style="list-style-type: none"> - Missing or incorrect data and information cause the need for daily communication and back-and-forth discussion. - It takes some time to get information and answers from the project teams. - Communication can be confusing time-to-time because it is uncertain what is being talked about, each party uses its own terms and order numbers. - More clarity needed in communication with team 3 and team 4, e.g., who to contact when problems or requests.
Cooperation	<ul style="list-style-type: none"> - Overall, the cooperation with everyone is good and smooth.

	<ul style="list-style-type: none"> - Weekly meeting with team 3 and team 1 where teams check pending deliveries and availability of parts. - Organized with team 1 joint meetings before, where discussed what the other is doing. Gave clarity and changed teams' own methods of operation, which immediately affects the work of team 1. - Meetings with team 4 has begun, which has also brought clarity and smoothness to the process. - Team 2 goal is the Response to Order (RTO) indicator, where the goal is to make a sale within 48 hours after the order is placed.
<p>Coordination</p>	<ul style="list-style-type: none"> - Often wrong information and data in the orders from team 3 and team 4. - Order processing is not as straightforward as it could be due to missing and incorrect information in orders. Modifying cause additional work. - Different customers need different procedures, and the orders includes different information. - If the delivery time given in the order is long, it is easier to react to changes and still have the goods leave on time. - Missing or incorrect information causes delays to Team 1 as well, when they can't proceed with the delivery. - It is up to team 3/team 4 that the correct information is available.

Table 3. Main Findings, Team 2.

Team 3 and team 4 are so-called project teams. Their process differs from each other in different ways because it's different projects they work on. The following tables show the main findings in the process.

Main findings, Team 3	
Communication	<ul style="list-style-type: none"> - Many parties are involved in communication, which can cause uncertainty. - The dialogue can drag on if the parties do not understand the problem or responsibilities, and special requests cause discussion. - Availability and shipment tracking, everything is based on communication in e-mail. - Project teams are international, and time and language can cause problems in communications. - More clarity needed in communication directions and recipients.
Cooperation	<ul style="list-style-type: none"> - Cooperation is mostly good, and everyone feels that work is done together. - It would be better to give more transparency about one's own process to others so that they are aware of how things are done and how it affects the whole process. - It would be good to include all parties in the project kick-off before the project deliveries begin. In the kick-off it would be possible to go through what is being done, why, availabilities of parts, etc. - Cooperation has been in good level by the presence of old team 1 members who know how team 1 works.

	<ul style="list-style-type: none"> - More interaction between teams would be needed where ideas can be developed, concerns and problems presented.
Coordination	<ul style="list-style-type: none"> - The process is complicated due to several overlapping systems and sending information to several places. - Confidence missing that the delivery will leave during the day it has been processed. Delays cause problems for projects, financial impact as well as customer satisfaction. - Better allocation of resources and better flow of information in larger projects. - It is not known how many parts are actually packed and ready to go. - Even though team 1 has handled the deliveries and sent a notification that the shipment will leave on a certain day, this has not always happened. Creates financial losses when an onward transportation is booked without the goods arriving. - In the worst cases, when the goods are late, delays in the project and work stoppage in the project site.

Table 4. Main Findings, Team 3.

Main findings, Team 4	
Communication	<ul style="list-style-type: none"> - There are delays in team 4 communication, which immediately affect the reliability of delivery. - Delays in answers are humanly caused by the fact that members forgot to answer or overlooked the messages. - It is stated that communication with others works well.

	<ul style="list-style-type: none"> - Communication with Team 1 is fast and effortless. Always getting answers if something requested.
Cooperation	<ul style="list-style-type: none"> - Team 1 helps when there are things that need support and are uncertain. - Held a joint meeting with team 2 where we go over things, this could be continued.
Coordination	<ul style="list-style-type: none"> - It would be good to get the deliveries to Finnish ports 3-4 weeks before the ship leaves for the project site. Buffer wanted so that in the harbor all the shipments can be loaded to the ship on time. - If deliveries are late and not arriving on time to the port, will be booked a direct flight to the project site, a little more expensive -> financial losses. - Not being so well informed about what others are doing, joint sessions are seen as a good idea, would expand the overall picture. - If team 1 knew how to use Logwis better, some things could be easier. At least awareness could be increased.

Table 5. Main Findings, Team 4.

5 Discussion

At the beginning, two research questions were defined for this research, which guided the research. With the help of the questions, topic and the case company were introduced, as well as the company's processes. With the help of key personnel and the material provided by the company, the research examined possible problems related to communication, cooperation, and coordination between the three teams, who work on project deliveries process. The findings can be used to answer the following two research questions:

1. How does cross-functional communication between teams affect the delivery reliability of project deliveries and the On-Time-Loading (OTL) indicator?
2. How can better cooperation and coordination between teams improve the performance of the teams, who work on project deliveries?

As can be seen in the findings, there are a few problems in the processes that immediately affect the reliability of delivery, and that the shipments do not leave the warehouse on time. Delays can have dire effects on customer satisfaction and projects. Late deliveries can also have financial consequences. Communication is mostly considered good, but in certain cases, waiting and confusion in communication are part of the reason why shipments have not left the warehouse in the Netherlands on the desired date. As Paul et al. (2016) write, virtual interactions and communication in the organization and its inefficiency immediately cause problems. The problems include the late responses to surveys seen in the case study. Effective communication, on the other hand, brings flexibility and spreads positivity that the broadcasts will be successful. Also, Mentzer et al. (2007) highlight clear and open communication to improve performance. From the findings, it can be stated that there is also a lot of confusion and parties involved in communication, and things are not always on the same map. As the ambiguities increase, so does the dialogue. Clearer sharing of information in time also immediately affects how well the parties know how to coordinate cooperation. It also creates cohesion and trust (Wu et al., 2004).

One big, impressive thing about the findings is the lack of critical information. It immediately causes additional work and additional communication, and it takes more working time for coordinators. All of the above affects the fact that the goods cannot leave the warehouse on time before the necessary information has been received from one party to the other. As Wu et al. (2016) mention, the dynamic environment in which the case company also operates, information flow, and sharing the necessary information to each party in time makes it easier to solve problems such as it brings to delivery reliability, reducing costs, and bringing flexibility. By sharing and communicating information more effectively, the company and its functions can cope with their own tasks much more efficiently and clear up uncertainties (Wu et al., 2016).

The cooperation between the departments is mostly seen as good and open. The parties are ready to help others when help is needed, and the teams have a common desire for the process to run better. This helping, supporting, and developing together is the key to deepening cooperation between the parties, and working together turns into a desire to achieve both one's own goals and a desire for others to succeed as well (West et al., 2003). However, almost everyone expressed a wish for deepening cooperation. Sharing information between departments is seen as a good key to closer cooperation. There is a desire to strengthen cooperation through the fact that there are joint meetings where everyone can bring up their own views and concerns and inform others about their own actions. Castaner and Oliveira (2020) consider that deepening cooperation leads to an increase in work efficiency when the parties want to share resources and ideas and want to see things through the other's perspectives in addition to their own. Setting common goals can also be discussed as long as they fit the work of all departments appropriately. Looking at excessive numbers is not considered good, and the current goals do not tell the whole picture and the work performance. This is also related to joint decision-making and how to act in the future, which is part of cooperation (Castaner & Oliveira, 2020).

When talking about coordination, once again, the departments are mostly aware of what other departments are doing and how their own work affects each other's work, but the transparency of the overall picture could be increased with, for example, joint meetings and workshops. As Sobero and Schrader mention (1998, p. 1998) with better coordination in the organization, partners and departments can avoid confusion in their processes and can achieve resemblance in their work. That is how resources can be saved. Coordination problems create daily challenges in the process. Team 1 functions have not been created around project deliveries, and deliveries are not thought of as complete projects but as individual shipments. System compatibility is also a problem when two different systems are used in daily work. Sharing information can be difficult when teams use a lot of excel tables, and teams rely on the information provided by others and cannot check it themselves. Sales orders are made with deficiency information, or critical information is missing totally. When there are incorrect orders or orders missing information, it affects the whole process and delays it. The shipment cannot be processed and loaded to the truck before the order is correct. The missing or incorrect information also creates more work, as it needs to be checked. As Badiru writes (2008), with the help of coordination, teams can integrate their processes and that way reduce the work steps, allocate resources better and reduce disturbances in the process. With the coordination, process can be developed and identify problems. Also, Paul et al. (2016) discusses the importance of information sharing between teams and highlights the connection between good communication and coordination. To assure that the coordination between departments works, the improved communication is needed.

The problems related to these three themes can be seen to have effects on delivery reliability. Delays in the processing of orders and deliveries caused by communication and missing information immediately affect the fact that goods cannot be loaded for daily pickup. Consequently, the order is delayed, and the effects can be, in the worst case, delays in the project work. In general, however, the effects are financial when the orders have already been booked for connection transportation and they cannot be boarded on the agreed day. Other financial effects are when the parts are already late and

dedicated pickups or faster transportation is needed, and therefore the freight charges are higher. As discussed in theory parts, delays in deliveries can create problems in the customer satisfaction and to costs (Badiru, 2008); Ngaliman, 2019). Developing delivery processes and supply chains, and how well the company can react to changes, react when getting new information, and response to changes, for example, when changing the delivery locations, can improve the cost-effect in operations and customer satisfaction, when deliveries are not late (Melnik, 2010); (Attinasi et al., 2021).

5.1 Theoretical contribution

This paragraph tells what new information this research brings out. It helps to bring an understanding of the phenomenon that occurs in the organization. The theoretical contribution presents an original and useful scientific theory that brings new value (Corley & Gioia, 2011).

When looking at the starting situation, communication, cooperation, and coordination between different areas of the organization have been studied, and what improving these three means in the organization. As mentioned earlier, these three have a great impact when looking at the success of various projects and increasing efficiency in different areas of the organization. This is what, e.g., Badiru (2008) and Alaloul et al. (2018) state. The author's purpose in this thesis is to investigate the connection of these three themes to the delivery reliability of international projects of an international company. When the three themes are improved in the company, does it affect not only the three themes themselves but also the reliability of delivery. In this case, reliability means that the company can get the project parts to leave on time as originally planned. As Fossum et al. writes (2019), most of the international projects have been completed behind schedule, and as can be found out from the data of the case company, many project parts leave only after the agreed schedule.

The research shows that deficiencies in communication, cooperation, and coordination between teams have a clearly negative effect on delivery reliability. By improving these between the teams, deliveries can be sent more on time than in the current situation. When, for example, the missing information is communicated without delay to the right team, it immediately affects the fact that the team gets its work done on time and thus sends the part on time to the desired address. Cooperation between teams helps to solve daily problems, and each team can present their concerns and ideas on how to make the process go smoothly. The teams also want transparency about the actions of others and a better overall picture of the smoothness and operation of the process. Joint coordination of tasks and parts of the process also helps to clarify the process between the parties, unnecessary tasks that consume time and resources can be reduced, and the allocation of resources in busy work can be improved.

5.2 Managerial Implications

In this chapter, concrete proposals are presented for the organization based on the previous theory and findings in order to improve the process of international projects and to increase delivery reliability.

As the study results reveal, the parties hope for more transparency between all actors to make the process smoother. Joint sessions have been organized in the past between at least two different teams where it has been shown what the other party is doing and what kind of effects it has on the other team. These have been perceived as good, and things have been done differently after the session to make the process smoother. Openness increases the parties' idea of how things and work can be done in different ways and what is expected from others. Possible problems in the process and communication can be brought up in order to improve things. Teams can bring up, for example, what it means for the process if critical information is missing from the delivery. Here it can be emphasized that the missing information causes additional work when it has not already been informed before. With the help of joint meetings, teams can throw

ideas on how to develop operations (Kauffeld & Lehmann-Willenbrock, 2012). When organizing joint meetings, it needs to be considered that there is only a limited amount of time in the day, and the regular workdays consist heavy workload. Therefore, it is understandable that there is no time to organize several sessions every week, but even shorter ones can help.

The company has also already made changes regarding joint meetings. A weekly meeting has been arranged between the three teams, where pending shipments are reviewed. The purpose of the weekly meeting is to review why the shipment has not yet been left, what is reason why it has not been sent, and what can be done about it.

One change that could be considered in the organization is the development of goals for performance monitoring. In connection with this, it can also reflect on the OTL indicator and how well it tells how Team 1 has performed. The OTL indicator gives a false picture of the performance because it is based solely on the following numbers, i.e., whether the delivery has left on the day it is intended. However, if the delivery lacks critical information that needs to be found out by another team, the delivery is forced to be late because the delivery cannot be sent with insufficient information. This lateness is therefore not caused by team 1's own work, and in light of the numbers, it can show that team 1 has not performed well, even if that is not the case.

Another possible change is related to the adequate allocation of resources and the sharing of information beforehand. When the teams have more significant projects to deal with, it brings more work into the workday as the different project shipments need processing. In order to cope with the increase in the daily workload without delays, it is better to prepare, for example, the number of personnel in advance. Therefore, the idea is that when Team 2 releases new shipments to the packing, this information is also forwarded by Team 2 to Team 1. Thus, team 1 is able to better prepare for the growing workload and increase the number workforce in order to cope with a more considerable

backlog without major delays. The team can also share this information with the Netherlands warehouse so that they can better prepare for outgoing shipments.

Improving the importance, fluency, speed, and clarity of communication between teams can be emphasized in teams. If the communication delays continue and teams have to wait for the answers long time or if the communication is confusing, it will show in the delivery delays.

5.3 Future Research

In the future, the research can be expanded even more and look at the different phases of the supply chain in the entire process. In this thesis, only a small part of the entire supply chain operation in international projects is described and examined. In international projects, there are even more suppliers and parties who are working on projects on a daily basis. The same three themes, communication, cooperation and coordination, also considers these actors in the process. Also, as this study is single case study, in the future the same subject could be researched with multiple case study and do the cross-case analysis to see are the results same in different organizations as well. With multiple cases, more conclusions can be drawn, whether the phenomenon in question repeats itself more often and more in general. Also, the subject can be expanded to different industries other than marine and energy industries.

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Appendices

Appendix 1. Interview structure by themes

1. Introduction, free word

- Introduction of the topic
- How the interview goes
- How the process works?
- International projects

2. Cooperation

- How the cooperation works?
- Separate and common goals between teams? KPI Indicators
- How to improve?
- What expecting from others?

3. Communication

- How the communication works between teams?
- Information flow
- What tools in the use?
- How to improve?

4. Coordination

- How the coordination works between teams?
- Unnecessary tasks?
- Do the teams know what others do?
- Improving the bigger picture of the process
- What problems delays cause to each team? What problems to the project?

5. Closing words