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What impact will Artificial Intelligence have on the future leadership role?

– A study of leaders' expectations

by

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Abstract

Historically, technology has impacted the way leaders have led organisations, and today's technology is no exception. The emerge of Artificial Intelligence creates possibilities and challenges for organisations, for which leaders need to prepare. This thesis aims to explore leaders' expectations on how Artificial Intelligence will impact the leadership role in the future workplace. This thesis can contribute with valuable insights on what the future implications are, and whether leaders are prepared for these implications.

This study was accomplished through a qualitative research approach using semi-structured interviews with six leaders who had a connection to the technology field. Earlier research and literature on leadership and Artificial Intelligence were used to provide a suitable framework around which the study built its reasoning.

The results of this study show a future leadership role in change, with an increased emphasis on modern leadership theories, including shared and transformational leadership. The results suggest that the implementation of Artificial Intelligence in the workplace will enhance the need for leaders to be adaptable and open to change. It also suggests that it will be necessary for leaders to motivate employees, share the company vision and values, and facilitate creativity and teamwork when Artificial Intelligence performs tasks of more technical nature. Furthermore, the study suggests a traditional leadership approach as suitable for leading Artificial Intelligence, with set roles and responsibilities, as the study shows that it will be essential for the leader to monitor, guide and set the rules for Artificial Intelligence and provide it with an ethical dimension. The results indicate that leaders are informed about the impact Artificial Intelligence will have on the leadership role and that they are prepared for the future.

Keywords

Artificial Intelligence, Leadership, Leadership Role, Technology

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1 Introduction

1.1 Background

Throughout history, emerging technologies have shaped the way people have led and managed work (Brynjolfsson & McAfee, 2016). One ground-breaking change occurred during the Industrial Revolution in the late 18th century, when James Watt developed the steam engine (Brynjolfsson & McAfee, 2016). The steam engine replaced human and cattle muscle power with mechanical power, which generated more energy and enabled mass production of goods (Brynjolfsson & McAfee, 2016). The Industrial Revolution and the steam engine eventually conduced to modern life and humanity's first machine age, in which human development became driven primarily by technological inventions (Brynjolfsson & McAfee, 2016). When the steam power eventually shifted to electrical power, the organisational performance did however not increase instantly (Brynjolfsson & McAfee, 2016). The dependent factor for this was that the factories used the electric power the same way they had always used steam power, which generated a similar amount of energy (Brynjolfsson & McAfee, 2016). It took decades until managers changed the way the new power was implemented and started to utilise the full range of it (Brynjolfsson & McAfee, 2016).

Today, technology is evolving in a broad sense all over the world, and humanity is now experiencing what Brynjolfsson and McAfee (2016) title the second machine age. Artificial Intelligence is not only used by high tech companies, but by people in their everyday life. The computer is now able to affect society in the same way the steam engine did during the first machine age (Brynjolfsson & McAfee, 2016). However, the power of the computer will continue its growth, and one of the areas where it is still developing is in the field of Artificial Intelligence (Brynjolfsson & McAfee, 2016), henceforth referred to as AI. The term was invented by John McCarthy who defines AI as "the science and engineering of making intelligent machines" (McCarthy, 2007, p. 2). Already today, AI can perform intellectually demanding tasks and replace several human responsibilities in the workplace (McAfee et al. 2014) by reading and analysing massive amounts of data, not possible for any human alone

(Brynjolfsson & McAfee, 2016). AI also manages to learn and improve its reading and analysing process over time, without any human giving the exact data for how to do this (Brynjolfsson & McAfee, 2016). AI will keep on getting better and cheaper to use in the future, and during recent years, AI has advanced significantly (Brynjolfsson & McAfee, 2016). With the technology that exists today, half of the paid work activities in the world is expected to be automated, which includes not only physical work but also cognitive capabilities (McKinsey Global Institute, 2017). Just as it took substantial organisational innovation for the world to adapt to and maximise the benefits with electricity over steam power, organisational innovation is also required for maximising the benefits emerging with AI (Brynjolfsson & McAfee, 2016). Therefore, the development of AI will impact the future workplace and have possible implications for the future leadership role.

1.2 Problem discussion

The emerge of AI in the workplace creates several challenges for leaders that have to be faced to help organisations capture the full benefits of the technology. According to Brynjolfsson & McAfee (2017), leaders have to adapt to the technological development and identify new problems that may arise as a result of it, find optimal solutions to those problems and be able to see new opportunities to be prepared for the future. While the existing literature on AI's future implications on the leadership role brings suggestions to how the leadership role will change, it is also essential to investigate what expectations leaders have on the implications, as leaders can sit on valuable insight and knowledge on the field. Insight from leaders into the field of knowledge can, therefore, bring clarity to how AI will impact the leadership role in the future workplace. Leaders' expectations also imply how prepared leaders are for the future implications. A significant difference between the leaders' expectations and existing research can indicate a lower level of preparation and insight into the future, which is essential to display for leaders to catch up with the technological development.

1.3 Aim and Research question

The thesis aims to explore the expectations of current leaders on how the leadership role will change with the implementation of AI in the workplace. By exploring these expectations, the thesis can contribute to a better understanding of how AI affects the leadership role in the future. Leaders' expectations can bring insight into the field of knowledge, as leaders might carry relevant experience. Furthermore, the thesis findings can help to see how prepared leaders are for the changes the future implies.

This study aims to fulfil its purpose by answering the following research question:

What expectations do leaders have on how AI will impact the leadership role in the future workplace?

This study starts with an overview of relevant research and literature in the fields of AI, technology and leadership. Qualitative interviews with leaders are carried through to give a better understanding of the expected implications on the leadership role. The leaders have leadership experience in the technology field, as they carry relevant insights and knowledge on leadership and technology in practice. The data collected are analysed and categorised, and after that the findings are presented and evaluated with the help of relevant literature, to form an answer to the research question.

1.4 The link to Management

The chosen subject strongly connects to Management as a scientific topic. A vital part of management is leadership. According to Kotter (1990), leadership and management complement each other and should not be separated. This thesis explores leadership as a field of knowledge concerning the effects AI has on it. Leaders are interviewed to collect the data, and leadership theories are used to interpret the data and draw conclusions. As AI will also play a significant role for companies in the future, it will not leave the field of management intact (Brynjolfsson & McAfee, 2016). Therefore, AI is an essential topic for the management field. When discussing the implementation of AI in the workplace, the thesis also touches upon

organisational development and change, which are also highly relevant topics for management (Burke, 1997). Consequently, managers need to be up to date on the thesis topic.

1.5 Definition of concepts

1.5.1 Leadership

The concept of leadership has no universal definition. Instead, a large variety of leadership theories have emerged throughout history. The approach to leadership has moved from viewing certain traits, skills and styles as dependent factors for good leadership, to viewing leadership as situational and context-dependent, meaning there are endless varieties of suitable leadership (Goffee & Jones, 2000). A situational leadership approach applies to every case but makes the concept of leadership very broad. Since there is also no clear division between leadership and management, a clarification of the leadership concept is of value when exploring leaders' expectations on how AI will impact the future leadership role. Kotter (1990) divides between leadership and management by defining management as coping with complexity and leadership as coping with change. According to Kotter (1990), management includes the activities planning, budgeting, organising, staffing, controlling and problem-solving. Leadership connects instead to the activities setting a direction, aligning and motivating people. In line with Kotter (1990), Jacobs and Jaques (1990, cited in Clark & Clark, 1996) emphasise motivation, alignment and direction when defining leadership as “a process of giving purpose (meaningful directions) to collective effort and causing willing effort to be expended to achieve purpose” (p.30). Likewise, Cohen (1990) includes motivation and influence as means to achieve a certain purpose. Cohen (1990) goes as far as defining leadership as “the art of influencing others to their maximum performance to accomplish any task, objective or project” (p.9).

It appears that the previous definitions are founded on the assumption that leadership has an impact on people which leads to achievement. From the above-stated definitions, leadership also creates willingness and motivation to reach achievement, as well as a given purpose or direction for the achievement. Based on the definitions, one can refer to leadership as a process which motivates and inspires people to willingly achieve a given purpose, with a level of commitment. The thesis will focus on leadership activities connected to leading people in organisations. In this thesis, the focus lies on leaders' expectations on the leadership role and

the leaders' subjective view of what leadership means to them. The aim of the thesis is thus not for the authors to provide an accurate definition of the meaning of leadership in today's society, but to explore the meaning of good leadership in the future workplace. The meaning behind the concept leadership can, therefore, differ between the individuals interviewed for this thesis.

1.5.2 Artificial Intelligence

AI is a broad concept, and there are many different views on what intelligent machines are capable of accomplishing. Russell and Norvig (2010) use four dimensions to describe different types of AI; whether the AI is supposed to think or act, and whether the AI is meant to think or act as humanly or as rationally as possible. Other definitions that include different objectives with AI is strong and weak AI. Kerns (2017), refers to weak AI as smart machines that appear to act humanly but have programmed responses. Strong AI is instead referred to as systems that use associations and clustering similar to the human brain, where the responses can be unexpected as they are not set. Furthermore, AI is described as being able to adapt to changing circumstances (Copeland, 2018). Merriam Webster (2018) defines AI as "The capability of a machine to imitate intelligent human behaviour" and the English Oxford Living Dictionaries (n.d.) defines it as "The theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages."

Based on the above-stated definitions, the concept of AI refers to intelligence similar to human intelligence, by which human tasks can be performed, and by which adaptation to or interaction with the environment can be made. The previous definitions show that people may have different opinions of what AI is. This thesis explores leaders' expectations and subjective views on what AI is. Hence, the leaders' definitions of AI are likely to differ. The aim is therefore not to provide a definition of AI, but to explore the leaders' understanding of the concept and its implications for the future leadership role.

1.6 Research Limitations

It is of great importance to address the research limitations of the thesis, as they reflect its scope. The research question focuses on leaders' expectations and thus limits the collected data to

consist of perceptions about the future. The data collected for this thesis mirror subjective assumptions, which should not be mixed with data on actual implications. Since the future has not happened yet, predictions can only be made. As AI is not implemented in every workplace yet, leaders may face difficulties with predicting the implications AI has on the future leadership role.

The limited amount of time given to finish the thesis and the impossibility to cover all spectra of a knowledge field in one study are other research limitations. With more time, it would have been possible to reach a broader range of interview respondents which would have enabled a more accurate view on how leaders perceive the impact of AI on the future leadership role. With the time scope given, a settlement of six respondents had to be made, mainly in the area in and around Lund, which affect the generalisability of the thesis findings. Furthermore, AI and leadership as research topics are broad and difficult to cover fully. Therefore, limitations with covering the topics in their entirety occur. The literature on AI and leadership provided in this thesis had to be reduced to fit the framework of a thesis paper.

1.7 Outline of the Thesis

The thesis consists of the following main chapters:

Chapter 2, Literature and Theoretical Review – In this chapter, the thesis presents relevant literature and research to form a framework for the thesis topic. It consists of two sections; The first section presents literature on how technology has impacted the leadership role throughout history. The second section presents the literature on AI implications on the future leadership role.

Chapter 3, Methodology – In this chapter the methodology of the thesis is presented. The chapter describes which research strategies the thesis uses and why they were chosen. It also describes how the data was collected and the process around it, to finish with an evaluation of the validity and generalisability of the chosen method.

Chapter 4, Results – In this chapter the thesis presents the results of the data collection. The collected data is analysed and divided into themes relevant for answering the research question.

Chapter 5, Discussion & Conclusion – In this chapter, the thesis discuss the findings in relation to the literature review to fulfil the aim of the thesis and answer the research question. The findings are evaluated with the help of existing theory. Deviations in the data are also discussed. Furthermore, the thesis presents a conclusion on the findings and suggestions for further research.

2 Literature and Theoretical Review

2.1 Technology's historical impact on leadership theory

In this section, the literature on the impact technology has had on leadership theory throughout history is presented. Significant technological innovations and how they have shaped leadership throughout history until today are highlighted, to serve as a basis for possible future scenarios on how AI may impact the leadership role.

During the 18th century, the industrial revolution conducted to what Brynjolfsson and McAfee (2016) title the first machine age. With the first machine age came the introduction of mass production, established factories and new ways of leading work (Brynjolfsson & McAfee, 2016). The first machine age led the way for management as a discipline, as the infrastructure of the factories needed some organisation and supervision (McAfee et al. 2014). In the early beginning of the industrial revolution, official leadership theories had not yet been established (Bolden, 2004). However, a prevailing view called Great man theory started to circulate in the middle of the 19th century which consisted of the thinking of great leaders as born with their talents, where good leadership is not possible to teach (Leadership-Central, n.d.). In the 1920s, the first official leadership theory emerged, called Trait theory (Bolden, 2004). Trait theory aimed to identify specific common characteristics of successful leaders and suggested that these characteristics were innate (Bolden, 2004). After several failures in determining common leadership characteristics, Trait theory was replaced with theories on different leadership styles and behaviour, focusing on what leaders do rather than their inherited traits (Bolden, 2004). The answer to what type of leadership suits different situations was presented with the help of Contingency theory, which emerged in the 1940s and is still commonly used today (Goffee & Jones, 2000). According to Contingency theory, leadership should be adapted to the situation (Goffee & Jones, 2000). With more emphasis put on situational characteristics as the determinant factor for good leadership, the view of leadership moved away from focusing solely on the leader's behaviour and motives to also include the followers (Bolden, 2004; Goffee & Jones, 2000). Transformational leadership, where the focus lies on changing followers at heart,

creating intrinsic motivation, building meaning and communicate the values in the organisation began to emerge in the late 1970s (Bolden, 2004). Transformational leadership is still a commonly emphasised leadership approach (Bolden, 2004).

Today, technology is experiencing what Brynjolfsson and McAfee (2016) describes as the second machine age, which centres around the computer and the technological development it brings. The computer and the internet enhance communication and make it easier to bring together people, knowledge and skills (Tapscott, 2014). With new technologies, the work pace of organisations is also increasing, and innovation processes are speeded up (Tapscott, 2014). Efficiency further enables more focus to be put on employee satisfaction (Tapscott, 2014). Just as it took years to refine the steam engine, the second machine age is under development, with the continuous emergence of smarter computers (Brynjolfsson & McAfee, 2016). Nowadays, machines can take on more intellectually demanding tasks and therefore replace several human tasks, similar to how the steam power replaced muscle power during the first machine age (McAfee et al. 2014). When organisations become more reliant on technology, the workplace today becomes more collaborative and team-based, where cognitive and social skills are valued (Tapscott, 2014). The approach for how to understand leadership in the workplace is moving away from the classical leadership ontology, with clearly defined leaders, followers and shared goals (Drath et al. 2008). Instead, more focus is put on collectivistic leadership approaches, which view leadership as a process of shared responsibilities and contribution (Bolden, 2004). Yammarino et al. (2012) mention shared leadership as one such approach, in which team members share responsibility for a set of roles and tasks, where leadership cannot be separated from the social context. In line with Yammarino et al. (2012), Drath et al. (2008) present the DAC ontology as a suitable ontology for modern leadership. According to the DAC ontology, leadership is a process of direction, alignment and commitment between individuals. Rather than having followers adjusting to the leaders, leadership is seen as a process of mutual adjustment and a joint achievement (Drath et al. 2008). Uhl-Bien (2006) further describes the Relational leadership theory, which defines leadership as a social influence process of mutually constructed and produced coordination and change. Leadership is here an interactive process of structuring, developed through the relational dynamics at the workplace (Uhl-Bien, 2006). Likewise, Pearce and Manz (2005) describe a new leadership era consisting of shared leadership. They further present self-leadership, an individual process of managing one's behaviour to meet required standards, evaluate the standards and set new standards, to be important in today's workplace. According to Pearce and Manz (2005), leadership is thus not

only created in the interplay with others but also built up internally by individuals in an organisation.

2.2 AI's impact on the future leadership role

This section presents the literature on AI's possible implications for the future leadership role. First, it describes the future leadership role as including the monitoring and guidance of AI. Possibilities and challenges with using AI as a decision-making tool are presented, as well as how these possibilities and challenges create the need for the leader to be able to monitor and guide AI. Second, it describes the future leader's responsibilities as shifting towards the social aspects of the workplace, where the leadership role includes inspiring, supporting and encouraging employees. It reflects the importance of emphasising softer values such as communication skills and creative thinking when AI replaces technical skills.

2.2.1 The leader as an AI monitor for better decision-making

AI can collect and interpret vast amounts of data to improve decision making processes in organisations (Dewhurst & Willmott, 2014). Companies can now use AI to analyse data for business research (Plastino & Purdy, 2018). With the help of AI tools, data from outside a company that earlier would have been challenging to organise can now be discovered and structured (Plastino & Purdy, 2018). This way, algorithms can make decisions on top management level (Dewhurst & Willmott, 2014). Dewhurst and Willmott (2014) reason that with AI bringing valuable information and insight to different levels of an organisation, more responsibility and decision-making power can be delegated to lower levels of the organisation. They argue that improved AI tools and data can help to make decisions without interacting with leaders in higher levels of the organisation. According to Dewhurst & Willmott (2014), organisations are therefore likely to become decentralised and democratised when AI gets smarter. With time, implemented AI can thus further diminish the traditional view of the organisation as hierarchical (Dewhurst & Willmott, 2014).

According to Parry, Cohen and Bhattacharya (2016), AI systems can be beneficial when the leader wishes to avoid being impacted by culture or religion in decision-making processes. They argue that when the leader may experience pressure or constraints to make decisions according

to a specific culture or religion, AI can help the leader base decisions on facts. As leaders are expected to lead the way by stating the company vision, large amounts of data need to be analysed as a groundwork for decisions, and AI can therefore also be helpful when the leader needs to interpret data that is difficult to translate (Parry, Cohen & Bhattacharya, 2016). McShane, Nirenburg and Jarrell (2013 cited in Parry, Cohen & Bhattacharya, 2016) reason that when data is imprecise or for some reason difficult to understand, leaders may bring in subjective ideas to reach a solution, creating answers from earlier experience. AI, on the other hand, can collect and analyse more data, and does not have cognitive predispositions, making it possible to build an answer free from subjective ideas (Nirenburg & Jarrell, 2013 cited in Parry, Cohen & Bhattacharya, 2016). In those situations, AI can give a more precise solution to a problem (Parry, Cohen & Bhattacharya, 2016). Parry, Cohen & Bhattacharya (2016) further suggest that AI can benefit the leader when it comes to the so-called principal-agent problem. They claim that AI can help make controversial decisions that interfere with the leader's position and personal objectives. This way, AI can act as a neutral decision-maker, bringing total transparency to the decision-making process (Parry, Cohen & Bhattacharya, 2016). When forced to make decisions that employees may dislike, for instance, a cut down in salary, it may be easier for employees to accept them having a neutral computer as a source for the decisions (Parry, Cohen & Bhattacharya, 2016). With AI implemented in the organisation, new tools to measure and compare performance will have to advance to include the machines (Plastino & Purdy, 2018). Consequently, companies may have to include AI as a part of the labour force in the future (Plastino & Purdy, 2018).

To be able to take advantage of AI as a decision-making tool, it is, however, essential for leaders to fully understand the functioning of AI as AI systems tend to be complicated to understand. Geetter and Van Demark (2017) point out that to implement AI in the workplace successfully, humans need education on AI's functioning. According to Brynjolfsson and McAfee (2017), AI may be able to come to conclusions based on big masses of information, but cannot describe how the decisions were made, which can lead to misperceptions of the provided decisions. Furthermore, Geetter and Van Demark (2017) highlight the essence of human staff to understand what exactly the AI systems are capable of accomplishing. When an AI system makes mistakes, which it sometimes does, it can be difficult to find out where or why the error was made, due to the complexity of the system (Brynjolfsson and McAfee, 2017). Since the data AI uses is created by humans, Brynjolfsson and McAfee (2017) highlight the possible risk of biased AI systems. If the data AI uses is biased, then the output can be biased too

(Brynjolfsson & McAfee, 2017). In line with Brynjolfsson and McAfee (2017), Geetter and Van Demark (2017) thus stress the importance of considering the data AI uses for its decision-making. If AI in the future can make decisions without any human intervention, possible ethical problems can further occur around the question: can an AI system be held responsible for its actions (Parry, Cohen & Bhattacharya, 2016)? Even today this question can be problematic to answer when for instance a self-driving car is involved in an accident (Brynjolfsson & McAfee, 2016; Parry, Cohen & Bhattacharya, 2016). Several researchers therefore stress the significance of humans monitoring AI. Parry, Cohen and Bhattacharya (2016) underline the importance for leader to give orders to the AI machine. As Brynjolfsson and McAfee (2017) and Dewhurst and Willmott (2014) further discuss, the human should ask the questions while the technology find answers to them. According to Brynjolfsson and McAfee (2017), the human will, therefore, be essential for identifying problems and areas for investigation. Furthermore, Plastino and Purdy (2018) describe the future leadership role to include finding new ways to work with AI through setting up a path for AI, providing it with guidance and defining critical decisions for the AI machine. Also, from an ethical perspective, the monitoring of AI is essential according to Brynjolfsson & McAfee (2017). They state that AI has proven to be capable of passively assessing someone's morale, however, humans are better at actively impact and change someone's morale. The leader will also have to set the targets and choose the right sort of parameters for evaluating the data that AI brings (Dewhurst & Willmott, 2014). Setting up experiments and learn how to understand the AI machines and their complexity is, therefore, an essential part of a leader's job (Dewhurst & Willmott, 2014). The leaders also have to be open and adaptable to new technological changes in the future (Brynjolfsson & McAfee, 2017). The leaders will be the ones in charge of AI and therefore have to be open to new ways of leading and using AI (Brynjolfsson & McAfee, 2017). It will be necessary for the leader to face the challenges with AI as fast as possible and set a strategy for how to implement and evaluate these challenges (Geetter & Van Demark, 2017). Brynjolfsson & McAfee (2017) suggest that onwards, the leader will take on the role as an entrepreneur, an innovator or a creator in the organisation to cope with new challenges (Brynjolfsson & McAfee, 2017).

2.2.2 The leader as a facilitator of collaboration, motivation and creativity

Today, AI can perform physical tasks that generally only humans can execute, including voice and image recognition, where the computer learns from earlier mistakes and improves over time (Brynjolfsson & McAfee, 2016; Hirsch, 2018). For instance, AI can determine certain

emotional states based on voice tone and face expressions (Brynjolfsson & McAfee, 2017). Car companies have also come a long way in making self-driving cars with the help of a digital software connected to cameras and sensors (Brynjolfsson & McAfee, 2016). Another example is AI mimicking humans. A bank in Southeast Asia uses an AI robot to interact with customers (Finch, Goehring & Marshall, 2018). The robot can understand and talk to customers through facial and language processing techniques and respond with the help of both built-in knowledge and new knowledge developed from experience (Finch, Goehring & Marshall, 2018).

Even though AI can perform tasks that before only humans were capable of, it still lacks several qualities which makes the human unique (Brynjolfsson & McAfee, 2017). Therefore, people can have a difficult time accepting interaction with a machine (Geetter & Van Demark, 2017). Even if AI can facilitate work in organisations in many ways, several authors stress the need for human interaction even in the future workplace (Dewhurst & Willmott, 2014; Parry, Cohen & Bhattacharya, 2016). In several situations, people may prefer to communicate with a human over a machine (Geetter & Van Demark, 2017). Geetter and Van Demark (2017) mention the healthcare business as one sector where such preferences may occur. According to Geetter and Van Demark (2017), it may be easier for human staff than for an AI system to consider and understand patients' addressed fears and suspicions about their health. Similarly, Parry, Cohen and Bhattacharya (2016) address the difficulties for AI to discuss optimal solutions to complex tasks, where human interaction and different minds that come together is required. Neither is AI expected to recognise special bonds between people in organisations (Parry, Cohen & Bhattacharya, 2016). While a human leader can interpret that an employee is eager to perform a certain task, and therefore may be better suited for a certain job than another employee, Parry, Cohen & Bhattacharya (2016) state that AI would instead base its choice of employees for a certain job on known facts. They further reason that an AI machine is not able to consider an employee's current attitude or shape for the day. According to them, letting AI allocate jobs and tasks can be of benefit for avoiding bias and predispositions, but it can also be a challenge. In some situations, there may be no right or wrong, but instead, feelings and intuition may have to lead the way (Parry, Cohen & Bhattacharya, 2016).

Even though AI is getting better at recognising emotional states, Brynjolfsson and McAfee (2017) argue that humans are still required to impact and change mental states. According to them, the minds and emotions of humans are complex for machines to replicate as humans are social to their nature. Humans are thus needed to create motivation, persuasion and solidarity,

among employees (Brynjolfsson & McAfee, 2017). Brynjolfsson and McAfee (2017) further claim that it will therefore become more important for humans to create alignment and commitment among employees in the workplace. Leaders will have to be the ones supporting and encouraging their followers (Brynjolfsson & McAfee, 2017). In line with Brynjolfsson and McAfee (2017), Dewhurst and Willmott (2014) further declare machines to provide vital inputs, but humans to have a comparative advantage when it comes to inspiring people and showing feelings. Previous literature thus suggests that the leaders will have to put more emphasis on what cannot be done by AI when AI is replacing technically skilled employees. As with the bank in Southeast Asia that uses an artificially intelligent robot to interact with its customers, staff responsibilities have become more complex and shifted towards higher value customer engagement (Finch, Goehring & Marshall, 2018). Hence, leaders should look for skills in communication and creative thinking when hiring employees (Plastino & Purdy, 2018). As Tapscott (2014) argues, when the technological competence increases in organisations, the leader should focus on initiating and maintaining relationships and collaborate with and create work-learning environments for employees (Tapscott, 2014).

2.3 Summary

From the historical impact of technologies on the leadership role, parallels can be drawn to the future impact of AI in the workplace. The way that organisations are managed and led is expected to change with the continuous technological development of the second machine age (McAfee et al. 2014). While the Industrial Revolution led to the replacement of muscle power with steam power, the second machine age is expected to lead to a replacement of technically skilled employees with the implementation of AI in the workplace (McAfee et al. 2014). While earlier emerging technologies enhanced communication and information sharing as well as mass production of goods (Brynjolfsson & McAfee, 2016), the second machine age is enhancing communication and efficiency of processes further, which enables leaders to put more focus on employee satisfaction (Tapscott, 2014). As the computer can handle more complex tasks, the future leadership role is expected to be more focused on facilitating creativity and collaboration rather than creating order and discipline (Plastino & Purdy, 2018). AI will play a vital part in the daily life of the leader, as AI can facilitate decision-making processes and perform several tasks and jobs better than humans (Dewhurst & Willmott, 2014). However, the need for human interaction in the workplace is expected to continue (Parry, Cohen

& Bhattacharya, 2016). The role of the leader will be to monitor and create a pathway for AI (Parry, Cohen & Bhattacharya, 2016), as well as facilitate the social relationships in the workplace (Tapscott, 2015). Modern leadership theories can, therefore, be expected to continue to be emphasised in the future, as modern leadership theories are moving away from focusing solely on the leader and her qualities to focusing more on the people being led. As Tapscott (2015) argues, when the workplace becomes more reliant on technology, the collaboration, teamwork and social skills also become more valued. The future leader is expected to allocate responsibilities (Dewhurst & Willmott, 2014) and provide support for employees (Brynjolfsson & McAfee, 2017). Collective and relational leadership approaches such as shared leadership (Yammarino et al. 2012) and transformational leadership (Bolden, 2004) can, therefore, be expected to be emphasised in the future workplace.

3 Methodology

3.1 Research Approach

A qualitative approach is chosen for this study. The reason behind this choice is that qualitative research enables an understanding of words rather than numbers and is suitable for interpreting patterns and people's understanding of the phenomenon (Denscombe, 2009). It is an appropriate approach as it offers interview participants a possibility to share subjective feelings and motivations (Hakim, 2000). For this reason, qualitative research fits this study well. When examining people's expectations of AI's implications on the leadership role in the future workplace, a method that enables interpretation and translation of complex data is needed, which qualitative research provides (Hakim, 2000).

3.2 Research Design

The research design for collecting, measuring and analysing the data in this thesis is chosen according to its ability to answer the research question (Sekaran & Bougie, 2016). The research strategy chosen for meeting the research objectives is survey research, namely interviews (Fink, 2002). Survey research is suitable for collecting data that explains people's attitudes, knowledge and behaviour (Fink, 2002). Since the research objective is to explore leader's expectations of how AI will impact the leadership role in the future, survey research is the most appropriate research strategy according to Sekaran and Bougie (2016). As the thesis explores individual expectations, it treats interview answers from each participant as individual data sources and the unit of analysis is thus the individual (Sekaran & Bougie, 2016). Since the aim of the thesis is to explore leaders' expectations of a future event, studying individuals from different companies instead of groups of leaders from one company increases the possibility of a greater variety of answers. It also helps to avoid bias from company cultures. Furthermore, a comparison between groups of leaders from different companies is not suitable due to the

limited time frame for this thesis. Interviews are held over a period of four weeks to gather data, but just once with each leader. According to Sekaran and Bougie (2016), this data collection method is suitable for research where the aim is to study individual participants' expectations at a certain time, and where it is not relevant to discover any changes in interviewees' answers. This data collection method, which Sekaran and Bougie (2016) title cross-sectional, is thus a suitable choice for the research design for this study.

3.3 Data Collection Method

3.3.1 Procedure and interview structure

For the data collection, qualitative semi-structured interviews were used. This type of interviews was chosen because it gives the researchers a framework of interview questions and a level of flexibility (Bryman, 2008). Depending on where the interview answers are heading, the researchers can adapt the interview questions and at the same time not lose the general theme (Bryman, 2008). The choice of interview style was beneficial for the research for several reasons. Firstly, since the interview had a focus on a distinct subject, some structure was necessary to keep the interview in the right direction. Secondly, since the desired data consisted of individual expectations, this study needed the flexibility to go deeper into subjects that mattered to the individuals interviewed. According to Bryman (2008), semi-structured interviews can offer these opportunities. Finally, since more than one individual was interviewed, some structure was also needed for the researchers to be able to draw conclusions from the results (Bryman, 2008).

Before the interviews, preparations were made to assure that the time spent would be as valuable as possible for both the authors and the interviewees. In line with Kvale's (1996) strategy on how to prepare and conduct successful interviews, the authors read suitable literature on the subject and wrote a literature review to gain enough knowledge to create an adequate interview structure. The interview questions were also made easy to understand and straight to the point in line with Kvale's (1996) strategy. Furthermore, the interview questions were to the best of the authors' ability unbiased to capture the respondent's perceptions and avoid pushing the participant's answers in a particular direction (Sekaran & Bougie, 2016). With Kvale's (1996) guidelines in mind, the interview started with an introduction and a presentation of the thesis

subject and ended at the beforehand set up time. The interview structure started with open questions, creating a relaxed atmosphere, to later move on to questions on the main subject of the thesis. After each interview question, the respondent was able to speak freely and with as little interruption as possible (Kvale, 1996). According to Kvale (1996), this is beneficial for maintaining the flexibility a semi-structured interview should provide. If the respondent wished to dig deeper into a specific topic, this was welcomed and analysed as a part of the answer. In line with Kvale's (1996) arguments on the necessity to critically examine the interview answers, the interview answers that were unclear to the authors conducting the interview was followed up by further questions or examples to increase the authors' understanding of the respondent's expectations. Both authors were also present in all interviews, which Kvale (1996) claims facilitates the conduction of the interview, as several conductors can divide the work between them. The authors thus helped each other to take notes and observe the physical reactions from the respondents. In turn, this facilitated the interpretation of the collected data and made it possible for the conductors to ask relevant follow-up questions and observe respondents' behaviours and attitudes during the interviews (Kvale, 1996).

Interviews were mainly conducted face-to-face, due to the advantage of being able to pick up nonverbal messages from the participants, such as body language, nervousness or stress (Sekaran & Bougie, 2016). A few interviews were however conducted by telephone, due to the geographical distance between the authors and the participants (Sekaran & Bougie, 2016). The environment for the face-to-face interviews was chosen to be close to the respondents' offices and without any interferences from other people, most commonly in a conference room, to secure the safe and undisturbed environment that Bryman (2008) advocates. When conducting the interviews, the thesis authors chose to record and after that transcribe the respondent's words into text, following Bryman's (2008) example for how to increase the quality of interviews.

3.3.2 Sample

To find the right sample to the conducted interviews, the target population needs to be clearly defined (Sekaran & Bougie, 2016). For this thesis, the target population was individuals in leading positions with a connection to the technology field, for instance leaders with an engineering background or leaders in a technology company. The prerequisite for the leaders was to have at least one employee under their positions and to have insight in technology. To

select the participants for this study, the authors used a nonprobability sampling technique, which means the sampling does not represent an entire population (Sekaran & Bougie, 2016). Nonprobability sampling was chosen because it benefits this study in several ways. According to Sekaran and Bougie (2016) it is a cheap and easy way to access information. The authors could find individuals to interview in their geographical area. Second, the requirements for gathering a significant sample are fewer for nonprobability sampling than for probability sampling. A probability sampling would have required a more substantial number of participants, not reasonable for the time frame given for this study (Sekaran & Bougie, 2016). In line with Denscombe (2009) who questions the adequacy of using probability sampling in small qualitative research, a probability sampling technique was therefore excluded from the data collection method (Denscombe, 2009). The type of nonprobability sample that was chosen for this study was purposive sampling. Purposive sampling is based on the expertise that the subjects inhabit on the field of knowledge (Sekaran & Bougie, 2016). The authors picked the individuals that were believed to have comprehensive insight and knowledge on the field of AI and leadership. Since Sekaran and Bougie (2016) stress the importance of purposive sampling to represent a diverse group of people, leaders in different positions were chosen for the interviews. The leaders were a mixture of CEOs, CTOs, IT directors and Managing directors of both smaller start-ups, medium-sized companies and multinational companies. To decide the number of participants for the sampling, the authors used theoretical sampling introduced by Glaser and Strauss (1967, cited in Sekaran & Bougie, 2016). For this study, it meant that interviews were conducted until patterns showed and the information gathered from the different participants aligned or did not give this study any new knowledge (Sekaran & Bougie, 2016).

3.4 Data Analysis

The approach used for analysing the data collected from the semi-structured interviews was a thematic analysis, which Bryman and Bell (2015) describe as the process of categorising data into themes (Bryman & Bell, 2015). The data analysed were audio-recordings of the full interviews and written notes taken during the interviews. Audio-recordings were listened through and summarised. The summaries consisted of transcribed sentences and shortenings of sentences of particular value for answering the research question. The majority of the expressed

words and sentences of importance for answering the research question were transcribed instead of reformulated to avoid misinterpretations of data. The summaries were read through several times together with the written notes from the interviews and then coded into units of texts which the authors grouped into categories. The coding units consisted of keywords and sentences in line with Sekaran and Bougie's (2016) recommendations for data analysis (Sekaran & Bougie, 2016), but also themes, as themes help to find common expressions of ideas (Minichiello et al. 1990, cited in Sekaran & Bougie, 2016). The units were clustered into categories, created inductively from the data. During the categorisation process, the authors repeatedly returned to the texts and refined the categories. According to Sekaran and Bougie (2016), this is an essential part of qualitative data analysis as it provides a greater understanding of the content, its patterns and connections (Sekaran & Bougie, 2016). The categories of coding units were then interpreted with the help of the literature. In this way, theory helped explain the findings and served as a basis for understanding them. Lastly, the authors compared the findings with earlier theory from the literature, which is necessary to conclude whether the findings supported or neglected the existing theory (Bryman & Bell, 2015).

3.5 Validity and Reliability

The internal validity, described by Sekaran and Bougie (2016) as the extent to which the research results represent the data, can be affected by the research method used in this thesis. Firstly, the method for data analysis plays a vital role in deciding the level of internal validity. According to Kassirjian (1997, cited in Sekaran & Bougie, 2016), the internal validity is dependent on the category reliability, which is the authors' ability to create and present relevant categories for data analysis (Kassirjian, 1997 cited in Sekaran & Bougie, 2016). The internal validity is also dependent on the interjudge reliability, which is the degree of consistency in the analysed data between different coders (Sekaran & Bougie, 2016). Hence, the collected data should be properly categorised as well as analysed in the same way regardless of who is analysing it, to reach high category reliability, interjudge reliability and internal validity (Sekaran & Bougie, 2016). Important to consider is that since humans make data analysis, the analysis will always be biased to some extent. From the literature review and earlier experience, the authors have a predefined understanding of the thesis topic and are most likely to attribute respondent's answers to these understandings. Even if the use of existing theory is necessary to

interpret the data, the risk is that the authors overlook data that differs from the literature. The data was therefore collected and analysed by both authors of the thesis in line with Sekaran and Bougie's (2016) suggestion for how to prevent biased data analysis. Moreover, multiple theories for data interpretation were used to avoid bias and increase the internal validity (Sekaran & Bougie, 2016). The use of interviews as data collection method can also impact the internal validity. The risk with semi-structured interviews is that the interview conductors ask questions in a way that affects the respondent's answers, due to the flexibility this method gives (Bryman, 2008). Questions not asked in the same way to every respondent give respondents different interview conditions which can affect the research findings. Furthermore, the fact that respondents were aware of that interviews were recorded can affect their answers. The respondents may not have the courage to be completely honest or may distort their answers to fit the situation. To avoid this impact, the respondents are anonymous in this thesis. The respondents were neither informed about the research questions before the interviews as a way to avoid the impact preparations made by the respondents can have on their answers.

The external validity, described by Sekaran and Bougie (2016) as the level of generalisability or transferability of the research results to other contexts, can be affected by the methods used. A larger sample of participants or a comparison between groups of leaders from a variety of companies would have increased the generalisability of this study. However, time constraints required a settlement for a smaller sample size. Data was collected from several leaders in different positions from different companies to increase external validity. Furthermore, the use of theoretical sampling for collecting data has downsides. According to Karl Popper's description of inductive reasoning cited by Sekaran and Bougie (2016), one can never know if all swans are white just because all swans observed so far have been white. The same goes with theoretical sampling, just because the data shows no deviations after several interviews, there is no guarantee that new data will not appear after several more interviews. Nevertheless, the data collection eventually had to end due to the given time frame for this thesis. Theoretical sampling was thus still the most appropriate method for data collection with regards to the thesis topic.

4 Results

4.1 Adaptability and open-mindedness to tackle change

This section presents the respondents' expectations on how future leaders need to adapt their mindset to the workplace with implemented AI. Respondents' current mindsets and attitudes towards the implementation of AI in the workplace are also reflected, as these mindsets and attitudes mirror the respondents' expectations on what the future workplace requires of the leader.

The majority of the respondents stressed the importance for a leader to be adaptable and open to change. Respondents expressed that they currently were "open for ideas on how AI can be used internally in the company" and "willing to adapt and use any AI tools". For the future, several respondents stated that "As a leader, if you do not change you do not survive", "you need to be able to understand how fast things change" and that as a leader you need to "learn how to handle the situation because technology cannot be stopped... You need to embrace the new instead of being afraid." Other respondents expressed that "A leader needs to have an open mind" and as a leader, you need to "always prepare for change because everything changes all the time". One respondent further expressed that "People still doubt if AI can change anything. Time will tell because you cannot stop something inevitable."

Several respondents saw the development of technology and AI as an opportunity for the future leadership role rather than a threat. Respondents stated, "I see technological development as a possibility" and "AI should be a possibility, and therefore I am positive to use AI internally in the company". The same respondent stressed the problem with being afraid of AI, and stated, "of course it creates tensions, cause welfare and resources will be reallocated... Some people wish to go back to the old ways. Therefore, counterforces to new technologies arise." One respondent referred to the technological development and stated that he was "not afraid of it, because it is not really about skills that are threatened, it is about the will to change... Technology and AI will give interesting opportunities." Another respondent stated, "Often the problem is that people at the top do not appreciate what younger people understand

about digitalisation and AI, they do not appreciate what can be done. And too often, they will just say all that is nonsense.”

Two respondents viewed AI as a current “trend” or “buzzword” for which leaders need to prepare. As one of the respondents put it, “I prepare for the future by reading a lot, analysing trends, visiting conferences and elaborate with AI services.” The other respondent stated that “the best plan is not to have a plan, to be open-minded for everything that comes.” This respondent expressed that his company in the future either can “put in something that cannot be replaced by AI or use the power of AI and put some twist into it to make it more unique”. Furthermore, one respondent stressed the importance for the future leader to “listen and snap up information...to be updated and always strive for the future”. The same respondent also put value in “encouraging employees to broaden their capacity to avoid being locked into only one technique”.

Two respondents did, however, not see the implementation of AI in the workplace as a matter of course. One of them had a difficult time picturing AI impacting the future leadership role and stated, “I cannot see a connection between AI and leadership” and “I do not know if I have an answer to how AI will impact the future leadership role”. Both respondents did, still, include AI in their vision for future products. One of them stated, “If new possibilities with AI arise, we will, of course, use them in the products we sell.”

In summary, the majority of the respondents stress the importance for leaders to be adaptable and open to change, both currently and in the future workplace with implemented AI.

4.2 A workforce consisting of both humans and AI

This section aims to present the respondents’ views on how the implementation of AI in the workplace affects the jobs and tasks present in the organisation, both today and in the future. It presents the respondents’ views on how the affected jobs and tasks change the number of humans working in an organisation, today and in the future. It also reflects the views on how these changes impact the current and future leadership role.

The majority of the respondents expressed that they do not use AI in the workplace today, other than in their products. As one respondent described it, “we do not use AI right now because we

do not have the talent for it yet". Another respondent stated that "It is expensive to be the first ones using AI." The same respondent also expressed that "It is not until the previous year that finished AI solutions have arrived in the market." The majority of the respondents, therefore, did not experience any current impact of AI on their leadership roles. One respondent, however, did use AI in a way that impacted his leadership role. He expressed that he used AI to help with decision making in the form of "a robot that runs through redacted or anonymised data". Respondents described how other technologies have an impact on the leadership role today. One respondent stated that "Internally in the organisation, the leadership role has not been impacted very much by AI, but since the whole IT-part has developed, there are more assisting tools and software for the leader that facilitate teamwork and minuting." One respondent explained how companies today use robots to facilitate work, and stated: "Already today, there are relatively cheap robots able to perform repetitive tasks". As another respondent put it "Technology has made it possible to decrease the number of employees from forty to twelve."

As for the future impact of AI on jobs and tasks in the workplace, one respondent expressed that "Everything that can be automatised will be automatised...In the future, all simple tasks will be executed by robots". The same respondent further mentioned customer service, accounting and law as sectors where AI can do a better job than humans. Other respondents further expressed that "AI will most likely replace jobs in the future workplace" and that "In two years, tasks and jobs may have changed radically, where some may not be needed anymore." One respondent also predicted that "Of course AI will impact the leadership role and the entire society within five to ten years...Many jobs will disappear, for good and for bad...Everything that AI is capable of doing, it will do." The same respondent further described "a digitalisation that will change the entire society" and expressed that "exponential growth will lead to an increased and faster innovation of new AI inventions, for instance, expert systems used for medical research". However, one respondent expressed that "in total, there will probably be more rather than fewer humans hired in the future, due to the increased speed of processes". The same respondent further expressed that "It would, of course, be beneficial if a computer could manage the economy function, but we are certainly not there yet." All respondents still agreed that humans would be crucial in the future workplace. As one respondent phrased it "You will use AI, but you will still need people...The future will combine the best of human beings and the best of AI."

In summary, the majority of the respondents expect AI to replace several human tasks and jobs. Not only repetitive tasks are expected to be further automated, but AI is also expected to replace jobs and tasks of current knowledge workers, leading to a possible decrease in the human workforce. Future leaders are expected to lead a workforce consisting of both humans and AI.

4.3 Sharing the company vision and values

This section presents respondents' expectations on responsibilities included in the future leadership role as a result of the implementation of AI in the workplace. It presents respondents' expectations on the importance of sharing the organisation's vision, values and beliefs. Furthermore, it presents current important responsibilities for leaders, as well as how the leader's responsibilities are affected by current technology, since these responsibilities reflect the expected future responsibilities.

Several respondents described their current leadership role as "being responsible for vision", "to show employees the visions and beliefs", "responsible for binding employees to the corporate culture", "sharing the core values" and "to talk about the purpose, what the company is created for". One respondent described his current leadership role as "the frontman of the company". Furthermore, one respondent saw the ability to filter between information as important for a leader. He expressed that "due to the massive amount of available information today, you have to be good at filtering and knowing where to look for the right information." Another respondent mentioned transparency and communication as keywords for a leader's responsibilities today. He expressed that the way of communicating with employees "has changed dramatically the last five years...today's technology makes the life of the leader a lot easier...Now we have amazing systems like Trello and Slack." He expressed that these tools make it "easier to delegate tasks and to make people listen to you without using a certain type of voice". Another respondent explained how technology today facilitates the work of a leader since "Technology makes distance work and automation possible." One respondent did, however, experience process improvements as having a somewhat negative effect on the leadership role. He expressed how such processes "sometimes go to exaggeration". He believed it to be difficult to lead people and processes from afar.

As for the future workplace and implementation of AI, the majority of the respondents expected the leadership role to continue to include responsibilities like sharing the vision, purpose and beliefs of the organisation. One respondent stated that “humans need to guide, not a computer”. The same respondent claimed that human leaders need to create “the personal feeling, sharing the visions. A computer cannot share the vision, but the leader need to inspire people and show the way. A computer cannot inspire people to do stuff.” Another respondent expected the leadership role to include sharing “purpose and soft values, such as company culture, type of leadership required, values and behaviour”. Several respondents expressed the importance of keeping the human interaction in the future workplace and being available to your employees as a leader to be able to share such values. One respondent uttered that “Initially, I always want to meet individuals in person. Thereafter, you can meet digitally. But the personal meeting is very important, and that we will probably never move away from...It would have been strange to do business with someone whom you have never met.” Another respondent stressed the importance of being available for your employees as a leader, both today and in the future. He said “You need to be available for people in this business. I make sure I go to the branches...I do not like being away from people, but I do not like to fiddle with people.” One respondent highlighted that “Maybe there will be solutions in the near future for meeting solely digitally, but today we always prioritise meeting customers and employees personally.” One respondent saw outsourcing as a possible problem due to the distance and anonymity and said, “sometimes you need to talk to real humans who understand local conditions”. The same respondent further claimed, “it is vain to think that leading people entirely from distance can be done well...If things get to anonymous, and people are led entirely by processes, people will not know what to do when ending up outside the processes.” To avoid the anonymity, the respondent used a “one office policy” and stated, “We have never hired anyone who cannot sit at our office. This way, work become more effective.”

Overall, respondents’ expectations on the future leader’s responsibilities include sharing the company vision, values and beliefs. For leaders to succeed in doing this, respondents believe human interaction and availability are important factors. Respondents stress the importance for leaders to maintaining the human interaction with employees, even when the implementation of new technology and AI tools give possibilities to work on distance or apart from humans.

4.4 Promoting creativity and team-work

This section presents respondents' expectations on the importance of promoting creativity and team-work in the future workplace with implemented AI. It also presents respondents' views on the importance of these responsibilities in the leadership role today, as these views reflect the expectations for the future.

Looking at the results of how the respondent's relationship with their employees was today, some patterns can be seen, where respondents emphasise coaching and allocation of responsibility. One respondent described his leadership as "servant leadership" and stated, "my role is to help others to develop and find new possibilities". He also stressed the importance of being "responsible for the vision, the strategy and the decision-making". He further explained that the sort of hierarchical leadership with one leader telling others what to do would not work in today's work environment. Since everything goes much faster today, he believed the focus needs to be on understanding tasks in teams rather than individually. Another respondent went even further and resembled the relationships to his employees with a family, where he tried to "build a sustainable ecosystem...making everyone a part of the team" and where "everyone can contribute with their talent, like a playground". Furthermore, the remaining respondents advocated a non-hierarchical leadership where big responsibility were given to the employees. Several respondents further advocated coaching as an important part of today's leadership role. One of the respondents expressed that as a leader today, "you learn to manage by objectives rather than micro-managing".

When looking at the respondents' expectations for the future workplace, the leadership role was oriented around supporting team-work. One respondent expressed that there will be:

more complex tasks left that require either human interaction, that you need to think outside the box or very creative tasks. So, it puts higher demands on working in teams, and not on authoritarian leadership. Instead, you need to facilitate creativity and high performing teams...It already applies today but will be even more apparent tomorrow.

Another respondent had a similar view and stressed the importance of promoting employee well-being in a future with AI. The respondent stated that "The personal dimension, how satisfied employees are with their work will be even more important... how you treat

individuals and how individuals experience their working life”. Respondents also put emphasis on the social aspect and human interaction in the future workplace. “A workplace has a lot to do with personal relations, and AI cannot really do that. It only happens between people.” One respondent further expressed that “You want to keep the personal relationship between humans, to be able to meet and talk to each other”. The human aspect was also expressed to be important for performing certain tasks at work. One respondent stated that “the bigger picture is quite difficult for a robot to see”. Another respondent stated, “One should never assume that processes and tools replace human creativity and intelligence... sometimes you need to talk to real humans who understand local conditions”.

In summary, the findings show that the leaders already today emphasise a more supportive leadership style where employees are given responsibilities and freedom, which is expected to also be valuable in the future workplace. Furthermore, respondents expect the future leader to be responsible for building a sustainable work environment where people can thrive, creating a foundation for creativity. Lastly, the social aspect and focus on personal relationships are expected to be important for future leaders.

4.5 Setting the rules for AI

This section presents the expectations on how the future leader will play a valuable part when it comes to making important decisions and setting up a framework and rules for AI. It also gives an overview of the respondent’s views on what AI is capable of accomplishing regarding learning and decision-making.

The respondents’ views on how AI will be able to learn and make decisions in the future somewhat differed. Some respondents believed future AI to play a larger role in decision-making and learning processes in organisations. As one respondent put it, “Maybe in the future, you will have some form of a robot which can look at the big picture... We will get there, but it takes learning, just like humans need to be trained.” Another respondent expected AI to inhabit self-learning algorithms “to learn by its own experiences”. Other respondents had another viewpoint and found it difficult to picture a future where organisationally implemented AI can learn by itself. One of these respondents stated, “I do not think it learns, people rather programme it.” Some of the respondents expressed further doubts about AI’s future ability to make decisions on its own. As one respondent put it, “to have self-learning systems that can

make the right decisions, without the need for managers or leaders, that is a scary thought”. The same respondent further stated, “An example could be a CV application, where AI scan CV’s and decide who to hire, without any personal interaction or soft values. I do not know if we want that type of society...In my company, we do not.” Also, one respondent stated, “The computers do not get to make decisions for us...Internally in the company, you cannot have a computer telling you what to do, that is something you have to come up with yourself.”

The majority of the respondents shared a view on the importance of a leader’s human presence even in a future with AI implemented in the workplace. One respondent claimed that “AI-bots are already smarter than us in limited fields, but they cannot see the totality in the same way as us humans”. Another respondent stated, “To use data as a basis for decision making is important, but you cannot exclude humans from that process.” The same respondent further expressed that “data is worthless if you do not understand it or have any insight in it”. Furthermore, one respondent stated that “a machine can make mistakes because it cannot see something coming that a human might see coming”. Respondents expected the future leadership role to include teaching and setting up the rules for AI. As one respondent specified, “Humans still need to set the framework and decide the rules for the machines. I want to believe that this will be the leader’s responsibility.” The same respondent further claimed that the future workplace “still needs someone who creates the rules and can think...design-people who make the designs for AI”. Another respondent explained that for AI to function properly, the leader needs to build filters according to which AI can act. Then the leader needs to keep correcting the filter and follow up on AI to make AI improve over time. The respondents further stressed the importance of human presence from an ethical and emotional perspective. One respondent expressed, “I do not believe a machine could ever think humanly and smart enough from an emotional intelligence dimension...you need an ethical dimension to control the machines”. One respondent further described that AI can take away emotions and personal attachments that otherwise affect organisational behaviour, which is positive since it enables unbiased decision-making.

In summary, the respondents have mixed views on what role AI will play in future organisations, especially regarding its ability to learn. On the other hand, the respondents’ expectations on the leadership role are more aligned, showing that the leader will still play a valuable part in the future. The leader is expected to control the AI by seeing the bigger picture, by setting the rules for what to do, and by giving AI an ethical and emotional compass.

5 Discussion and Conclusion

5.1 Answering the research question

In this section, the interview findings are discussed to assess the contribution of the thesis findings to the research field and to answer the following research question;

What expectations do leaders have on how AI will impact the leadership role in the future workplace?

Interviews with the leaders have assisted in answering the research question. Findings from the interviewed leaders together with existing research on the field of knowledge indicate several implications on the future leadership role. Common characteristics can be seen in the interviewed leaders' expressed expectations, although some exceptions are spotted.

The data from the interviews indicate that the future leadership role will include being adaptable and open to change as a result of the implementation of AI in the workplace. The data further show that openness and adaptability are keywords for the leadership role already today, as a result of technological development. This data is consistent with significant trends in the literature, which highlight the need for leaders to be open for implementing and leading new AI techniques (Brynjolfsson & McAfee, 2017) to succeed as a leader in the future (Dewhurst & Willmott, 2014). Furthermore, parallels can be drawn between the data and Contingency theory, which states that leaders should adapt their leadership style to every new situation (Goffee & Jones, 2000). Also, the way technology has impacted the leadership role historically indicates that the ability for leaders to adapt to the technological development is essential for organisational performance (Brynjolfsson & McAfee, 2016).

The collected data also show some deviations to the main findings, with two leaders not expressing any urge to adapt to a future with AI in the workplace. The two leaders could not see how AI can impact the leadership role, which indicates a less open and adaptable attitude to technological change. These findings concur with existing literature which highlights that people may have a negative attitude towards technology or may experience fears and suspicion

towards smart machines (Geetter & Van Demark, 2017). One reason for these attitudes in the data findings can be the age of the two leaders and the type of leadership approach they emphasised. The two leaders were older and had been working as leaders for the same companies longer than the other respondents. The two leaders also showed less insight into their leadership styles, providing a narrower reflection over how and why they conducted their leadership the way they did. Furthermore, they also showed less insight into modern leadership approaches such as shared leadership (Yammarino et al. 2012) and self-leadership (Pearce & Manz, 2005). These factors can reflect a more traditional view on leadership among the leaders, with less emphasis on future leadership trends. The leaders' insights into AI as a future management tool internally in the companies may thus be affected, leading to less knowledge on the field.

The majority of the leaders interviewed expect AI to replace several human tasks and jobs, both of repetitive and more complex nature. The findings concur with existing literature that show a current and continuous replacement of technically skilled employees with AI (McAfee et al. 2014), as well as a replacement of typical human physical tasks such as voice recognition, self-learning (Brynjolfsson & McAfee, 2016; Hirsch, 2018) and determination of emotional states (Brynjolfsson & McAfee, 2017). AI is thus expected to be part of the future labour force (Plastino & Purdy, 2018). Findings from interviews, in line with the literature on the topic, lastly suggest humans as an essential component of future organisations. All respondents claimed humans to play a valuable part in organisations despite the implementation of AI. These results are consistent with significant trends in the literature, suggesting the essence for leaders to take on a role as the innovator, entrepreneur or creator in organisations as a compliment to AI (Brynjolfsson & McAfee, 2017). Jobs and tasks may be adapted to fill the gaps AI cannot provide or to areas where a human workforce perform the jobs and tasks better than AI. Literature shows examples of employees shifting to tasks requiring more complex thinking and a higher value of engagement (Finch, Goehring & Marshall, 2018). Hence, findings do not necessarily advocate a reduction of the human workforce in the future. Roles and responsibilities may shift to fit the future workforce, consisting of both humans and AI. Findings thus suggest that the future leader will lead a mixture of humans and AI.

Data from the interviews show that the future leadership role is expected to include sharing the visions and beliefs in organisations when AI performs more technical tasks. Overall, findings indicate that human interaction and availability are essential factors for leading people in the

future workplace. These findings concur with major trends in the literature, which state that the leadership role will be necessary for inspiring employees (Dewhurst & Willmott, 2014), motivating and persuading employees as well as creating alignment and solidarity among employees (Brynjolfsson & McAfee, 2017). The future leadership role can be connected to today's modern leadership theory transformational leadership described by Bolden (2004), where the focus lies on changing followers at heart, creating intrinsic motivation, building meaning and communicate the values in the organisation. However, leaders still saw technology as a communication enhancer, making it easier for leaders to delegate tasks even from afar. The findings indicate that even though human interaction and availability are needed for leaders to share the vision and create alignment and commitment in organisations, technology and AI might still be used as a way of facilitating communication for leaders. The use of AI was by leaders experienced as more efficient for generating specific information across organisations such as delegation of tasks, as it avoids bias and maintains a level of neutrality for the receivers. This data is broadly consistent with existing literature on the benefits with AI as a neutral information sharer. Literature shows that AI can bring value to different levels of organisations (Dewhurst & Willmott, 2014). It also shows that it may be easier for employees to accept information given from a neutral computer as a source for the decisions (Parry, Cohen & Bhattacharya, 2016). Hence, findings suggest that the future leader will be responsible for sharing the company vision and beliefs and motivate and inspire employees. When AI performs technical tasks and spread information across the organisation, the leader needs to be physically available to the employees to successfully integrate these responsibilities into the organisation.

Thesis findings further suggest an increased responsibility for the leader to facilitate creativity and team-work among employees to perform complex tasks when AI replaces technically and logically oriented tasks. Findings from the interviews suggest that humans are still necessary to provide a bigger picture, creativity, emotional intelligence and an ethical perspective to the workplace. The authoritarian leadership, which already today was rarely emphasised by the leaders interviewed, is expected to be even less useful in the future when leading humans. Instead, the allocation of responsibility, coaching and the creation of a sustainable work environment and well-being is expected to be necessary for facilitating creativity and team-work as a compliment to AI. These results concur with major trends in existing literature, which highlight the need for human interaction in organisations (Dewhurst & Willmott, 2014) to tackle complex tasks and to understand situations where intuition or feelings are involved (Parry, Cohen & Bhattacharya, 2016). In line with the data, the literature suggests human leaders are

necessary for impacting mental states and developing and encouraging employees (Brynjolfsson & McAfee, 2017). The literature also advocates communication and creative thinking as essential skills for the future workplace (Plastino & Purdy, 2018), as well as facilitation of relationships, collaboration and work-learning environments (Tapscott, 2014). Based on existing literature and interview findings on AI's implications on the future leadership role, modern leadership approaches is likely to be emphasised in the future. As Tapscott (2015) implies, technological reliance in workplaces creates a need for collaboration, teamwork and social skills. Collective leadership approaches such as shared leadership (Yammarino et al. 2012) with focus on alignment, commitment, joint achievement and mutual adjustment (Drath et al. 2008) can be suitable in a workplace with implemented AI. Furthermore, the literature suggests the implication of AI to lead to democratisation and decentralisation as a result of the valuable data AI can bring to different levels of organisations (Dewhurst & Willmott, 2014). The collected data also advocate an increased allocation of responsibility to employees. A level of self-leadership, by which the individual manages the own behaviour (Pearce & Manz, 2005) can therefore be suitable in the future workplace.

Finally, interview findings indicate that the leader will still play a valuable part in the future, as the leadership role will include teaching and controlling AI by seeing the bigger picture, setting the rules for what to do, and bringing an ethical and emotional dimension to the workplace. These findings are consistent with the literature on the field of knowledge. Literature suggest that AI can be used to improve decision-making processes (Dewhurst & Willmott, 2014) but highlight the importance for leaders to monitor AI (Parry, Cohen & Bhattacharya, 2016) through asking the questions (Brynjolfsson & McAfee, 2017), setting up rules and guide AI (Plastino & Purdy, 2018). The findings and literature imply that when leading AI, a more traditional leadership style with emphasis on a classical leadership ontology described by Drath et al. (2008) can be applied, where leaders, followers (AI) and shared goals are clearly defined. The literature further describes the essence of the leader as the monitor of AI when it comes to ethical dimensions, as humans are better at impacting and changing individual's morale (Brynjolfsson & McAfee, 2017). Since ethical problems can occur if AI was held responsible for its actions, human intervention in decision-making processes is needed (Brynjolfsson & McAfee, 2016; Parry, Cohen & Bhattacharya, 2016).

In line with existing theory, one-half of the respondents believed future AI to play a large part in decision-making processes in organisations. A reason for this was expressed to be the

avoidance of biased decisions with AI as a decision-making tool. These results concur with literature that shows the value of AI when avoiding bias when making decisions. Literature shows that AI can help leaders avoid the impact culture or religion can have in decision-making processes (Parry, Cohen & Bhattacharya, 2016) and avoid basing solutions to problems on earlier subjective experiences (Parry, Cohen & Bhattacharya, 2016). In contrast, the other half of the respondents found it difficult or frightening to picture a future where organisationally implemented AI can make own decisions and learn by itself. Again, these findings are consistent with existing literature suggesting that people can express negative attitudes, fears and suspicion towards new technology (Geetter & Van Demark, 2017). Furthermore, these findings highlight the importance of keeping the human interaction in the workplace, even when AI makes decisions on its own. The future leader will use AI for better decision-making but will have to be present to monitor the decision-making processes and the AI.

5.2 Conclusion

This section presents a conclusion on the thesis findings to fulfil the aim of the thesis. The thesis aimed to contribute to a better understanding of how AI can affect the leadership role in the future workplace and explore if leaders are prepared for the possible changes that the implementation of AI in the workplace implies.

This study has found that AI will impact the leadership role in the future workplace. The research has shown that leadership historically have been impacted by technological development and that this trend will also continue in the future. This study has also found that leaders' expectations are in line with existing literature on the future implications on the leadership role. Therefore, this study suggests that leaders have sufficient insight in the field of knowledge. Hence, the findings indicate that leaders are prepared for AI's future implications.

This study has identified several implications that AI will have on the leadership role. It will be essential for the leaders to inhabit an open and adaptable mindset to the changes the implementation of AI may bring to the future workplace. Leaders will also lead a workforce consisting of both humans and AI when AI replaces several human jobs and tasks. Therefore, leaders will have to adapt their leadership style to fit both humans and AI. Humans will be essential for organisational success, as their responsibilities shift towards jobs and tasks of more complex nature. Consequently, the leadership role will become more creative and innovative to

lead humans effectively. Furthermore, changes in job assignments create the need for a transformational leadership style, where the leader focuses on motivating employees and communicating the company vision and values. The leadership role will also focus on facilitation of creativity and teamwork among employees, which benefits a collective leadership approach such as shared leadership in the future workplace. An authoritarian leadership style will be less useful among humans since the leader will have to focus on the relationship with the employees, acting encouraging and communicative. Leading AI will include monitoring and deciding the rules for the AI systems. The leader will ask the questions for AI to answer, and be responsible for the decisions made by AI. Findings thus imply that a traditional leadership style, with clearly defined leaders, followers, and shared goals is suitable when leading AI in the future workplace.

5.3 Suggestions for further research

The thesis has provided insight into the future impact of AI on leadership. Despite its exploratory nature concerning its focus on leaders' expectations, the insights gained from this study can be of assistance for leaders when preparing for the future technological development and its implications on the leadership role. Although this study uses a small number of participants, the findings suggest that it will be important for leaders to stay updated on the field of technological development and its impact on leadership, as the future has implications on the leadership role.

With the time scope given for this study, limitations had to be made to make the thesis manageable. Therefore, further research can be made to contribute to the field of knowledge. Further research is needed to assess the long-term effects and implications on leadership when AI is sufficiently implemented in organisations. Further studies could also put more focus on the ethical aspects of implemented AI in the workplace, to explore if decisions made by AI can have ethical implications in the future workplace. Furthermore, this study should be repeated to cover a broader range of expectations from leaders in different branches. Comparisons could also be made between different age groups and backgrounds. A comparison between generations would be interesting to carry through to see if expectations of younger generations that grew up with technology differ from expectations of older generations.

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Appendix A

Interview questions

Introducing questions

1. Who are you and what is your background?
2. Describe your role in the company?
3. How is the organization built?

Questions connected to leadership

4. Describe your leadership style? What do you focus on and what do you consider important when leading?
5. How has your leadership changed during your time as a leader? What do you believe are the reasons behind these changes?
6. How do you experience that the leadership role in general has changed during your time as a leader?
7. How has technology impacted your leadership role during your time as a leader? What type of technology has made an impact on your leadership role?

Questions related to AI

8. What do you think about when you hear the concept “Artificial Intelligence”?
9. Do you use AI in your work today? In what ways?
10. How do you and your company use technology to facilitate your work?
11. How do you experience that technology and AI impact your work as a leader? Does AI facilitate or complicate your work? Do you experience AI as something positive or negative?

Questions related to expectations on the future

12. What are you and your company’s expectations on AI in the future workplace?
13. What are you and your company’s expectations on how AI will be implemented and used in the workplace in the future?
14. What do you believe will be the biggest challenges for the leader in the future?
15. What demands do you experience that the future put on you as a leader?
16. How do you prepare for the future?
17. As a leader, how do you prepare to keep up with the technological development?
18. How do you experience that your company prepares for the future?