

“I DO NOT KNOW WHAT I DO NOT KNOW” —  
INFORMATION FLOW WITHOUT INFORMAL  
COMMUNICATION

Changes caused by the COVID-19 pandemic and remote work

Kia Pauliina Toivonen

Master's Thesis

University of Helsinki

Faculty of Social Sciences

Global Politics and Communication/

Governance, Organisation and Communication

track

August, 2021

# Abstract

**Faculty:** Faculty of Social Sciences

**Degree programme:** Global Politics and Communication

**Study track:** Governance, Organisation and Communication

**Author:** Kia Toivonen

**Title:** "I do not know what I do not know" — Information flow without informal communication. Changes caused by the COVID-19 pandemic and remote work

**Level:** Master's thesis

**Month and year:** August 2021

**Number of pages:** 63

**Keywords:** informal communication, information flow, online communication, remote work, organization

**Supervisor or supervisors:** Tero Erkkilä

**Where deposited:** Helsinki University Library

**Additional information:**

**Abstract:**

The purpose of this research is to study how informal communication and information flow changed when the COVID-19 pandemic forced many organizations to transfer from working at the office to remote work at home. In the pre-pandemic world, informal communication occurred at the workplace on a daily basis, thus creating more opportunities for information exchange, whereas in the present, the new remote work mode has erased informal communication from the equation nearly completely. This research studies how the flow of information was impacted by the sudden lack of informal communication, and whether these changes were seen in the basic workflow of organization members. The study is conducted in collaboration with CSC – ICT Center for Science Ltd.

Qualitative semi-structured interviews were used as the research method in this study. All interviewees worked in specialist positions, and the sample represented all units in CSC. The interviews were analyzed with qualitative content analysis, which was based on the coding frame built on themes that arose in the interviews. Such themes were meetings, silos, communicational environment and information flow.

The results show that without informal communication, the organization members do not have as good of a comprehension of the organization's projects and daily operation as they did before the pandemic. Furthermore, the individuals' informal communication networks have reduced during the pandemic, and they no longer communicate with anyone who they do not work with consistently. The reduced communication network and informal communication have impacted the information flow to have become more formal and focused on the substance at hand. Information has become more difficult to access without informal communication to maintain an understanding of who works with what information.

The results are corresponding with what is known by previous research. However, this study elaborates more on not only the relationship between informal communication and information sharing, but also on how the dynamics of that relationship works in a changing environment. Without informal communication, individuals are unaware of the information that is flowing elsewhere in the organization. This creates uncertainty and feelings of missing out on potentially relevant information.

# Table of Contents

<b>INTRODUCTION</b> .....	1
<b>2 ORGANIZATION AND COMMUNICATION</b> .....	3
<b>2.1 Organizational context</b> .....	3
<b>2.1.1 Formal and informal structure of organization</b> .....	4
<b>2.1.2 Virtual organization</b> .....	5
<b>2.1.3 Organizational memory</b> .....	7
<b>2.1.4 Meetings</b> .....	8
<b>2.1.5 Silos</b> .....	9
<b>2.2 Communication</b> .....	11
<b>2.2.1 Informal communication</b> .....	12
<b>2.2.2 Virtual communication</b> .....	15
<b>2.2.3 Teams and relationships</b> .....	20
<b>2.2.4 Relationship between organization and communication</b> .....	22
<b>3 INFORMATION AND KNOWLEDGE SHARING</b> .....	27
<b>3.1 Information and Knowledge</b> .....	27
<b>3.2 Information sharing</b> .....	30
<b>3.3 Knowledge in organizations</b> .....	32
<b>4 METHODS AND DATA</b> .....	36
<b>4.1 Research questions</b> .....	36
<b>4.2 Methodology and data collection</b> .....	36
<b>4.3 Data collection</b> .....	37
<b>4.3.2 Background research</b> .....	37
<b>4.3.2 The interviews</b> .....	38
<b>4.4 Method of analysis</b> .....	39
<b>5 RESULTS AND ANALYSIS</b> .....	40
<b>5.1 The communication environment in the organization</b> .....	40
<b>5.1.1 Formal and informal structure of the organization</b> .....	40
<b>5.1.2 Meetings</b> .....	43
<b>5.1.3 Silos</b> .....	46
<b>5.2 The relationship between informal communication and information sharing</b> .....	48
<b>5.3 Changes in the amount and flow of information</b> .....	51
<b>6 DISCUSSION</b> .....	54

<b>6.1 Conclusion</b> .....	54
<b>6.2 Limitations</b> .....	56
<b>6.3 Future research</b> .....	57
<b>7 REFERENCES</b> .....	58
<b>APPENDIX 1 – The interview questions</b> .....	64

## INTRODUCTION

This research studies the changes in information flow and informal communication in remote work setting. In March 2020, the World Health Organization (WHO) declared a pandemic of COVID-19 disease caused by the coronavirus, and everyone began social distancing globally. Thus, every business and organization that could operate from home closed offices and employees started working remote. In Finland, many organizations went through this change over one night. The pandemic set challenges to every state, industries, and individuals all over the world and new ways of working have been established. Organizations and employees have not been co-located in over a year but are still operating as usual.

However, when everyone is working remotely, informal and spontaneous occasions between colleagues has reduced, as people do not meet in the hallways or at the lunch table during their workdays. Before the COVID-19 pandemic, information would flow within organizations in meetings and formal communication, as well as in the hallways and break rooms during informal communication between colleagues. Changing the co-located working space to remote work from home impacted this dynamic in information flow by basically eliminating one significant location for information to flow. Previous research has identified the relevance of informal communication in information flow (e.g. Poole 2015), but has not approached this dynamic from change's point of view.

Furthermore, previous research has focused on virtual organizations and communication as well as information sharing in organizations, yet research has not focused on the change in communication and information flow from co-located to remote setting. The research problem of this study is formed around the question of whether the COVID-19 pandemic affected the information flow within an organization by forcing most communication to take place online while remote working continues. The research problem is approached with three research questions. The first research question is *What kind of an environment for communication does the organization create?* Organization creates a framework for communication, for instance with channels and office spaces. RQ1 intends to understand what kind of a framework the organization creates for communication, especially in the remote environment. The second research question is *How do the organization members perceive the relationship between informal communication and information sharing?* RQ2 aims to examine how individuals perceive informal communication in the exchanging of

information. Finally, the third and last research question is *How has the information amount and flow changed during the period of remote work?* The purpose of RQ3 is to gain a better understanding of how the change in ways of working and communication impacted the information in the organization. The research problem and questions are approached with qualitative semi-structured interviews. The theoretical framework for this study is built with extensive literature on organizations and communication, as well as information and information sharing.

This study is conducted in collaboration with CSC – ICT Center for Science Ltd. (hereafter referred to as CSC). CSC, as many other businesses, transferred into a remote working model in March 2020. CSC is a non-profit organization, owned by the state (70% shareholding) and higher education institutions (30% shareholding). CSC is a special assignment company, which develops and provides domain (such as research, education and culture) specific as well as generic ICT services. CSC's primary customers are the Ministry of Education and Culture, organizations in the field, higher education institutions, research institutes and public administration. (CSC's website.)

CSC specializes in high-performance computing and supercomputers, which makes it a somewhat unique employer in the Finnish ICT market. CSC was chosen as the case company due to its highly specific position in its own field, which can be seen in the variety of expertise and competence that CSC's employees have. In addition, CSC has grown remarkably during the last few years. In August 2021, the time of writing this, CSC had approximately 500 employees. One year earlier, the employee headcount was approximately 400. That means a 20 per cent growth in the number of employees in one year, more specifically during a pandemic and period of remote work. In 2015, CSC had 285 employees. In six years of time, the organization has almost doubled in size. CSC has multiple employees that have been working at CSC for three decades and remember when CSC was only 10 per cent of its current size. The organizational memory is thus extensive.

CSC makes an excellent object to study the change in informal communication and information sharing, because it has gone through extraordinary growth that almost certainly has changed the communication culture in the organization as well as brought more knowledge and information to be shared within the organization. An organization of this size has many organization levels, business units, and groups specializing in different areas which emphasizes the cruciality of a sufficient information flow to business.

## **2 ORGANIZATION AND COMMUNICATION**

This research aims to study the relationship between informal communication and information sharing in an organizational context. Thus, it is important to understand how an organizational context is built, and what communication and interaction means. Furthermore, the organizational context sets the environment for the communication and interaction that happens between people and colleagues, in which information is shared between parties.

The interface between organization and communication is complex, and a clear division between these concepts is impossible to make (e.g. Putnam & Nicotera 2009). Despite the complex and bilateral relationship between organizations and communication, this chapter is divided into two parts—one focusing more on organization and the other on communication. The section for organization reviews former research and theory regarding organizations, their structure and operating that provide the environment for all communication taking place within organizations. In addition, this section reviews also literature about virtual organizations, thus giving a deeper insight into the context in which communication and information sharing must take place in the world changed by the COVID-19 pandemic. Proceeding from the organizational context, the second part of this chapter elaborates on communication and especially its significance in workplaces and teams. Finally, the relationship between communication and organization is pursued in more detail.

### **2.1 Organizational context**

Prior to taking a further look into relating research regarding organizations, one must define an organization. Ugbah and Dewine (1989) define organization as the rational coordination of activities of several people to achieve some common purpose or goal by labor and function, and through a hierarchy of authority and responsibility (p. 182). Often close to organization is the term of institution. Lammers and Barbour (2006, pp. 358–359) define institution to be a supraorganizational entity that flows through organization with norms and simultaneously reshapes the organization. For instance, organization refers to a certain actor, such as school or a corporation, whereas institution would be the entity that governs and fixes the setting for the organization, which would in the cases of school or corporation be education or economy.

### **2.1.1 Formal and informal structure of organization**

Organizations can be divided into two structures: formal and informal. Lehtimäki (2016) writes that the formal structure of organization is depicted in charts and process descriptions and shows the organization members' reporting relationships (p. 25). Rayudu (2010) characterizes formal organization to have goals and aims, fixed channels of communication and a downward direction of information flow in the hierarchical structure, as well as to be well-defined in structure and work task specifics. The formal structure of an organization describes hierarchies and the types of interdependencies between different positions and tasks (Lehtimäki 2016). Formal organization provides stability to operations and works well in expected circumstances, that is, in situations where everything goes as it is planned. However, it is not as agile in surprising circumstances as informal organization is (Lehtimäki 2016; Krackhardt & Hanson 1993). Formal organizations are officialized in organization policies, the hierarchy between superiors and employees, and in the everyday routine of organization's operations, strategy, and goals. The formal organization can go through structural change, as over time different elements—such as technology, competence, markets and goals—develop (Morrone 2006). CSC goes through minor organizational changes quite often, as the fast growth in staff create a need to regularly re-evaluate the structure's efficiency.

Putting all of the abovementioned formal organization aspects aside, we are left with informal organization. Krackhardt and Hanson (1993) define informal organization as the relationship networks that are formed by employees across functions and divisions to accomplish working tasks. They illustrate this division by thinking of organization as a human body: the formal organization works as the skeleton of the organization, whereas the informal organization represents the central nervous system that drives the collective thoughts and actions of the organization's business units (Krackhardt & Hanson 1993, p. 104). Lehtimäki (2016) argues that by understanding the social dynamics in informal organization, the potential of social connectedness can be turned to favor the business (p. 26).

The informal organization is formed each time when colleagues communicate with one another, thus building a solid network (Krackhardt & Hanson 1993, p. 104). Furthermore, informal organization is characterized to originate out of personal and/or social needs, growing out of the formal structure of organization. Additionally, informal organizations are characterized by their instability in maintaining the structure through changes. For instance,



the informal organization does not remain the same if one of its members changes job. (Rayudu 2010, p. 320.)

Informal organization can make up for the formal organization's deficiencies due to informal organization's ability to react quickly and adapt to the situation (Lehtimäki 2016).

Correspondingly, as Ahsan and Panday (2013) suggest, through informal interaction organization members acquire information regarding one another's knowledge, which might speed up the process to receive adequate help in situations of hurry. The tacit knowledge that organizational members have regarding each other enables the organization's flexibility (Baumard 1999).

To summarize, informal organization is formed and maintained in the dynamic relationships between organization members, and depends on the knowledge members have gained regarding one another's expertise and capabilities. Nevertheless, even though employees' interaction with one another is part of the informal organization, the formal organization sets the framework to which the informal organization can be founded on and start growing in (Krackhardt & Hanson 1993). Thus, the formal and informal structures of organization affect the environment for communication.

### **2.1.2 Virtual organization**

A virtual organization, according to DeSanctis and Monge (1999, p. 693), is a collection of geographically distributed, functionally diverse entities that are linked by electronic forms of communication and rely on dynamic relationships for coordination. DeSanctis and Monge (1999) write that virtual organizations act as a collaborative network of people who work in cooperation regardless of each other's location. Wiesenfield et al. (1998) argue that in virtual contexts, organizations face challenges, for instance, in coordinating and controlling dispersed organizational actors, and functioning work groups.

Wiesenfield et al. (1998) suggest that within organizations that work in a virtual context, communication plays a significant role in binding the employees and organization together and represents the organizational identification in virtual organizations. Furthermore, virtual communities—aggregations of individuals or business partners who interact around a common interest and the communication is at least partly mediated by technology—can be of high value to firms (Porter 2004). Research on virtual communities has shown that they could facilitate stronger relationships with firms and their customers by increasing trust towards one

another (Porter 2004). The impact of virtual communities could possibly be the same internally as well. Being in contact with colleagues in virtual form—especially now that the physical co-location is on hold—maintains the employees' communication network and thus the informal organization (Krackhardt & Hanson 1993) together, providing benefits to the organization. In addition, social networks promote more opportunities for employees of a virtual organization to make interpersonal contacts (Chung et al. 2015).

Within virtual organizations, naturally also teams operate in virtual form. Röcker (2012, p. 6) defines virtual teams as teams that consist of team members that are distributed over space, time and even organizational boundaries. Virtual team members work together on an ad hoc basis from decentralized and delocalized places and communicate through information and communication technology (ibid.). Henttonen and Blomqvist (2005) similarly define virtual teams as a non-temporary, geographically dispersed work group that communicates electronically. In turn, Tan et al. (2000) describe that in virtual teams, members have not often met each other.

In normal circumstances, CSC would be a typical, traditional organization whose employees are all located in the same area and come to work at the common office premises, arranging face-to-face meetings and having lunches together, among other things. Nonetheless, the COVID-19 pandemic has forced CSC to transfer to a remote mode, and thus modified CSC to operate in a virtual environment. For the time being, CSC is representing a virtual organization for most of the time to nearly all of its employees. Although Henttonen and Blomqvist (2005) define virtual teams as a non-temporary setting, the term can be applied to this research to describe the current situation of the organization and its employees. During the pandemic, more than 100 new employees—which is approximately 20 per cent of the current number of CSC employees—have been recruited to CSC, and have not been able to meet their colleagues or even their superiors in person. Thus, for instance the definition by Tan et al. (2000) can be seen as a valid description of CSC as an organization for some of its employees.

The COVID-19 pandemic is, at the time of writing this research, yet to dissolve and most working still happens remotely, at least in CSC, and the recommendation to work remote still stands. In addition, the pandemic is expected to change the ways of working at CSC in such a manner that employees will have the choice to stay at least partially remote in the post-pandemic time as well. Therefore, it is impossible to determine whether the teams will be

working remote temporarily or not, which means that it is possible that to some extent CSC will keep operating as a virtual organization even if it returns to co-located operations as well.

### **2.1.3 Organizational memory**

New knowledge is constantly created in organizations (Nonaka & Takeuchi 1995). However, the knowledge needs to be stored somehow so that the organization can implement it in its operations and gain benefit from what is already known. Namely, organizations must remember the knowledge it already has gained and created in the past. Organizational memory is considered to be crucial to creating and sustaining businesses' competitive advantage (Cegarra-Navarro & Martelo-Landroguez 2020). Ackerman and Malone (1990) define organizational memory as the organization's ability to benefit from its past experience in responding more effectively in the present (p. 31), while Moorman and Miner (1998) define organizational memory as stored knowledge that can be found in organizations. Furthermore, Moorman and Miner (1998) suggest that organizational memory can be divided into two: procedural memory and declarative memory. Procedural memory is based on skills and action knowledge, whereas declarative memory is founded upon factual knowledge. Procedural memory becomes automatic unconsciously and it can be compared to motor memory, whereas declarative memory can be more general, as it represents the memory for facts, events and propositions. (Moorman & Miner 1998.)

Although someone in the organization might already know the correct answer to a certain question regarding certain tasks, unless the answer is documented and stored in a place where it can be easily located, others have to reinvent the same answer time and time again (Ackerman & Malone 1990, p. 32). Thus, organizational memory is not just about documentation that organization members can return to whenever necessary. For instance, Baumard (1999) sees tacit information as organizational memory. He describes tacit knowledge as the reservoir of wisdom that the organization either implicates in use or alternatively maintain as the same to avoid making any mistakes twice (p. 23).

Organizational memory can also be maintained with narratives (Linde 2009). In addition, appropriate occasions must emerge for the narratives to be shared. Linde (2009) claims in her book that the key question in studying institutional narratives is not about what stories can be found, but rather what are the occasions in which it is found appropriate to tell or re-tell stories that have a life within the institution (p. 44). One way of such occasioning happens in

informal conversation regularly, because the amount of informal communication in institutions is vast and offers individuals an opportunity to include an institutional narrative, which is a story regarding the organization, into the conversation (Linde 2009, p. 45). However, Linde (2009) argues that institutional story telling happens more often in formal speech events, as they provide a suitable occasion for narratives more often than informal conversations. The first research question for this study is what kind of an environment for communication does the organization create. Linde's (2009) point of different occasions for storytelling—that are also occasions for communication and information sharing—contributes to this research question: not only does the organization build a communication environment in hierarchical structure and working tasks, but also in the everyday coincidental occasions where also communication might occur.

#### **2.1.4 Meetings**

One way to share information within an organization and among organization members and employees are meetings. Meetings are in the heart of organizational communication (Ballard & Gomez 2006) and part of everyday life in most organizations. Organizations have multiple goals and purposes, and meetings offer the location to actualize them (Allen et al. 2014, p. 798). Meetings are used for various purposes of organizational functions (Allen et al. 2014) and can work as a platform for creative thinking, idea generating, action planning, solving problems, implementing organizational strategy, and hosting team debriefings (Mroz et al. 2018). Meetings can be viewed to happen in several types, for instance some meetings are specifically organized to share information and others to plan a team's activities (Allen et al. 2014).

Meetings play a significant role in employee socialization, building relationships and shaping the organizational culture (Rogelberg et al. 2007). Meetings reinforce both formal and informal reporting structures (ibid.). The number of meetings can increase if organization is going through changes, for instance encouraging teams to be more self-directed and moving the resources used to micro-management somewhere else (Rogelberg et al. 2007). However, regardless of all the positive outcomes that meetings offer to an organization, they are often poorly ineffective, and the results might not meet the cost (Mroz et al. 2018). That is to say, often meetings are arranged without a valid plan and preparation, and the participants might multitask during the meeting and not give their full contribution to it (Mroz et al. 2018; Allen et al. 2014).

In addition to being held in the sake of various purposes, meetings can be arranged in several different forms. Meetings can be arranged face-to-face, for example when all participants are at the office and gather together in the same conference room in order to have the meeting (Wasson 2006). Meetings can also be held in virtual form, for instance via a video conference call. In virtual meetings all participants are in different locations and participate individually to the call. In addition, meeting can be in a hybrid form, where some participants might join the video conference from the same conference room at the office and other participants at different locations join the call individually. (Wasson 2006.) However, Wasson (2006) found that in meetings that are organized in a hybrid form—combining face-to-face and virtual meetings—the participants found these meetings problematic, because the participants who were together in the same room had an advantage over the others who were in separate locations (p. 106). Thus, the participants at the office often preferred to stay in their own office so that all were in an equal position for the meeting (Wasson 2006, p. 106).

Ballard and Gomez (2006) write that meetings can be viewed as the organizational memory. Meeting notes, memorandums, are often kept in meetings, which can later provide information of what was done and decided in the meeting, therefore being a concrete memory of things done in the organization (Ballard & Gomez 006). In meetings, organization's members reflect on what has been done in the past as a part of their planning of future. Without memorandums this process would be much more difficult to facilitate (Ballard & Gomez 2006, p. 304). Ballard and Gomez (2006) suggest that having the memorandum approved afterwards by the members gives them the possibility to consider the accuracy of the organization's memory (p. 304).

### **2.1.5 Silos**

Often in general language, the term 'silo' is used to describe a situation especially in workplace context where there is only little, if any, knowledge in what other teams are working on and what methods do they work with, and the communication between different units or teams in an organization is poor. However, despite the fact that the term 'silo' is linguistically a familiar concept to many, there is very little research done on it. As one of this study's main interests is in information flow in organizations, understanding silos—a phenomenon perceived to be derived from poor information flow—contributes to a better comprehension of the entity of information flows in organization. Due to the low supply in

literature regarding organizational silos, this research will strive to fill that research gap to some extent.

Roberts (2011) defines the term 'silo' to refer to the inability to share information and is used to describe problems in coordination within institutions and organizations. Willcock (2013) however defines silo working as the lack of joined up, holistic thinking and behaviour. In other words, silos happen when people focus more on their own needs and aims, and exclude organization and its needs from their perspective. Teams within the same single organization might have completely different working cultures, and people's individual personality traits might keep them focused on their work rather than making effort to involving others to their tasks. (Willcock 2013.) Willcock (2013) explains silo working to be a consequence of people's inability to reconcile differences with others due to problems of getting along with one another, for instance.

On the other hand, silos can be explained in a simple and natural manner as well. Willcock (2013, p. 3) points out that humans have a physical boundary to the outside world, and senses control the contact with one's environment. In other words, people cannot be aware of everything happening in the entire world, but only in their close surroundings. In addition, people have different personality traits (Willcock 2013) that may have effect on the amount of how much they seek for interaction with others. A human can approach others or keep distance from them. Hence, silo is a natural state of affair and people can simultaneously belong to a silo while being connected to others (Willcock 2013).

Silos can be costly to organizations (Willcock 2013; Roberts 2011), and they can for example lead to missed opportunities, delays in finishing work or reinventing the wheel (Willcock 2013). Ahsan and Panday (2013) argue similarly that the lack of informal communication between departments can lead to duplications in operation (p. 592). Duplication can be a waste of resources, slow down the progress, and increase costs (Ahsan & Panday 2013, p. 592). Siloed structure can also lead to failure, as the organization might not be flexible enough to adapt to fit the ever-developing market in time (Hwang & Krackhardt 2020). On the other hand, Willcock (2013) highlights that silos can be helpful as well, as they derive from organization structures that usually are built for a reason.

Hwang and Krackhardt (2020) suggest a view of user fragmentation to silos, which refers to the fact that while people find like-minded others to communicate about topics they share the interest of, they simultaneously avoid people whose topics of interest differ from theirs. This

sort of set up can easily lead to a narrow perspective where like-minded people create their own silo for their interests and as a consequence find it difficult to relate to other perspectives (Hwang & Krackhardt 2020). Often organizations are structured so that people working around the same topic with similar expertise areas are put in the same team (Willcock 2013). Thus, the formal organization structure itself is likely to offer the like-minded members the setting where they can form their own silo which represents their informal structure as well.

The literature presented in this chapter gives a better understanding of organizations and the communication environment within them in particular, and elucidates what is known about the issue approached in RQ1. The formal organization structure creates the framework in which employees work and coexist, which leads to forming relationships and networks, thus building an informal organization that facilitates as the communication environment (Krackhardt & Hanson 1993). In virtual organizations the informal organization could face challenges, as the occasions in which communication would normally emerge at the co-located office space are reduced, making it more difficult for employees to interact and build or maintain their social relationships. Yet again, the virtual setting for operations also emphasizes the importance of having informal communication network in organizations (Krackhardt & Hanson 1993).

Meetings are part of a typical communication environment in organizations, and they leave a consistent memory trail in the organization (Ballard & Gomez 2006). On the other hand, not only does the organization create the environment for communication to exist, but also communication contributes to the organization's operating by forming the foundation for coordination. Finally, this chapter has also presented some insight to a very common challenge in organizations and their communication environment: silos. Understanding these aforementioned concepts better, the next chapter will seek for a deeper insight in communication and interaction.

## **2.2 Communication**

Communication is a basic need for humans (Rayudu 2010; Juholin 2017) and an inevitable foundation for all human action (Juholin 2017, p. 22). Rayudu (2010) describes communication as a process of exchange of facts, ideas, and opinions, and as a means that individuals or organizations share meaning and understanding with others (p. 2). The process of communication involves the creation of meaning in the listener, the transfer of information

and thousands of potential stimuli (Rayudu 2010, p. 2). In addition to linguistics, communication includes non-verbal communication, such as the tone and volume of voice, facial expressions, and body language (Juholin 2017). Such non-verbal, auditive and visual communication can be more significant in transferring symbols than the verbal communication (ibid.).

This section aims to dig deeper into the forms of communication and particularly the studies done in the field of informal communication. This research studies the relationship between informal communication and information sharing at workplace. Therefore, it is vital to understand how informal communication is experienced at workplaces and how it contributes to work performance, motivation, and satisfaction. In addition, the first research question studies the communication environment in organizations: this chapter offers an outlook in the organizational communication and what significance communication holds in organizations, elaborating more on the environment for communication. After reviewing informal communication this section moves onto virtual communication, which has become common for many organizations (including the case organization CSC) and office workers. Additionally, this chapter provides a deeper insight into teams and relationships, and finally reviews literature regarding the relationship between organization and communication.

### **2.2.1 Informal communication**

To better understand the meaning of informal communication, one must separate it from formal communication. Picardi (2001, p. 9) defines formal communication as something that occurs in management information, and guidelines about policies and procedures. Meetings and documents, for instance, are formal communication. Formal communication occurs in the organization's formal structure, and follows a fixed pattern, thus keeping the information flow in accordance with fixed and prescribed way (Rayudu 2010, p. 252; Poole 2015). In turn, Kraut et al. (2002, p. 5) define that formal communication is scheduled in advance, and the participants are arranged and in their professional role. Organizational self-structuring, as McPhee and Zaugg (2009) explain it, happens through formal communication by sharing documents, policy guidelines and other similar forms of organizational communication. The route of formal communication follows organizational positions and recognizes relationship hierarchy, and the object of formal communication is to ensure the flow of information as planned and in time, in a manner that favors the organizational efficiency (Rayudu 2010, p.



252). In summary, formal communication is official, focuses on work-related issues and is usually planned in beforehand.

Informal communication, according to Picardi (2001, p. 9), is known as the grapevine and is primarily an oral method of transmitting information. Informal communication occurs at the water cooler or across the table at lunch, for instance (ibid.). Informal communication is unscheduled interaction with random participants who are out of their roles, and it does not have a preset agenda (Kraut et al. 2002, p. 5). In addition, it is interactive, and the language used is informal (ibid.). Fay (2011) accordingly defines informal communication as voluntary talk that does not have to be solely work or task focused.

Poole (2015) describes informal communication networks to be based on friendship and common interests rather than formal work duties. Messages move faster in the informal communication network, and often members consider them as more accurate and trustworthy than formal system. Informal communication may compensate the flaws of formal communication. (Poole 2015, p. 3; Ahsan & Panday 2013). In addition, Poole (2015) argues that innovation is fostered by informal communication, because it can include people from different units and expertise areas of the organization. Everyday interactions can be considered as simultaneously influencing and being influenced by processes at the broader organizational level. Informal communication is used to meet complex goals that are important to individuals and organizations, such as common ground, defining context, developing relationships, claiming and granting membership, bonding and reducing uncertainty. (Fay 2011, p. 221.)

Informal communication at workplaces has been linked with several important organizational and individual outcomes (Fay 2011, p. 214). For instance, informal communication enhances the employees' identification to be a part of the organization (Fay 2011). Informal interaction gives its participants—among other things—a possibility to acquire and share information regarding policy implementation, for example of whose expertise area a certain issue is or who is working on what (Ahsan & Panday 2013). Informal communication is self-motivated and needs-based (Ahsan & Panday 2013). Furthermore, informal communication is effective in developing a community, where information flows and assists coordination (Chisholm, 1989).

Informal communication tends to work faster than formal communication, especially with more timely problems (Chisholm 1989). For example, if someone needs to know one detail

specifically in order to carry on with work, it would be faster to walk up to the person who knows the subject instead of writing an email and waiting for their response. Chisholm (1989, pp. 65–66) also offers the example of speeding up the formal process by using informal communication: when one has to wait for their friend's contribution to a task, they might get their friend working on it sooner by asking them informally about the schedule.

Bartol and Srivastava (2002) argue that a crucial characteristic of informal interaction is that it is not recorded, and the contributions are therefore harder to evaluate when it comes to being rewarded by the organization for sharing knowledge informally, for instance.

Therefore, the ideal environment created by the organization would be open and encourage trusting inter-personally and sharing knowledge. Informal communication is based on trust and therefore it can be more suitable for certain, more discrete subject (Chisholm 1989; Ahsan & Panday 2013). Formal communication is often archived in some manners, for instance emails do not disappear immediately after reading them (Chisholm 1989; Bartol & Srivastava 2002). Therefore, informal communication can be more comfortable alternative for sensible conversations.

Willcock (2013) argued that information silos are a natural state in organizations because people have different personality traits. The same impacts of personality can be seen in informal communication. Informal communication is self-motivated and therefore not obligatory for organization members to participate in (Ahsan & Panday 2013). Some people simply are not keen of social interaction, so they might consciously avoid informal communication, which in turn can increase the formation of silos where the information does not flow as fluently through the organization (Willcock 2013).

Informal conversations can eventually grow into collaborative projects, as the conversation brings up common interests among the interactors (Ahsan & Panday 2013; Kraut et al. 1988; Temby et al. 2017). Informal interactions are important especially in the planning stages of a collaborated project (Kraut et al. 1988, p. 7). Kraut et al. (1988, p. 9) believe that much useful communication between actual and potential collaborators is not planned and would not occur if it had to be planned. Röcker (2012, p. 2) concludes the same and argues that informal communication is vital in organizations and without informal communication, many collaborations would not even happen, and others would break apart before being successful. Informal communication supports multiple different work-related and social functions, and major information sharing happens during informal communication. Spontaneous interactions

are crucial for the occurrence of coordination and studies have shown that the frequency of informal communication is higher in successful teams than in less successful teams. (Röcker 2012.)

Informal communication does not only affect collaboration but has an impact on decision making as well (Temby et al. 2017). Furthermore, Temby et al. (2017) found that the higher the frequency of informal communication, the greater impact it has on decision making. One essential variant to explain this is that a high level of collaboration's importance to a participant correlates with a great impact of informal communication on decision making (ibid.). For instance, if the person making the decision finds the collaboration important and gets along with colleagues informally as well, they are likely to let the informal relationship affect the decision they are making. Informal communication can contribute to organizational decision-making through innovation as well, because participants can think aloud without pressure as they are "off the record" (Poole 2015, p. 3).

The second research question of this study focuses on the relationship between informal communication and information sharing. Previous literature presented here highlights clearly that informal communication is important in maintaining an information flow in organizations. However, not much research seems to be taken place earlier that would have focused on remote setting of working and communication, further impacting the occurrence of information sharing in informal communication. This research aims to contribute to this research gap.

### **2.2.2 Virtual communication**

The research problem of this study approaches informal communication and information sharing from the pandemic point of view, that is, whether the pandemic has impacted these phenomena occurring in the case organization. Furthermore, the first research question studies the communicational environment in organizations. The literature in this subchapter elaborates more on what kind of communication can typically exist in organizations that work in decentralized locations and the common environment for organization members is mainly virtual. Since the COVID-19 pandemic has transformed CSC to a virtual organization, the communication in it has taken a more virtual form.

The frequency of communication between people is a strong function of their geographical proximity, also when considering technologically mediated communication (Kraut et al.

1988, pp. 5–6). In other words, when two people are located near each other, for instance, at the office, they are likely to communicate with each other more often also by phone or email as well as face-to-face interaction. People who work right next to each other communicate twice as much as people who have working places on the same floor, and frequent interaction is likely to influence the possibilities of collaboration (Kraut et al. 1988, p. 6; Hwang and Krackhardt 2020).

In virtual communication, the medium used for delivering messages vary from phone calls to e-mails and instant messaging applications. Poole (2015) highlights, that the medium might influence the communication process, as different media allow more time to respond or more personal cues, for instance. Correspondingly, Wiesenfeld et al. (1998) suggest that using more informal media for communication is likely to increase the feeling of being active members in the process of creating organizational identity. The media's informal nature can reduce the perceived hierarchy of organization structure and make status, department and job differences less salient (*ibid.*).

In traditional work environments it is possible for people to maintain awareness over others' locations, activities and intentions relative to the task and space. Whenever one needs to communicate with others, their availability can be evaluated by simply monitoring it, for instance by seeing if they are at their desk or not. (Röcker 2012, p. 6.) Co-located team members have access to multiple information sources and can rely on non-verbal cues to extract more information—virtual team members do not have similar information options available, and the non-verbal communication is absent in interaction. Team members who are not co-located must rely on different communication tools to communicate the information that would otherwise be interpreted from non-verbal communication. (Röcker 2012, pp. 6–7). Additionally, people who work in co-located offices can pick up information passively, that is, interpret others' communicative cues without actively listening. An example of such a situation would be if teammates in the same office space start discussing work, while one still concentrates on their work but is able to hear their teammates' discussion. People who are not at the same location with their team members must initiate the communication intentionally from both sides. (Röcker 2012, p. 10.)

Hightower and Sayeed (1995) argue that groups communicating via computer-mediated communication systems (CMCS) have more difficulties in sharing information than groups that communicate face-to-face. This is due to CMCS being less efficient compared to face-to-

face communicating—for instance, typing a message takes more effort than speaking—and CMCS are not as rich a form of medium to communicate, as it enables less information cues, such as non-verbal communication, compared to face-to-face communication (Hightower & Sayeed 1995, p. 36; Siegel et al. 1986). Since computer-mediated communication is not as rich of a medium, using it results in more effort for the group members to achieve a common level of understanding in communication, making CMCS communication more difficult (Hightower & Sayeed 1995).

On the other hand, group members using CMCS feel freer to express their opinions than they would in face-to-face communication (Hightower and Sayeed 1995; Siegel et al. 1986), but simultaneously they have more difficulties to get their point across (Hightower and Sayeed 1995, p. 36). Thus, it takes longer for CMCS groups to complete tasks than face-to-face groups. Hightower & Sayeed (1995, pp. 36–37) argue that when group members use CMCS for communication, they include less information in their discussion as they would in face-to-face discussion. In text based CMCS communication it takes longer to respond due to the need to type answers and comments.

Röcker (2012, p. 8) claims that traditional communication technologies like telephones and email focus on content and are not sufficient in supporting the feeling of connectedness. Connectedness relates to social presence, which is high whenever the communication medium is capable to mediate the personality and non-verbal symbols of a remote person. Communicating via telephone calls is preferred over text-based communication, but there is no guarantee over others' availability, and the phone call can be missed. Video conferencing systems have the benefit of providing additional cues through mimic and gesture. However, users may feel positive about the medium at first but as they get more familiar with the video conferencing systems, they begin to dislike them: users are not very comfortable being filmed and the quality of sound and picture can be low. (Röcker 2012.)

Another factor to take into consideration in virtual communication is its possible interruptive character. Information Technology (IT) interruptions are perceived IT-based external events that capture cognitive attention and break the continuity of an individual's primary task activities (Addas & Pinsonneault 2015). For instance, a pop-up notification of an incoming email could act as an IT interruption. Email has advantages for task-related communication but does not signal very well whether others are available for communication or not. Receiving and reacting to incoming email can be interruptive as focus can shift from current

task to the notification of the incoming email, after which the focus needs to be recovered to continue working on the task. Instant messaging applications on the other hand can be used for informal interaction. Nevertheless, they require presence in front of the computer to be able to participate in informal communication. Correspondingly, a communicative interruption, such as a message, can lead to a somewhat continuous interruption, as it often requires response and possibly engagement to a longer conversation (Addas & Pinsonneault 2015). Both email and instant messaging applications are not suitable for personally sensitive communication, and they do not support spontaneous interaction. (Röcker 2012, p. 9.) Kraut et al. (1988, pp. 8–9) come to the same conclusion of technologically mediated communication systems to support formal, work-oriented communication, which is only a minor portion of the communicative activities that occur in cooperation.

Despite the aforementioned, somewhat interruptive and engaging character of instant messaging applications, the use of them is ever more popular in the workplace (Li et al. 2011). Instant messaging supports informal communication in the workplace, and instant messaging apps enable immediate communication by disclosing who is present and thus available for instant communication (Li et al. 2011, p. 139–140). Instant messaging technology often contributes to higher expectations toward the recipient to respond immediately, which may increase the interruptive nature of instant messaging (Li et al. 2011). Often instant messaging is used while multitasking, that is, people keep working on something else as well and do not only concentrate on instant messaging (ibid.). However, as Addas and Pinsonneault (2015) argue, being active on instant messaging app while working also reduces concentration from work as well.

Communication efficiency refers to group members' capability to function or to communicate ideas, data, opinions and feelings in the least wasteful manner, and the efficiency of communication can be measured for instance in the time required to reach consensus or by the number of remarks exchanged by group members. (Siegel et al. 1986, p. 159). Computer-mediated communication can increase subjective feelings of control and focus on the task, and therefore have a positive effect on efficiency. However, particularly in text-based computer-mediated communication it is more difficult to participate in communication by nodding one's head or murmuring in order to express understanding, which reduces the efficiency of computer-mediated communication as well as the potential of exchanging feelings compared to face-to-face communication (Siegel et al. 1986, p. 159). In text-based computer-mediated communication there are not that many technical limits in

communication, such as the length of the message or the geographical location of the recipients. However, this might lead to a series of monologues among the participants, which is not efficient communication. (Siegel et al. 1986.)

Participation of group members can be measured by observing how the communication is distributed within the group (Siegel et al. 1986, p. 160). Participation may not always be equal among the group members and the participation can be predicted from members' social position and personal competencies (ibid.). Computer-mediated communication lacks mechanisms for displaying or enforcing social differentiation among people. According to Leistner (2012, p. 10), virtual environment is often more beneficial to communities than teams. In other words, virtual elements in communication medium make it more flexible, which suits better a bigger audience than an assigned team with very specific membership and aims.

Computer-mediated communication interferes with the communication of social context information, which can lead to depersonalized interaction and deindividuation (Siegel et al. 1986). When compared to face-to-face communication, computer-mediated communication reduces feelings of embarrassment, guilt and empathy for others, produces less social comparison with others and reduces fears of retribution or rejection (Siegel et al. 1986, p. 161). Siegel et al. (1986, p. 162) argue that the importance of arguments and decision proposals is more emphasized in computer-mediated communication than in face-to-face communication.

Dobosh et al. (2019, p. 299) suggest that successful groups are able to match the richness of the medium with the complexity of the task at hand. Groups may use a medium of low richness, such as email, for sharing information or other routine tasks but meet face-to-face with complex tasks that require problem-solving (ibid.). If an individual believes a communication technology to enhance their performance and can be used with minor effort, they are more likely to continue using that medium (Dobosh et al. 2019, p. 301). This sort of perception of communication technology is connected to user attitudes, intentions and adoption and therefore an individual's acceptance of a technology may influence how a group member assesses social presence and feelings of satisfaction when the group is using certain technology (ibid.).

### **2.2.3 Teams and relationships**

Teams are beneficial to organizations, as they increase productivity, problem solving and creativity (Polat et al. 2018). Furthermore, teams create value for organizations especially in teamwork, which is at its most efficient when the team communicates well and has built trusting relationships that enable open exchange of information, and thus improving the outcome of teamwork (Polat et al. 2018). Thus, it is worth reviewing what has previously been established regarding communication in teams and relationships, as they are not only typical functions in organizations but highly valuable to organizational success.

Communication has a tendency of generating co-orientation—it may not necessarily produce agreement or shared belief but instead it increases understanding and accuracy between partners (Poole 2011). As team members work together and experience different situations together, they become familiar with each other and come to know each other's tendencies and capabilities and eventually they might not need to communicate as they act (Poole 2011, p. 461), and as Cannon-Bowers and Salas (2001) describes it, they gain task-specific knowledge.

Successful coordination between team members is crucial in order to perform work tasks. Coordination is a communicative accomplishment, and teams can rarely effectively coordinate their actions without establishing some sort of shared and routine pattern of interaction or communication network (Pilny et al. 2020). Röcker (2012) argues that it is equally as important for teams to have informal interaction as it is to collaborate and focus on work. Teams that interact more often are likely to have higher group cohesion than groups that interact infrequently (Röcker 2012). People achieve awareness continuously during collaboration with others in a shared environment. Informal awareness regarding ongoing activities in the local working environment and a sense of community are vital aspects of work. (Röcker 2012, pp. 2–3.)

According to Poole (2002) communication can lead to co-orientation. Processes of co-orientation are fundamental to the constitution of individual and dyadic identity: when we see group members that are similar, we are likely to perceive the individuals as a group (Poole 2011). However, whether the individuals identify themselves as part of the group is a different matter. A team whose members recognize that they comprehend one another correctly will be capable of acting as a unit and feel like they can anticipate each other's actions. Members will perceive the team to have an identity that they can participate in,



which will make the members more confident in the team and thus enhancing its collective self-efficacy. (Poole 2011, p. 464.)

In communities of practice employees communicate on topics they find interesting in a more personal manner without routines or precise structure. For instance, a channel founded for a specific topic in an instant messaging app is an example of an electronic forum for a community of practice. In such forums, members can ask questions that others can respond to or initiate discussion around subjects that others might find interesting (Bartol and Srivastava 2002). Communities of practice are important to innovation and can be beneficial to organization's both external and internal interests, such as customers and employees. In addition, knowledge that is not stored in databases could potentially emerge in interactions of communities of practice, which is why organizations should provide technological support for such forums (ibid.). Bartol and Srivastava (2002) argue that especially communities of practice are likely to have a positive effect on individuals' motivation for work.

Tan et al. (2000) suggest that speeding up the relational development of virtual teams can have a positive impact on the team's effectiveness. Achieving common understanding is critical to effective teamwork (Tan et al. 2000; Cannon-Bowers and Salas 2001), and in order to gain shared understanding the team members must know the tacit and explicit rules by which the members make their decisions (Tan et al. 2000, p. 154) and thus achieve a better knowledge about teamwork and how to compensate one another's assets (Cannon-Bowers and Salas 2001). Team members have to bring out the tacit rules that can exist even below the conscious level in order to be able to discuss these rules in a dialogue with each other (ibid.). For virtual teams to experience improved team collaboration over time, they need to spend enough time together to build mutual trust among members (Tan et al. 2000, p. 161).

Holmes and Marra (2004, p. 379) write that relational practice in the workplace context is often appropriately oriented to people's need to have their special skills or distinctive expertise recognized and to feel valued and important for their team. Holmes and Marra (2004, pp. 380–381) suggest that activities such as listening and empathizing to non-work-related information assist in creating team spirit, and engaging in small talk, using humor, and giving compliments construct good relations with co-workers. Holmes and Marra (2004, p. 380) argue that communicating in the workplace often serves multiple purposes simultaneously: it might advance the project objectives as well as pay attention to the interpersonal dimension of team relationships. Relational practices are frequently overlooked

or considered irrelevant or counterproductive in workplaces, but Holmes and Marra (2004, pp. 380–381) argue that fostering good relationships at work generally contributes to achieving workplace goals.

#### **2.2.4 Relationship between organization and communication**

As it has been thus far established, organizations and communication are close to each other and have significant impact on one another. Communication enables exchange of information between an organization and its members and by communication people can socialize, coordinate activities and maintain systems of beliefs and values (Poole 2015). According to Poole (2015), the role of communication in organizations can be positioned in at least two ways: communication as a subprocess in which communication serves as a channel for the maintenance of inter-organizational linkages or communication as the process that constitutes organization and its activities, i.e. works as the medium through which the organization performs and thus, exists.

Putnam and Nicotera (2009) present the ideas by Ruth Smith (1993), who identified three major types of relationships between communication and organization: containment, production and equivalence. Containment refers to organizations as objective and reified entities in which communication occurs. The second relation, production, treats organizations and communication as distinct concepts, in which one of them has a priori existence over the other. The production relation divides into three more relations: Organization can be produced in communication; communication can be produced in organization; they can co-produce each other. Equivalence, the last of Smith's (1993) relationships, refers to the two constructs being the same phenomenon, i.e., communication is organization and organization is communication. (Putnam and Nicotera 2009.) These three relationship models indicate that the relationship between organization and communication cannot be simply defined but is rather complex and dynamic.

When studying the relation between communication and organizations, the Communication Constitutes Organizations perspective (the CCO perspective) is relevant to be taken a closer look at. Initially the study of organizational communication treated organizations as objects in which messages were sent in an up-and-down direction through superior-subordinate interactions and through internal communication networks (Putnam and Nicotera 2009, pp. 5-6.) Putnam and Nicotera (2009) place the beginning of the CCO thinking in 1969, when Karl Weick viewed organizations as coordinated behaviors in which act-response sequences

formed the basic building block, and these coordinated behaviors had the capacity to create, maintain and dissolve organizations (Putnam and Nicotera 2009, p. 6). McPhee and Zaug (2009, p. 35) argue that only individual humans can communicate, so when communication constitutes organization, the relation of the communicators to the organization is important. In other words, organizations can be viewed to be constructed in its members' actions and interactions with one another, and those patterns of actions and communication form the entity of an organization.

Good illustration of how organizations can be viewed as constructed of communication episodes is Lucy Suchman's (1996) description of an operations room of an airline located in a small airport. There are five people in the room and four of them have specifically assigned tasks: passenger service, baggage planning, monitoring incoming flights and coordinating with an affiliate airline. The fifth person in the room is the supervisor. The episode begins when a set of ramp stairs break down and an incoming plane cannot disembark its passengers. The team in the Operations Room is organized in order to solve the problematic situation: they alert ground crews, contact other airlines for a possibility of borrowing stairs and they keep the plane up to date on what is happening. Everyone in the room is aware of each other's activities and they experience the crisis as an episode with organizational meaning and that they solve it as a unit. However, when analyzing the communication in the Operations Room, Suchman (1996) finds that the five people instantly break down into a sequence of dialogic interactions. In the components of the overall organization of the room, the steps of activities that the dilemma calls for are gone through by couples of workers, working one-on-one: the pilot communicates with the person who monitors incoming flights, who then again communicates with the passenger planner, who collaborates with ground crew and so forth. (Suchman 1996.) This description illustrates how organizations as units of employees work in fact in communication episodes that form the entity of the organization's operating.

Communication has a constitutive force, and if nothing else, it constitutes socially recognized agency of communicating parties (McPhee and Zaug 2009). When we communicate with someone, we identify them as someone who can comprehend us, and the listener identifies the speaker as an agent that is capable of communicating when they interpret the communication (ibid.). McPhee and Zaug (2009) have presented that organizations are constituted in four processes, which they refer to as flows. The first flow is membership negotiation, which focuses on the relationship between an organization. Membership is not

self-evident but constituted in this flow of communication: the relationship is maintained to form into a membership. Membership negotiation is continuous and often occurs in designated forums with particular scripts. This flow highlights the role of human agency in constituting organizations through the actions of organizational agents and stakeholders. (McPhee and Zaug 2009.)

The second flow of McPhee and Zaug (2009) is organizational self-structuring. It refers to the enduring quality of reflexive design and control. Organizational self-structuring distinguishes organizations from mobs and neighborhoods. Self-structuring is a communication process among organizational members and it refers to any interactions that steer the organization in a particular direction—it is the communication about internal relations, norms and social entities that form the skeleton for connection, flexing and shaping of work processes (McPhee and Zaug 2009, pp. 35–36). Organizational self-structuring communication is for example documents such as charts, policy and procedure manuals, directives and processes of employee evaluation and feedback, for instance. Self-structuring communication includes processes that design the organization, hierarchical relationships and structural information-processing arrangements. (McPhee and Zaug 2009.)

The third of the flows is activity coordination. Activity coordination focuses directly on connecting and shaping work processes. These activities are coordinated as a result of the organizational self-structuring, which steers labor but never contains all information necessary in practical work. McPhee and Zaug (2009) identify the communication that adjusts the work process and solves immediate practical problems as activity coordination. However, members can also coordinate avoiding work, seek for external advantage for themselves or enact new practices for work. (ibid.)

The fourth and the last of the flows is called institutional positioning. This flow focuses on organizations and their societal interactions at the macro level with suppliers, customers, competitors, government regulators and partners. With institutional positioning organization positions itself in a larger social system when interacting with other agencies and establishes itself as legitimate by developing an image of a viable relational partner. (McPhee and Zaug 2009.) These four flows are a bit more concrete examples of the relationship between organization and communication as opposed to Smith's (1993) relationships presented by Putnam and Nicotera (2009). McPhee's and Zaug's (2009) flows present the dynamic

existence of communication in organization's daily and casual operations, but also highlight the fact that without communication those operations would not be performed.

In addition to daily operations of organizations, the organization needs an information and knowledge base to steer its operations. Creating new knowledge in an organization is not only a matter of learning from others or gaining knowledge from the outside, rather it needs to be built on its own by frequent interaction among the members of the organization (Nonaka and Takeuchi 1995, p. 10). In order to create knowledge, learning from others and the skills shared with others need to be internalized by reforming and translating them to fit the company's self-image and identity (Nonaka and Takeuchi 1995, p. 11). The second and the third flows of McPhee and Zaug (2009), organizational self-structuring and activity coordination describe the same kind of situation than Nonaka and Takeuchi (1995). The organization must define the policies in which it operates, coordinates and communicates (self-structuring) and based on that set of guidelines the members are able coordinate their activity in order to keep the processes going on. Nonaka and Takeuchi (1995, p. 13) claim that new knowledge in organizations always starts with an individual, and it can be amplified or crystallized through group discussions. Drawing from this, it can be argued that organizations assets lie in its members and their communicativeness.

The importance of communication does not show only on the daily basis of the organization's operation, but also in situations when the organization is facing challenges. Barge and Little (2002, p. 377) suggest that organizational members need to develop dialogical wisdom for making situated judgments that respect the multiple points of view and voices inherent in any situation. When organizations confront difficult issues that require creative and new ways of thinking, creating practices in the form of dialogue sessions is the key to providing a contemplative space where organizational members can challenge and reflect on existing organizational practices (Barge and Little 2002). Communication is a structure without which an organization cannot survive.

To summarize this chapter, organizations must put effort in enabling communication and creating suitable space for employee interaction. Informal communication builds relationships between members of organizations and teams, thus improving teamwork: teams that are often in interaction are more productive and work better together. Informal communication is spontaneous, needs-based and found to be trustworthy. Informal communication is flexible and suits situations that require immediate response or action.

Virtual communication is convenient for especially formal communication and instant interaction; however, it lacks many communication cues and generalizes interaction by reducing personal cues in communication. In addition, virtual communication can be highly interruptive and affect the efficiency of organization members. The relationship between organization and communication is complex and difficult to define. Moreover, the two are sometimes hard to separate from one another which perfectly describes the core essence of their relationship. The environment for communication created in organization is thus difficult to define to be anything specific, but earlier research does help in building a framework for RQ1; in this study the organizational communication environment is interpreted as the setting built for organization members to communicate in. In other words, meetings, teams, events, office spaces, and channels and media used for communication affect the interaction that might take place in organizations.

### **3 INFORMATION AND KNOWLEDGE SHARING**

The third research question of this study is focused on the amount and flow within the organization, and whether those have changed during the pandemic. In order to better understand how information and its flow have changed, it is important to understand how they are usually perceived to be in organizations. Both information and knowledge are terms that have been studied for a long time. Thus, there is a large supply of versatile interpretations and study tracks offering a deeper insight into the world of information and knowledge. For the purpose of this study, the forms of information and knowledge that occur especially in an organizational context will be taken a further look at, as well as the science behind information sharing. Finally, this chapter will study knowledge in organizations further. Reviewing the literature presented in this chapter will set the framework for knowledge and information sharing and flow in organizations, in which the possible changes of information flow during remote work and pandemic have happened.

#### **3.1 Information and Knowledge**

Nonaka and Takeuchi (1995, p. 58) define information as a flow of messages. Baumard (1999) accordingly suggests that information is a flow of messages that increases knowledge, and restructures and modifies it. Knowledge on the other hand is created by anchoring the information to one's beliefs and commitment of its holder (Nonaka & Takeuchi 1995). Information is a necessary medium or material for eliciting knowledge, as it adds perspective that can be used to restructure knowledge (Nonaka & Takeuchi 1995; Baumard 1999). In short, information consists of details and meanings that an individual interprets, and thus applies them to their knowledge by combining the new information to the beliefs and models of action they already had.

Stasser and Titus (1987) identify three characteristics of information. First one is information load, referring to the amount of information available to decision makers. The second one is prediscussion information distribution, which refers to the way information is shared among group members before they discuss it. The last characteristic is implicational clarity, referring to the extent to which the available information pool discriminates among alternative choices. For example, when considering a suitable candidate for employment, the information pool might favor one candidate over the others. (Stasser and Titus 1987, p. 82.) According to Stasser and Titus (1987, p. 81), the information brought to a group by its members and the

information the group gains through discussion are important factors that shape their individual preferences and their collective decision. Nonaka and Takeuchi (1995) as well acknowledge the same impact of individual's information in the creation of common knowledge.

Bartol and Srivastava (2002) view knowledge to include information, ideas and expertise relevant for tasks performed in organizations (p. 65). Nonaka and Takeuchi (1995) define knowledge to be either explicit or tacit. Furthermore, Nonaka and von Krogh (2009) describe knowledge to be explicit and tacit along a continuum, in which knowledge can range from tacit to explicit and the other way around. The continuum in theory can be seen when explicit and tacit knowledge interact with one another (Nonaka & von Krogh 2009), for instance, explicit knowledge forms the content in speaking, but tacit knowledge controls the physical presentation, such as tones, volume and pauses (p. 638). Nonaka and Takeuchi (1995, p. 57) propose four modes of knowledge conversion that occur when explicit and tacit knowledge are in interaction with one another. These modes are socialization, externalization, combination and internalization. Nonaka and Takeuchi (1995) describe that these modes are experienced by individuals, as the modes represent the mechanisms by which individual knowledge is articulated into and throughout the organization (p. 57).

Knowledge that is explicit can be expressed in words and captured in writing or drawings and is accessible consciously (Nonaka & von Krogh 2009). Nonaka and Takeuchi (1995, p. 8) describe tacit knowledge to have two dimensions, of which the first one contains informal and hard-to-pin-down skills that are attained in years of experience but hard to explain in a scientific manner. For instance, someone might have been using a certain system for years and know tricks to speed up the process but cannot explain the specific reason for why their trick works. The second dimension of tacit knowledge is cognitive and consists of schemata, mental models, beliefs, and perceptions that are so intrinsic it is taken for granted. (Nonaka & Takeuchi 1995.)

For tacit knowledge to be shared it must be converted into words or numbers comprehensible to anyone. In other words, the tacit knowledge needs to be converted into explicit knowledge in order to be shared. (Nonaka & Takeuchi 1995, p. 9.) Baumard (1999) states that converting tacit knowledge into explicit knowledge is realized daily in organizations (p. 24).

Nevertheless, Baumard (1999, basing on Nonaka 1992) also presents that knowledge conversion must not always happen from tacit to explicit: it can convert from explicit to tacit,



explicit to explicit or tacit to tacit. For instance, tacit knowledge can be passed on without words, for example, handicrafts can be learned by doing with hands instead of listening to a theory. Alternatively, explicit knowledge can be converted into explicit by combining knowledge. (Baumard 1999, pp. 24–26.)

Cannon-Bowers and Salas (2001) as well identify the mental models as features that steer people's knowledge and thus interpretations and actions. Tacit knowledge is included in the skills and action knowledge that form the procedural memory of organizations (Moorman & Miner 1998). Tacit knowledge is not only about individual's own implicit skill set, but includes their knowledge of other actors in the organization, i.e. their colleagues, as well (Baumard 1999). Drawing from this, Baumard (1999, pp. 22–23) argues that tacit knowledge is an essential and a daily element of managing organizations, because it maintains the organization's flexibility. Major part of knowledge in organizations is in tacit form (Suppiah and Manjit 2011, p. 464).

Cannon-Bowers and Salas (2001) on the other hand identify four general categories of knowledge: knowledge specific to a particular task, knowledge related to the task, knowledge about teamwork and lastly, shared attitudes and beliefs. Task-specific knowledge is knowledge that team members have on how to do a certain task without the need to communicate it and discuss the task with teammates. Cannon-Bowers and Salas (2001, p. 197) argue that this sort of knowledge is highly task-specific, such as the procedures, actions, and strategies necessary in performing the task. Task-specific knowledge can be generalized only to similar tasks (*ibid.*). Task-related knowledge refers to team members' common knowledge about task-related processes that contributes to the team's ability of doing the task. Task-related knowledge can be, for instance, knowledge about how previous tasks have been accomplished. Knowledge about teamwork is similar to Baumard's (1999) view of tacit knowledge regarding others, and it refers to the knowledge team members have of each other—their preferences, strengths, tendencies, and background, for example. Team members learn to know each other and compensate one another's expertise areas in order to maximize efficiency. Shared attitudes and beliefs will help teammates to reach common understanding and ease decision making, as team members' interpretations of the task or the working environment are compatible. Shared beliefs also contribute to cohesion and motivation. (Cannon-Bowers and Salas 2001.) Knowledge about teamwork and shared attitudes and beliefs are knowledge that is created and gained in interaction with others.

Knowledge is a mutable and fragile organizational entity, and for it to have a meaning, old knowledge must be applied to present context (Baumard 1999). Knowledge is often enclosed within specialties (Hwang & Krackhardt 2020), which is why not everyone is a specialist for everything. For example, buildings are designed by architects who majorly focus on the visual outcome and entity of the building, whereas the building's structures are typically then designed by a civil engineer who knows how to calculate their strength with precise. In other words, one single project, in this case a building, acquire many people's contribution and special knowledge to be finished.

### **3.2 Information sharing**

To achieve common understanding and knowledge, individuals must share information with one another, as well as the organization and its members must keep the information moving and flowing in order to operate. Gaining knowledge is about gaining new information, which is then added to the context of previous mental models and information (Baumard 1999).

Bartol and Srivastava (2002, p. 65) define knowledge sharing as individuals sharing organizationally relevant information, ideas, and expertise with each other.

Stasser and Titus (1987) distinguish shared and unshared information. Shared information refers to information that is available to all members of a group before discussion, whereas unshared information is available only to one member (Stasser and Titus 1987, p. 81). Thus, when an individual keeps their information unshared and does not communicate it forward, new knowledge cannot be created in organizations. Chung et al. (2015) propose that the knowledge sharing behaviour of employees appears to be driven by their greater sense of well-being (p. 73). In addition, Chung et al (2015) suggest that sharing tacit knowledge influences the sharing of explicit knowledge positively.

Cannon-Bowers and Salas (2001) suggest four perspectives of the concept of sharing. Knowledge can be shared or overlapping, similar or identical, compatible or complementary, and distributed. Shared or overlapping knowledge is common knowledge among team members. Teammates who work together but have different expertise have different knowledge, but they also share some knowledge on their common field of work. Similar or identical knowledge refers literally to knowledge that is similar or identical between team members, for instance shared beliefs or attitudes. Compatible or complementary knowledge becomes convenient when performing a complex task, and team members have different

expertise areas that complement each other and help succeeding in the task. Distributed knowledge is not shared in a similar way than in the other three concepts. Knowledge can be distributed in teams in a way that everyone has their own specialized knowledge that they are responsible for when completing a task. In a situation where knowledge is distributed it is especially important for team members to coordinate, as the task depends on several people's knowledge. (Cannon-Bowers and Salas 2001.)

Bartol and Srivastava (2002) on the other hand identify four mechanisms for individuals to share their knowledge in organizations. The mechanisms of Bartol and Srivastava (2002) refer more to different occasions through which knowledge is shared by intention—that is, when people intentionally use the occasion to share knowledge—whereas the perspectives presented by Cannon-Bowers and Salas (2001) rather illustrate different settings where the share of information suddenly becomes necessary or is a simple part of the common routine. The first mechanism from Bartol and Srivastava (2001) is contribution of knowledge to organizational databases. In other words, the first mechanism refers to storing data to common platforms in the organization. The second mechanism is to share knowledge in formal interactions within or across teams or units, for example in meetings. Third mechanism is to share knowledge in informal communication between individuals, such as on coffee break or at the lunch table. This study is especially interested in the third mechanism, as the pandemic situation has reduced the chance for informal communication and common coffee breaks. Everyone is working from home and thus is not able to see one another to have such informal interaction. The fourth and the last of Bartol's and Srivastava's (2002) mechanisms is sharing knowledge within communities of practice, which refer to voluntary forums of employees around a shared topic of interest.

Information and knowledge, however, are not always openly shared among members in organizations. This is due to a challenge known as hoarding of knowledge in order to enhance one's own competence and benefit. Milne (2007) suggests that the hoarding of knowledge stems from organizational culture, as in the past knowledge hoarding was rewarded. In other words, employees keep their knowledge – tacit knowledge in particular – for themselves as a guarantee of their own importance to the organization and hence, securing their own future. Suppiah and Manjit (2011) as well found that a hierarchical culture—a culture where organization is characterized by multiple hierarchical structures and has multiple silos operating in relative isolation—in an organization decreases the behavior of sharing tacit

knowledge. Hau et al. (2013) in turn state that it is natural for employees to adjust their willingness to share knowledge by requesting adequate benefits in exchange.

### **3.3 Knowledge in organizations**

Organizations are filled with knowledge regarding the tasks and services the organization performs, which is explicitly expressed in daily communication (Nonaka and Takeuchi 1995). In addition, organizations have the tacit knowledge of its members that they have gained by experience, and it is not explicitly communicated in the daily tasks. Knowledge is likely one of the most important possessions of organizations, as it is the foundation of all operations and especially crucial to the continuity of the organization's operations.

Organizations work intensely to create, preserve, and protect their knowledge (Baumard 1999, p. 7). Knowledge is a source of competitive advantage for companies (Hwang & Krackhardt 2020). Organizational knowledge creation refers to the capability of an organization as a whole to create new knowledge, disseminate it throughout the organization, and embody it in products, services, and systems (Nonaka & Takeuchi 1995, p. 3).

Organizations create new knowledge on an everyday basis and rely on already existing knowledge even more often (Nonaka & Takeuchi 1995). The ability to share knowledge within an organization is crucial to its success (Hwang & Krackhardt 2020). Furthermore, for organizations to know how knowledge is shared, it is important for it to utilize the knowledge sharing to success (Lehtimäki 2016).

In addition to creating, managing and preserving knowledge and information, organization has to inform its members in order to manage the organizational structure. Information adequacy is used to measure the extent to which individuals within organization perceive being informed about instrumental and social aspects of their organizational life (Ugbah & Dewine 1989, p. 182). Information adequacy includes for instance organization-wide matters, personal performance, policies and social information (ibid.). Such information is part of an organization's everyday life.

Creation of organizational knowledge can also be described as a capacity to create connections of information where previously had not been any obvious connections (Baumard 1999, p. 16). O'Dell and Huber (2011) on the other hand argue that new knowledge is created every day by experimenting or collaboration, for instance. Accordingly, Streatfield and Wilson (1999) suggest that only human beings can take the central role in

knowledge creation. Correspondingly, in organizational knowledge creation theory knowledge can be viewed to be created in interaction between individuals with differing backgrounds (Nonaka & von Krogh 2009, p. 640). Davenport (2001) as well writes that communities of practice contribute to the formation of organizational knowledge. In addition to the creation of new knowledge, also innovation requires interaction between people and furthermore, interaction between people with diverse backgrounds through which they have gained tacit knowledge (Nonaka & von Krogh 2009).

Explicit knowledge is regarded to be less expensive to organizations, as it is easier to transfer to others, whereas tacit knowledge carries a higher value as it is more difficult to share with others (Hau et al. 2013, p. 357). Explicit knowledge can be processed by a computer or transmitted electronically and stored in databases, whereas tacit knowledge is difficult to process or transmit in any systematic or logical manner due to its intuitive and subjective nature (Nonaka & Takeuchi 1995, p. 9).

Tacit knowledge is hidden in the mental models, schemata, feelings, beliefs and attitudes of an individual (Nonaka and Takeuchi 1995; Cannon-Bowers and Salas 2001; Tan et al. 2000). Mental models are the hidden basis for tacit decision rules (Tan et al. 2000, p. 154), which refers to individual's mental models that steer their thinking and therefore decision-making. Team members might have different mental models and therefore different tacit decision rules, which might lead to disagreements or difficulties in understanding one another in teamwork. Tan et al. (2000) suggest that team members should engage in self-reflection in order to figure out the true assumptions behind the decisions they have made. When members of the team are familiar with their own mental models, they can begin to form a team's mutual mental model to facilitate their shared understanding (Tan et al. 2000).

Nonaka and Takeuchi (1995) argue that knowledge can be created in organizations, when an individual shares the information they have. However, albeit knowledge can be created in organizations, it cannot be so easily managed. Leistner (2012) specifies, that one cannot manage knowledge, as it is something that is in other people's heads. Rather, you can manage the flow of knowledge between people, that is, exchange of information. Streatfield and Wilson (1999) correspondingly propose that at most, it is knowledge awareness that can be managed rather than knowledge itself.

Explicit knowledge is easy to move along to colleagues and team members, as it can be expressed with words, numbers or pictures, for instance. Tacit knowledge however is more

challenging to share in the organization, and as Milne (2007) established, some people intentionally avoid doing so. Tacit knowledge can for instance be in one's skill set and occur as automatic responses (Nonaka & Takeuchi 1995), so the best way to gain it is through action. Davenport (2001) discusses situated learning, referring to the transmit of complex understanding of practice to novices in the workplace that is characteristic to mature employees and is mainly acquired informally (p. 63). For instance, situated learning can be seen to happen in apprenticeship, where one gains knowledge through action while being guided by someone with experience. That is to say, much of informal and tacit knowledge is transferred in situated learning (Davenport 2001). However, in modern organizations—and definitely in ones adapting to the pandemic—a lot of situated learning and transferring of information has moved to online environment. Of course, in organizations which operate in a virtual environment, situated learning can still be implemented as the tasks are performed online.

In a situation like the COVID-19 pandemic in which nearly everyone who can is working remotely, having an internal online knowledge community is very beneficial to an organization. However, Hwang and Krackhardt (2020) find that with time, the amount of people actively engaging in knowledge sharing decreases over time. In addition, they find that even though online knowledge communities can include everyone from the organization, people who share the same topics of interest form subgroups in the community. Hence, the discussion might not be as open to everyone as the platform is. Davenport (2001, p. 62) refers to communities of practice as flexible group of professionals, informally bound by common interests and who interact through interdependent tasks that are guided by a common purpose. Essentially, communities of practice are formed within online knowledge communities (Reychav & Te'eni 2009).

Hwang and Krackhardt (2020) introduce the concept of online knowledge communities, that some organizations create in order to manage the internal flow of knowledge. The benefits of an online knowledge community are the ability to overcome local and geographical distance between employees and the possibility to mobilize knowledge across different online domains. The first benefit of online knowledge community, the independence of location, allows people to gain access to knowledge databases themselves instead of having to find the right person at the office to ask a question. Secondly, the mobilization of knowledge across different domains allows other people to participate in the knowledge flow as well. For instance, instead of directing a question to certain experts in an offline setting, in an online

environment one can merely post a question or an issue to a forum that broadcasts it to all members of the online community, giving them the opportunity to potentially learn about the issue or to offer help in case they have experience of overcoming such a problem. (Hwang & Krackhardt 2020, p. 139).

Tan et al. (2000) propose that in the process of building common understanding, team members must engage in small talk and provide background information about themselves. This sort of informal conversation helps the team members to step out of their formal roles and mentalities so that they can communicate more openly (Tan et al. 2000, p. 154). By taking the time to know one another, teammates can gain knowledge about teamwork as well as form the base for shared beliefs and attitudes (Tan et al. 2000; Cannon-Bowers and Salas 2001). In addition to being based on accurate information, interpreting knowledge can be based on narrative descriptions or interpretations of history as well. Cegarra-Navarro and Martelo-Landroguez (2020) suggest that therefore collective knowledge can help people to handle malicious fake elements or gossips, and thus organizations should foster interaction across different units and organization levels through informal communication or joint projects (p. 462).

To conclude, information is the flow of single messages and meanings that are implemented in one's existing beliefs and mental models, thus creating new knowledge. Information and knowledge are the foundation of a functioning organization, and the encouragement of people to share their knowledge is significant for the organization's success. New knowledge is created in interaction between people, and organizations should foster the interaction between its members, as well as offer enough occasions for interaction to happen. The efficiency of teamwork, and the quality of team spirit are highly dependent on the collaboration and level of knowledge in the relationships of the team members. To answer the third research question, the true amount of information in organizations is quite impossible to define, as a significant part of it is tacit form. However, what can be subjectively measured is the amount of information that is normally included in the daily flow of information and knowledge within the organization.

## 4 METHODS AND DATA

The starting point for this study was that in the pre-pandemic world, a significant part of communication at workplaces took place informally in the hallways or at the lunch table. As the previous literature presented in the previous chapters proves, these informal occasions of communication are important to information sharing. Since the COVID-19 pandemic started, however, people have not seen each other in the hallways or lunch tables anymore, and the opportunities for informal communication have reduced. With this foundation in mind, the research problem of this study concerns whether the COVID-19 pandemic affected the information flow within an organization by forcing most communication to take place online.

### 4.1 Research questions

This problem is approached with three research questions. RQ1 is *What kind of an environment for communication does the organization create?* As was established in the theoretical framework for organization and communication, the relationship of the two is not something that could be easily simplified. Nevertheless, some characteristics in the organization, such as office spaces, policies, and media used for communication, do set up a framework in which the communication happens in the organization. RQ2 is *How do the organization members perceive the relationship between informal communication and information sharing?* Previous literature has proved that there is a strong relationship between informal communication and information sharing. The purpose for the second research question is to examine how that relationship is perceived, when the employees of CSC have worked remotely for over a year, and thus have not had the opportunity to communicate informally as often. Finally, the RQ3 is *How has the information amount and flow changed during the period of remote work?* The final research question takes a focus in information, and whether it has changed during the pandemic or adapted to the situation. For instance, what happened to the information that was previously shared informally in lunch tables and elaborated on formal communication? Did the information flow move to a new medium, or did it just stop existing during the pandemic?

### 4.2 Methodology and data collection

This study's research problem is located in the interface of organization, informal communication, and information sharing. Relationships between different phenomena could



be examined by collecting quantitative data (e.g. Polat et al. 2018). On the other hand, informal communication and interaction are often studied with qualitative methods, such as thematic analysis (Fay 2011) or interviews (Shehata et al. 2017). Nonetheless, the variety of potential methods for a research like this is diverse. However, this research aims to study whether there have been changes in information and its flow, as the pandemic has reduced the occurrence of informal communication. Change is often something that is subjectively perceived to happen, so this study approaches the research problem qualitatively with semi-structured interviews. The interviews were held in a semi-structured form in order to give the interviewees space to think out loud and set a perspective they find salient, as opposed to dictating the direction beforehand with a more structured approach (Barbour 2014).

However, even though the purpose of the interviews was to let the interviewees direct the conversation to a direction salient for themselves, I found it necessary to do some research in beforehand in order to phrase the best possible questions for the interviews. Leech (2002) claims that information that is known before the interview is as important as the information that one wants to gain from the interviews. According to Leech (2002, p. 665), what you already know determines how you will ask the questions in order to gain the wanted knowledge. Accordingly, I analyzed some existing data at CSC in order to gain a better understanding of CSC's present state in communication and information sharing. Furthermore, the data received from CSC was also helpful in identifying any existing issues relating to communication and information sharing that needed to be studied further. The surveys worked as a foundation for the semi-structured interviews by building a preliminary coding frame (Schreier 2012) and set the direction for the questions.

## **4.3 Data collection**

### **4.3.2 Background research**

CSC had conducted a few employee surveys during the pandemic time; an employee satisfaction survey, a working methods survey, and a survey on organization culture. Two of those surveys, the employee satisfaction survey and the organization culture survey, had open-ended questions that resulted in many answers regarding the organizational communication. The first survey—Pulse survey—is conducted annually, and it measures employee engagement, job satisfaction and organizational climate. The survey was conducted in September of 2020, when employees had worked remotely for approximately half a year. In total 90,2% (N=388) of CSC employees at the time answered the survey, which contained

39 questions in total, of which two were open-ended questions. The answers for open-ended questions could be analyzed in this study, but the rest of the data was confidential. The first open-ended question asked what the employees find in the need of improvement, and the second question was about what successes the employees identify at CSC. The second survey concerned organizational culture. It was conducted in January 2021, and had an answer rate of 78% (N=360) of the employees at the time. The survey investigated employee satisfaction and factors that employees found meaningful and motivating in their work. In addition, the survey had three open-ended questions: 1) What is going well 2) What could be improved, and 3) What could be even better. All data of the organizational culture survey was accessible, albeit only the open-ended-questions had yielded in results that related to this research.

In other words, all answers for the open-ended questions of both Pulse and organizational culture surveys were studied for this study's purposes. Combined, the surveys had approximately 1,000 answers in total that were all read and analyzed in order to first identify all answers that could provide relevant information for this study. All answers regarding internal communication and/or information flow were then classified according to a coding frame (Schreier 2012) to multiple main categories that were highlighted in the answers. In total, more than 450 answers (150 answers from Pulse survey and 300+ answers from organizational culture survey) were studied thoroughly to gain a better understanding of CSC's present state and environment for communication and information sharing. Understanding the premises for CSC's communication environment was beneficial in focusing the interview questions to suit the research questions best.

#### **4.3.2 The interviews**

The research data was conducted with eight (8) semi-structured qualitative interviews (see the interview questions in Appendix 1). The interviews were held in Finnish, and the length of the interviews ranged between 15 minutes to 1 hour. Before the interview the term 'informal communication' was explained to refer to spontaneous interaction with others without preset agenda or participants, and that it might relate either to work or personal subjects. All interviews were held virtually in Zoom. Unfortunately, some technical issues were faced with few participants, and one interview was significantly impacted by them: the interviewee fell offline a couple of times. Fortunately, all questions succeeded to be asked and answered eventually

The interviewees represented all eight units at CSC; five units focus on different business areas, and three on supporting the organizational functions, such as business infrastructure, strategy, and platforms. In addition, all interviewees work in a specialist position, and their employment at CSC ranged between 2 and 20 years. Managers have more meetings with other teams as well, so their position enables a stronger flow of information for them. Hence, it felt more suitable for this research to concentrate on the lower level of the organization structure, in order to study how information flows throughout the organization on all its levels, both vertically and horizontally. In addition, all interviewees have been working at CSC for at least a couple of years, which is long enough for them to become familiarized with their membership at the organization, and thus their typical pattern of communication had become somewhat a routine before the pandemic. It often takes time for a new employee to familiarize themselves with both their tasks and their employer, whereas someone who has been working in the organization for a while has probably stabilized their working and communication routines more likely. Hence, none of the interviewees were newcomers to the organization.

#### **4.4 Method of analysis**

As briefly discussed in the data collection subchapter, the survey data was analyzed using a coding frame, which is a central process Qualitative Content Analysis, also known as QCA (Schreier 2012). The research problem of this study is located in the interface of three concepts: organization, communication, and information flow. Together these three create a vast phenomenon, which easily leads to very diverse and rich data. QCA is a convenient method to study rich material, as it is useful in focusing to selected aspects that are relevant to the research (Schreier 2012). Furthermore, QCA is a suitable method to study material and data that requires interpretation,

QCA is often done in eight steps: deciding research question, selecting material, building a coding frame—the CSC surveys were implemented in this step, dividing material into units of coding, trying out coding frame, evaluating and modifying the coding frame, main analysis, and interpreting findings (Schreier 2012. p. 6). All interviews were recorded and transcribed. The coding frame was built in accordance with the themes that were highlighted in the surveys, and was applied to the data collected in the interviews, after which the coding frame was further improved. The rest of the analysis was done in accordance with the basic steps of QCA.

## 5 RESULTS AND ANALYSIS

### 5.1 The communication environment in the organization

#### 5.1.1 Formal and informal structure of the organization

What comes to the environment for communication, previous studies have shown that it is created in many organizational policies and actions, as well as in the hierarchical structure of employees (Lehtimäki 2016). The formal organization structure determines the team compilation as well as defines the team's function and purpose. However, the team managers as well as the team members can coordinate the details of how to best serve their purpose and meet their goals. According to one of the interviewees, this means that often workflows differ by teams and people: teams may choose which policies they implement in their work, how they manage documentation, and how they communicate with each other and to others. This results in a somewhat scattered organizational culture, and elaborates to the first research question that the communication environment is not solely created by the organization as an entity, but also by the smaller structures existing within the organization.

I: I have been at CSC for 20 years, and the strength of CSC is in the opportunities for people to change job descriptions. [- -] When you change position and team, it is like you change the entire firm. Even though the guidelines are the same for all, of course. And I have had about 20 superiors, and I can tell that none of them followed the guidelines like the others did. [- -] So, it is not a single organizational culture that exists there. [Answer translated by the author]

In addition to teams and team structures molding the communication environment, also individual positions were perceived as meaningful. Job descriptions and tasks were perceived to have an influence on how the interviewees interpret informal communication and information flow. For instance, one interviewee told that when they originally began working at CSC, their tasks focused on external communication. Afterwards they had transferred to a coordinating position, from which they had transferred to a specialist position. During the years of doing communication, they constantly strived to hear others' break room or lunch table conversations, in case the subjects would be something that need to be communicated at some point. After they had moved to a different position, they fell of the track of what is going on, as it was not as relevant for them to actively retrieve information.

One crucial factor to the formal structure of an organization is its size. CSC's fast growth during the last five years was identified as one of the biggest change-causing factors in the interviews. All of the interviewees that had been working at CSC for over five years

described that the communication culture has changed significantly ever since the organization started growing more. Before, when there were only a couple of hundred or less employees, the organization represented a family-like enterprise where everyone knew everyone and what their jobs were consisted of. In other words, CSC used to be small enough for the informal and formal structures to be alike. According to the interviewees, nowadays it is impossible to keep track of newcomers and even more difficult to know what they are doing. When asked if the person has experienced any changes in communication at CSC during their time of employment, most answers were in accordance with the following:

I: Well, you can definitely tell that the organization has grown, yes. Earlier we were more of a, how to describe it, more family-oriented, like everyone sort of knew who does what. But now we are more dependent on documentation. [Answer translated by the author]

Furthermore, it was perceived that the organization develops faster than what the communication is capable of following, meaning that the communication environment does not necessarily match the organization it exists in.

I: And when we are growing, of course the communication must change, because, and I am not entirely sure if it has, like, changed in the same pace than the organization has, because it still is like, still feels like in many cases you have to know who knows. And then sort of ask that person directly instead of going to intranet to search for it like “here I’ll find that information” [- -]. That like, I think, that nowadays the communication should be something that it wouldn’t be necessary for customer solution managers to wonder who would know about this [- -]. [Answer translated by the author]

Formal organization does not change only through growth, but also in organizational changes (Morrone 2006) that can alter either partly or entirely the organization’s structure, operational measures or goals, for instance. When asked, whether the interviewee believes that organizational changes have affected the changes in communication, they answered as follows:

I: Haha, yes! [laughing] What organiz-, we have an organizational change once in every six months, so. [laughing] Eeh, well. Well, you know, it has impacted it in a way that just when you learn what someone is doing, comes a change in the organization, and that person starts to work on something else. So, it has impacted it in a manner that a tacit organization is born in CSC, which means that we know the people who officially know about something. But at the same time, we know the people who actually know about it. So, we have this formal

organization and beneath it we have the real, substantive organization. [Answer translated by the author]

Organizational changes in structure—excluding the growth—were accordingly to the citation not found as too significant factor in changes of communication. However, the citation above indicates that the constant changes in organization make it harder for an informal organization structure to update itself with the formal organization. After all, as Rayudu (2010) argued, informal organizations are characterized by their instability in maintaining its structure through changes, which can evidently be seen in CSC's case as well.

Remote working has reduced informal communication significantly. It was perceived that the lack of informal communication has decreased collaboration and simple consultation of others at work. Rayudu (2010) describes that informal communication emerges from one's personal needs, and the same characteristic was implicated in the interviews. The interviewees explicated that before the pandemic, whenever they discovered a problem or a simple question that needs to be resolved in order to continue working, they would go to common break room, hoping for to see a person who could help them. Additionally, the interviewees identified same upsides of physical co-location with colleagues as Röcker (2012): when at the same space or nearby one another, one can just simply walk to someone's desk to see if they are available and ask for help, for instance.

I: Before, you could easily estimate, if this is such a matter that would be easier for me to write down in chat or is it something that would rather be dealt with by walking 5 meters to ask or comment. And that, that is what everyone is doing at work all the time, that sort of evaluation of how to be in contact. Now the possibility to, to physical interaction has disappeared, which then again decreases the work efficiency. [Answer translated by the author]

As mentioned in the citation above, the pandemic has reduced the media alternatives for communication, which now relies completely on computer-mediated systems. The interviewees perceived that all informal and spontaneous communication, if any of it is initiated, had been moved to the internal chat service, Rocket. Chat, or to meetings. Nonetheless, none of the interviewees perceived that the physical informal interaction had been sufficiently replaced by computer-mediated communication.

Li et al. (2011) argue that instant messaging at workplace supports informal communication, but it can be interruptive as well. One of the interviewees described that they have to

constantly use the ‘do not disturb’ status in Rocket.Chat, as otherwise they would be repeatedly interrupted by messages. However, they compared the interruptions in Rocket.Chat to be similar with the interruptions that occur at the office, when someone comes by to ask a quick question, thus breaking one’s concentration. Moreover, it was found much easier to focus on work at home than at the office. Interviewees perceived that they enjoy performing their tasks more when they can fully concentrate on them without any interruptions. After all, it is possible to turn off email and instant messages and thus reduce IT interruptions (Addas & Pinsonneault 2015). Correspondingly, the interviewees found it as a relief that now they are not surrounded by any noise, or teammates or colleagues discussing. At the office they would constantly hear colleagues talking without actively listening (Röcker 2012), which would decrease their efficiency. At home, however, they had no such issues.

I: And now, at this instant, when I am supposed to concentrate on [specified task], I see informal communication as baggage. That is why I enjoy working from home so much with headphones on, and I can concentrate exactly on this matter, and I do not need to, um, I do not need to try and follow everything that is happening around. [Answer translated by the author]

This finding is a good reminder that all coins have two sides: the organization might build any kind of an environment for communication, but using it is still an individual’s decision. Even if the environment was built to support especially informal communication, the organization cannot force its employees to communicate any more than is necessary to get their work done.

### **5.1.2 Meetings**

When the interviewees were asked if they had experienced any changes in communication during the time they had been working at CSC, nearly all immediately mentioned the obvious change: ever since the pandemic was declared, all meetings had gone virtual. However, moving from offline to online was not the only change that was perceived in meetings. Meetings have now become the main form of interaction according to the interviewees. In addition, the contacts that the interviewees used to have at the office have decreased significantly. Such contacts are, for instance, people who would have their work station nearby, but with whom the interviewees do not collaborate with. Moreover, the people that the interviewees currently see in meetings forms nearly the entire information and

communication network the interviewees now have. Thus, the interviewees' view to the whole organization has decreased and compressed, as their network has reduced.

I: Mm, it has kind of changed a lot actually, that when there are people that you saw then, on a daily basis, at least when you were at the office. But now, you don't see them anymore, because we don't have any common meetings. [Answer translated by the author]

Rogelberg et al. (2007) argue that the number of meetings can increase if the organization is going through changes. The same is found in this research—changing from a traditional on-premises organization to a virtual organization over one night is quite a change. According to the interviewees, the threshold for keeping meetings seems to have lowered during the remote period: for those employees whose work is at least partially done in collaboration with others have to do and process everything in meetings now. Additionally, meetings were considered to have 'opened up' during the pandemic, referring to the number of participants.

I: [M]eetings are, now that they are arranged remotely, they are also more publicly invited than before. I think. [Answer translated by the author]

However, without any informal interactions at the office, there is no opportunity to spontaneously suggest if one could join a meeting that they find potentially relevant, as there is no more informal communication where one could hear about such occasions. Instead, the arranger of the meeting simply invites everyone who they perceive to be likely interested to join the meeting, consequently leaving some interested or relevant employees out.

I: It is, the information exchange has compressed. It might have been focused on people who are like, assumed to be interested of the matter at hand. So, there is no, like, spontaneous "hey this meeting sounds interesting, can I come too?" type of thing. So, the invitees are those, who the arranger thinks could be interested. [Answer translated by the author]

The pandemic and remote work have impacted the culture around meetings as well. The length of meetings is perceived to have shortened, possibly due to the increased frequency of meetings. People are trying to avoid too many meetings during workdays. Nonetheless, meetings are found exhausting. Zoom meetings are not only used for formal meetings, but for informal interaction as well. Correspondingly with the arguments by Allen et al. (2014), meetings can be arranged for various reasons, especially now that the pandemic has reduced the possible channels for communication. All of the eight interviewees mentioned informal coffee breaks, albeit it seems to depend quite heavily on the team culture and manager if such informal meetings are arranged. However, these coffee breaks are not perceived to be a valid



replacement for coffee breaks at the office. According to the interviewees, it simply is not the same.

I: When it happens, for instance a coffee break via Zoom. Just yesterday on some coffee hour I thought that it is sort of more forced. That you have, for instance, a coffee break with your own team and then everyone sits in the same coffee room in Zoom, chitchatting. But in practice, if you were at the office, you seldom sit with the entire team having coffee. Like, the persons participating, it varied more. [- -] but now it is like such that you have ten people, then it begins NOW and then you talk. Everyone listens to everyone. And when only one at a time can talk, then you have to listen to them. [Answer translated by the author]

The quote above summarizes what seems to be a common challenge in Zoom: the technology only supports one speaker at a time. The microphones amplify any sounds that can be heard from any participant or their background. Hence, only one person can talk at a time, even if the Zoom meeting had hundreds of participants, lowering the efficiency of communication, and promoting inequality among meeting participants (Siegel et al. 1986). Often this leads to people keeping their microphones on mute as well as cameras off. Exchanging ideas spontaneously and ‘thinking out loud’ were identified as challenges in online meetings by the interviewees, which is in accordance with the arguments by Hightower and Sayeed (1995) and Röcker (2012), that computer-mediated communication is not as effective as face-to-face communication. One of the interviewees described the compared inefficiency of virtual meetings as following:

I: It feels like, from the top of my mind, that sometimes it might be so that the meeting could be shorter if it was held face-to-face or that some matter could be gone through faster. [- -] Also, in online meetings it is more focused on like, one could use a metaphor that the lane by which communication happens is narrower compared to face-to-face meetings, like face-to-face meetings have more capacity in the communication channel. [Answer translated by the author]

Even though online meetings are perceived to be less efficient, the interviewees perceived that meetings are now more focused on the content determined in the agenda, leaving less room for a freer discussion and exchange of ideas. Poole (2015) argues that innovation happens especially in informal communication, which according to the interviewees, does not occur in online meetings as much. Kraut et al. (1988) argue that often people become more frustrated with video conferencing systems the more they use it, which could explain the phenomenon of agenda being more formal and focused. Few of the interviewees have

experienced that not so many ideas come up anymore at meetings, and that some relevant information and perspectives tend to stay in ‘blind spots’ that would possibly be found if the meeting was arranged face-to-face. The little emergence of ideas was associated with the agenda-oriented focal point.

I: [F]eels like that in these online meetings information is left in a blind spot, but in a face-to-face meeting it could just pop-up by itself [- -]. [Answer translated by the author]

In summary, one of the biggest perceived changes in the organization’s environment for communication was in meetings. Most of the face-to-face communication that used to take place at the office took a new place in meetings during the pandemic. In addition, meetings have become more focused on the agenda, yet less innovative. What comes to RQ1, seems that the pandemic has changed the environment for communication in more than just by changing the media to meetings: the new environment, which is mainly built around meetings, does not support informal communication nor informal organization.

### **5.1.3 Silos**

In the Pulse and organizational culture surveys that CSC had conducted before this study, silos were repeatedly mentioned as issues that need to be fixed. In the survey answers, the formation of silos was linked with the poor communication between different teams and units by the employees, corresponding with the view by Roberts (2011). The interviews aimed to get a deeper insight into the formation of silos and how they are actually perceived.

Surprisingly, when the interviewees were asked how they perceive silos and what causes them, all of them questioned the perception of silos being such a problem that is impossible to overcome. As a matter of fact, one of the interviewees had never heard the term being used before but identified the phenomenon after it was explained to them, although they did not find that silos would interfere with their work at all. For the other seven interviewees, who were familiar with the term, the question created a somewhat amused response. Undoubtedly the subject was found difficult, and the answers varied, albeit there were a few significant similarities.

I: Somehow, I have like, I have thought of it as relevant to human characters. That, if we are divided to a certain group that collaborates more with each other and less with others, then it happens that this group has conversations within itself more. It is not, it just happens that

when an organization is built, boxes are made. And then people are put into those boxes. And this is how the silos are made. [Answer translated by the author]

None of the eight interviewees denied the existence or problematic nature of silos. Nonetheless, silos were simply interpreted to be a natural phenomenon in an organization of this size, corresponding with Willcock's (2013) interpretation. In accordance with Willcock (2013), the interviewees acknowledged that the organizational structures exist for a reason—to support the work efficiency of teams and individuals in an environment that is relevant for their work—thus, regular interaction between all teams in the organization is simply not necessary. In addition, it was specified that it would be impossible for everyone to know about everything that is happening within the organization, at least without using a significant part of their working hours to stay on track about everything.

I: When, however, one person cannot know everything, that is going on at CSC, so why would that one person then be given so much information. Because, from all the information that is flowing in CSC, I maybe need like one per mille for my work. Maybe two per mille, if I am interested of something, and then the one per mille would go to work and the other per mille just because I am curious or interested. So, all of the rest is just noise to me. [Answer translated by the author]

In addition to finding silos inevitable, one of the interviewees described that for as long as they had worked at CSC—20 years in their case—they had heard talk and complaints regarding silos. According to them, they began working at CSC when it had less than 100 employees, which is approximately 20 per cent of the current size of CSC. The interviewee speculated that silos are a safe subject to criticize and they feel that it has become a narrative that is told to every newcomer as well, which consequently gives them the illusion that silos are a significant problem at CSC, creating a continuous curve in the perception of silos. Linde (2009) argues that organizational memory is maintained with narratives, and if silos create a consistent narrative throughout the organization, it is possible that the perception of siloed culture lives in the organizational memory and remains as a topic of discussion regardless of how much issues silos are causing at the time.

On the other hand, regardless of the finding that silos appear to be not as significant problem as it was expected on account of the employee surveys, the interviewees identified same risks and inconveniences as Roberts (2011), Ahsan and Panday (2013) and Hwang and Krackhardt (2020). One of the interviewees specified that silos are not an obstacle to work, instead they are delay elements: it would be more efficient if teams knew who else is working on a similar

project, so that they would not need to reinvent the same solution individually. Such problems as doing duplicate work (Ahsan & Panday 2013), and missing opportunities for discussing with others who are working around the same subject were acknowledged.

Other causes for silos, in addition to the organizational structure hierarchy, were found in the extraordinary pace of growth. During the last five years, CSC has doubled in size. During the remote working period and the pandemic, more than 100 new employees have begun working at CSC, and most of them are yet to meet their teammates and other colleagues in person. The growth of the organization was perceived to make the search for information or a suitable expert more difficult, as everyone does not know everyone personally in the organization anymore. Thus, it takes more effort and time to find the right person in the organization to help or to answer one's questions. The pandemic and remote working were perceived to have an expanding impact on silos as well. The interviewees found that without the opportunity to informal interaction with others in person, the boundaries between different teams and units seldom get crossed, and the 'walls' of the silos grow taller.

I: They [silos] are people's fault. I kind of understand why people think that the organization is siloed. It is because of communication, like how we communicate about our work. If for example one does not know that the other might be doing something that is relevant for them too, well then, they might start doing the same. And when the other one does not know about it either, then they are working in silos. [Answer translated by the author]

The interviewees found that the communicative culture, or lack thereof, causes the formation of silos. It was found that in accordance with the current communicative culture, people share their work with others only when it is finished. If the projects and ideas were shared with others whilst they are still being worked on, more discussion and exchanging ideas would occur, and it would reduce the risk of duplicate work, which corresponds with the previous research by Ahsan & Panday (2013).

## **5.2 The relationship between informal communication and information sharing**

As the pandemic changed the communication environment, there is not many opportunities for informal communication in remote work. Nonetheless, all interviewees perceived that they are still able to perform their tasks as well as they did before remote work, and formal communication provides them enough information to sufficiently perform their tasks. On the other hand, they identified that at the same time, even though they are happy with the

situation, without informal communication *they do not know what they do not know*. It was perceived that in informal communication such matters come up more often. When asked about the significance of informal communication in both performance and well-being, one of the interviewees replied as follows:

I: It is useful in both aspects. And probably, hm, well the thing is that I do not know what I do not know or what I am missing, so it could be even more useful, also for work too, possibly.  
[Answer translated by the author]

Nevertheless, the interviewees find that with informal communication they discover common interests and projects at hand, become more familiar with each other's work, and get information in advance that would eventually be formally communicated later. The interviewees' experiences were corresponding with previous literature (e.g. Cannon-Bowers & Salas 2001; Ahsan & Panday 2013), that through interaction organizational members gain knowledge regarding one another's competence and expertise. Furthermore, the interviewees perceived that in order to find information at CSC, 'one must know who knows'. It was found more efficient to find information by using informal network than trying to use organization's databases or formal communication. This finding is in line with Poole's (2015) argument that information moves faster and is more trusted in informal networks.

All of the eight interviewees perceived that the formal communication network they have, consisting of people that are relevant to their tasks or other work performance, has remained the same during the pandemic, compared to what it was before remote working. However, seven of the eight interviewees experienced that a significant decrease in their informal communication network has happened during the pandemic. That is, all of them had informal networks at the office, formed in the break room, lunch tables, or the people located nearby at the office, for instance. The informal network, as Rayudu (2010) suggested, had not been able to preserve its structure through change. One of the interviewees described this change by saying that nearly all 'humane encounters' have vanished.

I: Maybe I used to go say hi to some people that I have like worked together at some point or something. Like sometimes I was like I am going to walk around a bit and see how some people are and go say hi or something. Now there is nothing like that. People like them I have not like, I do not know how they are nor and I haven't seen them for over a year. [- -] But those, kind of like humane encounters have vanished mostly. [Answer translated by the author]

Willcock (2013) argued that individual personality traits determine how much people seek for interaction. All interviewees explained changes, or lack thereof, in their perceived communication and interactions either by looking back at oneself or others. For instance, couple of the interviewees described that they find it very easy to be in contact with others and ask, if they need something. One interviewee on the other hand told that they come across insecurity when they have to reach out to someone in Rocket.Chat if they do not know that person in beforehand.

I: Like, it is much easier to reach out to a person you know, rather than someone who does not have a face or that is just a name. [- -] And, well, it sort of is because when the other does not know me, then how will they interpret it or will they understand that I mean well. [laughter]. In that sense it is always easier to work with people whose face you have seen [in Zoom] or even in person. [Answer translated by the author]

The citation above represents one crucial factor to be taken into notice when considering communication networks. The fast growth of the organization, during the pandemic as well, has brought more new employees to CSC that other organizational members have not met thus far. Just as in the citation above, the threshold for communication might not be equally high towards all other colleagues, but rather concern only people who are, in theory, pure strangers. Hightower and Sayeed (1995) argue that computer-mediated communication requires more effort for people to reach a common level of understanding, so it seems natural that achieving efficient communication is particularly hard in cases when you have hardly even heard about someone before having to communicate with them in virtual channels. This finding mainly indicates that there are major difficulties in building new communication network while working remote.

The expectations and hopes for the future—the time when COVID-19 is no longer an acute pandemic—of information sharing and communication at CSC varied from hopeful optimism to quite pessimistic and assuming that nothing will ever change. However, all interviewees saw the future working to be more often remote and become the new normal. Furthermore, the interviewees saw informal communication as something that will be invested in, so that the communication environment will be richer and ensure that everyone at CSC have a channel to receive and share information.

To simply answer the RQ2, the organization members do find informal communication as significant in information sharing. However, it seems that when informal communication

would normally compensate the flaws in formal communication (Poole 2015), formal communication stepped in during the pandemic and helped to maintain a fluent information flow that supports efficient working and good work performance. However, the formal communication has not replaced the informal communication any further from what has been necessary under the pandemic conditions, and information is shared in less occasions. The reduced occasions for information sharing result in uncertainty of what information might be missed, and what could be relevant for one to know.

### **5.3 Changes in the amount and flow of information**

Information adequacy, the extent to which organization members perceive to be informed about organization-wide matters, personal performance, and social information (Ugbah & Dewine 1989) was high in the aspects of organization-wide matters and personal performance. None of the interviewees said that the pandemic had affected information flow in a manner that would impact their work performance negatively. As a matter of a fact, couple interviewees perceived that nowadays they receive even more information, albeit they had become more active in seeking information themselves.

I: Actually, I feel like I receive more information now. It is more focused, which is partially because the background noise being left out, when I need more precisely, what I need. [- -] This sort of, like, time management is much more efficient during the pandemic time than before. I get more information, because I can retrieve and follow it more sensibly. [Answer translated by the author]

The information was perceived to have become more compressed and focused. Some interviewees, those in particular whose work included less collaboration with others and more focus on details, found this as a positive improvement: it is easier for them to identify the information they need in performing their tasks. On the other hand, none of the interviewees experienced that they would know any more than they need to know about what is happening in the organization. This indicates that even though the information adequacy was high in organization-wide matters, the social information is lacking during the pandemic time. All interviewees mentioned that without informal communication and interaction with people from their regular informal network, they do not hear from the grapevine and thus are not sure, what information exactly they are missing. However, the interviewees still acknowledged that something is missing from the remote information flow as opposed to the one at the office.

One of the interviewees explained correspondingly with Chisholm (1989) that without informal communication the flow of information has slowed down. Furthermore, the interviewees found that information has become more serious during the pandemic. This is in accordance with former literature, as Siegel et al. (1986) found that computer-mediated communication might lead to depersonalized interaction. However, simultaneously the growing organization was perceived to be too big to keep track of. Furthermore, it seems that the amount of information itself has increased, as the organization keeps growing and is thus creating more knowledge (Nonaka & Takeuchi 1995), but due to the pandemic, less of that knowledge is included in the information flow, and thus stays unknown for most of the organization.

I: And of course, CSC has grown during my time here, like tripled in size, when I came here there were like 50 people, but I can't say that I knew all of them, but at least I felt like I knew what is happening at CSC. But at this point you have just lost the track. Like, so much is happening at CSC that you do not know about it all. [Answer translated by the author]

Sharing and receiving information was highly associated with documentation by the interviewees. Furthermore, the role of documentation in information sharing is highlighted, because there are so little occasions when information could be shared in interaction with others. The fast growth of CSC as well has highlighted the importance of documenting knowledge and information to the shared platforms, as more and more people need to find information somewhere. The ability to share knowledge within the organization is a crucial factor in success (Hwang & Krackhardt 2020), and the organizational memory exists in documentation and common platforms (Moorman & Miner 1998). According to the interviewees, the problem at CSC is not in the documentation itself. Moreover, the problem is in the variety of platforms to use for documentation, as individuals use them according to their own preferences—different platforms are used to serve similar purposes—and five hundred employees can have very diverse preferences. Hence, the retrievability of information is not ideal. In addition, various organizational changes that are made at CSC, in both unit-wise and team-wise, leave information hidden, thus aggravating the situation.

I: Information is left tacit. [- -] The information is there, but when a new formal organization is put on top of it, there is not left any time for a knowledge base to be formed in the new organization. And that can cause problems. [Answer translated by the author]

Due to the increase in employees, it has become more challenging to find the right person at CSC, who has the knowledge that is being looked for. Furthermore, the interviewees find that



the organizational changes in structure make it difficult to maintain an understanding who is supposed to know what. Tacit knowledge regarding others (Baumard 1999), or the knowledge about teamwork (Cannon-Bowers & Salas 2001) seems to be significant for all interviewees in the search for information. This highlights the importance of informal communication networks at workplaces, as such knowledge is acquired in informal communication (Kraut et al. 1988; Ahsan & Panday 2013). The interviewees described that it is, or would be, much easier to ask the person who knows the answer to their question directly, instead of searching for the answer from all possible platforms. Furthermore, this was emphasized by the perception that the interviewees cannot be certain that the information they need truly is documented somewhere.

The flow of information was perceived to have changed during the pandemic. The interviewees perceived that the information flow had moved almost entirely into formal channels, whereas some of it happened in the co-located office spaces in the hallways or lunch tables. In addition, more information exists within the organization, but less information becomes flowing: the information flow has become more focused. The interviewees described that information has become much more focused in two ways. Firstly, information focuses more on the subject at hand and contains less background noise—just as in meetings, for instance. Secondly, the flow of information was perceived to be compressed as well to concern only people, who are thought to be relevant.

I: In the future it must be invested that information is not flowing only in, that information does not only flow in gestures. And like in the small talk in conference rooms, but it needs investment that information flow becomes more formal, sort of. Well, maybe not more formal but like, what we have learned and built during the pandemic that many will certainly be dependent of in the future. [Answer translated by the author]

To summarize the changes in the flow of information during the pandemic, its dynamics have certainly changed, even though the flow never stopped. Informal information or the grapevine diminished during the pandemic, whereas the formal and organization-wide information increased in two senses. First, the pandemic required more informing about the organization's policies and actions in the exceptional circumstances. Second, the lack of informal interaction forced employees to adapt and change their methods of gaining necessary information. Thus, similar to the phenomenon communication has gone through, the information flow is now more focused and work-oriented.

## 6 DISCUSSION

### 6.1 Conclusion

The first research question studied the communication environment in organizations. Previous studies have shown that the organization's hierarchical structure, policies and operations all mold the environment for communication to best serve the organization's goals. Furthermore, the channels and media used in communication are often defined by organization as well as the culture—that is, until COVID-19 pandemic arrived and changed the system completely. CSC had to move its operation as well as communication to a virtual form in order to enable social distancing. In the pre-pandemic time, the communicational environment of CSC was defined by not only policies and communication technology used, but also office spaces, break rooms, coffee tables and work stations, in which information was gained and shared in informal interaction. The results of this study indicate that even though the formal organization of CSC was able to make a change overnight, the informal organization failed to sustain its capacity, as could be expected from previous literature (Rayudu 2010). Moreover, the results of this study show that without the informal organization and spontaneous interactions or occasions, the occurrence of innovation and efficiency of collaboration have reduced, as online communication cannot replace face-to-face communication to reach the same level of informal communication. In order for organizations to create a similar environment for communication in both co-located and virtual forms, informal communication needs to be maintained and preserved, as the informal organization is very beneficial to the organization's success, and creates a space for better information flow.

The second research question aimed to understand, how the organization members at CSC perceive the relationship of informal communication and information sharing. This relationship had been established in previous literature, and correspondingly the interviewees in this study found that informal communication is significant in information sharing. However, there seems to be a gap in literature on informal communication and information flow in virtual context. This research contributes to that gap, and the results indicate that without co-location the informal communication indeed had decreased, and the informal interaction that still occurs happens most likely within one's formal communication network. The change in informal communication has influenced the flow of information in a manner that the flow is narrower and more focused now, and less information is shared in person as

less interaction happens, thus emphasizing the importance of documentation systems in an organization operating in virtual environment.

The third research question studied, how information amount and flow have changed during the remote work. The amount of information has on one side grown, as more information and knowledge are created at CSC as more employees join the organization. On the other hand, however, the amount of information has decreased, as it drops out the from the flow of information, which is now more formal and focused on organizational context, and emerges mainly when it is topical. That is, before the pandemic one could hear information through the grapevine in advance, for instance what kind of a project will begin in the upcoming future. In addition, the information was found to be less accessible without informal communication maintaining a conception of who knows what or where what information is stored, for instance. The information flow has moved from the informal interactions to formal channels, where its nature has become more formal and focused to work-related matters as well.

The supply of literature on organizations, communication, and information exchange is very high. However, there seems to be very little research that would have studied these themes together and the relationship between them. As the results of this study demonstrate, organizations, communication and information exchange are constantly overlapping. Issues occurring in one aspect can rarely be fixed by focusing only in that aspect. For instance, silos were seen to be the result of teams not communicating enough with each other. However, inter-team communication is further challenging due to the organization's fast growth, and the difficulties of knowing everyone or every team in the ever-changing organization, which in turn could be improved by better retrievability of information and coordinated documentation. Hence, it was important that this research studied these three phenomena together in order to gain more knowledge of how they interact with one another. Understanding this helps organizations to become more efficient and successful. Furthermore, the more is understood of the relationship between organization, communication, and information flow, the more studies can be conducted with more precise focus.

This study provides new knowledge to the theoretical framework. First of all, not much research has been done regarding organization silos, let alone their origins. This study resulted in better understanding of silos' cause and impact to the organization. In addition,

this study's results pointed out the interruptive nature of informal communication at the office, for instance going by to one's desk to ask a quick question, thus disturbing one's concentration to work. To the best of my knowledge, no previous literature has focused on this characteristic of informal communication and how it might be just as interruptive as instant messaging or virtual communication that is found by Kraut et al. (1988) and Li et al. (2011).

## **6.2 Limitations**

What comes to limitations, this study came across few. First of all, the data is based on the interviewees' experience of sharing information and communication. All interviewees had different backgrounds and personalities, and as Willcock (2013) stated, personality traits have a great impact on how communication is perceived in the first place. Few of the interviewees kept to themselves and they even described that they seldom participated in informal communication anywhere else than during lunch, unless they needed someone's help. In addition, as the substance competence of the interviewees were not in informal communication and knowledge or information sharing, their connotations of these themes and terms might be very different, which can show as a bias in their answers.

Secondly, there were some conflicts between the results that were conducted from the employee surveys and the ones from the interviews, for instance silos were identified as a big issue in the surveys, but in the interviews, they were not found as very significant issues although they were acknowledged as inconvenient. In order to understand these differences better, a larger sample would be necessary. Finally, this research was done when the pandemic had continued for over one year. In that time, organization and its members have had the time to adapt to the situation and modify their ways of working to suit the requirements of their new working environment better. On the other hand, the longer time period of remote working might have conducted more valid insights, as the interviewees have had the time to form perceptions regarding their work. In turn, the somewhat stabilized situation might have created a bias to these perceptions, as the beginning of remote work is not so fresh in their memory anymore.

### **6.3 Future research**

This research was conducted on data gathered from a sample that had been working at CSC for some time before the pandemic. However, more than 100 new employees have begun working at the CSC during the remote period of work. Their perceptions of informal communication and informal network, or lack thereof, could differ significantly from the ones that were found in this study. Furthermore, this research found that maintaining an informal communication in remote work is difficult. Future research could address this finding more from a new employee's point of view: if maintaining a communication network is difficult, how does one build one from the scratch in a new organization? This could be studied with a similar study than this, but by collecting a sample from people who have begun their work in an organization completely remote.

In addition, this study paved the way to studying silos more closely. Silos are undeniably a complex phenomenon that is perceived very individually, but their impact in organization's operation and inter-team collaboration should be studied further in order to learn how to better dissolve silos in an organization. Future research could be conducted in the interruptive nature of informal communication at co-located organizations as well, as this research could not address it further. Finally, the relationship of informal organization and changes in the formal organization. As was established in this study, the informal organization might face challenges in meeting the changes happening in formal organization, if organizational changes are made constantly. This dynamic could be studied further,

## 7 REFERENCES

<https://www.csc.fi/en/csc>, referred 31.08.2021

Ackerman, M. S. & Malone, T. W. (1990) Answer Garden: a tool for growing organizational memory. *SIGOIS bulletin*. [Online] 11 (2-3), 31–39.

Addas, S. & Pinsonneault, A. (2015) The many faces of information technology interruptions: a taxonomy and preliminary investigation of their performance effects. *Information systems journal* (Oxford, England). [Online] 25 (3), 231–273.

Ahsan, A. H. M. K. & Panday, P. K. (2013) Problems of Coordination in Field Administration in Bangladesh: Does Informal Communication Matter? *International journal of public administration*. [Online] 36 (8), 588–599.

A. Allen, J. et al. (2014) Understanding workplace meetings: A qualitative taxonomy of meeting purposes. *Management research review*. [Online] 37 (9), 791–814.

Ballard, D. and Gomez, F. (2006), “Time to meet: meetings as sites of organizational memory”, In: Parker, Crawford and Harris (Eds.) (2006), *Time and Memory*, 303-314.

Barbour, R. (2014) *Introducing qualitative research: a student’s guide*. 2nd edition. Los Angeles, CA: SAGE Publications, Inc.

Bartol, K. M. & Srivastava, A. (2002) Encouraging Knowledge Sharing: The Role of Organizational Reward Systems. *Journal of leadership & organizational studies*. [Online] 9 (1), 64–76.

Baumard, P. (1999) *Tacit knowledge in organizations*. London: Sage Publications.

Cannon-Bowers, J. A. & Salas, E. (2001) Reflections on Shared Cognition. *Journal of organizational behavior*. [Online] 22 (2), 195–202.

Cegarra-Navarro, J.-G. & Martelo-Landroguez, S. (2020) The effect of organizational memory on organizational agility: Testing the role of counter-knowledge and knowledge application. *Journal of intellectual capital*. [Online] 21 (3), 459–479.

Chisholm, D. J. (1989) *Coordination without hierarchy: informal structures in multiorganizational systems*. Berkeley (Calif.): University of California Press.

- Chung, H.-F. et al. (2015) Factors affecting knowledge sharing in the virtual organisation: Employees' sense of well-being as a mediating effect. *Computers in human behavior*. [Online] 4470–80.
- Davenport, E. (2001) Knowledge management issues for online organisations: 'communities of practice' as an exploratory framework. *Journal of documentation*. [Online] 57 (1), 61–75.
- DeSanctis, G. & Monge, P. (1999) Introduction to the Special Issue: Communication Processes for Virtual Organizations. *Organization science* (Providence, R.I.). [Online] 10 (6), 693–703.
- Dobosh, M. A. et al. (2019) Small group use of communication technologies: a comparison of modality on group outcomes. *Communication research reports*. [Online] 36 (4), 298–308.
- Fay, M. J. (2011) Informal communication of co-workers: a thematic analysis of messages. *Qualitative research in organizations and management*. [Online] 6 (3), 212–229.
- Hau, Y. S. et al. (2013) The effects of individual motivations and social capital on employees' tacit and explicit knowledge sharing intentions. *International journal of information management*. [Online] 33 (2), 356–366.
- Henttonen, K. & Blomqvist, K. (2005) Managing distance in a global virtual team: the evolution of trust through technology-mediated relational communication. *Strategic change*. [Online] 14 (2), 107–119.
- Hightower, R. & Sayeed, L. (1995) The impact of computer-mediated communication systems on biased group discussion. *Computers in human behavior*. [Online] 11 (1), 33–44.
- Holmes, J. & Marra, M. (2004) Relational practice in the workplace: women's talk or gendered discourse? *Language in society*. 33 (3), 377–398.
- Hwang, E. H. & Krackhardt, D. (2020) Online Knowledge Communities: Breaking or Sustaining Knowledge Silos? *Production and operations management*. [Online] 29 (1), 138–155.
- Juholin, E. (2017) *Communicare!/: viestinnän tekijän käsikirja*. Seitsemäs uudistettu laitos. Helsinki: infor.
- Krackhardt, D. and Hanson, J.R. (1993). Informal networks: the company behind the chart. *Harvard Business Review*. [Online] 71(4), 104–111.

- Kraut, R. et al. (1988) 'Patterns of contact and communication in scientific research collaboration', in Proceedings of the 1988 ACM conference on computer-supported cooperative work. [Online]. 1988 ACM. pp. 1–12.
- Lammers, J. C. & Barbour, J. B. (2006) An Institutional Theory of Organizational Communication. *Communication theory*. [Online] 16 (3), 356–377.
- Leech, B. L. (2002) Asking Questions: Techniques for Semistructured Interviews. *PS, political science & politics*. [Online] 35 (4), 665–668.
- Lehtimäki, H. (2016) *The Strategically Networked Organization: Leveraging Social Networks to Improve Organizational Performance*. Bingley: Emerald Group Publishing Limited.
- Leistner, F. (2012) *Connecting organizational silos: taking knowledge flow management to the next level with social media*. Hoboken, N.J: John Wiley & Sons.
- Li, H. et al. (2011) Exploring the impact of instant messaging on subjective task complexity and user satisfaction. *European journal of information systems*. [Online] 20 (2), 139–155.
- Linde, C. (2009) *Working the past narrative and institutional memory*. Oxford: Oxford University Press.
- McPhee, R. & Zaugg, P. (2009) The communicative constitution of organizations: a framework for explanation. In: Putnam, L. & Nicotera, A. M. (eds.) (2009) *Building theories of organization: the constitutive role of communication*. New York: Routledge.
- Milne, P. (2007) Motivation, incentives and organisational culture. *Journal of knowledge management*. [Online] 11 (6), 28–38.
- Moorman, C. & Miner, A. S. (1998) Organizational Improvisation and Organizational Memory. *The Academy of Management review*. [Online] 23 (4), 698–723.
- Morrison, M. (2006) *Knowledge, scale and transactions in the theory of the firm*. Cambridge: Cambridge University Press.
- Mroz, J. E. et al. (2018) Do We Really Need Another Meeting? The Science of Workplace Meetings. *Current directions in psychological science: a journal of the American Psychological Society*. [Online] 27 (6), 484–491.



- Nonaka, I. & Krogh, G. von (2009) *Tacit Knowledge and Knowledge Conversion: Controversy and Advancement in Organizational Knowledge Creation Theory*. *Organization science* (Providence, R.I.). [Online] 20 (3), 635–652.
- Nonaka, I. & Takeuchi, H. (1995) *The knowledge-creating company: how Japanese companies create the dynamics of innovation*. New York: Oxford University Press.
- O'Dell, C. S. & Hubert, C. (2011) *The new edge in knowledge: how knowledge management is changing the way we do business*. Hoboken, N.J: Wiley.
- Picardi, R. P. (2001) *Skills of Workplace Communication: A Handbook for T and D Specialists and Their Organizations*. Westport: Greenwood Publishing Group, Incorporated.
- Pilny, A. et al. (2020). *Team Coordination in Uncertain Environments: The Role of Processual Communication Networks*. *Human Communication Research*. 46 (4), 385–411.
- Polat, V. et al. (2018) *Formal and Informal Communication in New Product Development Teams: The Mediation Effect of Team Trust*. *International Journal of Innovation* (São Paulo). [Online] 6 (2), 97–111.
- Poole, M. S. (2011) *Team Cognition, Communication and Sharing*. In: Salas, E, Fiore, SM, & Letsky, MP (eds) 2011, *Theories of Team Cognition: Cross-Disciplinary Perspectives*, Taylor & Francis Group, London. [Online].
- Poole, M.S. (2015) *Communication*. In: Cooper, C. (ed.) *Wiley Encyclopedia of Management*. John Wiley & Sons, Ltd. (2014). Volume 11. [Online] <https://doi.org/10.1002/9781118785317.weom110125>
- Porter, C. E. (2004) *A Typology of Virtual Communities: A Multi-Disciplinary Foundation for Future Research*. *Journal of computer-mediated communication*. [Online] 10 (1), 00–00.
- Putnam, L. & Nicotera, A. M. (2009) *Building theories of organization: the constitutive role of communication*. New York: Routledge.
- Rayudu, C. S. (2010) *Communication*. Rev. ed. Mumbai [India: Himalaya Pub. House.
- Reychav, I. & Te'eni, D. (2009) *Knowledge exchange in the shrines of knowledge: The 'how's' and 'where's' of knowledge sharing processes*. *Computers and education*. [Online] 53 (4), 1266–1277.

- Rogelberg, S., et al. (2007). The Science and Fiction of Meetings. *MIT Sloan Management Review*. 48 (2), 18–21.
- Roberts, N. C. (2011) Beyond Smokestacks and Silos: Open-Source, Web-Enabled Coordination in Organizations and Networks. *Public administration review*. [Online] 71 (5), 677–693.
- Röcker, C. (2012) Informal communication and awareness in virtual teams. *Communications in Information Science and Management Engineering*. 2 (5), 1–15.
- Schreier, M. (2012) *Qualitative content analysis in practice*. Los Angeles: Sage.
- Shehata, A. et al. (2017) Changing styles of informal academic communication in the age of the web: Orthodox, moderate and heterodox responses. *Journal of documentation*. [Online] 73 (5), 825–842.
- Siegel, J. et al. (1986) Group processes in computer-mediated communication. *Organizational behavior and human decision processes*. [Online] 37 (2), 157–187.
- Stasser, G. & Titus, W. (1987) Effects of Information Load and Percentage of Shared Information on the Dissemination of Unshared Information During Group Discussion. *Journal of personality and social psychology*. [Online] 53 (1), 81–93.
- Streatfield, D. & Wilson, T. (1999) Deconstructing ‘knowledge management’. *Aslib proceedings*. [Online] 51 (3), 67–72.
- Suchman, L. (1996). Constituting shared workspaces. In Y. Engeström & D. Middleton (eds.) 1996, *Cognition and communication at work*. Cambridge, U.K.: Cambridge University Press. 35–60.
- Suppiah, V., & Manjit, S. S. (2011). Organisational culture's influence on tacit knowledge-sharing behaviour. *Journal of Knowledge Management* [Online] 15(3), 462-477.
- Tan, B. C. Y. et al. (2000) A dialogue technique to enhance electronic communication in virtual teams. *IEEE transactions on professional communication*. [Online] 43 (2), 153–165.
- Temby, O. et al. (2017) Examining the Role of Trust and Informal Communication on Mutual Learning in Government: The Case of Climate Change Policy in New York. *Organization & environment*. [Online] 30 (1), 71–97.

Ugbah, S. D. & Dewine, S. (1989) New communication technologies: The impact on intra-organizational dynamics. *Information & management*. [Online] 17 (3), 181–186.

Wasson, C. (2006) Being in Two Spaces at Once: Virtual Meetings and Their Representation. *Journal of linguistic anthropology*. 16 (1), 103–130.

Wiesenfeld, B. M. et al. (1999) Communication Patterns as Determinants of Organizational Identification in a Virtual Organization. *Organization science* (Providence, R.I.). [Online] 10 (6), 777–790.

Willcock, D. I. (2013) *Collaborating for Results: Silo Working and Relationships That Work*. Farnham, Surrey: Gower Pub. Limited.

## APPENDIX 1 – The interview questions

### Organization:

1. Kuinka kauan olet ollut töissä CSC:llä? How long how you worked at CSC?
2. Koetko organisaatiossa tapahtuvan viestinnän muuttuneen täällä olosi aikana, miten? Have you experienced a change in the communication of the organization, how?
3. Uskotko organisaatiomuutosten vaikuttaneen viestinnän muutoksiin, miten? Do you think that organizational changes have affected the changes in communication?

### Informal communication:

4. Miten olet kokenut informaalin viestinnän merkityksellisyyden työsi kannalta niin työssä suoriutumista kuin viihtymistä ajatellen? How have you perceived the significance of informal communication for your work, considering both performance and satisfaction?
5. Miten mielestäsi viestinnän määrä tai luonne on muuttunut pandemian ja etätyöskentelyn aikana? How do you think that the amount or nature has changed during the pandemic and remote work?
6. Viestitkö samojen henkilöiden ja ryhmien kanssa yhtä paljon etänä kuin ennen pandemiaa toimistolla? Millä keinoin? Do you communicate with same people and groups as much remotely as you did before the pandemic at the office? How do you communicate?
7. Miten koet paljon puhutun siiloutumisen ja mistä luulet sen johtuvan? How do you perceive silos that are much talked about, what do you think causes them?

### Information share:

8. Koetko saavasi yhtä paljon tietoa työhön tai organisaatioon liittyen kuin ennen pandemiaa? Do you receive as much information regarding your work or the entire organization now as you did before the pandemic?
9. Miten tiedonvaihto ja -kulku ovat mielestäsi muuttuneet etätyöskentelyn aikana? How would you describe the change in information sharing and flow during the period of remote work?

### Future:

10. Miten uskot tiedonvaihdon ja viestinnän kehittyvän tulevaisuudessa? How do you think that information flow and communication might develop in the future?
11. Miten sitä voisi kehittää? How could they be developed?