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Difficulties in achieving business and IT alignment

A qualitative study drawing upon coordination theory to explore the complexities and tensions between business and IT

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Abstract

Organizations today are facing changing demands in the business environment at the same time as the rate of technological change is increasing. This may impose implications on the relationship between business and IT, and in turn affect the achievement of business and IT alignment. Addressing this issue, this paper explores the relationship between business and IT in a manufacturing company embarking on a digital transformation journey. By conducting a qualitative single case study this paper answers how the relationship between business and IT is organized in practice and what tensions, challenges, and ambiguities might arise. The empirical data is essentially gathered through 19 interviews with both IT and business representatives and is thereafter analyzed through coordination theory. The purpose of this study is to scrutinize a large organization on a transformation journey and explore the relationship between business and IT. The study presents three main findings. First of all, we identify that the organizational structure acts as the foundation in determining the static coordination mechanisms as it provides a description of what practices, routines and activities are at hand. Secondly, we find that the different cultures and practices characterizing business and IT interfere in establishing mutual understanding between the departments. Thirdly, we find that inefficient communication prevents an organization from overcoming coordination challenges in an ambiguous and uncertain environment. The study revealed that these findings affect the relationship between business and IT and result in the emergence of different tensions and challenges. The paper contributes theoretically by reconciling two streams of research, specifically understanding business and IT alignment through the lens of coordination. Empirically, our paper contributes by exploring the relationship between business and IT, thus providing nuanced insights into the difficulties of achieving business and IT alignment.

Key words: Business/IT Alignment, Digital Transformation, Coordination, Relational Coordination Theory

1. Introduction

The role of information technology (IT) has changed in rapid and revolutionary ways the past decades and it has had significant influence on how companies are doing business (Alaceva & Rusu, 2015). IT has the potential to re-shape organizations and to transform entire industries (Crowston & Meyers, 2004). Today, it plays an important strategic role in the business strategy and most companies are leveraging the capabilities of IT in multiple parts of the business (Ashurst, Doherty, & Peppard, 2008). Furthermore, IT is recognized as a critical business issue and it offers new competitive advantages (Gerth & Peppard, 2016). In a fast paced business environment characterized by changes in technology, innovation and competition, businesses rely on IT services to seize business opportunities (Bharadwaj, El Sawy, Pavlou, & Venkatraman, 2013) and to operate with flexibility and make fast decisions to reach their goals and objectives (Ullah & Lai, 2013). Thus, organizations have to continually evaluate their strategies and business processes, and ensure the access to an IT system that successfully meets the business' needs and expectations (Ullah & Lai, 2013).

Despite the many advantages of IT and its criticality to the business, the IT function often lacks a harmonious relationship with the rest of the organization (Manfreda & Štemberger, 2019; Ward & Peppard, 1996) and many organizations fail to create alignment (Ullah & Lai, 2013; Luftman & Brier, 1999). The relationship between the IT function and other business functions is under stress because of the rate of technological change (Manfreda & Štemberger, 2019) and the increasingly demanding business environment (Ward & Peppard, 1996). In the era of digitalization, the IT function is under pressure to be more flexible and agile, and to deliver adaptable solutions ever faster. Managing to create alignment between business and IT is a top concern of executives within an organization as achieving alignment can improve organizational performance (Chen, 2010; Schlosser, Beimborn, Weitzel & Wagner, 2015) and enhance profitability (Luftman & Brier, 1999). Moreover, alignment facilitates better communication and cooperation between different business departments (Ullah & Lai, 2013). Thus, by creating harmony between IT and the rest of the business, organizations may enact all departments to work effectively towards the same goals and exploit the full potential of IT (Alaceva & Rusu, 2015). Accordingly, organizations that fail to create alignment not only invest a lot of resources in IT but are likely not reaching their full potential with regards to organizational performance.

Although past research has addressed the changing role of IT and the positive effects of achieving alignment, there is a need for more practice based studies addressing the relationship between business and IT. The changing demands in the business and IT environment and digitalization may impose implications on the relationship and in turn, this may affect the process of achieving business and IT alignment. Thus, the purpose of this study is to scrutinize a large organization on a transformation journey and explore the relationship between business and IT. The relationship will be analyzed through the lens of coordination theory as coordinating activities can manage the interdependence between business and IT, thus the theory can support in examining the relationship. Specific focus will be aimed at the relational theory of coordination which emphasizes communication and relationship dimensions, since

relations play an essential role in enabling employees to coordinate effectively (Gittell, 2002). The research will be guided by the following research question;

How is the relationship between business and IT organized in practice and what tensions, challenges and ambiguities might arise?

The study takes place at one of the largest manufacturing companies in Sweden, in this paper referred to as Cronos. The company is a global Original Equipment Manufacturer (OEM) with more than 100 years of history, claiming to be operating in a fast-moving environment highly affected by digital transformation and technical advancements. Cronos presents itself to be at the forefront of innovation and digitalization, and the employees are expressing how the company is at the beginning of an extensive transformation journey regarding digitalization and industry 4.0. At the same time, the organizational legacy has left traces in the organization and this causes implications on the relationship between business and IT. This suggests that Cronos not only has to manage the future to steer the organization towards digital transformation and industry 4.0, but it also has to deal with the consequences of the past.

This paper is structured as follows. The next section will provide the literature review for this study, presenting research on business and IT alignment and the relationship between business and IT in particular. In the following section we present the theoretical framework on coordination and introduce the concept of relational coordination. Then the methodology of the study is described. Thereafter follows the empirical research with the findings derived from our case and after follows a discussion of the main findings in relation to the theory. In the final section, conclusions are presented and the paper ends with highlighting limitations of the study as well as providing suggestions for future research.

2. Literature Review

2.1 Previous research on business and IT alignment

Business and IT alignment is a topic that has been given a lot of attention by both researchers and practitioners the past decades (Alaceva & Rusu, 2015; Chan & Reich, 2007). Despite this, many organizations fail to carry out alignment (Ullah & Lai, 2013; Luftman & Brier, 1999). Historically, alignment meant linking together the business plan and IT plan, and ensuring harmony between the business strategy and the IT strategy (Chan & Reich, 2007). A newer and extended definition of alignment can be found in the article by Ulla and Lai (2013), who adopt a definition proposing that business and IT alignment refers to the degree of integration between business and IT strategy, as well as a fit between the infrastructure of business and IT, thus including the dynamics of processes. Correspondingly, recent studies have shown that alignment is not an end state but rather a continuous process and should therefore be handled in an iterative matter (Chan & Reich, 2007; Chen, 2010). However, due to the rapid changes in the environment it can be hard to achieve and sustain alignment (Ullah & Lai, 2013). With the evolvement of technology and digitalization, the circumstances change which then affects the strategies, processes and relationships, in turn making it harder to keep business and IT aligned. It is therefore vital that one understands the relationships between the elements and

activities involved in achieving alignment. Thus, in other words, alignment between business and IT can be described as a collaborative process including all actors across the business functions (Chan & Reich, 2007; Chen, 2010).

Luftman and Brier (1999) conducted a five-year study based on surveys and interviews with executives and found that alignment is an ongoing process, hence no set strategy or combination of activities will enable firms to achieve and sustain alignment. Although the set of activities achieving alignment is always changing, the authors identify a number of enablers and inhibitors of alignment that have remained constant over the five-year period. Luftman and Brier (1999) conclude that executives of a firm should concentrate on promoting activities that facilitate alignment and avoid activities that hinder it. Moreover, executives should improve the relationships between business and IT units and enhance mutual cooperation in strategy development. Finally, executives should concentrate on prioritizing projects more effectively. In other words, the organization must ensure that the IT resources are allocated efficiently and that IT manages to support the business operations and its needs in an effective and efficient manner.

Moving away from the strategic and tactical level and focusing on the social dimension, namely the people involved in achieving alignment, Reich and Benbasat (2000) present a research model consisting of four different social factors that would potentially influence alignment, namely; shared domain knowledge between business and IT executives, IT implementation success, communication between business and IT executives, and connections between business and IT planning processes. By conducting interviews with business and IT executives from three Canadian firms, the authors found that all four factors influence short term alignment whereas only shared domain knowledge influenced long-term alignment. The authors conclude that a reason for not achieving strategic alignment is poor alignment between people (Reich & Benbasat, 2000). Alaceva and Rusu (2015) build on the research of Reich and Benbasat (2000) by applying their proposed model, in combination with other social aspects that were identified in more recent research, at one of Sweden's top ten largest companies. Through semi-structured interviews with high-level business and IT executives they explored barriers in achieving business and IT alignment. Their main findings indicated that low understanding of the business and IT environment, poor communication, unclear specifications, limited cooperation, and lastly, lack of mutual commitment and support, were factors that inhibit the achievement of alignment (Alaceva & Rusu, 2015).

What can be concluded is that past studies have predominantly focused on the role of executives and management, however, when top management sets a strategy it requires collaboration and execution from the employees at the operational level. Conformingly, Boswell, Bingham and Colvin (2006) argue that aligning the employees with their organization's strategic objectives is critical for a successful execution of the strategy. One study addresses this issue by investigating whether employee alignment affects the alignment between business and IT. Through an empirical analysis of a manufacturing firm in Indonesia, Chong, Ooi, Chan and Darmawan (2011) investigate if correspondence between employee's behavior and the corporate strategy will lead to successful alignment between business and IT.

Their results show that perceived organizational trust, perceived communications on business and IT strategies to employees, as well as perceived knowledge on business and IT strategies have a positive and strong relationship with business and IT alignment.

Previous research has identified important factors and variables that are important for creating alignment between business and IT, and what social aspects affect in achieving alignment. Yet, there is a lack of information on how the relationship between business and IT is organized in practice. Moreover, focus has been directed to the managerial level and largely disregarded the role of the employees. By performing interviews with both employees and managers at the operational level we can address how the relationship between business and IT is organized in practice and gain further understanding of what complexities and tensions might arise. Moreover, what can be said about the presented studies is that they fail to acknowledge what forms the basis of why business and IT are misaligned in the first place. Hence, the next section will present research addressing what affects the relationship between business and IT.

2.2 Addressing the relationship between business and IT

The relationship between business and IT has been subject for research for over 50 years (Manfreda & Štemberger, 2019; Ward & Peppard, 1996). Yet, as argued by scholars, many operations fail to create alignment, thus the relationship between the IT organization and the rest of the business is not managed adequately. In a fast paced environment and in an era of digital transformation, it is more important than ever to establish a strong (Manfreda & Štemberger, 2019) and collaborative (Bharadwaj et al., 2013) relationship between business and IT. The poor relationship is referred to as a gap (Ward and Peppard, 1996) and it implies the lack of understanding between the departments (Coughlan, Lycett, & Macredie, 2005). The IT department often does not have a harmonious relationship with the rest of the business (Ward and Peppard, 1996; Nord, Nord, Cormack & Cater-Steel, 2007), and, while strategic alignment is an important starting point for creating harmony between business and IT, it is not alone sufficient to ensure a strong relationship between the two (Peppard & Ward, 1999).

The discordance in the relationship might be affected from various reasons in the past, such as the IT department being outsourced or the IT organization emerging late and being seen as imposed on the business (Ward & Peppard, 1996). Although IT today has gained a strategic role in organizations, it is still common for IT departments to be treated as a supporting function and depicted as holding secondary status (Manfreda & Štemberger, 2019). The IT department might still be affected by a reputation it has attained from not delivering projects on time and within budget as well as not satisfying user requirements (Ward & Peppard, 1996). Moreover, there is often a perceptual gap regarding the role of IT between business departments and IT departments (Nord et al., 2007). Cultural differences may still exist and this in turn affects the relationship (Nord et al., 2007; Ward & Peppard, 1996). Organizations have a cultural legacy and therefore one must deal with the consequences from the past and not solely manage the future organization (Ward & Peppard, 1996). Ward and Peppard (1996) further raise the issue of IT professionals having more loyalty to their profession than to their organization, indicating that they are more focused on working with technology and pursuing their careers within IT than contributing to organizational success. This is also emphasized by Willcoxson and

Chatham (2006) who found that IT staff are often technology oriented and have trouble communicating with business professionals.

Undertaking the process perspective on alignment requires the phenomena to be studied in its dynamic nature. Hence, we argue that there is a need for more practice based studies addressing the relationship between business and IT. Past studies have focused on aligning the employees to the strategic objectives and investigated if there is correlation with business and IT alignment, yet little is said about the relationship and what organizational actors actually do. Organizations today face rapid changes in the business and IT environment and they are highly affected by digital transformation and technical advancements. Hence, it is interesting to investigate what impact this has on the relationship between business and IT and if any tensions or challenges arise as a result from the changing circumstances. Therefore, as we intend to gain further understanding of the relationship between business and IT and how it is organized in practice, we will present research on coordination. Previous research on the topic of alignment has shown that alignment is promoted when there is a good establishment in the relationship between the departments and when different activities such as communication and shared understanding are promoted. These activities can be managed through coordination, and therefore we argue that this is a suitable framework to examine the relationship. In the following section, the theoretical framework will be presented.

3. Coordination Theory

3.1 The dynamics of coordination

The term coordination has many different definitions which in turn illustrate why there have been various starting points when studying the concept (Malone & Crowston, 1994). Definitions on coordination presented in earlier research involve shared understanding and synchronizing organizational activities in time and place (McGrath, Arrow & Berdahl, 1999), aligning organizational activities (Heath & Staudenmeyer, 2000), and managing dependencies between activities (Malone & Crowston, 1994). In line with this, early scholars addressing coordination have focused their research on how to coordinate activities between organizational actors (Thompson, 1967; Malone & Crowston, 1994). Moreover, a common theme for prior research on coordination is that it builds on the assumption that the environment is predictable (Faraj & Xiao, 2006) and that coordination is something that exists *a priori*, meaning that it is viewed as something stable and given in different contexts (Okhuysen & Bechky, 2009). In their recent review of coordination literature, Okhuysen and Bechky (2009) indicate that attention has been given to the rather static view of coordination mechanisms through which interdependent tasks are achieved, for instance plans, rules, routines, standardization and supervision. However, Jarzabkowski, Lê and Feldman (2012) point out that the coordination mechanisms are not stable entities, but rather of dynamic nature that are constructed in practices over time. In accordance with a more dynamic view, coordination can be seen as an ongoing process as it involves activities that are performed by different actors over time, in a context characterized by change and uncertainty.

3.2 Research through the lens of coordination theory

As presented, past research has depicted coordination as stable and has thus overlooked the processual way in which actors perform activities. Therefore, there is still uncertainty regarding which activities constitute the process of coordination (Jarzabkowski et al., 2012). In the static perspective, common coordination mechanisms include plans, rules, routines, roles, task assignments and resource allocation in combination with standardization and supervision (Thompson, 1967). Nonetheless, there is no widespread explanation of how these mechanisms are interrelated. Addressing this, Okhuysen and Bechky (2009) suggest that the coordinating mechanisms interplay through three conceptually presented characteristics; accountability, predictability, and common understanding. Accountability refers to who is responsible for what task. Predictability occurs when the actors can anticipate upcoming assignments and what sequences of tasks are likely to happen. Finally, common understanding is accomplished as actors develop a shared perspective on the organizational goals and objectives. Moreover, it is important to note that the three interdependent characteristics are not to be seen as a cure-all solution for organizations, but rather how the accomplishment of them results in coordination (Jarzabkowski et al., 2012).

Kellogg, Orlikowski and Yates (2006) emphasize how organizations are shifting from traditional ways of organizing to meet the changing circumstances characterized by speed, flexibility and uncertainty. The authors find that different communities within a firm engage in cross-boundary coordination practices, and that the members make their actions clear and visible for their colleagues, and this in turn enables the alignment of practices. Bechky (2003) suggests that members of an organization share knowledge and create understanding through creating a sense of common ground between them, and points out that one of the difficulties of sharing knowledge is a result from differences in the communities' language. She further highlights how incorporating cross-functional collaboration between communities can be difficult to integrate because of the differences in tasks and specialization. In addition to this, collaboration across boundaries can be difficult when the goals, interests and practices differ between the individuals or business functions (O'Mahony & Bechky, 2008). Consistently, Carlile (2004) reports how coordination difficulties are often a result from individuals' different understandings regarding meanings, assumptions and contexts. To overcome the difficulties and address how the distinct communities can create alignment between them in an environment characterized by change, Kellogg et al. (2006) draw upon the notion of 'trading zones', a concept initially developed by Galison (1997). Galison (1997) proposes how distinct communities within a field were able to align their activities and practices by enacting in temporal and local arrangements, referred to as trading zones. By coordinating actions in a trading zone, the communities can overcome the differences in interests, interpretations and understandings and instead exchange ideas and share knowledge. The trading zones can help explain how coordination across boundaries can be facilitated and enacted effectively, however, they do not acknowledge the dimension of relationships, specifically how organizational relationships can impact coordination (Gittell, 2002).

3.3 Introducing relational coordination theory

Going beyond the traditional coordination mechanisms presented in research and expanding the understanding of how relations underpin effective coordination, Gittell (2002) proposes a relational theory of coordination that emphasizes communication and relationship dimensions. She declares that coordination does not occur in a vacuum, but that relations play a critical role in enabling employees to coordinate effectively. Rather than solely being facilitated through certain mechanisms, coordination is essentially a process of interactions among participants within an organization (Gittell, 2002). Adding to previous research on coordination that emphasize shared knowledge and shared understanding, Gittell (2011) argues that this is not adequate for the efficiency of coordination but participants must also be connected through other means. The participants must engage in three dimensions of relationships, namely shared goals, shared knowledge and mutual respect. These relational ties form the basis for collective identity, i.e. forming a sense of united community within the organization, and this in turn facilitates coordinated collective action (Gittell, 2002; 2006).

As the three dimensions serve the foundation for relational coordination, these will now be presented and elaborated on. First, shared goals imply that the employees of an organization have shared goals among them relating to their work and processes (Gittell, 2011). The shared goals should extend across boundaries and functional areas (Gittell, 2011), moving from sub-goal optimization to enable practices that contribute to the whole (Bolton, Logan & Gittell, 2021). Secondly, shared knowledge enables employees to gain understanding and insights regarding each other's roles and tasks which in turn facilitates the tasks being fit together to form a whole (Gittell, 2006; Bolton et al., 2021). Nonetheless, employees from different functions often lack mutual knowledge and understanding as a result of their different expertise and experiences. Thirdly, mutual respect refers to the employees being respectful towards each other no matter their profession, status or competence (Gittell, 2011). It also encourages employees to value each other's contribution and to be mindful about how their own work might impact others (Gittell, 2002). The three dimensions are interdependent, they work together and reinforce one another which results in employees being able to effectively engage in coordination (Gittell, 2011). In addition to the three relational dimensions being important, communication is also emphasized as being central to the relational coordination theory because coordination occurs largely through communication (Gittell, 2006). For coordination to be effective, communication must be frequent, timely, accurate and problem-solving (Bolton et al., 2021). To sum up, according to relational coordination theory, coordination is a mutually reinforcing process of communication and relational ties of shared goals, shared knowledge and mutual respect.

There are also other aspects that affect the process of coordination and impose challenges, one being the organizational design. If the organizational design enables cross-functional collaboration and cross-cutting structures this then facilitates relational coordination (Bolton et al., 2021). However, traditional hierarchical organizations often consist of distinct functional areas with structures that hinder boundary relations and the formal routines and close monitoring does not require employees to form strong relational ties (Gittell, 2000). In large complex organizations with various departments it can be hard to form shared goals that fit for

the purpose and practices of all departments. Nonetheless, Wong, Tjosvold and Liu (2009) find that although departments have different goals and targets, having a shared organizational vision can act as a means that facilitate the establishment of cooperative goals among departments. Together the vision and goals contribute to the departments having a common purpose and coordinating effectively (Wong et al., 2009). In addition to this, Feldman and Pentland (2003) argue that the organizational structure and its routines have often been regarded as the key means by which organizations reach their goals. Even though routines are seen as something that enables organizations, they can often cause inertia and inflexibility, but paradoxically, act as an important source of flexibility and change if conducted correctly. Feldman and Pentland (2003) continue and state that even though the term routines in an organizational context is widely known, they should not be taken for granted, and they are often more complex than what one might believe. In order to simplify the term, the authors define an organizational routine as “*a repetitive, recognizable pattern of interdependent actions, involving multiple actors*” (Feldman & Pentland, 2003, p.96).

The organizational structure can further inhibit the sharing of knowledge between units as the employees are focusing on their respective responsibilities and work (Dougherty, 1992). Gittell (2006) found that employees from different functional areas within an organization lacked insight in other’s tasks and what challenges they might face. This finding is consistent with Dougherty’s (1992) findings from studying product development in large firms. Dougherty (1992) proposes that departments within a firm could be described as different ‘thought worlds’, each involving their own system of belief, meanings and interpretations which in turn hindered collaboration across functions and effective communication between business functions. This can potentially result in the alienation of other organizational identities which obstruct the creation of a collective identity which is fundamental to coordinated collective action and relational coordination (Gittell, 2006). To overcome issues related with relational coordination and instead promote the connection of roles and functions across the organization, ideally the organization should facilitate a number of coordinating mechanisms. For instance, shared spaces that create proximity and face-to-face communication, interdisciplinary meetings that provide opportunities for the exchange of ideas and information, boundary spanner roles that serve as interfaces between units as well as shared information systems that ensure transparency (Bolton et al., 2021; Faraj & Xiao, 2006). By drawing on the concept of coordination we aim to explore how the relationship between business and IT is organized in practice, but before doing so, the methodology of the study will be described.

4. Methodology

4.1 Research design

To meet the purpose of this study and address how the relationship between business and IT is organized in practice, a qualitative approach has been taken. With the intention to explore the possible challenges, tensions and ambiguities that might unfold in the relationship, the empirical research was conducted as a single case study. Flyvbjerg (2006) argues that a qualitative case study provides context dependent information which allows the researcher to develop a deeper understanding of a specific field, hence it was a suitable approach for this

study. Because we had to capture the differences in interests, interpretations and understandings, the empirical data was gathered through 19 qualitative interviews in combination with secondary data. With the aim to conduct interesting and nuanced research, the case study was conducted at one of Sweden's largest companies. The company subject for the case study has remained anonymous in the paper in order to neutralize the research and to prevent the existence of subjective opinions and preconceived notions about the company and the industry. The company, in this paper referred to as Cronos, is an Original Equipment Manufacturer (OEM), which describes itself to be at the forefront of innovation and digitalization. Cronos offers products and services to customers in 40 different industries globally. The offering includes developing and manufacturing components as well as providing services and solutions for reliable engineering and machine health. Cronos is a suitable environment to conduct the study because the organization has distinct departments and it is in the beginning of a transformation journey.

4.2 Data collection

In conformity with the research question the primary data for this research was conducted through interviews as we aimed to understand how the relationship between business and IT was organized in practice and in turn understanding the complexity of the relationship. Interviews are a suitable method when studying individuals' experiences, perceptions and opinions (Silverman, 2017) which is necessary when aiding an understanding of the possible tensions and challenges. Moreover, interviews can provide information about individuals' attitudes (Silverman, 2017), which can help us understand the attitudes and in turn the performed actions and behaviors. In addition to the interviews which serve as the foundation for the research, secondary data was collected to get a complete and detailed understanding of the studied phenomenon. Secondary data consists of annual reports, an organizational chart and published information on the website. Moreover, we have been provided with a presentation containing how the corporate strategy is broken down and altered to suit the business area. Lastly, in the beginning of the research process we were provided with links to online videos published on the company's YouTube channel. The videos presented the company and its history, the products and one of the factories. Moreover, the videos highlighted that the company is undergoing an industrial revolution and that technology is developing faster than ever and addressed. Finally, the videos discussed the challenges and opportunities Cronos might face within their digitalization and industry 4.0 journey. This was a valuable addition to the other material seeing that it gave an idea of how the organization wanted to portray themselves to the public.

In order to get a nuanced understanding of the research phenomenon, we conducted interviews with respondents from different hierarchical levels in the organization as well as different business departments. A number of 19 qualitative interviews were held with 8 respondents from IT and 11 from the other business units, including manufacturing, sales, logistics, finance and a supportive service function. Of the 19 interviews, 8 were held with managers and 11 with employees. Including employees from different hierarchical levels was a deliberate choice to get a deeper understanding of how the relationship unfolds. We interviewed executives from the different units to understand how their departments work towards the strategies and how

digitalization and the role of IT has affected the business processes. Moreover, interviewing employees from different units allowed us to understand how the employees independently make sense of the strategies and how their work is organized. We could also determine the interaction and relationship between the business and IT professionals. The respondents were selected using a snowball sampling method (Silverman, 2017). We were put in contact with individuals through our contact person, who in turn connected us with individuals in their network. The process of data collection ended when saturation was reached and when the interviews did not yield new information to answer the research question.

The interviews were conducted virtually via video conference and lasted approximately 60 minutes. The interviews were performed following a semi-structured guide with open-ended questions in order for the respondents to describe their personal perspectives and experiences, enabling them to create their own narrative and emphasize what is important to them (Silverman, 2017). Moreover, the open guide allowed us to go deeper into certain unexpected topics that arose during the interviews that were not included in the predefined themes. The interview agenda consisted of themes with interview questions based on previous research and related literature. Questions were framed around factors, variables and challenges identified in previous research, for instance, enablers and inhibitors of alignment (Luftman & Brier, 1999), social factors affecting alignment (Reich & Benbasat, 2000; Alaceva & Rusu, 2015) and finally, variables contributing to employee alignment (Chong et al., 2011). Moreover, the questions were inspired by the research of Peppard and Ward (1996), thus also including views and perceptions on IT in general. However, the respondents did not get information about the interview questions before the interview to avoid constraining them in certain fields. One practical implication highlighted by Silverman (2017) is that performing semi-structured interviews with employees from higher hierarchical levels, such as executives and middle managers, might give rise to the respondents following a script. To overcome this issue the research question was deliberately not revealed and the questions were altered to suit their individual role and responsibilities. Furthermore, to ensure that the study was conducted through ethical means the respondents were informed about the purpose of the study and the circumstances for their participation prior to taking part. Moreover, the respondents have been anonymized with the intention of establishing a trusting environment in which they could feel comfortable to share their experiences.

4.3 Data analysis

To understand and analyze the collected data, grounded theory was used as this is a useful method when analyzing qualitative data (Martin & Turner, 1986). Our main source of empirical data are the interviews, thus these have been recorded, transcribed and analyzed. First the data was analyzed without theoretical considerations, during which it was coded and categorized. Distributing the data into broader themes helped us in identifying certain patterns and determining how the findings related to each other as well as how they could be linked to a theoretical framework (Martin & Turner, 1986). Subsequently, with inspiration from previous research on business and IT alignment we were able to identify emerging and recurring topics and patterns such as organizational structure, misaligned strategies, communication, different cultures/practices, coordination, lack of understanding, digitalization and working in silos.

These initial themes later served the basis for the structure of the empirical research. Following the method of grounded theory our analysis was iterative and emergent. Our findings were put in comparison with existing frameworks and we shifted focus from business and IT alignment to find a suitable framework that could help explain the relationship between business and IT. To understand the concept of business and IT alignment and how the relationship between IT and other departments is organized in practice, we collected multiple articles in academic journals using academic databases and search engines. Initially, we included all articles that included the topic, but as the research developed, this perspective was iteratively altered and narrowed in order to better meet the empirical material which is why focus thereafter was put on coordination theory. Continuously during the analysis, the process of triangulation was adopted to assess and compare the information gathered from the interviews with the information provided from the annual report and the other provided sources.

4.4 Limitations and ethical considerations

The study has geographical and practical limitations that need to be addressed. First, as the study takes place in one organization the findings cannot be generalized. It may be difficult to apply the findings to different industries or organizations of other sizes with other business models and structures. Secondly, with regards to the method of a snowball sampling we have not included an evenly distributed sample from across the organization which may entail a biased view and not representing the whole of the organization. Thirdly, we acknowledge the fact that we do not have any observations to support and validate our findings in this study. Observations could have given a more comprehensive and nuanced depiction of Cronos. However, even though observations could have made the study more fruitful, the absence of them does not make the study inadequate. One final possible risk to acknowledge is related to the chosen method of conducting semi-structured interviews. If not conducted with care they may give inaccurate and misleading results. A semi-structured interview may give ground to misinterpretation as the respondent's willingness to share their insight may guide the interview in a different direction than a fellow respondent. Moreover, Silverman (2017) argues that the researcher may interfere during semi-structured interviews, affecting the interview to take a certain angle or interpreting the answers to make them correspond with the research question and purpose. To overcome this issue, both researchers have attended when interviewing the respondents.

5. Empirical Section

This study explores how the relationship between business and IT unfolds in a multinational corporation embarking on a global digitalization journey. Information technology (IT) plays an important role in facilitating the transformation journey in multiple parts of the business. According to Cronos IT, the IT function has an intention to position itself closer to the business to create compatibility and integration between IT and the business units as well as ensuring that the IT services match the business department's expectations. At the same time, years of history and past implementation failures are affecting the perception of IT and how it can support the business. The context has changed and this affects what role IT has today and its

relationship with other business units. In this section, we will examine how the relationship between business and IT is organized in practice.

5.1 The setting of the scene

Cronos is a multinational corporation (MNC) with operations in more than 100 countries. The company is a global Original Equipment Manufacturer (OEM) with over 100 years of history, claiming to be operating in a fast-moving environment highly affected by digital transformation and technical advancements. In the annual report for 2020, Cronos presents itself to be at the forefront of innovation and digitalization, and the employees are expressing how the company is at the beginning of an extensive transformation journey regarding digitalization and industry 4.0. To support the organization on its digitalization journey, Cronos IT is working towards enabling digital business while ensuring that the day-to-day operations are stable. The IT department at Cronos is foremost an administrative unit providing traditional IT services and tools that support the business functions, but it also operates proactively to anticipate the business needs in order to develop new services and solutions. The various business departments rely on IT services in their daily operations to operate with flexibility and to make fast decisions to reach their goals and objectives. Thus, Cronos IT aims to continually improve the services and to ensure enhanced user experience. To understand the business' needs and how IT can enable business development, Cronos IT wants to establish an open and transparent way of working with business. However, there have been challenges in establishing a collaborative relationship between IT and business as a result from the past. A representative from the IT department stated that;

People do not have the most positive image of IT due to history, past conflicts, and past problems, so it is something we [Cronos IT] work very hard with. "What is the perception of IT and what can we do to improve it?" IT manager

In accordance, a business representative emphasized how IT projects did not deliver according to expectations.

IT projects 20 years ago took an incredible amount of resources and always exceeded the budget, and ended with a worse result. Business manager

Furthermore, during the interviews it becomes apparent that the IT department has been disregarded in the past and it has been seen as separated from the core business. One respondent with over 35 years of experience in the organization exemplified this by explaining that the organization was restructured 20 years ago, as the then CEO was on a mission to scale away business that was not core business, resulting in the IT department being rationalized and reduced to consist of only a handful of people.

About 20 years ago we had a large IT department, but this was later drastically decreased and was outsourced to an external company. I would say that 20 years ago, people definitely felt like "what do we even need an IT department for?", which is not the case today. IT employee

The rather negative perception of IT is largely shared among the respondents, regardless what business unit they represent and how many years of experience they have. Nonetheless, the employees witness that the negative perception of IT is beginning to shift which we will further elaborate on, but before doing so, the organizational structure of Cronos will be explained as this provides understanding of the organizational environment which can help explain how the different departments relate to each other and how they interact. Henceforth, we will present our main themes and recurring topics that have served the basis for the structure for the empirical findings. The following themes that will be investigated further are *organizational structure, working in silos and misalignment of strategies, lack of understanding, communication, and lastly interaction between departments.*

5.2 Organizational structure and the weight of a 100-year old history

On its website, Cronos claims to maintain an efficient organizational structure with clear areas of responsibility and clear procedures for delegation. The different divisions are described to be separated and to this, the respondents inform that gaps have existed between the departments. Several of the respondents use the term ‘silo’ to describe the way of working, implying that each division has focused on their respective area of responsibility with limited interaction between them. The departments are still separated but Cronos has been reorganized at various stages over the years in attempts to actively create synergies and to become more efficient. For instance, it has now become more common to work cross-functionally across divisions. Nonetheless, after a process of restructuring follows a time when the organization might experience complications. One business employee expressed that one challenge following the latest reorganization is that employees have changed roles and responsibilities resulting in that they do not have knowledge in their area. The respondent expressed that “*the organization is having a hard time getting into the new suit*”.

Not only does Cronos have distinct divisions but what can also be extracted from the interviews is that the organization has been very locally managed. There has been a lot of freedom within Cronos which has resulted in the different plants and sites implementing their own solutions and processes. Manufacturing, the line organization and product development is described to have been particularly powerful in Cronos 20 years ago. The factories rolled out initiatives that were based on their needs and as a result, many of the factories have their own IT solutions with local applications. One IT employee exemplifies the challenges this causes by stating;

There has been quite a lot of freedom within Cronos to invent things and to solve problems. You solve a problem in Sweden but then you solve a similar problem in India with a different application, and you solve the same problem in Brazil with a third application. Then, all of a sudden we have three applications providing solutions to the same problem and we [Cronos IT] have to provide support for them. You might think this sounds crazy, but that is how it has been. IT employee

Confirming that the organization has been locally managed and implemented local solutions is also described by a transformation manager with responsibility for implementing new processes and systems within a certain business area. The respondent explained how Cronos

made large investments in software in the past but top management did not prepare the organization for implementation which resulted in local push-backs. Moreover, another manager with responsibility for leading the factories towards industry 4.0 explained how investments and implementations were seen more as recommendations rather than what one should actually do, something the respondent thought was frustrating. In other words, Cronos has experienced resistance in the past when carrying out changes as they lacked formality and endorsement. The data material points towards how the legacy of IT, in terms of the extensive rationalization and reduction of the department that was carried out 20 years ago, has left traces in the organization today and how this causes implications on the relationship between business and IT as well as for the change initiatives that Cronos IT is implementing. Naturally, this has been the origin of frustration and friction between the departments. For instance, friction has existed between manufacturing and Cronos IT as manufacturing felt as if Cronos IT only represented the ‘office organization’ and neglected the perspective of manufacturing. However, this has changed and improved over the years and the organization is described to be more “*in tune*”. The manager responsible for leading the organization towards industry 4.0 explains;

I think it has gotten better, however I still hear from my guys [manufacturing] that there is frustration. It still remains but not to the same extent as before. Business manager

Correspondingly, implementing digital transformation on a global level across all facilities and plants is a challenge that Cronos is facing in the future. The organizational values and culture has created a sense of freedom resulting in individual solutions and locally managed sites, which now acts as a means that impede the digitization process. This is exemplified by the same manager who described how implementations were seen as recommendations;

What I experience as a huge challenge now is that when you have to digitize on a broad front, both vertically and horizontally, it requires a lot of standardization. Standardization is not our strong point because of our tradition and culture. It is difficult to get through with it. Business manager

The respondent continues explaining how the organization is experiencing a “*pull*”, meaning that a demand and sense of urgency is established as the factories and employees are realizing how digitalization can be positive for them in various aspects. However, the impatience stemming from top management and IT not being able to deliver solutions fast enough causes irritation within the organization, and this in turn again results in certain divisions implementing their own solutions. The manager concludes by saying that;

We come back to the problem we start with, that we have self-operating operations in the organization, which in essence is positive but it obstructs standardization. Business manager

In summary, Cronos is a multinational corporation with self-operating operations, resulting in local solutions and applications being implemented throughout the organization which are now

hard to up-scale on the digital transformation journey. However, Cronos is in the beginning of its transformation journey and according to the data, there is evidence of a shift in culture towards a climate that promotes change and transformation. However, according to the respondents, Cronos is still lacking harmony between business and IT as the divisions are separated and the strategies are lacking connection, thus, this will now be presented.

5.3 The implications of working in silos and misaligned strategies

Cronos corporate strategy creates the foundation for the organization and it is developed to be pertinent to all markets and industries in which the company operates. The global corporate strategies are broken down and adapted to the national level, and then broken down to the various business areas and translated into action plans for specific teams. Thus, the strategy is broken down into multiple strategies, independent from each other. This in combination with the lack of interaction between the departments due to working in ‘silos’ results in the employees lacking insight into each other's business areas and processes. When asked about the interaction between units, one business manager expressed;

As a relative newcomer to Cronos, I can say that it is definitely something I miss. You notice when you start working if you have different priorities and it is not always the case that all priorities always go in the same direction. It is very clear that everyone wants to achieve the same things, but for me the silo thinking has more consequences because we are not timed in what we do and in what order.
Business Manager

The lack of transparency and understanding between departments in combination with separate strategies results in the functions focusing on their individual goals to contribute to the corporate strategy. However, there is no governance to evaluate what activities and projects to focus on and what should be prioritized. The absence of connection between the strategies and the lack of timing was also emphasized by an IT employee;

To bridge the gap between IT and other departments you have to go hand in hand, have common goals and working methods, but also go in the right direction. You cannot prioritize different things. IT employee

The implications from the absence of unified priorities seem to be an issue for Cronos and this may in turn be one cause of friction between departments. For instance, one respondent explained how business transformation and digitalization yield higher requirements for IT to focus on Cyber Security, whereas the business functions do not understand this and might prioritize a new system and higher availability. Furthermore, the entire organization wants to be part of the digital transformation journey, but there is no clear coordination between priorities. The size and complexity of the organization makes it challenging to establish and manage connections between IT and business. The departments are divided into multiple subunits and teams that create their own action plans based on the interpretation of the strategy with regards to their department's objectives and challenges, and this in turn may result in that it is hard to establish a unified sense of what to do at what time.

The depiction of working in silos gives some explanation to how the relation between business and IT unfolds in practice, and why things are organized as they are, but in order to investigate the relation further we will now deepen our perspective by looking at a more detailed level. Human interaction both within and between departments, and the overall understanding between employees must be investigated further.

5.4 Lack of understanding between business and IT

Historically, IT has been perceived as a support function accounting for a large cost and there has been a negative view on their initiatives due to past IT implementation failures. With the digital transformation, the role of IT has changed to be of significant value for the company and the business operations. The data material shows that different business functions are now more dependent on IT solutions and the infrastructure. The perception is that Cronos IT has become more service minded and more iteratively engaged with the business. Cronos IT is proactive in driving improvements throughout the organization and change initiatives affecting the business can be proposed directly from them. One business manager highlighted the positive view on IT by stating;

I see that IT is an enabler. We see improvements all the time without communicating in detail. There is an improvement in user-friendliness and therefore there is a belief that they know what they are doing. Business manager

Thus, there has been a shift in how the organization sees and values IT. What can be implied is that the expectations on Cronos IT are increasing as the implementation of the IT projects are successful. The same respondent explained that the impatience is growing as people have higher demands on IT and they expect things to work smoothly. People have realized that IT needs to work perfectly. However, although the perception of IT has changed over the years, there is still fragmentation and disconnection between the different units. Working in silos towards independent strategies may have contributed to a lack of understanding between IT and the other business functions. Neither the managers nor the employees have insights into the other unit's strategies, their objectives or how the performance is measured. The respondents explicitly state that there is a lack of understanding between the counterpart's departments and its business environment. One business manager stated;

I feel that managers and employees do not have an understanding of how difficult IT is and how hard it is to understand. However, nor does IT fully understand our processes. You do not speak the same language. /.../ IT often overestimates the business departments' ability to understand their concepts, but they also do not understand that they cannot work exactly according to their processes. Business manager

There is a lack of understanding about the business environment and the context in which the departments operate. One business employee expresses that when business wants to implement something or when a problem occurs there is a sense of urgency but, on the contrary, IT is

described to be very slow-moving and formal. The respondent explains how there is no common understanding of how critical some problems are and what consequences they might entail.

It has always been a challenge when explaining what you need to someone In IT. Usually when you talk business, you want to implement something very fast. But you are met by another side from IT as you have to fill in an excel sheet and send it for approval to various bodies, then it should be taken up for discussion at a meeting that is held once a month. It is a longer process and this is how it has been over the years. Business employee

The departments seem to be operating in a context characterized by different pace. Business needs to act fast because if a problem occurs in the factory for example, then there is a large cost involved, hence IT cannot take too long to decide how the incident should be labelled and prioritized. In opposition, one employee from IT explains that what business might think is a small change requires heavy machinery. Cronos has a number of applications and IT solutions with different interfaces that communicate and interact in different ways, hence, what seems like a small change can have a big impact. Accordingly, business includes the perspective of the customer and making sure that the business is operating properly, something that might be getting less focus by IT. One business manager explained;

Of course the IT people have certain views on things, they think about interfaces and servers that are costing a lot of money and I am just looking at different things like, "okay we have to serve the customer, we have to make sure that we can do all the shipments and that the warehouse works etc." Business manager

When asked about if the employees at Cronos IT have an understanding of the business environment and different stakeholders, one respondent described how IT understands the technical situation but they do not fully understand the business reality. In order to do so, an open dialogue must be established, but this has shown to be difficult.

It is very important that we have a good open dialogue so that we understand what reality our business is facing. One thing I have encountered several times in IT is that many forget that we are a support organization, we are not here for our own self-fulfilling prophecy. But in many dialogues we have with other colleagues, I do not think it is obvious. IT manager

Moreover, precisely like the business functions claim that IT must abandon their formal processes sometimes, the IT employees express that the requirement from business cannot be set in stone. Rather it should be a dialogue between representatives from the two units, where the two come up with a solution that is suitable both from a business perspective and from the technical perspective of IT, so that the functionality of the applications are used in an efficient way to enhance business. This is illustrated by the following example from an IT manager who was involved in developing an internal system for a business function;

When I was part of developing an internal system there was a very big mistake from Cronos business perspective because their requirements were based on how the process should look. My team said “yes we can do this, but then we will not use the functionality of the application, however, if we make this small change it will work better.” Business said “no, it is this process that applies.” As a result, the business requirements and process took over what is technically possible. I think it is very important to take in the requirements and expectations, but at the same time the process must not control what is technically possible in the applications. IT manager

What can be implied is that the departments lack knowledge about the counterpart’s area of expertise which can result in challenges when articulating and understanding each other’s needs and expectations. Without shared understanding of objectives and business environments it may be hard to translate business requirements into technical requirements and to achieve the desired outcome. This in turn may inhibit that IT is supporting the business operations in the most efficient and suitable way. Despite the changing view on IT and the employees realizing the importance of efficient and effective IT solutions, the departments still experience difficulties in understanding each other and communicating effectively. Hence, the following section will further elaborate on how the communication and coordination is played out in practice between IT and business.

5.5 Inefficient communication resulting in misunderstandings

What can be derived from the data is that there is often misunderstanding between departments. The data material shows that a lot of times, uncertainties and misunderstanding arise because communication is not working optimally. The terminology and expectations between departments doesn’t necessarily align with each other and one manager express that it isn’t clear what is expected of each department stating;

I feel that the communication can be improved between departments. People talk over each other's heads and there isn't an understanding in how different departments do things. The business side of Cronos expects that the IT department should be there and solve all problems, but at the same time, the IT side expects the business side to understand and be experts on all systems. Business manager

Terminology is a recurring theme within the data material, several employees have expressed it being too complicated and unnecessarily technically sometimes. For instance, the terminology within sales and IT are completely different and when the two units co-operate, this has acted as a reason for friction. For example, one respondent explained that when the sales department talks about key figures and key performance indicators, they use different measures and terms in order to do this, which could be completely unknown for the IT department and vice versa.

There are many times I've seen team members get stuck because they don't speak the same language. For example, when we cooperate with other departments it

becomes clear that we use completely different languages./.../ just last week I was in a meeting with another department and talked about values and terms and it became apparent for me that in my world, these values are often in the context of real physical values, that is numbers and figures within a field, whereas in their world it is rather in the context of sales and therefore used in another way. Even though we often talk about the same values they have a great difference of meaning for the two of us. This is an important part of communication, we must become better at explaining what we actually sought out to explain with the used figures and values we use. IT manager

Several employees within IT that were interviewed were more than aware of this problem and argued that their department is often too technical and this has been a recurring improvement issue. Instead of enlightening other departments of technical terms and complicated IT framework, they should act as both a translator and support.

I have tried to talk to my team about this [being too technical] and that our role should be more as a translator. We must be able to talk both in highly technical terms when that is needed, but at the same time adjust our terminology in order for the end-user to understand. IT manager

Not only people within management feel like the usage of different languages and terminology is prevalent within the organization. Employees across different levels in the organization confirm this view. One employee argues that in order to co-operate better, they must create a common ground where different departments can meet and express their needs and feelings about new initiatives etc.

Even though we have a better dialog than we've had historically, I think that we have to become better at co-working together. IT must be given a stronger mandate to create new things, but on the other hand, this must apply for the regular operations as well, they [other departments] must be able to demand things from IT. Business employee

The empirical data thus shows that the need for a better dialog and all respondents did to some extent agree on the fact that regardless of department, the IT department should be included at an earlier stage within projects and given a stronger mandate in order to come up with suggestions and user-friendly solutions. This way, the business can also demand more from the IT department as they are given more insights into every department. It is therefore apparent that in addition to the views on how the communication between departments should be operated optimally, they could also improve their coordination. One employee means that it should be more obvious why things and changes are happening and these should be communicated better throughout the organization.

I think that when talking about communication and change management over all, you have to be very clear what you expect from different people. What is the

purpose, how does it affect you, why is this being changed, but also why they should work in a new way... It doesn't matter if you implement the world's best tool if no one knows how to use it. There are so many aspects one has to consider when changing things, you cannot just implement something and let people do what they want. IT employee

In addition to this, a business manager within the IT department argues that it is sometimes unclear which department owns the project, and therefore creates a sense of uncertainty. The IT manager states that there have been several occasions where the IT department has gotten in conflicts with other departments due to unclear directives and how the task should be done. In order to solve these challenges, the IT manager explains that a third independent party can be used to find out the optimal way of working. When uncertainties like this emerge, departments across the organization have expressed that they want IT to explain what is expected of them, and how they can contribute.

Sometimes Cronos IT considers the sales department responsible for a certain task, but the sales departments don't consider themselves responsible. /.../ In this particular case the communication wasn't done in a correct manner and it ended up being a lot of frustration from both sides which is why a third person had to step in and view the matter from a neutral perspective. This resulted in the two departments discussing how they could support each other, and make a clearer distinction of tasks. IT manager

As discussed, working across business units has increased over the years and is now more common than before. However, there are still problems regarding how the departments interact and collaborate, thus the following section will further elaborate on this theme.

5.6 Interaction between departments

The previously mentioned themes have all discussed highly relevant aspects, but they have not explicitly discussed how coordination is conducted within the organization. The data material shows that well-functioning coordination between departments is lacking in some instances. An employee working in manufacturing argues that the core of the problem is communication and involvement from an early stage. The respondent means that in some cases the IT department is involved from an early stage, but in others not, and it isn't really clear why. In previous projects the employee has been involved with, the IT department's involvement has been dependent on an initiative from either the IT department or the department in question. Thus, it seems like there isn't a clear framework of involvement or how to enlighten the IT department from an early stage.

We have weekly meetings where we invite them [Cronos IT] once a month in order to create a more developed dialogue with each other /.../ to sit down in peace and quiet and unconditionally discuss what type of problems or opportunities we see and what has happened since the last time we saw each other. It is a good way to create understanding from each respective perspective. Business employee

The respondent continues and argues that involvement in all departments from an early stage should not be fortuitous, it should be prevalent in all departments regardless of size or complexity of project.

At the core of the problem, I think we need to create an understanding of each other. To create understanding and how each task looks from different perspectives is the key in my opinion. The type of cooperation we had [with Cronos IT] should be applied on all levels and projects. In the end, it should be the same way to address this problem. Business employee

This theme is reoccurring from other departments as well where managers and employees show signs of not having a formal structure of involving the IT department from an early stage. Even though the respondents generally agree that neither communication nor coordination is working as well as it could, most of them have a positive attitude towards improvement and a willingness to change. One manager within IT said that if Cronos shall survive another 100 years, they must become better and more *willing* to adapt themselves to prevailing circumstances.

We must adapt ourselves to ensure that we survive another 100 years, because this is our intention. We want to thrive, grow and become better as a company and in order to do so we must become more adaptable and get quicker processes which are easier to affect. IT manager

In sum, looking at the empirical material from a macro perspective, the organizational structure and how this has affected the understanding between departments seems at a first glance to give a nuanced picture of how the alignment between departments is conducted. However, due to the fact that silos seems to play a big role in how work is conducted in reality, the empirical section slowly shifts from a macro perspective, to a micro perspective, where we investigate how communication and coordination play an immensely important role in the actual shaping of the day-to-day work, and how employees view different parts of the organization. We will now turn to discuss these themes through the lens of coordination theory to give insights and a fruitful interpretation of the presented empirics. By drawing on the concept of relational coordination we set out to explain how the relationship between business and IT is organized in practice which may yield insights regarding the complexity of the relationship and an understanding of what tensions might unfold.

6. Discussion

The aim of this paper has been to depict how the relationship between IT and business is organized in practice in a large organization embarking on a transformation journey, and in doing so, highlight what complexities and tensions might unfold. As discussed in the empirical findings, a number of themes have supported us to properly shed light on different tensions, ambiguities and challenges unfolding in the relationship. First, the empirical material suggests that working in silos prevents collaboration across boundaries and it inhibits cross-boundary

coordination. Secondly, the lack of understanding between departments in terms of their practices and expertise influence their cooperation and activities of interaction. Lastly, the communication and coordination between, and within departments, is vital in order to better coordinate activities among them. We will now discuss these key findings through the lens of coordination theory and elaborate on how this perspective might explain the unfolding events, tensions and challenges.

6.1 The implications on coordination from working in silos

Cronos is perceived to be working in silos which can be a result from a lack of coordinating interfaces between the different units and their tasks. The organization entails multiple departments that lack connection between each other, and this may result in that the practices are hard to align (Kellogg et al., 2006). The lack of connection resulting from silos is in agreement with the research conducted by Gittel (2000), who emphasizes that it is common that traditional hierarchical organizations consist of distinct functional areas with structures that may act as a barrier to coordination. Moreover, undertaking the standpoint that coordination is an ongoing process rather than a stable entity can explain how Cronos at an organizational strategic level claim to have an “*efficient*” organizational structure, but the employees raise implications and challenges. Although Cronos might have coordination mechanisms in place, for instance plans, routines, roles, task assignment and resource allocation, as mentioned by Okhuysen and Bechky (2009) and Thompson (1967), these are not alone sufficient to ensure effective coordination as coordination is a result from different actors engaging in various activities (Jarzabkowski et al., 2012). Okhuysen and Bechky (2009) argue that coordinating mechanisms interplay through three conceptual characteristics, namely accountability, predictability and common understanding, and the accomplishment of the three results in coordination. Thus, examining the ongoing practices at Cronos through the three conceptual characteristics can provide an explanation for why there is a gap between the departments and why the silos exist.

The first characteristic that contributes to coordination is accountability, that is who is responsible for what task and who can be held accountable. Although the different divisions are described to be separated and that the employees have clear roles and responsibilities, one employee expresses how the organization is having a hard time getting into the new suit following the latest restructuring. Many of the employees have gained new responsibilities and the extensive re-organizations have resulted in the blurring of boundaries and reducing the barriers between divisions. Thus, it is not always clear what is expected by whom and when and this imposes challenges on coordination. This was exemplified through the employees describing how in a project it is not always specified who should do what, i.e. it is not clear how they should coordinate their tasks. The next characteristic that coordination mechanisms come to play through is predictability which entails the employees knowing what to expect and what upcoming events are likely to happen. At Cronos, it becomes apparent that although the employees feel that they are updated on the corporate strategy and in what direction they are going, there is a vague understanding of what to prioritize. This leads on to the third characteristic presented by Okhuysen and Bechky (2009), namely the importance of common understanding. The silos and misaligned strategies result in the departments lacking insights

into their counterpart's business area and goals. There is no common understanding between departments and this may result in it being hard to coordinate and manage their interdependence. Our findings are aligned with Dougherty (1992) who claimed that the structure can inhibit that employees share knowledge, and in turn this prevents a common understanding from being established. An implication stemming from working in silos is that each function focuses on their own work, prioritizing differently and not working together, reinforcing the gap between business and IT. If the employees were to manage the interdependence and make their practices visible, this might result in the alignment of practices (Kellogg et al., 2006). Instead, the employees express how they lack insight into what other departments are doing and how tensions often arise in the relationship as a result from not fully understanding each other, hence this will be elaborated on and discussed in detail further on.

When addressing the relationship between business and IT, it becomes apparent how the departments lack understanding in how they should coordinate their activities. Both business and IT agree on that IT is a support function that should support the business, however there is no defined relation between them in order to facilitate in developing new solutions that will make the organization reach its goal and pursue its vision. Hence, the distinct divisions can be explained to prevent cross-boundary collaboration from taking place as there is no defined or formal way of coordinating in place.

Another interesting finding refers to the paradox of coordination and control first presented by Gittell (2000). Her research indicated that traditional hierarchical organizations often have standardized routines and top down plans, and when the standardization is high, the relational aspects of coordination are unnecessary because the formalities keep the structure and practices in place. Conversely, relations are important when standardization is vague (Gittell, 2000). Our findings indicate that Cronos has had low levels of standardization. This is for instance illustrated by the locally managed departments and through the example addressing how implementations were seen as recommendations. Moreover, it becomes evident through the absence of formal coordination activities. The low level of standardization would indicate a stronger need for relational coordination between units according to Gittell (2000), but as laid out in the empirical findings, the relations between business and IT are not sufficient. In addition to this, the transformation that Cronos is embarking on might change the organizational practices further which in turn might require a new form of coordination and higher levels of standardization. Higher standardization in the digital transformation process would, according to Gittell (2000), require less relational ties between business and IT. In contrast, our findings indicate how IT should be iteratively engaged in the processes and in collaboration with business, in order to facilitate a common understanding. Although Gittell (2000) makes logical reasoning in her research, our findings depict how the increasing complexity of work requires effective coordination between roles, no matter the hierarchical structure and design. Our findings represent how the changed context the organization is facing, entailing increasing uncertainty, flexibility and rate of technological change, requires alternative ways of coordinating and strong organizational relationships.

We have now discussed the importance of relational coordination in relation to organizational structure and cross-boundary practices. Specifically, how the organization is structured and what implication this has on the formal relationship between business and IT. In the next section we will address the implications following from working in silos, namely the lack of understanding and invisible barriers between the departments.

6.2 Different cultures and practices interfere in establishing mutual understanding

Although the lack of coordination can be explained by the functional areas acting as barriers to coordination between departments (Gittell, 2000), coordination does not happen in a vacuum but is also a result of relationships and communication. Gittell (2002) argues that coordination is essentially a process of interactions among participants within an organization and the employees can be connected through relational ties that provides a sense of a united community and collective identity. Thus supposedly, Cronos would be able to establish efficient coordination between departments by creating a strong relationship between them. Based on Gittell's (2002) research, we will now examine the relation between business and IT by assessing how they are connected through shared goals, shared knowledge and mutual respect. Thereafter, we will elaborate on the communication practices as it is the foundation within relational coordination theory.

Cronos has a corporate strategy that is broken down into multiple separate strategies in the respective business area. Although the respondents are updated on the corporate strategy, there is generally no insight into the other units strategies, objectives or performance indicators. What can be withdrawn is that the respondents are not connected through shared goals, which should act as a motivational drive in everyday activities (Gittell, 2006). To bridge the gap between business and IT, there should be common goals that extend across functional areas (Gittell, 2011). Nonetheless, as Wong et al. (2009) point out, a shared organizational vision can contribute to the organization having a common purpose and coordination effectively. Applying this at Cronos one can witness how all employees are updated on the corporate strategy and this can explain how there is a unified sense of direction although the departments have separate goals and individual strategies. In turn, the shared vision and strategy acts as a means that creates a collective identity which is fundamental to establish coordinated collective action (Gittell, 2006). This is implied by the respondents who claim that although they have different goals and visions within their respective department, all are contributing in their own way to the overall strategy and vision.

Moreover, sharing knowledge between units is believed to act as a facilitator for effective coordination (Gittell, 2002). If the employees from business and IT understand how they each contribute with their tasks and roles, and additionally how their tasks are interrelated, then they are more prone to engage in cross-boundary coordination and understand how they together contribute to the whole (Bolton et al., 2021). Working in the various business functions or IT often require different competence and qualifications which in turn reinforce the difficulty of establishing shared knowledge. The respondents witness that there are difficulties in understanding the perspective of the counterpart's department, for instance in terms of their practices, external pressure, the criticality of problems, the interests of different stakeholders

and the respective departments' needs and expectations. This is in line with the research presented by O'Mahony and Bechky (2008) who argue that collaboration across practices is difficult when there is a difference in the goals, interests and practices.

Finally, the third relational aspect through which coordination can be promoted is mutual respect (Gittell, 2002). Seemingly, the history of IT being perceived as positioned far from the core business has caused implications in the relationship between business and IT. The respondents have had preconceptions about IT which in turn may have prevented collaboration. Although the organization is trying to actively change this perception, the legacy of IT still remains. Hence, our findings indicate that there has not existed mutual respect in the past, however, the findings also show how this is changing. IT is now being perceived as an enabler and the business functions are reliant on IT solutions in their everyday work, which in turn may promote the departments in gaining mutual respect.

So far, we have elaborated on how coordination is facilitated through accountability, predictability, and common understanding, and in addition, how the accomplishment of shared goals, shared knowledge and mutual respect can result in coordination. To explain the complexity of establishing a common understanding and sharing knowledge one can draw upon the concept of 'thought worlds' presented by Dougherty (1992). In essence, the thought worlds symbolize how the departments are characterized by their own systems of belief and interests and this implies that the departments overlook possibilities to collaborate as a result of them being too focused on their own work (Dougherty, 1992; Gittell, 2006). For instance, one empirical example highlighted how IT sometimes acts as if they are there for their self-fulfilling prophecy, although all employees agree that IT is a support function. This can be explained by the thought worlds concept, since IT employees can be seen prioritizing their own interest rather than what contributes to the organization as a whole. Moreover, both IT and business can be described to be acting out of their own interests and motives as both sides describe how they both must be willing to compromise on their requirements and processes, but they often experience challenges when coming to an agreement. As a result from the different thought worlds, the departments can feel alienated towards each other's organizational identities as they have different perspectives resulting from their specialization (Gittell, 2006). Furthermore, as the departments are distinct with little coordination between them, this reinforces the different thought worlds as there is no cross-boundary collaboration where knowledge can be shared. Overall, business and IT are characterized by different practices and cultures that influence their work processes. IT is generally more technical and formal with standardized processes which creates tension in the relationship with business, as they have to be fast to adapt to changes in the environment. Although the perception of IT is improving, this also entails higher demands and expectations from business which in turn can implicate the emergence of new tensions in the relationship.

Until now we have explored how working in silos affects coordination and how the changing environment may impose different ways of organizing. We have drawn connections to coordination theory and discussed how relational coordination can help explain the complexity in the relationship between business and IT. We have analyzed the tensions and challenges in

essence from not having shared goals, shared knowledge and mutual understanding as these influence effective coordination, and accordingly, if not in place, constrain the coordination and undermine the relationship and quality of communication. Furthermore, we have exemplified how business and IT belong to different thought worlds which implicate the coordinating practices. However, we have not turned to discuss communication, which is central as coordination is reinforced through frequent, timely, accurate and problem-solving communication (Gittell, 2006; Bolton et al., 2021), hence this will now be elaborated on.

6.3 Inefficient communication and insufficient coordination

The usage of different languages such as differences in terminology, i.e. the body of terms used in a particular field, is depicted as a key issue and it is prevalent throughout the organization. Several employees and managers argue that communication is something they could improve on. Using different terminology is acting as a catalyst for irritation when different departments interact, which is illustrated by how the employees use different figures and terms when speaking and suppose the other party instantly understands. This is coherent with the findings of Carlile (2004) who found that coordination difficulties often arise as a result from differences in meaning, assumptions and contexts. Interestingly enough, even though both business and IT show evidence of this irritation, they can't find a common ground to solve it. Bechky (2003) argues that in order for employees to share knowledge and create a sense of understanding between each other, they must first and foremost create a common ground. She further addresses that one of the main difficulties to share knowledge between employees and departments, is the usage of different languages. Our findings depict how Cronos lacks a common ground where the employees from business and IT can interact with each other to the extent of truly expressing their opinions. The cooperation between departments seems to be reliant on individual initiative, rather than a common ground which is reachable for everyone. Therefore, the level of co-operation seems to be very dependent on who you are as a person. In addition to this, Bechky (2003) suggests that it might be hard for organizations to interact between departments due to specialization and that they may not share the same goals. Again, this stresses the implications from the different thought worlds and not having insights into each other's strategies and goals. However, as illustrated in the empirical findings, IT is now working more iteratively with the business and the employees have expressed that they want to include the IT department at an earlier stage regardless of project or department.

This willingness to collaborate can be described by the concept of trading zones. Kellogg et al. (2006) argue that in order to overcome difficulties and address how departments can create alignment and synergies between them, the employees should engage in trading zones. A trading zone is characterized by different practices being enacted in a temporal and local arrangement (Galison, 1997). When working within a trading zone, different communities and practices can overcome differences in interest, interpretation and understanding, and better exchange ideas and share knowledge. Establishing trading zones could thus be of use at Cronos in our meaning as it can help to overcome the implications from the business functions operating in different thought worlds. The data material also shows that people lack a forum where they can share ideas and inform each other what they are working on, and what they expect of the other departments. If this was to be established, Cronos might be able to better

align business and IT, especially on the digital transformation journey which is characterized by uncertainty.

It seems as both business and IT have realized that they can gain benefit from cross-functional collaboration, however, coordinating practices to bridge them do not exist. In spite of theory stating that common ground and the so called trading zones improves interactivity, the absence of them is considerable. Besides the difficulties of creating a common ground and not communicating efficiently, a recurring theme which has come to grow to an important aspect in this study is the issues connected with standardization. Throughout the empirical data, employees and managers have expressed their will to be more adaptable to changes, but at the same time, expressed their irritation of not having standardized processes at hand. In addition to this, many of the same people view Cronos, and especially the IT department as very slow and hard to change. Local solutions have been the norm, and having several solutions for one problem is not unusual. Interestingly enough, we have thus found Cronos in the middle of a paradox. On one hand, Cronos as an organization wants to become more responsive and adaptable to new changes and act in an agile manner, but on the other hand, they have an organizational culture which is permeated by local solutions where people solve problems however they deem most suitable in the context. In addition to this, they are immensely proud of their heritage and view themselves as a traditional manufacturing company within a new digital context. We argue that in order to become more agile, they need to at first hand standardize more processes, which could after hand create opportunities for agility. Feldman and Pentland (2003) do for instance argue that while routines can be a cause of inflexibility and inertia, it may also be an important source of flexibility and change. The desire to become more agile is maybe more dependent on the standardization of processes than what first is apparent, but we tend to see that the empirical material shows this.

In sum, Cronos are in a context characterized by ambiguity and uncertainty, where the digital transformation journey is still in the beginning stages and not specified for each individual unit. The organization wants to become more agile and be in the frontier of digitalization and industry 4.0, but they are struggling with implementing standardized processes that will take the organization and organizational practices to the next level. It is a complicated process and since the organization is operating world-wide in nations under different circumstances, the transformation will not happen overnight. However, an alternative to implementing standardized processes which is likely to demand a lot of resources, could be to invest in the relational dimensions to align the processes, goals and people to create collective action and thus manage the interdependence between business and IT. Doing so, the organization can manage the complexity in the relationship and handle possible tensions rising from the contextual changes. Cronos are by no means solitary to face the complexity of digital transformation and an ambiguous environment. Given continuous technological development, other organizations in other industries will most likely be facing situations that require them to change their organizational practices and to update their strategies. Thus, it is not only about the relationship between business and IT, but all functions, roles, and professionals working in different fields which may face ambiguities. Hence, we suggest that organizations should invest more in relational work and by this be more prepared for changes and be able to act in an agile

way. In an era of digitalization, it is vital to establish strong organizational relationships characterized by collaboration (Bharadwaj et al., 2013) and cross-boundary coordination seem equally important.

7. Conclusion

Organizations are facing changing demands in the business environment at the same time as the rate of technological change is increasing. This imposes implications on the organizational relationships which in turn affects the achievement of business and IT alignment. Addressing this, the purpose of this study was to scrutinize a large organization on a transformation journey and explore the relationship between business and IT. Our intention with this study was to answer the research question; *How is the relationship between business and IT organized in practice and what tensions, challenges and ambiguities might arise?* Through the lens of coordination theory, this study identified three main findings. First of all, evident in our data material is that organizational structure acts as the foundation in determining the static coordination mechanisms as it provides a description of what practices, routines and activities are at hand. Furthermore it determines the formal relationship and interaction between business and IT. Secondly, we found that differences in culture and practices between business and IT affects their relationship as it interferes in establishing mutual understanding and shared knowledge. This results in the emergence of different challenges and tensions between the two departments. Finally, we found that an organization must manage its communication effectively to overcome coordination challenges that might arise in an ambiguous and uncertain environment.

In addition to this, we also argue that Industry 4.0 and the digital transformation will most likely continue to re-shape organizations and have significant influence on how companies do business. Hence, coming up with single-handed solutions to problems will not be all that necessary as things will continuously change over the course of the next decades, thus the solutions will quickly become obsolete. Rather, organizations should try to incorporate a new way of working, some form of ‘meta-solution’ where collaboration, communication and cross-functional teams are part of the everyday practices and integrated in the organizational context, where standardized processes enable these organizational activities to operate optimally and in turn enabling and enhancing a team’s ability to be adaptable to change and agile. We began this paper by highlighting that organizations have to continually evaluate their strategies and business processes, and ensure that the IT system meets the business’ needs and expectations. To this, we want to add that it is important to continuously assess the existing coordination practices as the rate of technological change and the demanding business environment impose pressure on the relationship between business and IT, which in turn may obstruct the achievement of business and IT alignment. We also want to emphasize the importance of sharing knowledge between units and departments, as this has shown to facilitate effective coordination. Hence, practical insights can be given to business and IT professionals as this study addresses the relationship between them and why difficulties, tensions and challenges arise. By shedding light on this, the professionals can actively engage in activities that foster overcoming them.

Furthermore, our research contributes with theoretical insights to the field of business and IT alignment, specifically the research that sheds light on the importance of social alignment. Scholars have found that alignment is promoted when there is a good relationship between business and IT, and when IT supports the business operations in an effective manner (Luftman & Brier, 1999). Our findings have contributed by highlighting the root of friction in the relationship and what could be done to improve it. Moreover, research has shown how shared knowledge, shared understanding of the business environment, and communication facilitates in the process of achieving alignment (Reich & Benbasat, 2000; Alaceva & Rusu, 2015). Our research has supported these findings by empirically investigating the relationship between business and IT, and additionally, by showing how the state of the relationship in turn reinforces and facilitates the presented factors. In addition, our research makes a theoretical contribution by reconciling two streams of research, specifically drawing upon coordination theory to understand business and IT alignment. What can be concluded is that the activities promoting alignment can be managed through effective coordinating practices. This in turn suggests that to overcome the difficulties in achieving business and IT alignment, the organization should invest resources to enable coordination practices and cross-boundary relations. Hence, we argue that future research could address the topic and further investigate the correlation between coordination and alignment. Moreover, the issue of legacy and consequences from the past has been overlooked in past research addressing the social dimension of alignment, which is why future research could further investigate what impact this might have. Finally, as our study is limited both geographically and industrially, future research could address the phenomena from another cultural perspective and investigate if the findings withstands in other industrial settings.

8. References

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