



SCHOOL OF  
ECONOMICS AND  
MANAGEMENT

# How companies ensure XTC

A qualitative study of how a company ensure  
collaboration across teams

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## Abstract

This paper aims to investigate how a company ensures cross-team collaboration, what challenges there might be to this phenomenon, and lastly how the COVID-19 crisis has impacted this type of collaboration. The empirical data was collected through interviews with 12 employees from 5 different teams at a Medical-Technology company. The employees got to answer several questions about how they experience cross-team collaboration (XTC) within their organization, and between their teams. Five components were identified as vital for collaboration through a literature study and later analyzed with regards to the empirical data. The five components were psychological safety, communication, knowledge sharing, conflict management, and team-building. Further virtual tools for collaboration and information sharing for virtual collaboration were added to the literature study. Communication, knowledge sharing and team-building were found vital in the case study, as well as transparency, and a common vision over the process. The biggest challenges were found to be miscommunication, lack of an outspelt plan and lack of resources. Lastly, it was found that the COVID-19 crisis had not impacted the cross-team collaboration other than the loss of social relationships and informal information sharing. Advantages that the crisis has brought was easier communication due to the right virtual tools and the flexibility to work remotely even after the crisis.

**Keywords:** cross-team collaboration, team, collaboration, communication, collaborative environment, COVID-19.

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# 1 Introduction

## 1.1 Background

For an organization to be efficient and reach the best possible outcome, the management and the workers need to enable a collaborative environment in which departments and teams can work effectively together (Cross, Rebele & Grant, 2016). This is why teams and collaboration are two components that need to merge. This is further a recurring topic when addressing the topic of organizations.

Companies are often divided into different units or groups which makes it possible to combine responsibilities and activities for their agendas to profit the organization (Corporate Finance Institute, 2021). This, however, includes certain challenges. Literature and case studies contribute to some knowledge on how teams ensure collaboration to get the most out of their competence. Although to ensure productivity in an organization, it also needs to make sure that separate teams collaborate and work together, including managers and workers. Except for structural conditions, organizations need to enable the teams and their members to interact with one another to keep up the efficiency and effectiveness to achieve the goals of the business (Crispo, 2016).

A team can be defined as a set of two or more people that are working together, systematically, and with different responsibilities towards a shared goal (Dyer, 1997). Collaboration is a widely spread word that can occur in several environments or constellations. It could explain the cooperation between two individuals trying to reach a common goal or several companies trying to reach the highest profit. Despite the wide definition of collaboration, this paper will take a closer look at the collaboration between teams in an organization. These teams consist of managers and workers who collaborate, in and across teams, in their daily work. According to AIIM (The Association for Intelligent Information Management, 2021), collaboration exists in two different forms. The first way takes its form synchronously where individuals interact in real-time, while the other form takes place asynchronously where the interaction instead takes place in a shared workspace time-shifted.

It is important to clarify these definitions of teams and collaboration which will later lead into the investigation area of cross-team collaboration (XTC). Further, to understand the phenomenon of XTC, a distinction from other usually referred collaboration variants will be presented. Another factor taken into consideration in this investigation is what impact an external crisis has on the internal collaboration in an organization, and how this affects teams' way of collaborating. Lastly, important factors for creating effective teams will be presented.

### 1.1.1 Cross-team collaboration

A lot of research sheds light on the topic of collaboration, especially within a team. Several articles highlight important components for creating collaboration within a team which makes the question of how teams collaborate, with one another, arise. Hence, the focus on the phenomenon of cross-team collaboration (XTC) came up. To offer the right understanding of this phenomenon, XTC, it is important to distinguish XTC from cross-functional teams (CFT) and cross-boundary teams (CBT) which is commonly addressed when investigating the subject of collaboration in teams.

When talking about CFT, they are defined as teams with members from different functional departments, different skill sets, within the organization who work together, in a team (temporary or permanent) to reach a common goal by making use of their different expertise (Lynn, 2021). According to Smart and Barnum (2000), the biggest challenge and most vital component for the success of a CFT is communication due to their different backgrounds. Further, individuals in a cross-functional team need to have a common frame, common understanding and an explicit way of working throughout the process. If this is not done, if the communication fails, so does the output which also leads to the risk of creating conflicts or destroying relationships (Rhodes, 1991 cited in Smart & Barnum, 2000).

The other term, CBT, is defined by Edmondson and Harvey (2018) as often *temporary* teams that work across different knowledge, expertise and organizational boundaries. Working cross-boundary is further said to increase innovation due to the wider range of experiences, and knowledge, in this type of team. One challenge that Dougherty (1991, cited in Edmondson & Harvey, 2018) mentions with CBT is that they might have trouble understanding each other. This

is because of their different experiences and knowledge, that they might see different opportunities or problems in the same situation. To create a successful cross-boundary team, and create innovation, can therefore be challenging to put that team together (Edmondson & Harvey, 2018).

According to Investopedia (2020), one explanation of the opposite phenomenon of collaboration could be the silo mentality. This mentality is described as an unwillingness of information sharing with people from different units in an organization. Silos might affect the corporate culture within the organization and damage a flow of knowledge and workflow between teams.

To bring clarity to the issue of XTC, an investigation in an organization where different teams collaborate to achieve a final product will be made, these teams are not cross-functional nor cross boundary. They are separate teams within the same organization but with different responsibilities, for different parts in the process. The teams have different educational backgrounds, although all members within each of the teams have similar educational backgrounds. Hence, these teams have different sets of skills but the members of each team share the same skill sets as the other members of that same team. The phenomenon of collaboration between teams with different skill sets is what is being described as a cross-team collaboration, and will be defined as collaboration between two or more teams that are working together, effectively and process-wise, to reach a common goal.

Research shows that there are challenges with both CFT (Smart & Barnum, 2000) and CBT (Edmondson & Harvey, 2018). Hence, it is reasonable to wonder if there are challenges with XTC in organizations today. One challenge could be because of the differences that people divided into groups bring. This could in turn challenge the safety to reach out to a greater affiliation. People are looking for belonging and want to identify themselves with a group which further can develop a feeling of “us and them” (Blomstrom, 2019). Further, this could be connected to the silo mentality and the lack of knowledge sharing between teams. By not reaching out to other teams with information and questions, misunderstandings or barriers might occur. (Investopedia, 2020).



### 1.1.2 Important factors for effective teams

Since the explored phenomenon is collaboration across teams, it is of interest to establish what makes a good team. Therefore, important components for creating effective teams will be presented further.

Gilley, Morris, Waite, Coates and Veliquette (2010) are referring to Hackman (2002) when establishing five important characteristics for an effective team. The first characteristic is a clear goal, and directions, in order to have a clear focus on how to work, and what to work towards. The second characteristic is a good leadership that can help the team with their internal, as well as external, relations while helping them to keep track of the goals. The third characteristic for an effective team is that the tasks and responsibilities are suited for teamwork. Tasks need to include elements of teamwork, as well as individual responsibility. The teams further need to have the appropriate resources to be able to do the tasks, which is the fourth characteristic. This includes all types of resources, such as financial, material, and human resources. The last characteristic that Hackman (2002 cited in Gilley et.al., 2010) identifies is that the organizational environment has to be supportive towards the teams. This will allow them to make decisions, implement new ideas, and feel a sense of autonomy and empowerment in the organization.

Another important factor to consider when discussing what makes a good team and collaborations is safety between the members collaborating, i.e. psychological safety (Edmondson, 1999; Duhigg, 2016). Like Hackman (2002, cited in Gilley et.al., 2010), Duhigg (2016) discusses a number of necessary characteristics for a team to work and collaborate. These are psychological safety, dependability, structure and clarity, and that the members feel that they have meaning. Lastly, Duhigg (2016) discusses impact, that the members experience that what they do matters and that they have the possibility to create change, much like Hackman's last characteristic (2002 cited in Gilley et.al., 2010). This will further be discussed in 3.3.1.

### 1.1.3 External crises impact on collaboration

A second aspect to the phenomenon of XTC, is what impact external crises have on the collaboration across teams, and further, how this might affect their way of collaborating more concrete by using the COVID-19 crisis as an example.

A crisis can be explained as an element with several dimensions affecting the world. It could be financial, technological, natural, industrial or a corporation to its form. What they have in common though, is that they bring uncertainty, and chock, to the organization. Crises within organizations risk to change the behavior of individuals affected by the crisis. This could further rearrange the positions of people and groups and currently interfere with previous practises, e.g. structures, processes, strategies and culture. This could, from a psychological perspective, create a state of worrying, stress, and uncertainty between the individuals within the organization (Dubrovski, 2016). This is why it is important to be aware that an ongoing crisis could lead to consequences on the collaboration, possibly by being a down-prioritized aspect due to other emergencies.

There is research stating that crises bring opportunities to organizations. According to Bar Am, Furstenthal, Jorge and Roth (2021), a crisis could benefit an organization. One example is the COVID-19 crisis, which has swept across the globe and affected every aspect of business life and further includes how to manage an organization. In a questionnaire done by Bar Am et. al. (2021), over 90% of more than 200 organizations across different industries will change their way of doing business over the next few years. Further, more than 75% are of the opinion that the crisis will create new opportunities for growth in the upcoming years. These opportunities can include new ways of thinking regarding innovation as a response to the consequences of the crisis (Bar Am et. al., 2021).

## 1.2 Purpose and research questions

The purpose of this paper is to explore how XTC is ensured in an organization and what the most important components are to foster this type of collaboration. The sub-purpose is to identify challenges with this type of collaboration. The second purpose is to investigate how external crises might impact collaboration across teams.

### 1.2.1 Research questions

How does a company ensure cross-team collaboration?

- What are the challenges of this type of collaboration?

What impact has an external crisis on cross-team collaboration?

- In what way has COVID-19 affected the questions above?

### 1.3 Outline of the thesis

This paper consists of five chapters with the first one covering an introduction as well a background to the research. The second chapter will explain the method for conducting the research made and important considerations taken. This is followed by a third chapter that presents the theoretical study and highlights the vital components of collaboration. Chapter four will feature the results from the case study together with an analysis to combine the theory to our findings. Lastly, chapter 5 will exhibit the final conclusions of the research and finally suggest future contributions.

## 2 Method & design of the study

The approach used for this study was chosen with regards to the subject of XTC being a relatively unexplored phenomenon. Research on collaboration and teams is well investigated, however, how collaboration is ensured across teams is not. Therefore, a grounded method including a literature study and a case study, with qualitative interviews, was used to gather the empirical data. The possibility for the participants and the interviewers to explain, discuss and elaborate on the subject when collecting the data was to prefer, which would not have been possible through a quantitative study with e.g. a survey (Sekaran & Bougie, 2016). In addition, a case study made it possible to target the phenomenon of XTC from different aspects. Further, the literature study was made to analyse the case study.

### 2.1 Theoretical framework

To better understand how a company ensures collaboration across teams, a theoretical starting point was presented based on earlier research on collaboration in organizations. The theoretical framework was chosen from selected studies, research articles, theories, and models on collaboration in organizations. The decision to start with a theoretical background was based on the already existing research on the topic of collaboration, therefore, a deductive approach was used when entering the case study.

Most research presented the perspective of collaboration within an existing team or in an organization as a whole. Targeting collaboration across teams provided another aspect of the importance of collaboration, and further why this is important for achieving organizational effectiveness (Sekaran & Bougie, 2016).

Among the chosen theories, Edmondson (1999) is mentioned. The reason for this is her broad research regarding essential factors for teamwork and collaboration. Other research taken into consideration was Morgan (2012) and Mathrani, Mathrani & Liu (2011) who have investigated how organizations reach a collaborative environment. With limited earlier research on the topic XTC, the theoretical framework presents components of collaboration to give a wider research outline to answer the research questions. When selecting articles for the literature study,

cross-functional and cross-boundary were recurring keywords. Although, since the purpose of this paper is to explore collaboration between teams, research regarding CFT and CBT was only found relevant to some extent. Research on CFT and CBT shows that there are challenges with those types of teams, hence, it was reasonable to assume that there might be challenges with XTC.

The theory is mainly collected from academic articles regarding the subject of collaboration. These sources have been investigated and peer-reviewed before published by experts in the field, and are considered reliable. They are built upon earlier research concerning the subject which provides an introduction and background to the chosen investigating field, a purpose of the study, a course of action(s), and outcomes of the study (Sekaran & Bougie, 2016).

Scholar articles, academic literature, and journals have been accessed via the internet website LubSearch. This is a simple way to find relevant information regarding the subject and the reach is wide. When using LubSearch for accessing articles, journals, or other relevant academic findings, it has been made sure that these are peer-reviewed, although, it is important to have in mind that these web pages are unmonitored and unregulated. For that reason, it is crucial to consider and determine the reliability and validity of the use (Sekaran & Bougie, 2016). By constantly being critical of the source, as well as trying to find the source of the findings, the reliability has been greatly considered.

## 2.2 Design of the case study

### 2.2.1 Object of the study

When selecting the study object, the criteria were that they had different teams working together on a project, to reach the same objective(s). The chosen company is a Medical-Technology (Med-Tech) company that produces its products and works across teams with different responsibilities in the process. Hence, the case study focused on five different teams within the company. The chosen teams are working together, in a process, to develop a device to launch on the market. These teams are for that reason in a mutual dependence towards each other that further requires collaboration. The members within the same teams have similar educational backgrounds, and the different teams are responsible for different stages in the development and

production of the product, making their collaboration an XTC. Furthermore, by being an active company during the year 2020, the crisis COVID-19 affected the organisation, its teams, their way of function and further their way of collaborating.

The teams that were studied were two Applications teams that cover the software of the product, one Technical Writing team that handles all documentation regarding the software and manuals of the device. Further, one Quality team that manages the quality, and regulations, around the process to make sure that the device is in line with the market demands, and lastly, one Product Management team that manages the product portfolio from the idea stage to product launch.

With the explanation of the reason why these teams were studied, the case study did not take departments like HR, Finance, IT, or Marketing into consideration when investigating this phenomenon. This was mainly because of the reason that this paper investigates XTC in a specific process, in which the chosen teams of the case study are working in mutual dependence, and for a final product.

Within the chosen teams, the sample consisted of both workers and managers to provide as broad and detailed a picture of the occurring collaboration, as possible. By collecting data from both workers and managers (both referred to as employees or participants), it was made sure the data was referring to how the organization, and not only how the managers or workers, ensure XTC. With participants from different hierarchical levels and teams, the belief was that the sample would provide a justified representation of the organization.

### 2.2.2 Interviews

The data was collected through 12 semi-structured interviews conducted with both workers, and managers of the chosen teams within the organization. The interviews started with a brief background and description regarding the research subject. All participants were asked the same questions and when the interviewer found it necessary, follow up questions were asked. The interviews lasted between 35 minutes up to an hour for qualitative reasons and consisted of 23 questions (see Appendix 1). All interviews were held in Swedish due to this being the native language of all participants. They were later transcribed and translated for a quotation. The

transcriptions are further available upon request. Some questions were sent to the respondents prior to the interviews for preparational and reflectional purposes as well as transparency.

The questions asked were based on the paper's research questions and conducted through a grounded theory method. All questions were divided into three sections; what components of their collaboration they found important; what challenges they experienced with their collaboration; their individual experience on what impact the COVID-19 crisis has had on the described collaboration. In these three sections, the respondents were asked to describe what they thought in a hypothetical matter, what they experienced, and what could be changed. All the questions were asked to give the respondents the chance to answer as subjective and descriptive as possible.

During the interviews, there were two people (except for the participant being interviewed) present, one interviewer and one passive note taker. The interviewer and the notetaker were the same person in all 12 interviews to contribute to consistency and to make sure that the respondents were treated equally during the interviews.

### 2.2.3 Analysis of data

To analyze the data, an empirically generated analysis was made. The results from the interviews were analyzed through a thematic approach by rearranging the research questions into themes. The themes were based on the different areas of focus within collaboration, i.e. the different sections from the interview guide. Based on the different sections of the interview guide, the transcriptions of the interviews were reviewed, and the answers were divided into themes of; positive aspects of their collaboration; negative aspects of their collaboration; positive effects of the crisis COVID-19; and negative effects of COVID-19. Thereafter, sub-themes were identified based on the components for XTC, that the literature study identified; psychological safety; communication; knowledge sharing; conflict management; and team-building. Virtual tools and remote working were also two sub-themes. The transcriptions were reviewed by each interviewer separately at first, where each interviewer coded the answers into the chosen themes and sub-themes, and further marked them in a color coding system. To establish the essence of the

data, the transcriptions were then reviewed together by the two interviewers and thus analyzed to answer the research questions.

When coding the respondent's answers into themes and sub-themes, they were based on the research questions and the components found for XTC. The components were based on the literature on what is needed for collaboration and virtual collaboration. Hence, the themes and sub-themes can be viewed as reliable and based upon earlier literature on collaboration. The transcriptions were read and coded through interpretation and subjectivity through the interviewers coding the transcriptions, first separately, and then once more together. The objective was to ensure reliability and validity.

#### 2.2.4 Ethical considerations

When designing a case study, it is of great importance to take ethical considerations into account and make clear that no subjective opinions from the interviewers are being presented, while at the same time, ensure the quality of the research. This could further be explained as social norms of behavior that the researchers are obligated to follow (Sekaran & Bougie, 2016).

Before each interview was held, the participants had been provided with information regarding the aim of the study, the research questions, and the reason why the organization was chosen for the case study. Further, they were in advance provided with some examples of questions that could be asked during the interview, for the purpose of preparations and time to reflect upon the chosen subject. Before the start of every interview, each respondent was given a short presentation of the author's background, education, and what the aim of the research was. Further, they were asked to give approval for the interview being recorded for transcription purposes and informed that the participation was voluntary, meaning they could at any time withdraw from the interview. The participants were also informed that the data was collected for a thesis project that would further be published, although their identity was not going to be revealed by any circumstances. The information that was shared from the respondents was not told to other participants, making the collected information anonymous, and independent, from other respondents.



## 2.3 Reflections regarding the methodology

The decision to conduct a case study was based on the argument that the studied phenomenon of XTC required a deeper discussion because of its complexity. Since this is more time-consuming than e.g. sending out a survey, the number of people participating in the study was delimited. When reflecting on the options, perhaps a quantitative method could have provided a bigger amount of data which could have, in the end, strengthened the result and conclusions regarding the collaboration. Another option could have been a combination of both interviews and surveys to gather a broader perspective of the experienced collaboration. This would have provided the result with both subjective opinions and statistics.

Regarding the chosen organization and the sample, the organization was chosen due to the formation of the teams that are working towards a specific product, as well as one of the thesis writers having a connection to the organization. After consideration, it was decided that it would be possible to collect the data, with considerations taken for possible prior relationships, between the thesis writer and the sample. This was mainly because the sample was selected by the organization. The managers of the selected teams were asked to appoint one, or two, workers depending on the size of the team, for the case study. The person interviewing the participants was the one with connections to the organization. The reason was that having the person connected to the organization holding the interviews would make the participants feel more comfortable, and further having more knowledge about the organization. By having the thesis writer with no prior relations to the organization, or the people, taking notes it would make sure that the information that was shared was understandable, as well as relevant to the questions and the purpose of the study. Furthermore, by having the objective thesis writer as the observer and notetaker, the validity of the interview increased.

Another reflection regarding the sample object was the delimitation of the study to only five teams within the organization. It occurred later, when analyzing the data, that the case study could have benefited from having more departments taken into consideration. By contemplating more aspects regarding the process that was being analyzed, the sample could have been broadened, and the conclusions developed further.

Furthermore, a factor influencing the result could be that the interviews were held in Swedish. This was due to Swedish being the native language that was spoken among the respondents. When analyzing the data, translations were made to present the empirical data. This is important to highlight since it could affect the interpretation of the answers that were being given, not least the exemplified quotes in the result that is impossible to translate directly.

## 3 Theory

With earlier research on the topic of collaboration, this chapter will further present the main components that the case study will be based on. The first part of the following chapter will present possible components of a collaborative environment and will keep this study in a direction which otherwise could have been infinite. These identified components are recognized as essential elements for collaboration to exist and further compile with. The second part of this chapter will identify the consequences of an external crisis, and what impact it has on the internal organization, and further, the XTC.

### 3.1 A context that encourages collaboration

For an organization to function and be successful, collaboration is a vital aspect that needs to be considered. For this to develop, divisions, departments and teams need to create a common ground to build upon. Morgan (2012) investigates this subject and points out that collaboration is key to build an effective, engaged, and sustainable business. He further explains that there are five types of categories in which collaboration can be measured; the unaware organization, the exploratory organization, the defined organization, the adoptive organization, and lastly the adaptive organization. These different types are used to explain where the organization is today, and what pre-conditions the separate teams have. They also show the usual challenges, but also the value of being in the different organizations. As the names of the two first types of organizations state, they show unpredictability and unawareness but have the potential for exploring and curiosity. As groups move into the defined type of organization there is a clear strategy for the collaboration to take place. People communicate and share information while a vision is starting to arise. To move on into the adoptive and adaptive type, employees need to communicate a direction and common vision. Here, people are getting closer to realizing the value of collaboration. In the adoptive and adaptive type, teams have clearly been defined, there is a vision, and a strategy and risks have been evaluated. At this point, there is a high degree of collaboration and openness. Trust and psychological safety are established and employees see the value of a collaborating environment (Morgan, 2012).

Knowledge is a business's main competitive advantage against competitors, but for this to take place, collaboration needs to be successfully implemented by creating an accepting and supporting environment (Abudi, 2015). Additionally, organizations will need to enable benefits including improved teamwork and communication, reduce conflicts and foster innovative problem-solving. The author discusses in what ways collaboration and knowledge sharing can be enabled throughout the organization. By constantly collaborating across teams and encouraging the value of knowledge, and sharing from the top to the bottom of the organization, employees will do a better job, in a faster phase and with a higher quality of the products. The process will also be smoother with fewer conflicts and communication misunderstandings (Abudi, 2015).

As earlier literature (Hackman, 2002 cited in Gilley et. al., 2010; Duhigg, 2016) discusses, the environment seems to be important for a successful team. Mathrani et. al. (2011) created a framework of four contexts for successful collaborative product development. Each context includes certain environmental factors that will contribute to the collaboration in the organization, and for the teams. The contexts are management, team, process, and supporting tools which each includes factors that are necessary for success. The first context Mathrani et. al. (2011) mention, is the management and how they need to define responsibilities, objectives, and milestones while empowering each team and providing them with allocated resources. Further, the team itself needs to have effective communication, respect for, and trust in each other. It is also important that the team members are committed and that there is a cultural understanding within, and between, the teams. A third factor is to keep track of the process including regular team meetings, milestone controls, and performance monitoring. Lastly, the fourth context involves external tools for getting the job done, such as email, video conferencing, knowledge-sharing platforms, and digital control systems. If these factors exist within the organization and for the teams, the teams will be able to collaborate successfully (Mathrani et. al., 2011).

Both Morgan (2012) and Mathrani et. al. (2011) describes collaboration but from different perspectives. While Mathrani et. al. (2011) describes the context for collaboration, and factors that are needed, Morgan (2012) measures the collaboration of the organization in different stages. One way of interpreting these two ways of collaboration in an organization could be that if the

management and team contexts (Mathrani et. al., 2011) are in place, the organization could be in the defined stage, having passed the unaware and the exploratory stages (Morgan, 2012). When the process is getting tracked and the external tools to get the job done are in place, the third and fourth context described by Mathrani et. al. (2011), the organization could be in the adoptive and adaptive stages (morgan, 2012). What differs the two descriptions are that Morgan (2012) discusses the awareness of collaboration from the people collaborating, and how it is necessary to collaborate successfully. This is something that Mathrani et. al. (2011) does not discuss, but instead, that this already exists in a product development process, and what further helps this process to succeed is the aforementioned contexts.

After describing why collaboration is important in an organization, the components presented in the following sections are the components identified as most vital when it comes to the investigated phenomenon of XTC.

### 3.1.1 Psychological safety

To enable collaboration in and between teams psychological safety needs to be established. Amy Edmondson (1999) presented the construct of team psychological safety. Edmondson (1999, p. 350) defines psychological safety as “a shared belief held by members that the team is safe for interpersonal risk-taking”. She further describes that this will determine how effective the organization is.

People are social creatures but in some organizational environments and situations, this context can be more threatening than welcoming. This usually shows by employees not speaking their mind, or not expressing their questions or concerns (Edmondson, 1999). In Edmondson’s (1999) earlier research, five factors are identified as organizational conditions which directly affect the psychological safety of a team; the team leader; trust and respect; support from the organization; organizational habits, and practice (Conley, 2018). The team leader will always have an impact on whether the members of the team are feeling safe, to be honest, or dare to be vulnerable. Depending on the way the team leader acts, the members will feel encouraged to share their thoughts and criticism with the group (Conley, 2018). Another important factor contributing to psychological safety, according to Conley (2018), is group dynamics which are decided by the

norms of the team. If honesty and creativity are encouraged, the members of the team will feel safe to speak their minds which is a result of a psychologically safe environment. Trust and respect are the third described factor that enables psychological safety. Conley (2018) explains that there is an overlap between psychological safety and trust but separates them by defining trust as “willingness to be vulnerable based on perceptions of someone’s (or some thing’s) trustworthiness”. Respect is as crucial as trust because otherwise, people will feel judged or inferior. Therefore, trust and respect promote psychological safety. The penultimate area in which contributes to psychological safety is practice. This enables learning within the teams. The members will get a chance to make mistakes, and work on improvement without being judged because of the safe environment (Conley, 2018). The last condition is having a supportive organizational context. This is provided by giving members of the organizations freedom, instead of controlling them. Organizations with a culture that stands for fairness and trust will automatically create a supportive environment where members feel safe and dare to take risks (Conley, 2018). Organizations need to establish a culture that advocates trust and a risk-taking environment. This will not only favor the employees by achieving higher results and development, but it will also be auspicious for the organization that will become innovative, and further, increase communication and collaboration with other groups across the organization (Conley, 2018).

### 3.1.2 Communication

Communication is the process in which information is shared between people with the purpose to establish a shared understanding of the subject. In the activity, information is exchanged through thoughts, feelings, or messages and can be done by speaking, signaling, writing, or a behavior (Velentzas & Broni, 2014).

An organization is built upon relationships and relationships are built upon communication. This is the reason why communication plays an important part to ensure a collaborative environment. Close communication enables teamwork in an organization. This phenomenon has been emphasized in earlier research and highlights the information-processing perspective (McIntyre & Salas, 1995 cited in Salas, Sims & Burke, 2004; Hinsz, Tindale, & Vollrath, 1997). Hinsz et al. (1997) discuss how teams in an organization acquire information regarding the organizational

environment and how this information is communicated internally to perform actions (MacMillan, Entin, & Serfaty, 2004). Although, there are many times communication fails because of the reason it does not occur but also when it does when there are several interpretations or misunderstandings. People are exposed to their own hidden biases and there could also be an information overload which makes the communication harder to grasp, in, for example, a stressful environment (Salas et. al., 2013).

Salas et. al. (2013) suggests that effective teams should use so-called closed-loop communication. This is recognized by a message being presented, the receiver interpreting and acknowledging the message, and the sender is following up to ensure that the message is appropriately interpreted by the receiver. Research has found that teams that are trained and well established with communication measures will perform better. By using closed-loop communication the team will further enable a collaborative environment (Salas et. al., 2013).

One main reason why collaboration is hard to establish is because of the lack of clear communication. Edmundsson and Roloff (2009, cited in Salas et. al., 2013) define collaboration, from earlier research made by Jassawalla and Sashittal (1998, cited in Salas et. al., 2013, p. 184), as “the coming together of diverse interests and people achieve a common purpose via interactions, information sharing, and coordination of activities”. When people in a team are experiencing uncertainty, lapses of team communication might arise. This gets even more challenging when collaboration across teams. The necessity of simple communication, expressing work-related issues and ideas is required of teams and team members to enable collaboration across teams (Salas et. al., 2013).

### 3.1.3 Knowledge sharing

Knowledge sharing is the sharing of information, know-how, and feedback between people either within the group or with other people or groups. Knowledge sharing is proven to have a positive effect on a team’s innovation, performance, and effectiveness (Cummings, 2004; Levin & Cross, 2004). One key factor when sharing or receiving knowledge to and from external groups is the perceived trustworthiness of the other group (Andrews & Delahay, 2000). When there is a higher perceived level of trust between the one who shares knowledge and the one receiving it, it is

more likely that the knowledge is valuable and that the receiver will listen and absorb the information, i.e. there is trust in each other's competence (Levin & Cross, 2004; Andrews & Delahay, 2000).

There are three main factors that make a team look for new knowledge within the team rather than from another team based on within-team relations; in-group biases; absorbed knowledge; and awareness of what the others know (Hansen, Mors, & Løvås, 2005). In-group bias is referred to as the group's tendency to overvalue the group member's own knowledge and undervalue other teams' knowledge. The reason for undervaluing the knowledge of others is not with bad intentions but rather a result of loyalty and an effort of favoring their own group (Brewer, 1979). To absorb knowledge between team members means that a team that has worked together closely tends to have a higher capacity to absorb knowledge from one another rather than from members of other teams. This is because of shared language, the familiarity of each other's way of thinking, and the simple reason of possessing the same knowledge (Cohen & Levinthal, 1990). Regarding awareness as a contributing factor for knowledge sharing, Shultz (2003) means that when a team member is aware of what another team member knows or can do, sharing is likely to happen. The awareness contributes to knowledge sharing within a team due to the simplicity of knowing whom to ask for help regarding different situations, knowing what they know and do not know.

Just as these three factors contribute to knowledge sharing within teams these factors obstruct knowledge sharing between teams. If there is a close relationship between the team members both prior and present to the specific project the team is less likely to search for knowledge from other teams. It is then more efficient to look inwards than towards subsidiary departments for knowledge (Hansen et. al., 2005).

By learning what other teams do, employees will gain a better understanding of what important role everyone plays in collaborative projects. Since the teams complement each other with different responsibilities, it will foster a smoother and more efficient environment by creating an understanding for other teams. By asking questions or sharing information rapidly, the teams will benefit by avoiding duplicated work and getting new insights on how to improve the work or the



process (Crispo, 2016). This would further benefit from knowledge sharing. As mentioned in the beginning, Blomstrom (2019) discusses the issues with looking for belonging and the wish to identify with a group and how this may develop a feeling of us and them. By working cross-team and across departments and learning about everyone's contributions, and how it further goes hand in hand with the whole organization, the teams might experience a feeling of we are in this together instead of us and them (Crispo, 2016).

### 3.1.4 Conflict management

When working with others conflicts are inevitable (Jehn, 1995). A conflict is defined as a disagreement or friction between parties based on incompatibilities in perceptions, opinions, or expectations (Curşeu and Shruijer, 2010; Fink, 1968). This type of disagreement is both natural and sometimes necessary to have. There are two different types of conflicts; task conflicts and interpersonal conflicts where the latter are the ones to avoid. An interpersonal conflict happens when the disagreement or conflict becomes personal when the people are in focus and not the actual issue (Benitez, Medina & Munduate, 2017; Eisenhardt, Kahwajy & Bourgeois, 1997; Holahan, Mooney & Paul, 2011).

There are two ways in handling conflicts, deal with them when they arise or work proactively to prevent the interpersonal type from happening. The risk of waiting to deal with a conflict until there is enough evidence or until it happens is that it enables frustration to build for too long, increasing the risk of the problem becoming interpersonal. When instead of creating a strong feeling of trust and collaboration between the parties as well as establishing a set of ground rules of the collaboration, conflicts are less likely to get ugly. Talking about how to act, speak, think, handle emotions and what different perspectives each party brings to the collaboration creates a bigger sense of understanding and trust. To master this conflict-prevention instead of conflict resolution is a much more efficient and worthwhile approach (Toegel & Barsoux, 2016).

### 3.1.5 Team-building

One factor that can contribute to the employees' level of both interest and commitment to teamwork in the organization is team-building (Gilley et. al., 2010). Team-building is the process where teamwork is being practiced and developed to help the team become more effective. It can

be both formal and informal and is supposed to help the members solve problems together and improve the performance of both the individuals as well as the team (Cummings & Worley, 2005; Pellerin, 2009 cited in Gilley et. al., 2010). Team-building also enables team members to get to know each other better which can be beneficial during unexpected change. A team is more likely to handle change better if the team is close due to better collaboration, communication, and efficiency that is being practiced in team-building activities and between familiar parties (Gibson, Ivancevich, Donnelly, & Konopaske, 2009; Gilley, et.al, 2010).

Ortlieb and Sieben (2019, p.116) discuss in their article organizational social events as “collective activities that take place within an organizational social context, but away from the participants’ workplaces and often away from their organization’s premises”. These activities are held to foster a collaborative environment in the workplace and to motivate and enhance performance, like what Cummings and Worley (2005) refer to as team-building activities. What Ortlieb and Sieben (2019) discovered in their research was that organizational social activities help foster a certain environment and based on what kind of activity is planned and what environment is already existing the outcome may differ. It is therefore of great importance that the activities created to enhance teamwork, collaboration, effectiveness, and problem-solving are actually doing just that. If having a certain environment in an organization and planning an event to foster collaboration it is necessary to make sure the activity does indeed foster collaboration and not another less wanted aspect of the environment such as competitiveness or territorial thinking (Ortlieb & Sieben, 2011).

### 3.2 External crisis; impact on collaboration

A crisis is something that an organization needs to be constantly prepared for. This phenomenon is usually connected to a threat with high uncertainty and too little time to respond to it (Janke, Mahlendorf, & Weber, 2014). An external crisis could be defined as a beginning outside an organization like, for example, an economic crisis, political influence, or technological issues (James, Wooten, & Dushek, 2011). What these examples have in common is that they are unexpected and unwanted. They are also often unmanageable in a way that makes everyone happy since a crisis will cause a lot of uncertainty among the members of an organization (Mitroff, Green jr, & Alpaslan, 2004).

When an organization is experiencing an external crisis the internal part of the organization is automatically affected (Falkheimer & Heide, 2010). Internal crisis communication is at this point of vital importance. This perspective is focusing on the need for information among the managers and employees within the organization, relatively fast. During the phases of a crisis, communication and knowledge sharing are needed for sensemaking and understanding. A crisis will affect departments and teams and further their way of working. Since every crisis is unique, it is hard for organizations and their members to have a prewritten plan, and therefore, there should be an emphasis on keeping the organization updated on the situation, what the threats are, and the possible outcomes of the crisis (Falkheimer & Heide, 2010).

### 3.2.1 The COVID-19 crisis

In late February 2020, the world experienced the greatest challenge since World War Two. The COVID-19 crisis is a global health crisis and has spread to every continent over the world with the exception of Antarctica. Except for the health crisis that COVID-19 has brought, the world is also experiencing an unpredictable socio-economic crisis that has affected businesses around the world. Among all industries and organizations, people are suffering from dismissals, redundancies, and difficulties in entering the labor market (UNDP, 2021). Whereas people who still have their employees are forced to restrictions that arise due to the crisis.

COVID-19 exposes the world to rethink their way of function of various kinds, for example, employees can no longer work at their offices with their co-workers, distance working has become the new normal. Although this is said to be temporary the answer to when things can go back to how they used to be before the crisis is unsure (Arbetsmiljöverket, 2021; Folkhälsomyndigheten, 2020). This has forced organizations and their employees to adapt to a remote way of working and collaborating overnight (Thompson, 2020). Since many organizations have not had to consider the digital aspect of collaboration, it is important to identify new possible challenges with XTC that people experience.

### 3.2.2 Virtual tools for collaboration

Gulbrandsøy, Hepsø and Skavhaug (2002, p.43) defines virtual collaboration as “collaboration between parties that are in different geographical locations”. In order for virtual collaboration to happen there must be tools and solutions that enable the collaborative partners to share knowledge, discuss and present different decisions and solutions smoothly in order to make good quality decisions virtually (Gulbrandsøy et. al., 2002).

Virtual collaboration and video conferences are one way of decreasing travelling costs and out-of-office time for an organization (Schlobach, 1989 cited in Eckhardt and Keim, 2007) though, it can also mean problems. With the digital tools required, technical difficulties often follow (Mühlenfeld, 2004 cited in Eckhardt & Keim, 2007). The inability to communicate through talk, emotions, body language, tone of voice and touch makes it harder to understand and interpret the communication or who the communication is directed at (Eckhardt & Keim, 2007: Gulbrandsøy et. al., 2002). Further, research has shown that digital communication sometimes is slower than face-to-face interaction which leads to a slower decision making process and the unwillingness to make important decisions in video conferences (Dennis & Kinney 1998; Eckhardt & Keim, 2007). Without the possibility to communicate through all senses and the decrease of informal social interaction that video conferencing implies, a culture of trust and collaboration is more difficult to foster (Daft & Lengel, 1984 cited in Eckhardt & Keim, 2007).

One aspect of communicating digitally that is to prefer is to use interactive platforms where the members can watch each other while interacting. This will provide the opportunity to understand the other party more as if the interaction was face-to-face (Leonardi, 2021). Leonardi (2021) exemplifies Workplace, Slack and Microsoft Teams as these types of interactive platforms where you can communicate in different threads to enable the knowledge of who knows what and who does what in the organization in addition to sharing information between members.

### 3.2.3 Information sharing in virtual collaboration

When working virtually the importance of sharing information is essential. According to Durnell and Orvis (2003), there are three aspects of information that need to be considered; task, social and contextual information. The first is about knowing what to do and what resources are

available. Task information is also about knowing the strategic plan, deadlines, the current status of the project, or what role everyone involved plays. The second, social information, is about knowledge regarding the relationships with each other. These could be personality traits, personal motives, and objectives to help people interpret the behavior of others. The last one, contextual information covers the environmental aspect. In this type, the equipment available, responsibilities, culture, and local norms come into play (Gibson & Cohen, 2003).

When working remotely, the three mentioned types of information have to be taken into consideration for enabling virtual collaboration. Too often, virtual teams fail to determine which information is important to share and how this could affect the process and the final outcome. The social aspect of the necessary information could easily be taken for granted because, when working face-to-face, individuals could get that information from the interaction and observation of people's behavior. When working remotely, one does not have that same opportunity to notice the social information needed. This could for example be a tone of voice or body language. The same goes for the contextual type of information. Since the working environments may differ between teams, the conditions for finishing the task are different. This kind of information, e.g. technological breakdowns, is invisible to other people if that person does not go that extra mile to explain their situation. If they do not, their behavior could be interpreted wrong. These examples could further lead to misinterpretations and misunderstandings (Gibson & Cohen, 2003).

### 3.3 Summary of the theoretical framework

After presenting several theoretical components affecting collaboration in an organization. To summarize the theoretical factors of collaboration, and more specifically collaboration between teams, psychological safety, communication, knowledge-sharing, conflict management, and teambuilding are recurring. These are furthermore the components that are being taken into consideration when entering the results of the case study. In terms of external crises, and what impact that has on XTC within an organization, the COVID-19 crisis will be the main focus for concretizing the impact on the collaboration. Further, virtual tools and how these are used for sharing information will be shed to light. These underlying aspects will later be compared, and analyzed, together with the results from the case study.

Below, there is a summary presented of the most vital factors needed for collaboration to be established in an organization, with considerations taken to the COVID-19 crisis.

*Table 1: Summary of vital factors enabling collaboration.*

<b>Components for XTC:</b>	<b>Authors(s):</b>
<b>Psychological safety</b>	Edmondson (1999) Conley (2018)
<b>Communication</b>	Hinsz et. al. (1997) Salas et. al. (2013) Velentzas & Broni (2014)
<b>Knowledge sharing</b>	Andrews & Delahay (2000) Brewer (1979) Cohen & Levinthal (1990) Cummings (2004) Hansen et. al. (2005) Levin & Cross (2004) Shultz (2003)
<b>Conflict management</b>	Benitez et. al. (2017) Curşeu & Shrujjer, (2010) Eisenhardt et. al. (1997) Fink (1968) Holahan et. al (2011) Jehn (1995) Toegel & Barsoux (2016)
<b>Team-building</b>	Cummings & Worley (2005) Gibson et. al. (2009) Gilley et. al. (2010) Ortlieb & Sieben (2019)
<b>Virtual tools for collaboration</b>	Dennis & Kinney (1998) Eckhardt & Keim (2007) Gulbrandsøy et. al. (2002)
<b>Information sharing in virtual collaboration</b>	Durnell & Orvis (2003) Gibson & Cohen (2003)

## 4 Empirical data & Analysis

In the following chapter, the results from the case study will be presented and analyzed. Together with the theoretical framework of the study, a comparison will be made, and further an analysis, to answer the research questions of this study which are presented below.

How does a company ensure cross-team collaboration?

- What are the challenges of cross-team collaboration?

What impact has an external crisis on the cross-team collaboration?

- In what way has COVID-19 affected the questions above?

### 4.1 The organization

The chosen organization acts in the medical- and technology industry and its product portfolio consists of making it possible to replace traditional microscopy with support from applications and software. The organization works globally and their product offers analyzes that provide users with fast disease diagnoses, from infections to cancer. They further provide hospitals with an effective workflow and skill development within their field of expertise, which is sample preparation, image analysis, artificial intelligence, and automated microscopy. In 1994, the company was founded and has since then been privately owned. Based on their financial reports, sales were SEK 462 million in 2019 (Company website, 2021).

The organization has a direct location in more than 40 countries and, as of today, the number of employees is 194 whereas 133 are located in their headquarters in Lund. The largest department is the development department, with a headcount of 93 employees, in which all of the respondents are located. As mentioned in chapter 2, the teams participating in this case study are working on projects in which they are obligated to collaborate across teams to reach the final product. Hence, they are in mutual dependence on each other's work so as not to get stuck along the process (Company website, 2021).

## 4.2 How does an organization ensure XTC?

This chapter will start with general aspects gathered from the case study, and afterwards, the components that the case study found most vital to ensure XTC in the chosen organization.

### 4.2.1 General impressions

When conducting the interviews, the participants were asked to describe the collaboration between the five chosen teams from their perspective, their subjective experience, and opinions. What they answered varied and included both the experience of a well-functioning collaboration, as well as the lack of or no collaboration between the teams. The most common statement was that it varied depending on what teams the collaboration was referring to. The participants described a difference in the collaboration between certain teams due to when that team entered the collaboration, and what their areas of responsibilities were. The following chapter further describes how the participants experience that XTC is ensured.

When referring to the literature study, the most important identified components of enabling collaboration are psychological safety, communication, knowledge sharing, good conflict management, and team-building. The participants were asked to name important factors for collaboration between teams without being presented with the literature study of this paper. What they answered was based on both what they experienced in their collaboration with the chosen teams, but also what they think is important from an objective point of view.

An aspect taken into consideration was if the answers differed among managers and workers in the respondent teams. In most of the cases, the answers did not differ in such a way that it was outstanding, but in some questions they did. When asked about examples of how to ensure collaboration, most managers answered communication, and a common vision as the most vital components in collaboration, while most workers answered transparency and understanding for each other's work.

### 4.2.2 Open and clear communication

Described by several respondents, was how the timing of communication matters for the collaboration across teams, since different teams enter the project process at different stages. The



teams have found that by communicating with all teams from the start, no matter the time of entry, the collaboration is improved. One example that was given was the communication between the team developing the software, and the team responsible for the quality of the product. By communicating early on in the process, it was possible to prepare for the quality tests at an earlier time. A clear and early communication has in this example contributed to the saving of time, resources, and an understanding of the two teams' different needs.

Most teams have their regular meetings, some have daily meetings, some have weekly meetings. Once a month, there is a meeting with all teams participating in the investigation of this phenomenon. At this meeting including all teams, the status of the project is being reviewed to provide an overview of the process to the teams and let them know what the other teams are doing. This is another given example of communication between the teams that the participants experience as helpful for the communication. When the participants mentioned informal meetings they did so in the light of a challenge which will further be discussed in 4.3.2.

To ensure the XTC, the teams have also taken initiative to invite other teams to their separate meetings to provide a more regular and detailed description of the work that is being done. This is described by all teams as something positive since it gives the opportunity for each team to understand the work of the other teams, as well as an understanding of how their work affects one's work. It is also told that even the invitation to the meetings is an appreciated way of communication between the teams. Not only are the meetings for communicating the process but also for enabling participation.

For there to be an experienced level of participation, the respondents state the need of knowing each other on a personal level. By participating in meetings with other teams, more people get to meet and build personal relationships across the teams while working. Gathering different teams in a meeting to enhance the collaboration between them, can be one form of informal team-building (Cummings & Worley, 2005; Pellerin, 2009 cited in Gilley et. al., 2010).

### 4.2.3 Importance of transparency

Another frequently mentioned component was the transparency between the teams and the availability, and flow of information. All participants somewhat covered this part as one of the most important building blocks for a successful XTC to take place. Except for open and clear communication, the availability of information for the different teams needs to be established. People within the project need to be aware of whom to turn to with certain questions, where to look for a specific description, or, where everyone is in the ongoing process of the project. This was stated by one participant as something they are good at in their collaboration:

... to share information, that it is available and that you are happy to share it, is a very central part [of collaboration] and this is something that I think works well at [Company name]. And a cornerstone is to have continual meetings where we meet and update each other. Continual status updates are one way of sharing information.

Further, for this to be successful people have to be willing to share information. To refer to the literature study, Cummings (2004) states that the importance of transparency and sharing of information is proven to contribute to innovation, performance, and effectiveness. The author further describes that a key factor for this to happen is trust between the groups.

Several participants highlighted follow-up meetings, and/or, milestones for transparency and for enabling XTC. This was described as a crucial component for which collaboration across the teams could be established. Since the respondents represented different teams, it emerged that they are depending on knowing what the other teams are doing, or where they are in the process. This was also suggested to be an opportunity for the involved parties to reach out and ask questions regarding the project. Further, to share different needs, ask for help and necessary information, or overall keep themselves updated on the process. This could be compared to the literature and more specifically to closed-loop communication (Salas et. al., 2009). The term is used when describing an effective team that continually communicates, shares information, and follows up on the information that was being presented, to ensure that the process is going in line with the intended purpose.

#### 4.2.4 Common vision over the collaboration process

A third component that was recurring among the participants for ensuring a collaborative environment was to have a common vision for the project that they are working on. This could be described as having the same concrete objective with the project, sharing the same vision, or, having the same strategy. For this to be established, many of the respondents mentioned participation as one of the most crucial factors. Since the projects take place over many years, usually, they can be redesigned or changed over time. In this process, many participants highlighted that the common strategy requires updates, understanding of each other's participation, and knowledge of what is expected of the separate teams. This is to some extent done on the monthly meetings with the team, one respondent told:

In this monthly meeting, we have started to invite more people, to make sure that they understand the goal better. But the target goal is still a bit troublesome since when you work with it every day, it is easy to get lost in the details and forget the overall goal.

Other concrete examples that were shared during the interviews were to have recurring follow-up meetings where the current project was being presented, and more importantly, how the current course of action will affect the different parts of the process in which the responsibilities and priorities might change between the different teams.

To enable a common understanding of the project, and for the other teams involved in the project, it is important that the information- and knowledge is being shared across the teams. Since they work on different parts of the process, they further complement each other, which enables efficiency and effectiveness. As Blomstrom (2019) discusses, it is important to not get stuck in a mindset of “us and them” but rather learn from each and everyone's contributions and create a feeling of “we are in this together”. There were a few who mentioned the importance of sharing information because of the reason to avoid duplicated work which also strengthens the argument of having an out spelled common strategy, with recurring follow-ups and project status regarding the process, and also how the XTC is experienced.

## 4.3 What are the challenges of XTC?

### 4.3.1. General impressions

The most experienced challenges regarding the XTC in the case study were stated as lack of communication in the forms of information- and knowledge sharing, the lack of follow-ups and feedback on their different tasks in the process, and also, the lack of resources. Furthermore, almost every one of the respondents mentioned that they were missing an out spelled, or concrete, plan for the collaboration across the teams in the process.

When referring to the literature study, it suggests that psychological safety has to be established for a good collaboration to take place (Edmondson, 1999). Since none of the participants in the case study mentioned this phenomenon as a challenge, the belief is that they have passed the first stages, the unaware and exploratory stage, for a collaborative environment according to Morgan (2012). Instead, the teams are moving between the defined and adoptive stage in which members are in some way communicating and sharing information, while a vision is starting to arise, and people are getting closer to realizing the value of collaboration. At this point, communication, knowledge sharing, and team-building get more important.

Another aspect that the literature study discusses is conflicts, and how to deal with them, as a challenge for collaboration across teams. Based on the case study, conflicts were not considered a problem. No participant mentioned conflicts as a challenge, which could be connected to the company's corporate culture that, according to most of the respondents, stands for openness and supportiveness. Toegel and Barsoux (2016) describe that companies that establish a feeling of trust within the organization, will avoid conflicts.

Looking at the answers between managers and workers, they differed in terms of how much collaboration they experienced between the teams. While the managers who participated were close to unanimous about experiencing some kind of collaboration across teams, some of the workers did not. One worker described it as “the collaboration does not occur that natural with all of the teams”, and, another worker said;

It is rarely stated that we are supposed to collaborate with the other teams in the project, or at least, it is rare that it has been discussed or communicated which team is supposed to collaborate, or that it would exist as some kind of formal or informal collaboration.

When looking at the differences between managers and workers, regarding the challenges with XTC, managers answered understanding for each other's work to a greater extent. Workers instead raised the issue of not having an overall picture or not enough participation from the other teams. Both of the two respondents groups described information- and knowledge sharing as a common factor.

#### 4.3.2 Miscommunication

When asked about open and clear communication, the participants described how they have experienced the importance of this, but also the lack of it in the collaboration between the teams. When discussing the lacking parts of communication silo mentality was mentioned as well as the lack of input or feedback and information and knowledge sharing.

##### *Silo mentality and knowledge sharing*

Silo mentality is described in this paper as the opposite of the phenomenon of XTC. Several respondents experience a silo mentality as a result of a lacking communication. By not having a clear and functioning way of communicating and letting each other know what the teams' are doing, with regards to the project, there tends to build a silo mentality between the teams.

I would say that our biggest challenge is to make sure that information is spread so that you do not create silos where one team knows what is going on and another does not. This is our biggest flaw, how communication and information are done.

Similar to the silo mentality, another communicational challenge that was mentioned was knowledge sharing. Statements were given, such as “things that are obvious to us might not be obvious to others, so maybe they would have needed that information that we forgot to share”, “we often hand over information instead of providing them with it ... we could help them with it, interpret it together but we do not”, and, “it happens that we sometimes forget about one team or

that one team is not aligned with the rest”. This shows that there is, indeed, a lack of communication regarding information and collaboration, but some respondents name transparency through meetings as the solution. By updating the other teams on the regular meetings with all teams involved, about what is being done, the sharing of information can happen both continuously and regularly.

In our bigger meetings, we tell the others what we are doing, what works, and what does not. A little like a ‘stop and reflect’ for the process with all the teams affected which I think is important since it creates transparency.

According to Hansen et. al. (2005), one aspect needed for knowledge sharing to happen between parties is a close relationship. If there is a close relationship between parties prior, and present, to the specific project there is also more likely to be trust. When there is trust, the knowledge shared is more likely to be received positively and the competence of the other party is trusted (Levin & Cross, 2004; Andrews & Delahay, 2000). As Cohen and Levinthal (1990) describe, it is necessary to have a close relationship to absorb information and knowledge from others.

If the members of different teams have a close relationship, it should be as easy to look for information and knowledge from each other regardless of what team they belong to, not just their own. This would also imply the increase of sharing their information and knowledge with the other teams. To have meetings together and getting to know each other could therefore disable the silo mentality and increase the sharing of knowledge, and information, between the teams. One participant further described how personal relationships might increase the understanding of each other:

Even if it is for work it might be good to socialize and get to know the other person on a personal level as well, it facilitates your ability to read that person and understand how they are thinking.

### *Team-building*

Several participants mentioned personal relationships as a way to increase the communication between teams, and some suggested how this could be done through workshops. The suggestions were active workshops where people from different teams get to work together, on real-life tasks, to get to know each other and each other's work better, while working. This could be a good way to get a well-functioning XTC started, when doing the team-building exercise, on real tasks, the right environment will be fostered (Ortlieb and Sieben, 2019). To have joint activities on real-life tasks could also save time that otherwise would be taken from the work:

... instead of just having meetings where you present the goal you could also have working meetings where you, together, sit down and work and not just run through things but work together on activities. In that way, you get to work on the collaboration and get the job done.

During the collection of the data, it was also described how workshops had been tried as a solution for miscommunication in an earlier project. A lot of time was reserved for this workshop occasion, but, since the participants could not agree on how to fix the communication problems, no action plan was made. When not doing workshops like this, but instead on actual tasks, and by reflecting upon the work while doing it, the purpose of the workshop might become more clear and relevant. When having an activity to talk about the past failures might foster the wrong environment, the old environment, instead of creating a new one like Ortlieb and Sieben (2019) fears.

### *Input and feedback*

The lack of input and feedback was further described to contribute to the miscommunication between the teams. One respondent described a situation where their team, and another team, failed to communicate about a task that needed to be done where both teams assumed the other team was doing it. This later led to an overdue in time for the project. If the communication would have been more clear, this overdue in time could have been avoided by the teams knowing who was supposed to do the specific task. As Salas et. al. (2009) describes the closed-loop communication, this is one way of communication that could have prevented the described

misunderstanding. By closed-loop communication, a message is being presented and followed up to make sure that the giver and the receiver are interpreting the message in the same way.

#### 4.3.3 Lack of an outspelt plan over the collaboration

Another challenge that has been identified throughout this study is the non-existing plan for the collaborative process in the project. When conducting the interviews with several respondents, almost all of them stated that there was an existing goal with the process. This goal was to produce the final product to launch on the market. Many of the participants said that they assume that the teams are aware that they should collaborate, but that it could be more outspoken. Some of the participants answered that they did not know if there is a common vision or strategy in the process, but more a project plan that they are supposed to follow. Further, a few participants answered that a common vision or a strategy did not exist at all, a consensus regarding the collaboration across teams was missing.

This could further be connected to the literature study that suggests that to achieve a collaborative environment, the organization, or, the involved parties in a project, need to have a clear vision and an out spelled direction (Morgan, 2012). As it shows, the common vision or strategy is diffused or confusing for the different teams. Some teams refer to the final product and the project plan as the common vision or strategy, while others state that they have no common vision or strategy for collaborating. One explanation for this could be that the teams have such different agendas within the project, that they only look at their scope, instead of focusing on the consensus and a common direction towards a common goal.

Another component that was brought up when discussing the challenges with the XTC, was the lack of a whole-perspective view of the process, in terms of what other teams' responsibilities are. Several respondents experience that they are missing the knowledge of when to inform other teams about a certain aspect in the process, while other respondents answered that they do their parts, and then expect another team to take over. This was described as a challenge due to the different teams having different views on how to continue the process. Another problem with not knowing the other team's responsibilities, or what is expected of them, could affect the common



understanding for each other. This was further one of the most recurring mentioned challenges among the respondents and is connected to the whole perspective view of the process.

As Crispo (2019) discusses, by getting to know what other teams do, employees will get a better understanding and be more sympathetic regarding each other's contributions. This supports what many of the respondents stated. One participant described that:

The important thing in collaboration is first that everyone is working towards the same goal, and that everyone is aware of the preconditions to reach that goal ... Furthermore, everyone needs to have an understanding of the other's parts of the process.

Another participant described it as:

To develop and establish a collaborative process, with an out spelled collaboration, you need to understand the goal with the project and further the tools to reach it. Further, if there are other teams involved, one also needs to have an understanding of the other's contributions to the project, and what they want to get out of it.

Crispo (2016) continues by discussing the importance of asking questions and sharing information across teams rapidly to increase an understanding of each other's work. The respondents told about how this was made through a monthly meeting where the teams could get a view over the project status and the final target goal. Although, many of the participants thought that these meetings could be improved by including insights from each of the teams. This would further create a better understanding of what the different teams do, what they need, and further, keep them in the same direction regarding the end vision of the project.

#### 4.3.4 The availability of resources - lack of people and time

Another important aspect of why XTC may suffer is the consideration of time and resources available in the organization. This is an aspect that this paper did not consider before conducting the interviews for the case study. Many of the respondents shared what great impact this has had on the overall collaboration in, and between, the teams. Unfortunately, the organization lacks

resources in the form of personnel to work on the projects which in turn requires more of each individual.

One respondent described that the lack of time makes the initiatives for collaboration between teams get down-prioritized because “there are always more important things that need to be done at the moment”. Another participant stated that one of the biggest challenges with collaboration across teams is to keep oneself updated on what is happening outside one’s team due to time constraints. By interpreting the answers from the participants in the case study, the team members lack time to join another team's meeting, to listen in, and get a picture of what they are working with. This automatically leads to a decrease in understanding for other teams.

According to the respondents, collaboration is of major importance for the outcome and many of them also realized, during the interview, that this is something they should prioritize and further make time for. A few of the participants stated that they had not thought about this as a problem until discussing it out loud. It was clear that all of the respondents wanted to make the XTC work, although, the lack of time and the fact that people are busy, is preventing this from happening.

#### 4.4 What impact has an external crisis on XTC?

When a society is experiencing a crisis it could be because of economical, political, or technological influences (James, Wooten, & Dushek, 2011). Since a crisis could be considered to be unexpected this will most likely create a change within organizations. Mitroff, Green jr, & Alpaslan (2004) further describes, what these kinds of crises have in common is that they are often unwanted and unmanageable. The literature study further discusses that when an organization is experiencing an external crisis, the internal part of the organization is always affected (Falkheimer & Heide, 2010). This is why communication is vital when an organization is facing a crisis.

To be able to draw a comparison to the organization of the case study, the interviews covered the COVID-19 crisis as a real-life example of a worldwide crisis that has affected organizations. The purpose of this section of the case study was to find out how a crisis may affect XTC, and how

COVID-19 more concretely has affected it. This way, identification of possible disadvantages and opportunities could be discussed.

The answers between managers and employees did not differ in an outstanding way. Most respondents shared the same disadvantages, e.g. lacking personal gatherings, deficient onboarding of new employees, and spontaneous discussions. The same goes for the opportunities that the crisis brought regarding remote work. These are described to give a more effective workflow and collaboration across teams, easier accessibility, and a larger amount of availability among participants. Further, the simplicity of inviting more people to meetings, and information sharing among employees is described as opportunities.

#### 4.4.1 In what way has the XTC been challenged due to COVID-19?

With regards to the crisis COVID-19, the case study included questions about how the respondents have experienced the effects of the crisis, and further how it has affected the XTC. The organization has rearranged its way of working by introducing remote work, and the participants have experienced difficulties with this way of working. When asked about how specifically the XTC has been affected there is a consensus of what has been the most difficult and what affects the collaboration the most.

##### *Social relationships*

All of the participants discussed the importance of social relationships and small talk when talking about collaboration during COVID-19, and how this has not been possible in the same way through digital meetings. Not being able to chit-chat by the coffee machine is specifically mentioned by the majority of the participants, and the collective experience is that some sort of personal relationship is necessary for a good collaboration. On the same topic, the impossibility to create new relationships is mentioned, more specifically with people who have been hired during the crisis, whom they have never met in person. One respondent describes this:

[In the office] we have been on different floors and different offices and that complicates it to keep track of people whom you are supposed to collaborate with ... [Keeping track of people] is difficult and is showing more clearly now during the crisis, e.g. if one team

has new employees that you have never met in person since you have not been able to have a conversation with that person, for example, by the coffee machine.

Another participant phrased it as:

You miss out on all the chit-chat, not least with people you do not already know. There is not as much chit-chat online so I think this is something we will have to work with [when we go back to the office], to build personal relationships.

One reason for the lack of social relationships to complicate the collaboration is, according to a number of respondents, because personal relationships make it easier to ask questions or ask for help from others. For example:

When you get stuck in something that you cannot solve on your own, you usually know whom to ask for help. I think it is pretty tough to not know whom to turn to for help when you are working from home, alone.

A different participants said:

It is not the same, not as interactive meetings as when you meet in a conference room in the office. There are not as many questions asked in a Teams meeting as it is in a meeting held face-to-face.

#### *Informal information sharing*

Similar to the small talk or chit-chat that happens informally in the office, the ability to overhear things in the hallways or bypass someone's office, was brought up as a factor that enhances the collaboration. Several participants stated that by overhearing things they got to know information that was not shared otherwise, or heard something they remembered they had a question about. One participant describes the frustration with “not getting to know the small details that people do not think is important enough to share at a meeting”. This is something that otherwise is

overheard in the hallway. Similarly, another participant describes the experience that overhearing things in the hallways decreases the silo mentality due to the information that is being overheard.

#### 4.4.2 In what way has the XTC been advantageous due to COVID-19?

The experience of what impact COVID-19 has had on the collaboration was that it has not affected the collaboration in any crucial way. Instead, there were several aspects and conditions for XTC that the participants experienced as positive or even better since the crisis caused everyone to work from home.

##### *Microsoft Teams*

As the literature states, the right digital tools are needed for remote collaboration (Mathrani et.al., 2011; Leonardi, 2021). Leonardi (2002) exemplifies Microsoft Teams as a good platform for remote collaboration, due to its multifaceted features. Microsoft Teams offer video conferencing as well as different threads where communication is automatically structured and the possibility to share information in a structured way.

The chosen organization is using Microsoft Teams as their virtual platform, and all participants refer to Microsoft Teams when describing their way of remote working. The collective experience of the digital platform is positive and is named as a key factor for remote collaboration to succeed. Except for the possibility for video conferences, which is the main feature, the possibility to write and chat between members of the teams, and across teams, is mentioned. Several participants described the chat as an easier and faster way to get hold of people compared to looking for them in the office. The chat is also appreciated due to its informal character which is experienced to enable both chit chat and quick questions as well as more important matters. One participant put it:

[With Teams] you share material in chats where you can visualize it instead of just describing it and after you always have it there to look back at. This could be an advantage, And once you get a hold of the chatting, in Teams, it becomes so easy to just send [someone] a question, instead of getting up and leave your office

One aspect that everyone brought up on the topic of Microsoft Teams was how the remote way of working has facilitated the meetings where more than one team participates. When having the meetings online as a video conference the respondents experience that it is easier to involve more people, partly due to space not having to book a room:

People are always crowded, looking over each other's shoulders, barely seeing anything. But what we have done now at our [meetings] is to share the screen. It has made it very much easier to watch and also invite more people ... It feels like this is working better, this is easier.

Except for space, video conferencing is also experienced to be easier due to time. They experience that it is easier to join a meeting and to "just listen in", not having to actively participate in online meetings like one would have to face-to-face. For example at the meetings that each team has daily, it has been easier for members from another team to join online, hence, getting to know important information at an earlier stage than before the remote way of working. This is, in other words, experienced by many to increase the participation and knowledge sharing between the teams.

### *Flexibility*

Another advantage of working remotely is, according to the respondents, the freedom of working from home. Many described this as liberating due to their work-life balance and would prefer to keep this opportunity regardless of the current crisis. When asked about how they would continue a good XTC even after the crisis COVID-19, everyone mentioned that a mix of working remotely and working from the office was to be preferred:

[I want] a fusion of before and during COVID-19. Of course to meet more... but we probably will not be in the office five days a week. But when we are there, for example, my team, we might try to be there the same few days so that we can meet and I think that is very important because we miss each other of course.

Another example of a pre- and during COVID-19 fusion, was to always have a remote link available for everyone when having meetings, so that more people would be able to, and encouraged, to participate. Always having a link available was also mentioned as a benefit if someone would be unable to come into the office in the future, not having to miss out due to tending to sick kids or other appointments. Although, almost everyone highlighted the importance of personal interaction, which can not vanish, especially since the interaction is one key aspect for establishing a good working relationship.

#### 4.5 Summary of findings

When interpreting the answers from the respondents, they claim that to ensure the XTC an open and clear communication, transparency, as well as a common vision of the project are needed. They experience that this can be done through various types of meetings, and further improve the existing ones. Since the organization today has different types of meetings, both for each team separately and for the teams in the whole project, many respondents experience that there is no time for more meetings. Instead, the existing meetings could be more informative and focus more on following up on the process. These meetings should also focus on all teams and provide updates, and relevant information for each team, on how the current course of action affects the process, the responsibilities, and priorities of the teams. It could be every week, a dedicated meeting for all involved stakeholders and that everyone prepared for it, thinking about what aspects of things the team is doing that the other involved parties need to know, and what they benefit from knowing.

The challenges of XTC that the participants experienced were troubles with miscommunication, lack of an out spelled plan, and the lack of resources. The miscommunication was evident in the tendency to a silo mentality, each team is their own silo, where the knowledge is not being shared. The participants further experience trouble in communicating due to not knowing what the other teams need to know to keep up on their way of working. One way they exemplify how this could be done more proactively is by knowing the other teams better on a personal level, by having active workshops, and getting to know each other. More opportunities for feedback and input are believed to decrease miscommunication. Regarding the lack of an outspelt plan, there is a plan for the project but not the process for collaboration. By having a plan for the collaboration,

the participants believe that the understanding for the different teams might increase, creating a more understanding, helping, and collaborative environment.

The lack of resources was described as a drawback for the collaboration due to the lack of time to reach out to other teams as well as the lack of people to align the teams. When the time available is limited, the participants described how the collaboration is down-prioritized both when it comes to joining other teams' meetings and reaching out to other teams.

The biggest challenge that COVID-19 has implied on the XTC is, based on the participants' experiences, the difficulty to maintain and create social relationships with those involved in the collaboration. Further, not being able to overhear information in the office that could be of importance, is also told to be challenging for the collaboration. On the other hand, advantages that the participants experience with the remote way of working, is the flexibility and work-life balance that experienced remote working means. Also the virtual platform Microsoft Teams, and how this platform has made the communication and knowledge sharing and work despite not being on the same location as the team or other teams.



## 5 Discussion & Conclusion

The purpose of this study was to investigate how XTC is ensured in an organization, and what the most important components to foster this type of collaboration are. The research, including a literature study and a case study, additionally highlights how external crises affect XTC within an internal organization and what impact the COVID-19 crisis has had on the chosen company.

The result shows that, for a company to ensure XTC, communication, openness, transparency, and a common goal are vital. Members in, and across teams, need to communicate what they are doing, what they need, and further when they need help from other teams. When doing so, they make sure that every part, and every team in the project, is aware of where they are in the process. This further requires openness and clarity regarding the information that is being shared between the teams to avoid miscommunications. By ensuring this, transparency is more likely to occur and facilitate the XTC between the teams.

Of the five components identified in the literature study for ensuring XTC, two of them were not found in the case study, psychological safety, and conflict management. These two components were not mentioned. Although, this does not mean they do not exist or are not important for the collaboration. As the literature study showed, trust is necessary for collaboration to happen, as well as for psychological safety, team-building, and knowledge sharing. Since the case study found that the respondents experience a collaborative environment, where team building and knowledge sharing are happening to some extent, it is reasonable to assume that some level of psychological safety does, indeed, exist between the teams in the collaboration.

None of the participants mentioned conflicts or conflict management when describing the challenges with collaboration, which could initiate for not being any conflicts. It could also be because of how important the respondents find open and clear communication. If there is open and clear communication as well as close personal relationships, which the respondents are consistent about, the potential conflicts might be dealt with informally and proactively. With this not being expressed by the participants, the conclusion is that these two components already exist as a part of the organizational environment which in turn contributes to favorable conditions for ensuring XTC.

Another identified challenge with the XTC was the lack of a common vision, and an out spelled plan for the process, in which collaboration is included. Based on the respondents' answers regarding a common vision for ensuring collaboration across teams, this was seen as another vital aspect for the collaboration that needs to be improved. By ensuring an existing, and outspelt, process over XTC, the teams will know how and when to collaborate. Hence, a conclusion is that regulations regarding feedback or follow-up meetings, about the collaboration in the projects, could contribute and establish a common vision and how to measure the existing XTC.

Regarding the challenge with lack of resources, many respondents suggested improvements regarding the meetings where the involved parties could be better at sharing necessary information, updates, thoughts, and different types of needs. Several further came with the suggestion of encouraging discussions regarding the collaboration. This further shows that there is room for improvement regarding the XTC, which is considered positive among the respondents. How this could be done, however, is something that the organization needs to decide upon, and due to the lack of resources being a crucial reason for not prioritizing collaboration the answer is not given. One suggestion is to improve the existing meetings, including the concerns that the participants raised. Although, with the lack of time and personnel at present, this will require common efforts from each team to increase the quality of the meetings without wasting the resources.

In terms of what impact the crisis COVID-19 has had on the XTC, the respondents experienced both challenges and advantages with the collaboration. On one hand, the recurring challenges with remote work were the social aspects of the collaboration. Not having the possibility to chit-chat, small talk by the coffee machine, and not being able to overhear information in an informal setting. In addition, many of the participants expressed concern for newly hired workers that will not be able to get to know the team on a personal level.

On the other hand, every one of the respondents could see advantages with remote work that the crisis has brought. These were mainly the flexibility that the remote way of working implies in the forms of being able to decide where to to work, the option of staying home with sick

children, and bypass travel to and from work. Another mentioned advantage with remote work, which was recurring among the respondents, was availability in and between teams. Many experienced it as easier to reach out for questions or concerns and further felt that people were more inclined to respond. As the literature study suggests, the right virtual tools for collaboration are needed, and by analyzing the results from the case study, it seems like the organization has managed to establish those. Hence, conditions for a collaborative environment exist.

No matter when the COVID-19 crisis ends, these are aspects the organization needs to consider when constructing XTC. Since the XTC, according to the case study, has benefitted from a remote way of working, this concludes that this should be kept, to some extent, even after the crisis.

### 5.1. Future research on XTC

Although this study of the phenomenon of XTC has widened the research of different constellations of teams, it is important to be aware that the result can only be accounted for by the specific organization. Since the identified components needed for XTC are found through a literature study, it is reasonable to believe that these would be important in any context of XTC, what the case study shows, on the other hand, is company-specific. To increase the reliability of this research on XTC more research has to be done. Further, how more organizations ensure XTC should be explored to identify the best way possible to do so.

Not only should there be a focus on "best-practice" for CFT and CBT, but collaboration across whole teams as well. This is what this study contributes to, as well as what potential challenges there might be with XTC, increasing the possibility for organizations and companies to actively, and proactively ensure their XTC. What further could be done to increase the knowledge about XTC is to explore a bigger sample or use a mixed method approach of both qualitative and quantitative data, where one is strengthened by the other.

For future research, the XTC could further include collaboration between departments, not only teams. How to ensure collaboration between different departments within an organization that works toward the same organizational goal(s), rather than a final product. Doing so would

broaden the research of collaboration further, and help organizations as a whole to work more efficiently and resource effectively.

What is notable from this exploration of the phenomenon XTC, is that the differences in how managers and workers experience the collaboration was shown to be very few. Except for some divided perceptions about if there is a collaboration or not, the answers about how the actual XTC was done did not differ due to hierarchical levels. This does not comply with the existing research on organizations and collaboration, hence it would be enriching for the research on XTC to further explore this factor. For future research, there should therefore be more focus specifically on the different experiences of cross-team collaboration between different hierarchical levels in a team.

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# Appendix

## Appendix 1: Interview guide

1. Hur och med vad arbetar ni i XX teamet?
2. Kan du ge ett exempel på hur lång tid ett projekt (samarbete mellan avdelningar) tar från start till slut?
3. Hur ser samarbetet mellan Quality, Applications och Technical Writing ut?
4. När och på vilket sätt deltar du eller din avdelning i den processen?
5. Vilka möjligheter har din avdelning att påverka utvecklingsprocessen?
6. Finns det en gemensam strategi/vision som alla parter i utvecklingsprojekten arbetar efter?
7. I det långa perspektivet? I det korta perspektivet?
8. Är den väl förankrad hos alla involverade?
9. Kan du ge ett eller flera exempel på vad du tycker är bra samarbete? / Kan du ange tre grundläggande faktorer i bra samarbete som du tycker är viktigare än andra?
10. Vad behövs för att uppnå den typen av samarbete? / Kan du berätta hur du tycker att man kan skapa bästa möjliga förutsättningar för ett bra samarbete?
11. Hur upplevs/genomförs detta mellan era 4 team? (baserat på svaret ovan)
12. Hur får ni avdelningarna att förstå varandras behov?
13. Arbetar ni aktivt med att förbättra samverkan mellan avdelningar i utvecklingsprocessen?
14. Vad tror du är de största utmaningarna i ert samarbete? / Kan du ge ett eller flera exempel på delar av samarbetet som inte fungerat bra?
15. Hur hade man kunnat arbeta för att förbättra samarbetet mellan teamen ännu mer?/ Hur hade man kunnat förbättra samverkan mellan avdelningarna?
16. Hur märker ni av om samarbetet inte fungerar?
17. Vad gör ni om samarbetet inte fungerar? / Om det är något med produkten eller de andra avdelningarnas arbete du har frågor om eller inte förstår - hur går du då tillväga, vem vänder du dig till?
18. Anser du att samverkan mellan avdelningar är prioriterat av ledningen/chefer? Vem tar initiativ?
19. Hur ser samarbetet mellan teamen ut nu under Corona-tider?

20. Vad är de största skillnaderna från när ni var på plats på Cellavision?
21. Har samverkan lett till några positiva eller negativa effekter? / Vad fungerar bra nu? Vad fungerar mindre bra nu?
22. Om pandemin skulle försvinna imorgon - hur skulle ni vilja gå tillväga för ett fortsatt samarbete?
23. Är det någonting du tycker att vi borde ha med som är relevant att fråga och ha med i vår undersökning?