New leadership & ICT-
The impact of technology on leadership practices among middle managers

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Abstract

Title: New Leadership & ICT - The impact of technology on leadership practices among middle managers

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Thesis Purpose: The study aimed to explore how the use of ICT has influenced the leadership role and thus also in what ways this has been helping the practice of the role among middle managers. The study was exploratory as an attempt to understand how the leadership role has been influenced in the new digital era.

Theoretical Perspective: Previous literature has been examined where different concepts have been chosen in reference to the study. ICT, its connection to leadership and the composition of the managerial role has been presented in this thesis.

Methodology: A qualitative method has been used for this case study with the aim to gain an understanding of the studied area. Collected data was analyzed using an abductive approach which involved back-and-forth engagement with theory and empirical findings.

Empirical study: For this qualitative study, semi-structured interviews have been made with four middle managers, all positioned at the case company.

Conclusion: The leadership role was found to be both facilitated and made more difficult due to the use of ICT. Communication as a part of the informational roles among leaders has been facilitated the most. The facilitation of the roles was also found to depend on the technological skills among middle managers and the organisational structure.
# Table of Contents

1. Introduction 1
   1.1 Background 1
   1.2 Problem discussion 3
   1.3 Research purpose 4
   1.4 Research question 4
   1.5 Delimitations 4
   1.6 Thesis outline 5

2. Theoretical framework 6
   2.1 Leadership in organisations 6
      2.1.1 Middle managers 7
   2.2 Leadership & Information and Communication Technology (ICT) 8
      2.2.1 Possibilities 9
      2.2.2 Problems 10
   2.3 Mintzberg’s model of the manager’s roles 11
      2.3.1 Interpersonal role 12
      2.3.2 Informational role 13
      2.3.3 Decisional role 14
   2.4 Analytical model 15

3. Research methodology 17
   3.1 Research design and approach 17
   3.2 Literature collection 18
   3.3 Data collection 19
      3.3.1 Interview procedure and structure 19
      3.3.2 Sample 20
      3.3.3 Ethical considerations 22
   3.4 Data analysis 23
      3.4.1 Analysis approach 23
      3.4.2 Operationalization of variables 23
      3.4.3 Coding 24
   3.5 Methodology discussion 24
      3.5.1 Literature discussion 26
4. Empirical results 27

4.1 Implications of ICT to the ten roles 27

4.1.1 Interpersonal roles 27

4.1.2 Informational roles 31

4.1.3 Decisional roles 34

5. Analysis and discussion 38

5.1 The impact of ICT on the leadership roles 38

5.2 New leadership practices 40

5.2.1 Facilitated internal and external communication 40

5.2.2 Organisational structure and characteristics 41

5.2.3 Inadequate technology 43

5.2.4 Frequency of interruptions 44

6. Conclusion 46

6.1 Contribution 47

6.2 Future research 48

References 49

Appendixes 58

Appendix 1 - Operationalization of variables 58
1. Introduction

1.1 Background

There is a lot of research indicating that the world is changing at an increasingly rapid pace and that the characteristics of change itself is evolving into being more pervasive and ongoing (Friedman 2005; Hughes, Ginnett & Curphy 2011; Martin 2005; Martin 2007; Steiber & Alänge 2016). Researchers argue that a lot of these rapid changes can be explained by the also rapid improvements in technology as it currently evolves exponentially and thus widens the use of such equipment in our society (Brynjolfsson & McAfee 2012; Dobbs et al. 2014; Friedman 2005; Rometty 2016). Today, technology is an excessive part of our everyday lives because of its accessibility and ability to offer digital presence at all times. Because of its broad utility and the fact that it aims to facilitate daily tasks, research concludes that improvements in technology are making us depend on such things increasingly over time (Dutta, Geiger & Lanvin 2015; Twenge 2017). Such findings can be explained by inherited human behaviour since people by nature prefer “the easy way” as it often is less mentally challenging and therefore lowers the need for the use of cognitive resources (Holt et al. 2015; Rips 1997). As a result, some human skills are being weakened whereas some others are improved (Turkle 2015), making scientists believe that new technology substantially will change the way we live our lives and how we behave among others (Friedman 2005; Twenge 2017).

This change could already be distinguished when information technology (IT) became a big part of our private and professional lives. This occurred in the early nineties when the, at the time, new technology started to get incorporated into most businesses (Lavtar 2013). Information technology has developed since then and largely been distributed among organisations (Avolio et al. 2014). As an extension to IT, information and communication technology (ICT) included everything that IT did but with added emphasis on communication technologies (Ketchum 2015). ICT has primarily influenced and changed the ways of communicating and allows organisations to store and handle large amounts of data that can be used to make analyses and thus make more well-grounded decisions (Lavtar 2013; Parida, Oghazi & Cedergren 2016; Richter & Wagner 2009; Vehovar & Lesjak 2007).
Despite the fact that this type of technology has been available for some years, many researchers argue that the new environment requires most organisations to change forthcoming, partly to meet the demands and needs of individuals but also to stay competitive as the complexity of doing business increases (Gandolfi & Stone 2016; Hesse 2018, Martin 2005; Speechey 2005). That is because organisations that manage to use and take advantage of new technology will be likely to increase productivity and effectivity, which means that fast adopters are likely to surpass their competition (Beer & Nohria 2000; Ernst & Young 2011; Henke et al. 2016; Speechley 2005). Environmental changes will therefore require organisations to change the way they perform daily operations, meaning that leaders will be facing a work environment that is different from before (Brynjolfsson & McAfee, 2016; Friedman 2005; Susskind & Susskind 2014). This shift is believed to be related to the increase in complex challenges that leaders are facing, such as being able to adapt continuously rather than occasionally (Gandolfi & Stone 2016; Heifetz, Grashow & Linsky 2009; Martin 2005). Technological improvements and digitalization are thereby assumed to fundamentally change the underlying foundations of leadership within organisations (Ancona et al. 2009; Hesse 2018). This is a type of leadership that for instance is presumed to be more about influence rather than direct power and increasingly constitute guiding rather than monitoring (Hesse 2018). Importantly though, neither of these occurrences seem to diminish the role of future leaders but instead change it from before.

Above all, research shows that middle managers are among those most likely to be affected by this new technology (Richter & Wagner 2009). That is first motivated by the fact that middle managers exercise a rather complex role where they aim to lead others but also to be led by top management and therefore act as the important link in between (Huy 2001; Wooldridge & Floyd 2017). Communicating among different parts of an organisation thereby constitutes a large part of the daily work, meaning that their role in general should be changing when such tasks are facilitated by ICT. Secondly, research shows that middle managers are becoming increasingly important during organisational changes since much of the power is transferred to the lower levels of organisations (Balogun & Rouleau 2017; Wooldridge & Floyd 2017). Assuming that the rapidly changing environment also requires a higher frequency of organisational changes (Brynjolfsson & McAfee 2016; Friedman 2005; Susskind & Susskind 2014), it could also be assumed that the importance of middle managers will increase forthcoming. Lastly,
studying middle managers in leading positions is further highly important since they are believed to influence the effectiveness of an organisation (Huy 2001). Hence, understanding their role and what implications new technology will have is an important aspect to investigate when conducting studies in organisational science.

1.2 Problem discussion

Taken all into consideration, it is fair to conclude that we are now in a time where successful organisations need to be adaptable to the constantly changing environment (CCL 2018). In addition, we now have a number of technological means that could be considered the catalyst for this rapid change (Dobbs et al. 2014; Friedman 2005; Rometty 2016). This kind of technology has often been implemented into organisations with the aim to facilitate day-to-day operations and streamline internal and external processes (Speechley 2005; Pennings 1995). ICT therefore influences how things are performed and thus also how the leadership role should play out to make effective use of the technology (Speechley 2005). Contradictory, there is research showing that the leadership role has not gotten as effective as one hoped for despite the increasing use of technology (Van Wart et al. 2017). This is for instance believed to be related to the difficulties in selecting the suitable set of ICTs and making everyone in the unit equally educated on how to use it properly (CCL 2018; Van Wart et al. 2017). Finding the reason for this consequently becomes important since most companies make major investments in technology and ICT with the presumably false belief it will increase the effectivity (Kassem et al. 2019; Vehovar & Lesjak 2007).

Also, despite these major changes partly caused by new technology, the adoption to them seems slow since the established theories on leadership appears to remain in popularity (Bodrozic & Adler 2017). This is partly problematic since previous theories are much reflected by fads and fashions at their time of origin, meaning that their relevance decreases on long-term as the context changes (Antonakis & Day 2017; Bodrozic & Adler 2017; Steiber & Alänge 2016). The likelihood that previous studies still make up a good representation of what managers actually do is thereby low, which makes further studies within the subject essential (Bodrozic & Adler 2017).
1.3 Research purpose

This study aims to explore how the use of ICT has influenced the leadership role and thus also how this has been facilitating the practice of the role among middle managers. The study will be exploratory as it is an attempt to understand how the leadership role among middle managers has been influenced in the new digital era.

1.4 Research question

Given the purpose of the study, this paper aims to answer the following question:

How does information and communication technology (ICT) influence the practice of the leadership role among middle managers?

1.5 Delimitations

The scope for this thesis will be on middle managers due to their prominent role in the organisational hierarchy and the great likelihood for them to be influenced by new technology. The aim is also to investigate the leader role solely from the middle manager’s perspective and focus on those operating in Sweden as it is among the top countries in the world when it comes to generating economic impact from investments in ICT (Baller, Dutta & Lanvin 2016). Carrying out the study in an environment where the technology is widely dispersed should enable some distinct results and possibly give an indication of how the same development may turn out in less developed areas.

The technological scope is limited to ICT as it is widespread enough to apply on most companies but also narrow to constitute a reasonable delimitation. In addition, this type of technology is considered to be best suited to the research question since its impact should be visible in most organisations by now. That would however not been the case if newer technology had been the subject of investigation and thereby resulted in a conclusion based on unsure predictions rather than empirical evidence.
1.6 Thesis outline

The continuation of the thesis is divided into the following main sections: Theoretical framework, Research methodology, Empirical results, Analysis and discussion, and lastly, Conclusions. The second section aims to provide an extensive overview of the research subject by presenting theories, models and concepts in order to support the understanding of the empirical study. The third section constitutes the methodology used to investigate the chosen research question and is presented in the same chronological order as the working process. It starts by describing the approach of the research, followed by information on the collection of data, analysis of data, and ends with a discussion of the chosen method. The fourth section encounters a presentation of the empirical findings of the study. The results from the interviews about the managerial role according to Mintzberg’s model of the manager’s roles are presented as well as how those are influenced by the used ICTs. The fifth section begins by presenting an analysis on the empirical findings and ends in a discussion of the new leadership role that has been discovered. The last section primarily presents the conclusions that could be made based on the findings in the study. This is followed by the theoretical and practical contribution, as well as suggestions for future research.
2. Theoretical framework

This section begins by presenting the concepts and definitions of leadership and middle managers, followed by ICT and its connection to leadership. Mintzberg’s model of the manager’s roles is presented, and lastly, the analytical model that will be used to help understand how the practices of the managerial role has been affected by ICT and how it may differ from before.

2.1 Leadership in organisations

Even though leadership might be one of the social science’s most studied subjects (Antonakis & Day 2017; Gandolfi & Stone 2016), there is no comprehensive and universal definition to it (Kent 2005). That is mainly because of the fact that leadership may take place not only in organisations but also in sports teams or in our everyday lives where people take on a leader role by choice. Leadership may therefore play out very differently depending on the occasion, meaning that not one style would fit everywhere.

Another reason for the diverse outlook on leadership is that previous research has not been able to agree on what it is that makes a good leader in general. Some of the most dominant approaches on leadership throughout history is the trait approach and the style approach, which consequently differs in the beliefs whether leaders are made or born (Richter and Wagner 2009). In the early 20th century when studies on leadership first began, the focus was on identifying the innate qualities and characteristics that suitable leaders were born with and differentiated them from their followers (Northouse 2007). Later however, researchers became less interested in investigating these traits and instead started focusing on leadership behavior (Northouse 2007). This approach consequently suggests that leadership is something that can be learnt and developed rather than certain traits and characteristics possessed since birth (Heifetz & Laurie 1997). This view on leadership has been advocated by several eminent scientists such as Kotter (2001), Mintzberg (1990), Katz (1986), Heifetz & Laurie (1997) ever since and will constitute the starting point of this thesis as well. Throughout the text, it is therefore assumed that leadership can be studied from a behavioural perspective and hence be developed over time by deliberate practice (Ericsson, Prietula & Cokely 2006).
Based on the theoretical approach of this thesis in regard to what leadership is, it could in general be defined to be an interaction process which happens in a context, involves influencing others and goal attainment (McNamara 2010). This includes that leadership is a process in which wisdom and knowledge can be learnt, that the leadership depends on the context and that the aim is to reach a certain goal. It also means that leadership is about the leader-follower relationship where not only the leader may influence the followers but also the other way around (Blom & Alvesson 2014). This definition consequently aligns with the underlying belief that leadership is a learning process containing a rather high degree of complexity.

Another important aspect to mention while attempting to define leadership is its relation to management (Gandolfi & Stone 2016). That is because previous research often claims that there is a distinction between managing and leading and thereby separates the two. Kent et al. (2005) describes the differences by defining the roles in three terms which are purpose, products and processes. The framework suggests that leading is about influencing and creating a common vision whereas managing concerns more concrete objectives such as organizing and realizing strategies. Kotter also distinguished the two concepts from each other by arguing that managing is about coping with complexity whereas leadership is about coping with change (Kotter 1990; Kotter 2001). Despite the distinction between the concepts, there is a need for effective leaders to be able to change between the two and thus requires that leaders perform both of them (Kotter 1990). Based on that, there is no need to make difference between the concepts since this thesis aims to investigate the roles of middle managers in terms of what they do and not what motivates their behavior. These concepts will therefore be used interchangeably.

2.1.1 Middle managers

There has also been a vast amount of theories and models trying to explain leadership and leadership effectiveness among middle managers. Yet, none of these are able to provide a comprehensive explanation since the meaning could differ depending on a number of factors such as the industry, level and organisation in which the manager operates (Antonakis & Day 2017; Castaner & Yu 2017; Katz & Kahn 1978). That is because a
middle manager within an organisation consisting of 500 people most likely possesses relatively less direct power than one managing in an organisation consisting of 50 people. Hence, a middle manager can be situated on several levels in the organisational hierarchy and either manage a vast amount of people or just a handful of those.

Also, the traditional view on managers is that their role does not include any regular duties such as seeing customers or engaging in negotiations (Mintzberg 1990). That view has however partly been proven wrong since most managers have some kind of responsibility in terms of performing daily operational activities (Castaner & Yu 2017). One of the most distinctive aspects of being a middle manager is therefore that they have to balance their time between their own work and the work of others, meaning that the overall effectiveness may suffer if not executed properly (Mintzberg 1990; Van Wart et al. 2017). This was for instance shown in a study made on 160 British middle- and top managers where these on average only managed to work without interruption for at least 30 minutes once every other day (Mintzberg 1990). Such findings may indicate that the regular commitments of the manager itself suffer and that the overall productivity decrease since interruption tends to slow down work (Murphy 2016).

2.2 Leadership & Information and Communication Technology (ICT)

Over the last 50 years organisations have relied more and more on technology to support communication and information processing in all areas of their operations (Brady, Fellenz & Brookes 2008). The evolution of technology has been accelerating faster during the past 25 years (Van Wart et al. 2017). For a long time, the traditional form of information technology (IT) was only used as technical support, since the use of information systems did not play a dominant role until a few decades ago (Lavtar 2013). ICT is a concept for all technical systems that are used to communicate, store, progress, transfer, and manipulate information (Kassem et al. 2019). The tools included in this concept are mobile phones, computers, internet, e-commerce packages, skype, e-mail and so on. These tools have become so important that countries have been ranked on their ICT maturation, with Sweden, Denmark and Korea as top countries (Van Wart et al. 2016).
ICTs have further been used as administration and business process management support and the tools have become effective in decision-making within modern organisations (Lavtar 2013). These tools are highly integrated in most workplaces and play a great part in how managers perform their work. Investments in ICT have resulted in major changes for the internal organisation and how communication is done (Vehovar & Lesjak 2007). Lavtar (2013) argues that ICT at first used to serve as data processing support and management information systems but has developed into strategic information systems which are included in an organisation’s business strategy. Parida, Oghazi and Cedergren (2016) argue that ICT capabilities can be of high importance in order to enhance other capabilities within organisations. They define ICT capabilities as an organisation’s ability to use a wide range of technologies strategically for business purposes, from basic to more advanced ones. Adapting to ICT is important both for leaders and aspects of decision-making and management, since leaders can improve their effectiveness and be role models for their employees (Van Wart et al. 2017).

Lavtar (2013) further argues that middle management has gone through substantial changes due to ICT over the last decades. They have become more of strategic decision-makers since ICT provides more data to make well-grounded decisions, as well as it facilitates information sharing inside organisations. The choice of communication tool has become more important since there are many tools to choose from for different purposes (Richter & Wagner 2009). Tacit knowledge sharing within organisations has also increased the expectations on middle management in building and wording such knowledge (Lavtar 2013). This means that middle management has received important tasks related to information sharing within organisations. Further, ICT has become highly involved in the daily work among middle managers. The functionalities of these technologies are both present in administrative tasks as well as in communication with their followers (Van Wart et al. 2017).

### 2.2.1 Possibilities

As technology advances, leadership does as well, and nowadays a great deal of leadership is done by using technology (Richter & Wagner 2009). Consequently, a necessary skill for leaders is to be able to communicate and choose the right tools to reach the targeted
audience in more technical environments. When doing so, communication can be done more effectively (Richter & Wagner 2009). Availability of leaders and followers may improve task performance by just-in-time updates, guidance and feedback (Avolio et al. 2014). Effective leaders adapt to the situation and the follower, and the choice of communication channel determines the communication effectiveness (Börekçi 2009). Börekçi (2009) argues that technology leads to freedom and flexibility for leaders, which is helpful since they can work from different destinations and easily get in contact. ICT also provides leaders with tools and channels to interact with other stakeholders, which makes them effective networkers (Richter & Wagner 2009).

The aim of ICT is further to enable people to share information through common platforms and electronic storage, which can make it easier to acquire, store or spread knowledge (Soto-Acosta & Cegarra-Navarro 2016). Communication is facilitated with ICT since there are more communication tools available depending on the situation and the location (Van Wart et al. 2017). E-mail, instant messaging, virtual conferencing, intranets and decision support systems are some of the tools that supports both communication but also decision making for today’s leaders (Van Wart et al. 2017; Baller, Dutta & Lanvin 2016).

2.2.2 Problems

However, ICT does not only bring comfort and possibilities, it could also result in different communicative problems and control issues. Computers, mobile phones and other technological tools should make our lives easier and create a sense of control over our environments (Best 2009). Although, Best (2009) mentioned studies on ICT that revealed control and handling issues, meaning that those who did not understand the functionality of the tools experienced a lack of control. Moreover, the easy access to these systems and the lacking sense of control could lead to security and privacy issues, which results in the need for protecting sensitive data (Olivo et al. 2016). Avolio et al. (2014) meant that these kinds of technological tools have been linked to stress, decreased performance, and lack of social abilities, such as communication and understanding. The problems that have been reported the most with ICTs are connected to increased employee
isolation, confusions, miscommunications, overloads of communication, interpersonal trust, motivation issues, and decreased responsibility (Van Wart et al. 2017).

Leaders can be in constant contact with followers due to the use of mobile devices which could lead to constant interruptions, even after work hours, and further result in higher levels of stress and less effective work (Avolio et al. 2014; Van Wart et al. 2017). Leaders and followers communicate a lot more with different ICTs instead of face-to-face (Börekçi 2009; Van Wart et al. 2017). This means that leaders who used to be effective in traditional offline settings might experience difficulties if they cannot change from a physical into a virtual context (Richter and Wagner 2009; Van Wart et al. 2017). This problem is partly due to lack of understanding of ICTs (Van Wart et al. 2017). When new digital tools are not understood by all parts of an organisation, it is believed to complicate both innovation and digital transformations (CCL 2018).

2.3 Mintzberg’s model of the manager’s roles

Henry Mintzberg has played a major role in shaping the concept of managing and has provided one of the most comprehensive explanations to the managerial job at several occasions since first publishing *The nature of managerial job* (1973). One of the most fundamental discoveries is displayed in the article *The Manager’s Job: Folklore and Fact* where common myths about the job are being discussed and alternative explanations presented (Mintzberg 1990). In the article, Mintzberg’s findings were summed up in a model that aimed to provide yet another framework on what managers do but in a more nuanced and complex appearance than before (Mintzberg 1989). The model serves primarily as a theoretical framework but does also have a practical applicability as it may help managers to realize what their role is about in a bigger perspective (Mintzberg 1990). This knowledge is important since a manager’s effectiveness is believed to be highly influenced by the insight and knowledge of its own work (Mintzberg 1990, p. 19).
Figure 1 - An illustration of Mintzberg’s model of the manager’s roles (Mintzberg 1990, p. 15).

The model illustrated in Figure 1 presents a set of ten roles, divided into three main categories consisting of interpersonal roles, informational roles and decisional roles. Mintzberg (1990) argues that formal authority and status in a manager gives rise to the interpersonal roles, which in turn opens up for the informational roles as the manager serves as the nerve center of the organisational unit. Lastly, being the one possessing more information than most subordinates do further enable managers to take on the decisional role. These roles are hence seen as an integrated whole where sufficient management are unable to exist without the involvement of them all. A manager should therefore be able to master all of these roles even though the time allocated to each one mostly is determined by the organisation's needs (Mintzberg 1990).

The research leading up to the model was made on managers on an executive level but was aimed to offer a broader applicability (Mintzberg 1990). That is because all managers are believed to take on all of the ten managerial roles even if the execution is likely to differ between an executive manager and a first line manager due to having different responsibilities. The model is therefore interpreted to be applicable to managers situated virtually anywhere in the organisational hierarchy as long as those compared are equals.

2.3.1 Interpersonal role

The fact that managers hold a certain degree of formal authority makes it possible for them as a first step to take on the interpersonal role. As the name indicates, this role is primarily about establishing personal relationships and creating cohesion within a group
of subordinates. The first role that managers take on in this matter is about being the figurehead (Mintzberg 1990). This means that a manager functions as the center of the unit and brings together all loose ends. This includes for example to perform routinized and ceremonial duties such as welcoming new employees or writing letters of recommendation to those leaving.

The next interpersonal role is about being the leader (Mintzberg 1990). Acting as a leader in this case mainly involves to train and lead but also to motivate and encourage others into reaching common goals. Being a good leader in this sense also includes giving a great amount of empowerment to subordinates as it signals trust, which is positive in multiple ways. Amongst other things, it encourages people to trust their own capabilities that result in a spiral of more positive outcomes (Staw, Sutton & Pelled 1994). Empowering employees is also believed to highly increase the intrinsic motivation as of satisfying certain internal needs such as feeling needed and involved (Frey & Jegen 2001). There is hence a strong positive correlation between employee motivation and performance, meaning that the leader role in Mintzberg’s model should be highly essential for the sake of the unit’s effectiveness.

Lastly, the interpersonal roles also include the act of being the liaison between the own unit and third parties (Mintzberg 1990). Being the liaison is according to Mintzberg’s model about making contacts outside of the vertical chain of command and thus establish relationship farther than their own unit or company. This includes making contacts with external stakeholders and is all about communicating efficiently to make operations go smoothly. This role should consequently be of importance not only when trying to make the managerial role more effective but also for the sake of the effectiveness of the unit as a whole.

2.3.2 Informational role

As of being the one in charge of an organisational unit, the manager often possesses more information than most others, meaning that it may bring a certain power that goes beyond their formal authority (Morgan 2006, pp 167). A vast part of their role is therefore to communicate this information further which leads to the informational roles (Mintzberg
Due to being the spider in the net and working as a liaison, a manager often has a broad network and personal contacts from where new information can stem. One aspect of a manager's job is therefore to scan the environment for relevant information and use it to control processes within the unit (Mintzberg 1990). This part is referred to as being the monitor and mainly focuses on the gathering of information, which later functions as the basis when deciding on how the unit should be controlled and monitored.

The second informational role is being the disseminator which in practice is about distributing the collection of information within the unit in a preferable way (Mintzberg 1990). This may sound easy but is in fact a rather complex task. That is because it involves finding the balance between providing a sufficient amount of information and also avoiding information overload as it may harm the overall effectiveness (Riahi-Belkaoui 2004). Further, some information does also have to be communicated outside of the unit. It could for example be appropriate to inform an important supplier about an unknown flaw in their product since it would be advantageous to both sides. It is also the manager’s job to spread information about the organisation and its current operations and goals to people on the outside. The managerial role is hence also about being the spokesperson and thereby transfer information externally to the right places and people (Mintzberg 1990).

2.3.3 Decisional role

Lastly, the person with most knowledge is also the one that is best able to make well-grounded decisions. That is why managers, along with their formal authority, also covers the decisional role (Mintzberg 1990). This one further constitutes four roles which consists of different aspects of decision-making.

The first role is to voluntary seek for improvements and come up with strategies on how to develop the unit (Mintzberg 1990). It is called the entrepreneurial role and could for example be practiced if a manager reorganizes the unit with the aim to make it go from good to better. This role also aims to adapt the unit to the environment, meaning that its importance should increase as the environment now is claimed to be changing faster than before (Brynjolfsson & McAfee 2016; Friedman 2005; Susskind & Susskind 2014). The
second role is the disturbance handler and includes the involuntary act of solving certain issues that are out of the manager’s control (Mintzberg 1990). The main difference to the entrepreneurial role is thus that the first includes elements of being proactive whereas the latter primarily aims to fight fires that already have occurred. This role could for example take place in association to a strike or if an important supplier is facing bankruptcy.

Another important role that managers take on is the resource allocator where the main task is to decide who gets what (Mintzberg 1990). This might be one of the roles that most remind middle managers of their position in the horizontal hierarchy since the views on how to allocate resources often differ between top management and people at lower levels (Pinsonneault & Kraemer 1993). It is therefore usual for middle managers to get stuck in the middle when trying to act as the mediator. The last decision-making role is the negotiator which arises from taking on all the other roles (Mintzberg 1990). That is because no other person both possess the same amount of real-time information and formal authority, and the leader should therefore be the one that is best equipped to face important negotiations. These ten roles are subsequently ought to be a representation of what managers used to be doing and thus constitutes the object that may change along with the changing environment.

2.4 Analytical model

The following section accounts for the parts of the literature that are considered most relevant and important for this study. For this, Mintzberg’s model of the manager’s roles will be combined with the implications found on middle managers and ICT. Hence, the model will aim to function as a tool when analyzing the empirical data found during the study and explain certain findings and relationships.

Mintzberg’s model of the manager’s roles is meant to summarize what managers do where these tasks are grouped into interpersonal-, informational- and decisional roles (Mintzberg 1990). It is also being claimed that these roles are interrelated since they all arise from formal authority and then evolves naturally within a unit. It is therefore likely that these roles continuously will make up a good representation of the managerial role. However, it is also likely that the need for each role will change due to the introduction
of ICT since it could influence the roles differently. The overall composition of the leadership role is hence believed to change as a result from the fact that ICT is better at serving some purposes than others. By asking managers questions in regard to the use of ICT and if it has facilitated, hampered or left the ten managerial roles unaffected could thus provide an understanding for how each role has been affected.

The model visualized in Figure 2 based on Mintzberg’s model is developed to help investigate the relevance of the previous outlook on the managerial role since the recent rapid development in ICT. The model intends to highlight the fact that the new technology permeates the various managerial roles differently and thus generates a new type of leadership shown in the bottom layer. This information will later constitute the empirical data of the study and be compared to previous theories to enable an answer to the research question.

![Figure 2](image.png)

*Figure 2 - An illustration of the analytical model where the assumed relationship between the new leadership role and the use of ICT is shown.*
3. Research methodology

The methodology used to investigate the chosen research question is presented in this section in chronological order. It starts by describing the research approach and design, followed by information on how the data was collected and lastly how that data was operationalized and analyzed to lead into a conclusion. The section ends with a discussion in regard to the chosen methodology where aspects such as reliability and validity is brought up.

3.1 Research design and approach

Leadership is a well-studied field. ICT and foremost its connection to leadership is however far from exploit which was one reason to use a qualitative approach for this study. Qualitative research aims to gain an understanding of human behaviour which was appropriate when observing how the leadership role has been influenced by ICT (Johannesson & Perjons 2014). This approach offered respondents to share subjective feelings and motivations, as well as it enabled for interpretation and translation of complex data (Hakim 2000). It has been an exploratory study since it aimed to gain an understanding of how the leadership role has been influenced by ICT among middle managers (Bryman & Bell 2015).

For this research, a case study design has been used where middle managers at a single organisation have been interviewed. The choice of case company was based on two criteria. First, the company needed to be large enough so there would be a wide range of middle managers to fit the sample criteria and be able to interview for the study. Secondly, it was important that technology was not a part of the core business as this would make it difficult to find the impact on the leader role solely from using ICT. The case company was located near Stockholm and was part of a global group. The group was successful in terms of being the world leader in its market with operations all over the world. Operations within this organisation were decentralized to enable short decision-making paths, and to facilitate communication and information flows. The Swedish organisation within the group consisted of about 400 employees and had an annual turnover above 1 Billion SEK.
A pre-study was conducted once the authors had found an organisation for the case study. This was done in order to select an interesting and relevant focus for this paper that could possibly have an interesting contribution, both practically and theoretically. Since many interesting aspects were found within the field of leadership and technology, the authors could discuss these subjects in general with managers within the selected organisation beforehand in order to find out what kinds of technology they used. The pre-study resulted in selecting ICT as the technological focus and thereby narrowed the research question. Through the pre-study and the interviews, it got obvious that there were some types of ICTs that were more used than others within this organisation. The most commonly used tool was Skype as it was claimed most useful in order to check someone’s availability, receive rapid answers or communicate rather unimportant matters. Using e-mails as a communicative tool was also popular among the respondents despite the fact that it brought along both positive and negative aspects. There were also a lot of controversies regarding the ERP system which made such technologies interesting to focus on.

The case company and the respondents have been kept anonymous and instead given fictive names in the study since this could allow for more relaxed interviews and truthful answers. The anonymity has been considered not to hinder the understanding of the study and its results, which is why only certain key information has been provided further on. Also, since a case company has been used, the respondents have similar prerequisites and access to ICT, which should establish comparability among the respondents. Case studies are further particularly well suited for research areas where existing theory seems inadequate and where a fresh perspective is needed (Eisenhardt 1989). The aim with a case study analysis is thus to focus on the uniqueness of the case and to create a deeper understanding of the subject (Bryman & Bell 2015; Eisenhardt 1989), in this case with the focus on how ICT influences leadership practices.

3.2 Literature collection

The theory for this thesis has been conducted systematically and continuously throughout the writing process due to the abductive approach applied. Earlier research has thus been critically examined and compared in order to make sure it was trustworthy and to further
develop an understanding of the subject. It started with a broad literature search within
the subject with the aim to find relevant theories and prominent researchers before it got
more specified. This was also done in order to find an interesting research area and to
come up with suitable delimitations.

To find relevant references from previous research within the subject, some keywords
were used (Bryman & Bell, 2015). The keywords Information and Communication
Technology (ICT), Leadership, Leadership Roles, and Middle Manager were searched
for in electronic databases such as Google Scholar. Also, since this study aimed to
investigate leadership in the light of technology, it was reasonable to compare the findings
with the set of theories that reflected the roles of leaders at the time before technology
started to make an impact. The focus was hence directed towards theories stemming from
that time which also became an important aspect when searching for relevant literature.

3.3 Data collection

The empirical sources of the study consist of four semi-structured interviews. Using
interviews as the primary source of data has been a strategic choice made to create an
extensive analysis within the given time frame of the study.

3.3.1 Interview procedure and structure

Apart from the pre-study, data was collected through interviews since this type of data
collection provides many advantages. Interviews are flexible and leaves room for
discussions and new directions, as well as they enable a limited time of participant
observation (Bryman & Bell 2015). The interviews were semi-structured with an
interview guide to provide specific questions but also allow for the interviewer to ask
further questions (Bryman & Bell 2015). Some questions were designed as open question
in order to let the respondents have leeway in their answers, while others were more
specific. The direct questions were left until the end of the interviews to not influence the
direction of the interviews. However, the interview guide worked as a foundation for the
interviews to ensure that all subjects were being discussed but still partly allowed the
conversations to take other directions. Since these types of interviews contain elements
of a structured quantifiable interview, the degree of comparability among the interviewees could be increased (Brewerton & Millward 2001).

There was a need for some more specific and closed questions to be able to create a connection between the leadership role and the use of ICT. The interviewees got to answer a number of questions related to the ten roles of what managers do according to Mintzberg’s model. The model was operationalized by creating examples of each role which later questions in the interview guide aimed to correspond to (see Appendix 1). The aim was to see whether the ten roles were still accurate, if they were equally important and how a possible change could be related to the use of ICT. Moreover, the interviews took place in the respondents’ offices in order to make them feel more relaxed. The interviews were recorded for the interviewer to listen to the interviews again and be able to ask the respondents supplementary questions. This was also done to in order to transcribe the interviews and analyze the data (Bryman & Bell 2015).

### 3.3.2 Sample

For this study, a purposive sampling was used as the intention was to interview middle managers within the same organisation and with the same usage of ICT (Bryman & Bell 2015). There are different arguments for the sampling size as some people claim two intensive interviews to be enough while others argue for “the more the better” (Bryman & Bell 2015). For the study, it was decided that four interviews would be a sufficient amount since it was believed to allow for in-depth conversations with each respondent but still yield a decent amount of data to make a comprehensive analysis. However, sample size is often less significant in qualitative studies since the aim is to provide important and rich information rather than to represent a larger group (Slevitch 2011). Hence, since the purpose with this case study was not to draw conclusions from generalizations, a fewer number of deep-oriented interviews within the same organisation was considered the suitable option in this case. This study also considered a rather large amount of theory including a ten-role managerial model, meaning that too much empirical data would not have been possible to structure and analyze within the limited time frame.
The respondents for this study were chosen with the aim of finding the kind of leaders that most successfully could provide information that would contribute to answering the research question (Denscombe 2014). The criteria used to select the respondents were first that they held a position that could be defined as a middle manager with direct power over about ten persons. This was a decision made upon the facts that it best corresponded to the organisational structure of the case company and that this is considered to be the amount of people able to be controlled by a single leader (Forssell, Ivarsson & Morén 2007). The second criteria were that the respondents would have an equal access to ICTs and use them with the aim to facilitate their work. By using data from interviews with middle managers in similar roles within one organisation, the comparability among the interviewees could be increased and hence better ensure casualties. Some information about the respondents and their interviews can be found in Table 1.

<table>
<thead>
<tr>
<th>Fictional name</th>
<th>Department</th>
<th>Date of interview</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondent 1</td>
<td>Susan</td>
<td>2019-04-05</td>
<td>56 min</td>
</tr>
<tr>
<td>Respondent 2</td>
<td>Anne</td>
<td>2019-04-05</td>
<td>53 min</td>
</tr>
<tr>
<td>Respondent 3</td>
<td>Agnetha</td>
<td>2019-04-08</td>
<td>62 min</td>
</tr>
<tr>
<td>Respondent 4</td>
<td>Peter</td>
<td>2019-04-08</td>
<td>45 min</td>
</tr>
</tbody>
</table>

*Table 1 - Compilation of the respondents in the study.*

*Respondent 1 - Susan*

The first respondent to be interviewed was a middle manager within the supply chain, who was responsible for employees in planning and production areas. Except for this responsibility that involved a lot of meetings and guidance of followers, the role also included a lot of work in developing projects.
Respondent 2 - Anne

The second person to be interviewed was a middle manager within finance and administration who was responsible for a group of ten employees within her unit. The main focus of the role was to make sure that the accounting team were functioning and that they knew what they should be doing. She was also a part of the finance team and had some responsibilities in the daily accounting and financial work.

Respondent 3 - Agnetha

The third respondent was also a middle manager within finance and administration with another team of nearly ten employees reporting directly to her. The aim of the role was to develop an independent team and be the main source of support. In line with this, the daily work consisted of making reports and attending meetings.

Respondent 4 - Peter

The fourth and last respondent was a middle manager with the main responsibility to handle development and liquidation of products, while being the one to turn to for problem-solving issues. This role involved a lot of communication with different employees and a rather large number of meetings.

3.3.3 Ethical considerations

As much information as possible were given to the participants in order to avoid lack of informed consent. This means that when suitable managers were asked to contribute in the study by being interviewed, they were given as much information as needed to make an informed decision of whether to participate or not (Bryman & Bell 2015). In the same manner, the participants also had the right to privacy, and they were informed that their names would not be included in the study but replaced with fictive names. Therefore, the respondents were treated sensitively and individually and were given the opportunity to not answer questions or topics they would possibly identify as private (Bryman & Bell 2015). The respondents were informed of the study and its purpose, and given the definition of ICT, both in advance by e-mail and orally before the interviews to avoid misunderstandings and allow greater understanding of the purpose with the study.
3.4 Data analysis

3.4.1 Analysis approach

The approach used for the analysis of the collected data was abductive, which involved back-and-forth engagement with the social world as empirical source and the literature (Bryman & Bell 2015). Once the interviews were recorded, they were transcribed as soon after as possible. The transcribed data was coded and displayed in different tables in order to make it more manageable and easier to relate to the research question. The operationalization of variables was helpful in the coding process of the collected data, which is further described below.

3.4.2 Operationalization of variables

In order to enable a translation of the study's theoretical starting point into interview questions, a methodological operationalization has been made in which defined theoretical concepts have been broken down into more measurable variables. In order to operationalize the various leadership roles as a first step, interview questions have been developed in order to capture their underlying variables. For example, the variable of being the leader as one of the managerial roles has been operationalized into posing questions about motivation and encouragement. That is because these are the underlying variables that define the leader role in Mintzberg's model. Another example is the role of being the disseminator, which is captured in interview questions about how and what kind of information the manager shares with others internally. The questions have first been asked to solely be connected to the leadership roles but have then been followed up with additional questions to find out how these have been affected by the ICTs. These questions have mostly been formulated in terms of how certain tasks are performed and if the technology is being helpful or not. The complete operationalization and their corresponding example questions can be found in Appendix 1.
3.4.3 Coding

The technique to further analyze the data collected from the interviews was to make tabular displays of the data to facilitate the coding process. The questions from the interview guide were put in one column followed by each respondent’s answer to that question. Their answers were further valued and shortened in a new table to enable a comprehensive overview in order to make comparisons between the answers. This was also done to be able to manage the qualitative data without destroying their meaning by thorough coding (Eisenhardt 1989). The answers within the tables associated to Mintzberg’s model of the managerial roles were later coded and highlighted differently depending on if they were perceived to be facilitated, made more difficult or left unaffected by the use of ICT.

Moreover, the roles were also analyzed in order to see which ones that were practiced the most among the interviewed middle managers. Certain questions related to each role in Mintzberg’s model were also stated with the purpose of analyzing their importance from the interviews. Using this method to analyze the data was considered most reliable since it interprets behaviors according to the predetermined roles rather than solely considering the words of the respondents. That was important since it otherwise could lead to a skewed study since a middle manager’s perception of its own role might be overly positive due to often wanting to move up in hierarchy (Nealy & Fiedler 1968).

3.5 Methodology discussion

As with most qualitative studies, their outcomes may be related to trends and fads of their time of origin. It is therefore difficult to decide whether the conclusion of the thesis was biased towards a certain direction due to today’s perception on how organizations most successfully should be run. This affects the reliability of the study which refers to the likelihood that repeated studies would yield the same conclusions (Brewerton & Millward 2001). However, since the individual interviews in this study reflected the reality during a specific time and accounted for a situation that was likely to change, it may be difficult to make similar findings later in time (Saunders, Lewis & Thornhill 2016). The reliability
is thus limited in this study, which can be explained by the fact that the subject of investigation is of a complex and dynamic nature.

Additionally, it is not possible to attain objectively truthful studies when a qualitative approach is used to investigate a certain phenomenon. This was evident in this study since there is no such thing as a single answer on what good leadership is or how to achieve leadership effectiveness universally (Kent et al. 2005). Another problematic aspect that applies to studies on leadership is the unwanted tendency that the representation of a leader gets skewed (Nealy & Fiedler 1968). That is because these studies mainly are based on personal narratives and thereby tend to lead to an overly positive description and sometimes even an idolized view on leaders collectively. Leadership is also often correlated to the degree of success within an organisation, meaning that leaders at high performing firms are considered better than others and vice versa. Trying to find an objective representation of leaders and leadership is subsequently difficult.

Furthermore, the thesis focused on the behaviour of middle managers as opposed to certain skills and characteristics. This is advantageous mainly by two reasons. First, behaviour is easier to observe and thus permits the study to be based not only on subjective claims. Secondly, people are less defensive about their behaviour than their personality since they are more in control of the behaviour (Hughes, Ginnett & Curphy 2011). Focusing on the behavior therefore allows studies both in terms of observations and interviews where the results are likely to correlate due to a low incentive to distort the reality. On the other hand, this study was solely based on claims and experiences of the middle managers themselves. One manager's reaction could therefore have differed considerably from another's who was situated in the same situation. A perceived stressful mailbox could thus have contained 4 or 400 new e-mails a day, which was not visible in the study. This affects the internal validity which could have been strengthened through longitudinal observations as a complement to the interviews (Bryman & Bell 2015). However, this was not an option because of the existing time frame. This was instead hedged for in other ways, such as by offering anonymity to the respondents and thus provide some degree of transparency. The external validity, i.e. the generalizability, is on the other hand stronger due to the widespread use of the chosen technology and by the fact that the main focus was on the managerial role in general and thus did not limit the applicability to certain industries or companies. The generalizability is therefore rather
high despite the fact that single case studies usually do not result in any general empirical validity that can be applied on larger populations (Yin 2014).

3.5.1 Literature discussion

All literature used for the study was systematically and critically evaluated in order to generate a valid and credible contribution to existing research. The overall strategy when searching for relevant literature was to find research from people with great knowledge and experience within their respective field during the chosen time. This means that some older literature was used together with modern research with the aim to demonstrate the development made within the subject. Thus, it was important to remain critical towards the research made a long time ago, as its credibility is considered to diminish over time (Ejvegård 2003).

Another aspect to take into account is that Mintzberg's model that was used to explain the managerial role have been criticized over the years. Most of the criticism have concerned the fact that the model is not fully comprehensive in terms of what managers do, just like its predecessors. This is however usually problematic in models that aim to illustrate a generalized picture of the reality since there always will be cases that deviate from the norm. The model has therefore been considered to constitute a suitable description of the managerial role despite being unable to explain the role fully or universally. As already clarified, the model also intends to compare middle managers on the same hierarchical level, which largely makes limitations like these less relevant.
4. Empirical results

This section provides a presentation of the empirical findings made during the four semi-structured interviews. The findings are presented in accordance to Mintzberg’s model of the manager’s roles and deals with both the execution of the roles and how this is influenced by ICTs.

4.1 Implications of ICT to the ten roles

4.1.1 Interpersonal roles

4.1.1.1 Figurehead

The first out of the interpersonal roles in Mintzberg’s model of the manager’s roles shown in Figure 1 was the figurehead role, which is about establishing relationships within the unit partly to perform ceremonial duties and act as the nerve center of the organisation (Mintzberg 1990). Peter mentioned that he was the center of the unit and represented the organisation in different ways.

*So, I am a lot like a spider in its net, I am in contact with production, with marketing, and so on.* - Peter

Peter communicated with persons within different departments due to being more involved in developing products and similar. Since the figurehead role is about relationships and connections, communication is a major part. Anne expressed that especially communication with the team could be done more effectively with ICT.

*Skype makes it possible for me not to run around to ask minor questions you want quick answers to. It takes 15 seconds instead of five minutes.* - Anne

E-mail, Skype and the shared calendars were also useful in a way that the managers could see if other employees were available or if they were busy in meetings e.g. The respondents spent a lot of time communicating with their followers and other employees and these tools made communication more efficient since the respondents did not need to
physically search for other employees or plan far ahead. It was also evident that ICT facilitated this role when the distance between the communicating parties increased.

_We sometimes have meetings through Skype even if both parties are located in the same city or building, then you do not have to go anywhere. [...] We can spend less time on meetings and travel less. I do not need to travel to other cities as much as I did some years ago and the saved time can be spent on other things._ - Peter

Skype was argued to be extra valuable for the leaders since they did not have to travel to meetings as much as they did before, which saved a lot of time.

4.1.1.2 Leader

The leader role is the second interpersonal role in the model and involves training and motivating followers. This role was found to be practiced by the respondents in how they gave feedback, wanted to be available and to get to know their employees to see what motivated them to do a good job.

_ I am trying to get to know the persons to figure out what drives them, what interests them, and what motivates them [...] If you have a purpose with what you do, it automatically becomes more motivating._ - Anne

_When someone is doing good you should give positive feedback, it does not have to be much more than to make people feel appreciated._ - Peter

This could be one of the roles that the leaders spent most of their time on since it covers to train and lead their followers, which was found to constitute almost half of the job. It was argued to be highly prioritised in order to make followers more independent.

_ My number one focus is to make my employees as independent as possible. The more independent they are, the more time I get to do other things._ - Susan
Susan thought of coaching and motivating her employees as a way of making them more independent in order to make more time for other tasks. She experienced that she spent about 60-70 percent of her time coaching her employees. To dedicate a lot of time on coaching was also considered very important for Anne who said that the workflow of the unit was the main focus and that her own tasks were executed after that.

You can say that I was hired to make sure this group is working [...] so my main focus is to have a functioning team. - Anne

Agnetha did not spend as much time on this as the other respondents, she wanted her employees to work and learn independently and to be in charge of their own work. She meant that they could come to her if they needed help, but that she did not feel like she needed to control them. Even though the respondents wanted to have independent working teams, they all wanted to be available for their employees when needed.

If I close the door, they respect that I do not want to be bothered, but I do not think that it is the best solution, I would rather want to be available. If I get to sit and work unbothered for 30 minutes, then it usually does not get any longer than that. - Susan

Both Anne and Agnetha mentioned that they often had to work before or after work hours if they did not want to be interrupted. Even if interruptions would occur even without ICT, these tools have made it possible for far more people to get in touch by calling or sending e-mails etc. ICT made more interruptions possible, but the respondents still felt that the overall advantages were higher.

There is either someone calling or e-mailing, but I use to work early in the mornings, since it usually is pretty empty and peaceful here before eight a.m. [...] I do not want to close the door, I want to be available, so if the door is closed it is during meetings or phone calls. - Agnetha

Moreover, even though Skype was perceived to increase efficiency, it did also lead to more interruptions. All of the respondents mentioned how they only could work
uninterrupted for about 30 minutes on average. Peter mentioned that is was possible to work for five minutes at times and for two hours at other times. Although, Anne stated that interruptions happened at all times yet that it was welcomed and a part of the job.

*I can close the door to my office if needed. Otherwise I get to sit unbothered for two hours perhaps, and at times around five minutes.* - Peter

*I do not think it is a problem to be bothered. I can usually work for a long time since I work different hours. I do the work where I need to focus longer during the evening or late afternoon since it is pretty empty here [...] I like to be bothered, I work like that even though most evidence shows that you should not.* - Anne

Susan, Anne and Agnetha believed that it was easier to create a sense of team spirit when seeing each other in person, but also that ICT has been helpful to keep in touch with people located in different geographical areas. Peter expressed that without ICT they would not have been able to create a team spirit at all in some cases as they sometimes collaborate with companies in foreign countries.

*It is easier to create a sense of team spirit when you physically meet. But afterwards you can continue with digital communication.* - Susan

*We have a project with an Asian company, and we use Skype for meetings, but we have been there a few times as well. If we did not have Skype or e-mail, we would not be able to create a team spirit at all.* - Peter

The respondents considered online communication tools to be important for communication with the team. Anne also mentioned that if employees were sick or travelling they could still join team meetings from their location.
4.1.3 Liaison

The third of the interpersonal roles, the liaison, is mostly about communicating and establishing relationships with external stakeholders (Mintzberg 1990). Susan and Peter claimed that they spend some time in this role by communicating with third parties outside of the company. Susan experienced that ICT facilitated communication, and especially with external stakeholders.

*It facilitates the external communication a lot. I used to travel a lot more before than I do now, and that is because you can perform a lot of meetings through Skype.* - Susan

Agnetha and Anne did not communicate as much with external stakeholders. Although, Anne meant that one always has to represent the company when meeting people outside the organisation, whether it is on your free time or during work.

*If the one you meet has a relation to the company where you work, you get to take that negativity, story, or other, and in turn represent what this person thinks.* - Anne

Even if all the respondents did not practice this role as much, they all agreed on how ICT was crucial for communicating both within, but especially outside the organisation.

4.1.2 Informational roles

4.1.2.1 Monitor

The monitor is the first one of the informational roles in Mintzberg’s model and concerns the act of scanning the environment for relevant information (Mintzberg 1990). All the respondents practiced the role of the monitor by always trying to be open for new information that could be important for the organisation and the unit. Agnetha stated that this was a rather important part of her job since it was her responsibility that the right things were done at the right time. Peter also stated that he wanted to spend more time
on searching for relevant information that could be helpful for his job and the organisation.

\[\text{It is a very important task. I think all managers in my kind of department would like to spend more time on this. To develop the market instead of working with reporting or solving quality issues. - Peter}\]

The respondents spent different amounts of time in this role, Anne searched for instance for valuable information about leadership and finance in her spare time. She said that she spent about ten hours on this every month in order to get better and more secure in her role as a leader.

\[\text{I read a lot about finance and leadership, but mostly after work hours. I listen to some podcasts about psychology and leadership and subscribe to some magazines. – Anne}\]

This role was argued to be facilitated by ICTs since the tools made it a lot easier to search for and gather information.

\[\text{4.1.2.2 Disseminator}\]

Information sharing within the unit as the role of the disseminator was practiced by the respondents on different levels. Susan and Anne wanted to share as much information as possible with their employees and let them decide whether it was important for them or not.

\[\text{I share information pretty generously compared with many others, I believe. But I think that it is good since you can choose whether you want the information or not when you receive it. - Anne}\]

Peter and Agnetha were more selective with the information they shared, both in terms of what they shared and to whom. Both of them stated that they only shared what they thought were necessary for their employees in order for them to do their work properly.
You need to be able to judge what information that is relevant to forward up or down in the organisation. It is according to the managerial role. - Agnetha

E-mail was one of the communication tools that was used a lot in the organisation and too much at times, according to the respondents. They experienced that people sent a lot of unnecessary copies on e-mails to many persons that did not have any interest in the content. Reading and cleaning the mailbox took time from other tasks which made it less effective.

We are drowning in e-mails, I would like to minimize this number. We share too much information and we need some rules for this. - Susan

Instead of sending e-mails, some information was claimed to be better shared at the internal web page. This would also allow all employees to get the same information at the same time without receiving it in their personal inbox. Although, Susan did suggest that some rules preferably would be implemented for the e-mail accounts, that for example would send irrelevant e-mails to a spam inbox instead of the regular one. It was hence believed that such rules could make the use of the technology more efficient.

4.1.2.3 Spokesperson

To communicate information with external stakeholders as a part of the spokesperson role was something that only Susan mentioned that she practiced occasionally. She described how different SharePoint sites has been created to work as information sharing tools with suppliers, but how this was not highly prioritised at this organisation. Susan also mentioned how this kind of information to external stakeholders, e.g. suppliers, was shared automatically at her former workplace and how this was not the case within this company.

We have created pages to share information with different suppliers, but it is under development and not used very much yet. - Susan
Agnetha mentioned how she was not involved in sharing information outside the organisation. It was not involved in her job to communicate with external stakeholders.

*We do not have that many external contacts that we need to share information with.* – Agnetha

The respondents did not seem to practice this role a lot, or at all, since these managers did not have many external contacts.

### 4.1.3 Decisional roles

#### 4.1.3.1 Entrepreneur

All the respondents wanted to spend more time in the entrepreneurial role, to improve the business, which is the first decisional role in Mintzberg’s model. They all wanted to work more actively with improving the organisation but meant that this role was likely to be given too little time when other more urgent situations arose. Susan however meant that she worked with this a lot in periods, and that this role mainly became important in times of big organisational changes.

*Yesterday, I attended three different improvement meetings [...] At least one hour a week I want all employees to think about it [how to make improvements], but in a perfect world, I would prefer an hour a day.* - Susan

Anne expressed that working with improvements was the main purpose of being a middle manager and what most of the time should be spent on, combined with leading her team and her own assigned tasks.

*We have pretty much work with improvements going on, so this is almost automatically done [...] It is basically what I do, except for my own responsible areas, which include my team and the leadership part, but apart from that we only work with development and improvements [...] If there is
anything to do in order to facilitate our lives, and make our work easier, that is my only assignment. – Anne

This role was found to be one of the roles that was prioritised and practiced the most among these middle managers.

4.1.3.2 Disturbance handler

All the respondents expressed that they needed to spend a lot of time on solving issues and problems. They took on the entrepreneurial role often and voluntarily while the disturbance handler, i.e. solving problems, was practiced involuntary when they had to solve issues that had already occurred. They all handled these issues by overviewing their workforce to find whom could solve the problem and thereby delegate it further. When asked if her work included a lot of problem solving, Anne answered:

Yes, it does, and I think that is included in the other task of developing the organisation. It is about minimizing cases of surprises and is included in improving this company into a stable unit. - Anne

This role contained a lot of decision making to solve problems. The respondents all agreed that ERP systems could be very useful in decision-making, but that the one used at this company created a lot of unnecessary problems. The large amount of data within this system made it more difficult for the leaders to make decisions based on the right information. This was due to the fact that the leaders needed to be able to sort and process which information that was interesting which has become more time consuming with the large amount of data.

It is our ledger, it is a source of how the company is going, and it includes a large amount of data. - Agnetha

The ERP system was described as the company’s ledger with valuable numbers and information, even if the system itself got a lot of complaints from all of the respondents. Although, Excel has been a very helpful tool in combination with data from the ERP
system according to the respondents. It has been helpful in a sense that the data could be broken down and managed in other ways. The ERP system in combination with Excel has therefore facilitated the disturbance handler role.

*We work with large amounts of data [...] You can get it from the ERP system and convert it into Excel to work with the numbers. These two tools are very useful in combination.* – Susan

The respondents found some drawbacks related to the ERP system, especially when it did not work as it should, which often made the work more difficult than it had to be. Although, they all agreed that the possibilities ICT brought were far bigger than the problems.

4.1.3.3 Resource allocator

All the respondents claimed that they spent a moderate amount of time in the role as the resource allocator, i.e. distributing tasks and resources, which is the third of the decisional roles. They all agreed that their job was partly about making sure that the right person was doing the right things and that the tasks were being allocated in the most effective way.

*It is mainly about making sure that every area of competence is as evenly burdened as possible and that everyone is doing what they should be working on.* - Agnetha

They all meant that they had responsibilities in deciding how the resources within their groups should be distributed. Susan also stated that she had the privilege to control the resources within her department, and that she could easily get more resources when needed.

*I have full freedom in making changes in my department, sometimes I need an approval, but I think I stand out in a way that I usually do as I want to.* – Susan
Even if this role was practiced by all employees it did not seem to be a major part of their daily work. It was neither argued that ICT would have influenced the practice of this role.

4.1.3.4 Negotiator

None of the respondents seemed to practice the negotiator role a lot, except for Peter occasionally. This role is about negotiating and solving conflicts, and this was mostly done by Peter when there was a need for an increased amount of resources for development of products, which was a rather big part of the job.

*There is constantly negotiating going on for developing resources between different units within the organisation. We do not have unlimited resources for this, and it becomes a negotiation.* - Peter

The other respondents did not experience that they needed to negotiate much. They did not face many conflicts, especially not between their employees. Although, Anne meant that ICT could result in misunderstandings and communicative problems at times where these miscommunications needed to be solved between parties.

*In 90 percent of the cases when someone is annoyed by a colleague it is due to a misunderstanding, a miscommunication. E-mails are a major reason for misunderstandings. This would not be the case if you talked to each other in person, and then it would also be easier to solve.* – Anne

This role did not need to be practiced a lot, but when there were conflicts it was mainly because of misunderstandings in online communication.
5. Analysis and discussion

This section begins by presenting an analysis of the empirical findings made in relation to the managerial roles and how the practices of these have been affected by the use of ICT. The analysis then leads to an extended version of the analytical model that enables a further discussion about the new leadership role that has been discovered.

5.1 The impact of ICT on the leadership roles

Among the ten roles from Mintzberg’s model of the manager’s roles, half of them have been found to be solely facilitated by ICT. One of the roles was found to have become more difficult due to ICT, while the rest were found to have been unaffected, or both facilitated and made more difficult. Firstly, the figurehead role, which is about being the center of communication, has been facilitated by ICT and the communication tools. Van Wart et al. (2017) and Baller, Dutta and Lanvin (2016) argued that ICT would help to save time by using Skype e.g. for meetings instead of traveling, and this tool was found to help leaders in the sense of not having to spend as much time in this role as earlier.

Communication with both the team and with stakeholders has been facilitated by different ICTs and has thus also facilitated the role of the liaison. As mentioned by Richter and Wagner (2009) as a possibility with ICT, it has facilitated this role in communication with external stakeholders and foreign partners. Searching for new valuable information for the business, as the role of being the monitor, has also been facilitated. ICT has made it easier to receive information from different sources and communication channels and has by that also facilitated this role.

The role of problem solving, i.e. the disturbance handler, was facilitated in a sense that the ERP system in combination with excel was used a lot to solve different issues. The respondents argued that this role would have been a lot more difficult without these tools, even though they would have preferred a more user-friendly ERP system. Further, the disseminator role, the role of sharing information with higher and lower levels in the organisation, has also been facilitated. Information sharing has become easier with the tools within ICT (Soto-Acosta & Cegarra-Navarro 2016). Even though this role was
partly made more difficult since ICT widens the scope of information, this role seemed to have been mainly facilitated with the tools for communicating. Moreover, the only role that was found to have been made more difficult due to ICT was the negotiator, i.e. to negotiate and to solve conflicts. In line with Van Wart et al. (2017), it was argued that when communicating online, especially by e-mail, the respondents experienced more conflicts due to misunderstandings which could have been avoided with conversations face-to-face.

Continuously, the role that was found to have been both facilitated and made more difficult is the leader role. This role involves a lot of communication, training and motivating followers and was found to constitute about half of the managers’ jobs. ICT has facilitated this role in a sense that managers could reach their followers easier, which made it easier to coach and train them. It has also improved the team spirit since leaders and followers can communicate in different ways from across the world if parts of the team are located elsewhere. Although, it has made this role more difficult and more time consuming since followers can contact their leaders at any time during the day. As stated by Avolio et al. (2014) and Van Wart et al. (2017) this has resulted in more interruptions.

Further, three of Mintzberg’s roles were found to not have been influenced by ICT. The entrepreneurial role was dedicated a lot of time according to the respondents since a major part of their work was about making improvements in all areas possible. However, this role did still not seem to have been either facilitated or made more difficult by ICT. It could possibly have been made more efficient by having improvement meetings on Skype instead of traveling. Although, this was not something that was mentioned by any of the respondents. Further, the resource allocator role, was not seen as a large part of the job, which could be the reason for why it was found to be unaffected by ICT. The last role, the spokesperson, to communicate outside the organisation, was not practiced much by any of the respondents which was the reason why this role could not be found to has been either facilitated or made more difficult.

The findings regarding the impact of ICT on the managerial roles in Mintzberg’s model is further shown in Figure 3. The green colour visualises that the role has been facilitated by ICT, the grey shows that it was either unaffected or both facilitated and made more difficult, and the red shows that the role has been made more difficult. These implications
are believed to summarize the role of today’s leaders and thus provide an explanation of the new leadership practices.

![Diagram showing the impact of ICT on managerial roles in Mintzberg's model.](image)

**Figure 3.** Visualisation of how the practices of the managerial roles in Mintzberg’s model has been affected by the use of ICT.

### 5.2 New leadership practices

In order to understand the implications of ICT on the managerial role among middle managers, there are two dimensions that need to be considered. These are the time spent on each role and if these roles have been facilitated or not. That is because one role that constitutes a large part of the manager’s total time can both be derived from being the most important role or from the fact that it has not been as facilitated by the use of ICT as the others. Such influence is thus important to discuss for the sake of understanding of the impact from ICT isolated.

#### 5.2.1 Facilitated internal and external communication

Based on the empirical findings in the study, it seems like the informational roles have been most facilitated by ICT. The fact that the informational roles seemed to be most
facilitated may although not be very surprising since this type of technology primarily aims to facilitate communication (Kassem et al. 2019; Soto-Acosta & Cegarra-Navarro 2016). These roles have thus gotten easier because leaders can use different communication tools such as Skype, e-mail, the Outlook calendar and so on instead of talking to people face to face which is assumed to be more time-consuming. The facilitation of the informational roles is also evident since the managers did not have to spend much time on doing such tasks despite the large part of their role as the nerve center in their respective units. Consequently, it has gotten easier to reach out to employees and external stakeholders, meaning that less time could be spent in meetings, which increases the effectivity of the leadership role.

It was also found that ICT facilitated the informational role when being the disseminator since it was helpful when interacting with others internally, which made the leaders more effective networkers as stated in earlier research (Richter & Wagner 2009). All of the respondents mentioned that they shared information internally via for example e-mail and Skype frequently as it was believed to be easy and effective. The respondents did however also claim that too much information was shared within the organisation which made it difficult to navigate through. Hence, both the information that the manager receives and sends out may have an impact on the manager’s role since having an overfilled inbox is likely to decrease the overall effectiveness (Riahi-Belkaoui 2004). The ICTs used in this matter could consequently have made the role easier and more effective if better utilised.

5.2.2 Organisational structure and characteristics

Also, even though the use of ICT mainly facilitated the disseminator role, it seemed like the technology was not being fully used which could have helped the practice even more. This was evident since the respondents preferred to talk directly with colleagues when the distance allowed, which was rather often due to working in teams of about 10 people. However, when the distance was longer, for example when contacting the HQ or people in other countries, the use of ICT became more useful. Therefore, it is possible to assume that the benefits from using ICT increases as the geographical distance does. Thus, being the disseminator could to a large extent be influenced by the size of an organisation and its degree of decentralization. This would be able to explain the low need for the
respondents to take on this role since the case company was considered to be decentralized in many ways.

Further, the respondents claimed that they did not take on the role as the spokesperson and thus shared information externally. Susan was in fact the only respondent that practiced the role on occasions and used SharePoint as a tool to do so. The time spent on this role was however small despite having the technological means. The reason for that was that the organisation's structure made the need to talk to external parties quite low unless the matter was directly related to the own unit. Susan mentioned how this was done completely different at her former workplace and how this role could be facilitated using ICT differently. It is therefore likely that this role would have been exercised to a greater extent and thus more influenced by the use of ICT if this study would have been carried out in another organisation.

The interpersonal roles were also found to be mostly facilitated by ICT. Unlike the leader role, the other two interpersonal roles were found to have been solely facilitated as the figurehead role involved establishing relationships within the organisation and the liaison involved establishing relationships with external stakeholders. All the respondents agreed on the fact that ICT was crucial for communicating and to sustain relationships both within and outside the organisation. It was thereby considered to facilitate both the role of being the figurehead and the liaison.

The leader role further seemed to constitute a big part of the respondent’s jobs and was mostly practiced with the aim to make their followers more independent. This finding thereby aligns with previous theories that stress the need for this role, including motivating and encouraging followers, to make the unit more effective (Frey & Jegen 2001; Staw, Sutton & Pelled 1994). This role was also found to be practiced differently among the respondents depending on the degree of independence of the followers within each unit. If the leaders had more independent followers, they did not have to practice this role as much as the leaders with less independent ones. This had a direct connection to the use of ICT because a large proportion of the leader role could be exercised by using tools such as Skype. Leaders with less independent followers therefore gained more benefit from using ICT. However, more focus on the leader role also meant more interruptions and less time to be spent on the other roles. The easy access to the manager
thus created more and sometimes unnecessary interactions between the leader and its followers than if ICT would not have been available, which thereby also made the leader role less effective.

5.2.3 Inadequate technology

Out of the ten roles from Mintzberg’s model, being the entrepreneur and the disturbance handler were found to be the two roles that the respondents practiced the most. This is not very surprising since the entrepreneurial role is believed to become increasingly important for companies that aims to increase their market shares in the assumed constantly changing environment (Brynjolfsson & McAfee 2016). Also, these two both belongs to decisional roles, meaning that these could be considered to be the most important ones if assuming that the most important roles also were given the most attention. However, this finding is instead believed to stem from the fact that the various kinds of ICTs are not working sufficiently enough to facilitate such tasks. The case company primarily used the ERP system to facilitate tasks such as decision-making and distribution of resources but did not seem to help as much as it could have. That was because the large amount of data loaded into the ERP system were not able to make any sense out of due to the inadequate use of the system. Instead, they often used Excel as a tool to support the ERP system. The data, which could have helped in making more well-founded decisions, almost became a burden instead of a helpful tool since it made the analysis rather long due the large amount of information to process. However, despite the significant problems with the ERP system, ICT as a whole was argued to be important for the decision-making since it did help to manage data when combined with Excel. These findings therefore align to the assumption that ICT enables managers to make well-grounded decisions (Lavtar 2013), even though other circumstances could have facilitated this task more.

Based on the study, it did not seem like the managerial role necessarily got much facilitated by the use of ICT, even though the majority of the roles were facilitated in some way. However, it could be argued that the positive outcomes of ICT would be higher if the organisation had a more suitable ERP system and if all employees had higher technical skills. Since a great deal of the leadership role is done by using ICT, it is argued that being able to choose the right set of tools and to be able to use it properly are
necessary skills for today’s leaders (Richter & Wagner 2009; Speechley 2005). On the other hand, it was also found in this study that the leaders did not always take advantage of the functionalities with ICT, e.g. to use specific rules for e-mails to avoid an overly filled inbox. It was clear that this was not done due to the lacking knowledge on how to use the tools effectively. This aligns with previous research by Richter & Wagner (2009) and Van Wart et al. (2017) that state that an unequal knowledge and lacking technical skills may be the most disturbing factors for an effective use of ICT. Hence, it would not really matter if the middle managers possessed a lot of knowledge about the tools or if they used it frequently if their followers were not capable to follow.

5.2.4 Frequency of interruptions

Further, instant messaging, e-mail, intranets and decision support systems has both facilitated communication and decision-making for leaders (Van Wart et al. 2017; Baller, Dutta & Lanvin 2016). From the most frequently used types of ICTs, there were some that facilitated the leadership role while others made the role more difficult. Skype was found to be a tool appreciated and thoroughly used by all respondents whereas e-mail and the ERP system were not as good as the respondents would have wanted them to be. ICT has also been linked to stress in previous studies due to the many interruptions (Avolio et al. 2014; Best 2009). Although, the respondents in this study did not seem to react that way. Instead, Anne welcomed interruptions as a part of the job and Agnetha mentioned that she did not have to respond right away. However, the respondents expressed that ICTs did bring misunderstandings which in some cases made communication less efficient. This had some negative impact on the managerial role and in fact made the negotiating role more difficult.

The communication tools also brought more interruptions, since both employees and other stakeholders more easily could message and call each other. It was also found that previous research showing that managers only could work for about 30 minutes uninterrupted also was demonstrated in this study. That could be explained by the fact that it is now much easier to make contact, possibly meaning that people are less patient and thus also less hesitant towards asking questions. Another possible implication could be derived from the fact that the business environment is believed to have gotten more
complex, both in terms of an organisation’s operations and the leader role itself due to be facing new challenges and problems (Gandolfi & Stone 2016; Hesse 2018, Martin 2005). The new environment can therefore possibly have made most jobs more difficult and thus also increased the need for help.
6. Conclusion

The purpose of this thesis was to explore how the use of ICT has influenced the leadership role and thus also how this has been facilitating the practice of the role among middle managers. The aim was therefore to answer the following research question: *How does information and communication technology (ICT) influence the practice of the leadership role among middle managers?*

An important finding in the study was first that the organisation’s structure and characteristics seemed to have a large impact on the managerial role and the degree to which ICT was able to facilitate the job. This was mainly evident in two of the roles practiced by the middle managers. First, practicing the role of the disseminator seemed to be highly influenced by the size of the organisation and its degree of decentralization. Second, it seemed like the low need for the respondents to be the spokesperson could be related to the almost non-existent involvement with external stakeholders in the specific units. It thereby seems like the practices of these roles and how ICT may facilitate them is largely determined by organisation’s needs. These roles were hence probable to have differed if another company would have been investigated.

The decisional roles were those that were least affected by ICT and in fact made the negotiating role more difficult. Based on earlier research, this finding is most probable to be derived from insufficient knowledge among the users of the tools and systems (CCL 2018; Richter & Wagner 2009; Van Wart et al. 2017). However, this study cannot exclude the possibility that this is a result of an actual flaw in the technology, in this case the ERP system.

Further, it seems that previous research has been right about the fact that the leadership role has not gotten as effective as one could have hoped for by implementing different forms of ICTs (Van Wart et al. 2017). This is for example evident since all of the middle managers that participated in the study agreed that they got interrupted to an extent where their own effectiveness suffered. It also seems like the use of ICT not only has facilitated the communication within organisations or units in a positive way, but possibly made it too easy to share information, which have gotten the opposite effect. It has therefore been
argued that there has to exist guidelines for how to use different ICTs properly and also to educate the users in order to enable an effective use of the technology.

After having taken part of a large proportion of the literature examining new leadership and the technology’s impact in leadership practices, one would have assumed that the findings in this study would have been more prominent. However, leadership is as earlier stated a combination of the leader, the followers and the situation, meaning that the leadership is unlikely to vitally change solely because the situation does. Organisations consisting of human workforce, involving inherited behaviours and needs, are thereby unlikely to change its leadership practices at an even faster rate despite the fact that the technology does.

6.1 Contribution

Even though leadership often is claimed one of the most well studied subjects in social science (Antonakis & Day 2017; Gandolfi & Stone 2016), not much research seems to have been made recently since the old theories and models remain in popularity (Bodrozic & Adler 2017; Mintzberg 2009). However, the knowledge of the situation historically is important in this regard as it can help finding recurring elements and casualties, which in turn constitutes the best basis for making credible predictions for the future. This study could consequently serve as a starting point when for example investigating the possible implications on the leadership role due to the use of newer technologies.

Also, with a deeper understanding of how ICT affects the leadership role among middle managers, companies can both find suitable leaders as well as methods to make the most out of the technology to increase productivity and effectivity (Henke et al. 2016; Speechley 2005). Mintzberg also argues that “a manager’s effectiveness is significantly influenced by their insight into their own work” (1990, p.19), meaning that informed managers supposedly would be more successful in their job. This was also evident in the study as one of the respondents mentioned that she spent a moderate amount of time on learning about the leader role from various kinds of sources with the aim to improve her leadership abilities. This could thereby be considered the practical contribution of the study. Consequently, the study both offers a practical and a theoretical contribution.
6.2 Future research

Further testing of the analytical model presented in the study to determine how the leadership practices among middle managers is influenced by ICT is highly encouraged. By knowing what managers actually do for instance enables organisations to look for the right candidates. This is important since the skills and competencies that have been of importance before are likely to have shifted into something else as the leader role now constitute another set of undertakings. Further studies regarding what skills and competencies leaders should possess to face the new challenges and roles presented in this study would therefore be highly welcomed.

For further research, it would also be interesting to look at the managerial role in the light of the context to see how the organisational structure may affect the managerial role. This became evident in the study mainly by two occasions at which it was difficult to determine why a certain role was not practiced much by the middle managers. It simply could not be determined whether it was because the organisation's structure made them unnecessary or if the role became less important today by the use of ICTs. To investigate this, it would be interesting to see how the roles differ between two companies with different contextual conditions as a next step.
References

Articles


Books


Brynjolfsson, E. & McAfee, A. (2012). Race against the machine: How the digital revolution is accelerating innovation, driving productivity, and irreversibly transforming employment and the economy. Brynjolfsson and McAfee.


Videos

Websites


## Appendixes

### Appendix 1 - Operationalization of variables

<table>
<thead>
<tr>
<th>Concepts</th>
<th>Variables</th>
<th>Typical question</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interpersonal roles</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Figurehead</td>
<td>Being the role model, execution of ceremonial duties</td>
<td>In what ways are you trying to be a role model for your employees?</td>
</tr>
<tr>
<td>Leader</td>
<td>Motivating, encouraging, empowering</td>
<td>How do you do to motivate your employees to achieve common goals?</td>
</tr>
<tr>
<td>Liaison</td>
<td>Establishing external relationships</td>
<td>How much contact do you have with external stakeholders?</td>
</tr>
<tr>
<td><strong>Informational roles</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitor</td>
<td>Search for and gather new information</td>
<td>How do you work to find new information that can be valuable to the organisation?</td>
</tr>
<tr>
<td>Disseminator</td>
<td>Distribution of information internally</td>
<td>How do you decide which information from higher levels should be shared with lower levels and vice versa?</td>
</tr>
<tr>
<td>Spokesperson</td>
<td>Distribution of information externally</td>
<td>How do you decide on which internal information should be shared externally?</td>
</tr>
<tr>
<td><strong>Decisional roles</strong></td>
<td></td>
<td></td>
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<tr>
<td>Entrepreneur</td>
<td>Proactive improvements of the unit</td>
<td>How do you work to improve and develop the business?</td>
</tr>
<tr>
<td>Disturbance handler</td>
<td>Respond to unexpected events</td>
<td>How do you deal with unexpected problems that arise?</td>
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<tr>
<td>Resource allocator</td>
<td>Allocation of resources, prioritizing</td>
<td>How do you proceed to allocate resources within your group?</td>
</tr>
<tr>
<td>Negotiator</td>
<td>Problem solving</td>
<td>How do you do when you end up in situations where you need to negotiate between different parties?</td>
</tr>
</tbody>
</table>