

Leadership in the digital age –

A study on the effects of digitalisation on top management leadership

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ABSTRACT

Digitalisation and the phenomenon of digital transformation is rapidly and fundamentally changing existing businesses and organisations alike (Collin, 2015). Although considered a prime challenge for leaders of complex and changing organisations, research in the combined field of digitalisation and leadership however still remain scarce. As executives are tasked with the leading of digital transformation, this study aims to understand how digitalisation effects top management leadership. To achieve this, the study takes a two-folded approach by (1) outlining six characteristics of digitalisation and (2) analysing how these characteristics effect three contemporary forms of leadership: values-based, transformative and authentic leadership. Through a broad literature survey and 13 in-depth interviews with executives and organisational leaders, the study found that the six identified characteristics of digitalisation all effected the three forms of contemporary leadership. The different characteristics did not only change how the leaders practiced each of their leadership styles, but also how their leadership manifested itself through the use of various digital tools, methods and processes in order to enhance and empower their leadership. Even the sub-features of each leadership form were subject to this fundamental digital change. What was also found were three complementary perspectives when leading complex and changing organisations: the perspective of holism, virtuality and networked-based hubs. Each of these perspectives were premiered aspects to be considered as a contemporary leader.

Key words: digitalisation, digital transformation, leadership, top management, organisational change, values-based leadership, transformational leadership, authentic leadership

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1. Introduction

While developing the binary numerical system in 1679, Gottfried Wilhelm Leibniz envisioned and described in his publication *Explication de l'Arithmétique Binaire* in 1703, the concept that would be known as Digitalisation¹ (Leibniz, 1703). Originally understood as a base-2 numerical system (Leibniz, 1879); representing two symbols of value: either 1 or 0 (Leibniz, 1703), the system was later developed and complemented by scholars such as Boole (1854), Shannon (1938) and George Stibitz in the 1940s (Irvine, 2001). Today, Stibitz is considered one of the founding fathers of the digital computer, building one of the first electromechanical computers in 1940 after his discovery of the automatic computing relays in 1937 (Tropp, 1993). The process of digitalisation thereafter accelerated (Bounfour, 2016; Collin, 2015), with the development of personal computers such as the Simon in 1950, Apple II in 1977 and IBM PC in 1981 (Vogelsang, 2010). With the introduction of the 'World Wide Web' (Ibid), the scope, dimension, scale, speed as well as effects of digitalisation fundamentally changed (Berman and Marshall, 2014; Collin, 2015; Tapscott, 1996; Vogelsang, 2010).

The process of digitalisation, and its subsequent effects, described as the "digital transformation" (Berman, 2012; Bounfour, 2016; Chew, 2015; Coyle, 2006; Housewright & Schonfeld, 2006), has therefore again been the subject of discussions and debates in general business reviews and by contemporary business scholars (Andervin and Jansson, 2016; Bonnet et al., 2014; Rogers, 2016; Westerman et al., 2014). Today however, digitalisation and digital transformation is being described as a "global megatrend that is fundamentally changing existing value chains across industries and public sectors" (Collin et al., 2015, p. 29) or as "the catalyst, enabler and engine of societal development throughout the previous decennia" (Bengtsson et al., 2014, p. 50). Digitalisation has furthermore, only recently been subjected to research from a critical management perspective (Andervin and Jansson, 2016; Bounfour, 2016). Searches in MISQ² journal archive as of May 2016, revealed in total only four articles on "digitization", one on "digitalization" and six on "digital transformation", often in scattered research fields, IT-focused or with weak relations to management theory. Researchers in adjacent fields

¹ Henceforth used interchangeably as digitising, digitalizing or digitalization.

² MISQ – Management Information Systems Quarterly, a peer-reviewed scholarly journal. [2016-06-01]

have tried to define digitalisation and its effects through numerous perspectives, often arriving in differentiated outcomes (Korhonen, 2015; Nachira et al., 2007; Tapscott, 1996; Van der Voet, 2014), making research in the field difficult without a unilateral understanding of the phenomenon (Collin et al., 2015). Nonetheless, what several scholars of digitalisation such as Westerman et al. (2014), Rogers (2016) and Sheninger (2014) do agree upon, is that it is a prime challenge for leaders and top management of modern organisations (Collin et al., 2015; Kakabadse et al., 2011; Westerman et al., 2014). Recent research in the field has therefore been focused on the leading of digital change and the managing of digital transformation, although still scarce and exploratory in its present state (Andervin and Jansson, 2016; Berman and Marshall, 2014; Berman, 2012; Rogers, 2016).

Therefore, when viewing the concept of digitalisation and digital transformation from the perspective of leadership scholars, it becomes apparent that there is a missing link between the two research fields of contemporary leadership studies and digitalisation. Looking at scholars such as O'Toole (1995), Bass and Riggio (2006) Copeland (2014) among other (Hill, 2013; Jackson and Parry, 2011; Kotter, 1996; Northouse, 2007; Schein, 2006; Yukl, 2012) digitalisation has not been a strong area of focus. Leadership scholars have instead identified leadership theories and styles such as values-based, transformational and authentic leadership, that explain contemporary leadership practices in complex and changing organisations (Avolio et al., 2004; Bass and Riggio, 2006; O'Toole, 1995). These changing organisations are often similar to the ones researched by scholars of digitalisation, only from a different perspective of leadership (Bass and Riggio, 2006; Bounfour, 2016; Kakabadse et al., 2011; Westerman et al., 2014). The scarcely populated intersection of research between contemporary leadership practices and digitalisation therefore becomes of great interest to further indulge in.

With the above described situation, the research gap becomes apparent: as research in digitalisation is lingering towards contemporary leadership and management studies (Andervin and Jansson, 2016; Collin et al., 2015), while leadership scholars are studying leadership practices within contemporary, complex and changing organisations, often without the component of digitalisation (Bass and Riggio, 2006; Copeland, 2014; Walumbwa et al., 2007), the research of this study will be conducted in the intersection of these two areas. This however entails a two-folded objective and task for this paper: as

digitalisation does not as of today have a unilateral definition or description within the scientific community, this thesis will need to (1) outline a set of characteristics of digitalisation, that can be used as an analytical framework, in order to (2) analyse how digitalisation effects contemporary leadership practices such as values-based leadership, transformational and authentic leadership. The research question of this thesis therefore narrowed down to “how digitalisation effects top management leadership”. The first task described was operationalised and achieved through an iterative process of a broad literature survey and 13 in-depth interviews with top management executives and organisational leaders. This resulted in the identification of six characteristics of digitalisation, which were then used for the second task of analysing how digitalisation effected their values-based, transformational and authentic leadership. The study found that the six characteristics could be found in all three forms of contemporary leadership. The characteristics did not only change how they practiced each of the types of leadership, but also how their leadership manifested itself through the use of various digital tools, methods and processes in order to empower their leadership styles. What was also found were three complementary perspectives when leading complex and changing organisations: the perspective of holism, virtuality and networked-based hubs. Each of these perspectives were premiered aspects to be considered as a contemporary leader.

The two-folded knowledge contribution of this study was first a rudimentary, but initial analytical framework of the six characteristics of digitalisation. This framework can be used by future scholars of digital leadership, change management and organisational leadership, in order to better understand the effects of digitalisation. The second is in regards to further understanding of contemporary leadership in changing and complex organisations, and how digitalisation plays a large role in the shaping and guiding of future organisations. Hopefully, this thesis will shed light on this much discussed, but scarcely studied research area, while also bringing more clarity to the definition, effects and scope of digitalisation and digital transformation.

2. Literature survey

As the thesis sought to (1) identify the characteristics of digitalisation, and (2) analyse how these characteristics effects top management leadership, the literature review mirrored this structure. First, a literature survey was made summarising relevant and existing literature on digitalisation, digital transformation and leading digital change. Secondly, three forms of leadership were reviewed in order to broaden the understanding of contemporary leadership practices.

2.1 Digitalisation

2.1.1 Digitalisation and digital transformation

Due to accelerated technological development (Bounfour, 2016) such as Stibitz's introduction of the first digital computer (Tropp, 1993) or Tim Berners-Lee's launch of the 'World Wide Web' in the 1990s (Vogelsang, 2010), the debate regarding the effects of digitalisation and digital transformation has once again re-emerged in general business reviews and among contemporary business scholars (Bounfour, 2016; Fitzgerald et al., 2013; Regeringskansliet, 2015; Vogelsang, 2010; Westerman et al., 2014). Described by Vogelsang (2010) as the 5th Kondratiev wave, or long economic wave that not only change our production processes and possibilities, but also our way of being (Vogelsang, 2010). When listing the Kondratiev waves he concludes that "after the steam, steel, electricity, and petrochemical revolutions, network-based digitalisation is the driving force today on the stage of business and private life" (Vogelsang, 2010, p. 3). The terms digitalisation and digital transformation are often understood as overall encapsulating expressions to describe the larger technically induced changes occurring in society (Chew, 2013). This however, is also often mistaken for terms such as, mechanisation (Bátiz-lazo and Boyns, 2004), automatisisation (Parthasarthy and Sethi, 1992) industrialisation (Murphy et al., 1988), and robotisation (Garsombke and Garsombke, 1989). Digitalisation is also commonly used as an interchangeable term for "Digitisation" (BarNir et al., 2003), but for the clarity of this thesis however, only digitalisation will be utilised. Digitalisation, is furthermore described as the conversion of analogue information into binary number of either 0 or 1: digital digits (Collin et al., 2015). A process of information conversion from the physical to the digital plane in other words. Digital transformation

however, concerns the global accelerated process of technical adaptation by individuals, businesses, societies and nations, which comes as a result of digitalisation (Collin et al., 2015; Tapscott, 1996a; Westerman et al., 2014). Digitalisation therefore incorporates all the above terms and is in similarity to “Globalisation”, a difficult term to clarify with one single defined meaning or definition. Although today improperly used as an interchangeable word for several of the above mentioned terms, several researchers have recently made attempts to clarify digitalisation from a number of perspectives (Bounfour, 2016; Van der Voet, 2014). In contemporary literature, digitalisation is a “global megatrend that is fundamentally changing existing value chains across industries and public sectors”(Collin et al., 2015, p. 29) and terms such as “mobile Apps, Big Data, Machine-to-Machine, Internet of Things, Industrial Internet, and Industry 4.0“ are used to describe this phenomenon (Collin et al., 2015, p. 29). Examples of digitalisation, or digital transformation when discussing the actual change-process (Korhonen, 2015), can be seen in the media, banking, telecom and insurance industries as pioneering sectors that are in the middle of large-scale digital transformation (Collin et al., 2015). Here, existing business models operate “as part of global digital business ecosystems (Nachira et al., 2007) in which interrelated business-units (i.e. species) with shared goals and values will collaborate and co-create value and ecosystem-advantage (Iansiti and Levien, 2004) in a highly competitive global market” (Chew, 2013, p. 13).

Bounfour (2016) has further analysed digital transformation through 25 future trends and emerging factors, built upon the Information Systems Dynamics (ISD) research programme initiated by the CIGREF foundation, which establishes the context of digital transformation and its relation to IT (Bounfour 2016; ISD program, 2012). The ISD analysed digital transformation through five interrelated perspectives and key trends:

Strategic trends: disruptive changes in the business climate has inevitably led to networks, communities and as well as financial markets to change and engage in major transformation.

Societal and ethical trends: current relations within societies will differ as they are evolving and adapting to the continued development of IT - shifting future norms of conduct.

Organisational trends: the previous structure of companies, groups and societies are shifting in the

form of their structures, processes and standards toward more fluid forms of organisations. **Technological trends:** as informational artifacts have become commonplace within the digital and physical sphere, rapid development within IT and innovation technology have become crucial elements to consider. **Regulatory trends:** as new standards and regulation emerge; considerable preparation is needed to ensure that the transition towards new regulatory structures are set in place. (Bounfour, 2016, ISD program, 2012)

Scholar Saul Berman (2012) reviewed digital transformation in regards to its effects on business models, encouraging leaders to focus on two complementary activities: using digital technology for greater customer collaboration and interaction, and the reshaping of current customer value propositions in order to transform the whole operating model (Berman, 2012). Several institutions and scholars have furthermore tried to simplify and define this process: Bounfour (2016) tries to define this as the following: “Digital transformation is a new development in the use of digital artifacts, systems and symbols within and around organisations” (Bounfour, 2016, p. 20). The ministry of foreign affairs and secretariat of strategic analysis in Sweden simply explains digitalisation as “the catalyst, enabler and engine of societal development throughout the previous decennia” (Bengtsson et al., 2014, p. 50), The Swedish Government and the Commission of Digitalisation reports that “digitalisation means that digital communication and interaction between people, organisations and things becomes an obvious occurrence. The possibility to collect, interpret, apply and develop larger quantities of data digitally, allows for developmental possibilities in almost every sector” (SOU, 2015, p. 57). Fitzgerald et al. (2013) finally assesses that almost no organisation will be able to shelter itself from digital transformation and the competitive disruption that follows by adoption of new digital technologies and business models. Digitalisation is as shown above, a difficult term and phenomenon to summarise and explain, as its properties are cross-cultural, cross-disciplinary, inter- and intra-geographical as well as virtual (Collin et al., 2015; Sheninger, 2014; SOU, 2015).

2.1.2 Leading Digital Change

Now diving in to the scarce intersection between leadership studies and digitalisation, as described above, digital transformation involves the reshaping of the very context and structure of organisations (Berman & Marshall, 2012; Chew, 2015; Housewright & Schonfeld, 2006; Rogers, 2016). This has strong implications on leadership practice and theory in regards to leader's abilities, capabilities and how they implement this change (Korhonen, 2015). Westerman et al. (2014) in "Leading Digital" concludes that digital masters – companies with significantly higher drivers of performance and productivity, are rare. Most companies fail to become digital masters, and those who succeed do so by their ability to lead this digital transformation and change (Rogers, 2016; Westerman et al., 2014). Two important areas are highlighted in order to succeed with one's digital transformation: Leadership capabilities and the operationalisation and implementation of digital transformation.

Leadership capabilities necessary for success is described as the ability to (1) create a transformative digital vision, (2) energise employees by engagement, (3) focus on the digital governance and (4) building technological leadership (Westerman et al., 2014). The first two are rather self-explanatory in the sense that they are previously acknowledged leadership practices (Bass, 1985; Burns, 1978; Kotter, 1996; O'Toole, 1995). Digital governance however is the process of steering a company's digital activities towards the strategic vision, while building technological leadership entails the enabling and merging of IT leaders with the present business conduct (Westerman, 2014, p. 133-135).

The operational leadership practice of digital transformation was for instance developed as following:

Framing the digital challenge: By crafting a digital transformative vision, the team can align around this, and together build awareness of digital opportunities and threats. The organisations digital maturity is also assessed (Westerman et al., 2014). **Focusing investment:** after the vision is set, an implementation document in the form of an actionable roadmap is to be created. Work cross-disciplinary, engage in cross-silo governance structures and have the funding of your transformation ready (Ibid). **Mobilising the organisation:** Create the sense of urgency, by signaling through clear communication, what you ambition is and why the change is needed now. Engage the workforce and set new behaviors in order to create momentum. Evolve the whole organisation for an innovative corporate culture (Ibid). **Sustaining the transition:** Have fundamental skills in place, reward structures

and develop towards a transformation of the original organisational barriers. Keep the transformation measurable and iterative. (Ibid).

Other business scholars such as Andervin and Jansson (2016) have developed a digital maturity matrix in order to help corporate organisations to lead and manage the digital transformation of their sectors, building upon Kotter's transformation process (Kotter, 1996). Andervin and Jansson (2016) distill a three-step process of mobilisation, co-ordination and acceleration that corporations can use in order to increase their digital competitiveness. Kakabadse et al. (2011) develops methods similar to the above stated, in order to manage transformation in governments by leading through vision, managing stakeholders, designing the operational model and developing talent. Kakabadse et al. (2011) however accredits and concentrate the transformational success to the leadership X-factor; "the ability to adapt to context" (Kakabadse et al. 2011:185).

2.2 Contemporary leadership

Leadership is a broad and vast research field containing abundant literature in a variety of styles, forms and contexts (Jackson and Parry, 2011; O'Toole, 1995). Several areas have however been identified as more crucial and thus been focused on more rigorously by leadership scholars (Schein, 2006; Yukl, 2012). Modern scholars have focused on "trait theory" regarding the associated characteristics and personalities of leaders, such as Dym and Hutson (2005) as well as Gordon (2007) and Levine (2008). Others have focused on organisational leadership, analysing leadership as a component of the organisation (Blanchard, 2007; Northouse, 2007) as well as contingency-based or situational leadership, focusing on context-based adaptive practices (Blanchard et al., 2013). Even emotional intelligence leadership models as developed by Goleman (2003) regarding leaders self-confidence, emotional, social and individual awareness, are now more prominent areas of leadership studies and scholarly work (Dulewicz and Higgs, 2005; Maurik, 2001). However, in the research regarding leadership of complex and changing organisations, the study of values-based leadership has been at the forefront together with its complementary strands of transformational and authentic leadership (Bass and Riggio, 2006; Bryman, 1992; Copeland, 2014; Maurik, 2001).

2.2.1 Values-based Leadership

Values-Based Leadership (VBL) has been identified as one of the larger themes of contemporary leadership studies (Bass and Riggio, 2006; Hill, 2013; O’Toole, 1995; Schein, 2006). Although developed chronologically after “Transformational Leadership” by Burns (1978) and Bass (1985) as we will explain later on, VBL has become the overarching definition of several nuanced leadership-styles such as transformational and authentic leadership. It has been a profound development in organisational leadership as well as political leadership literature in regards to leading through values, ethics and morality (Copeland, 2014; Van der Voet, 2014; Yukl, 2012). Evolving through the dissident times of the twenty-first century (O’Toole, 1995), Values Based Leadership became a response to the immoral and unethical decision-making (Brown, 2005) that had been fuelled by the financial greed, corruption and scandals of high-positioned leaders (Copeland, 2014; Zhu et al., 2004). It acted as a counter-point in which the philosophy was to lead through morality, empowerment and followership (Yukl, 2012). VBL has since its inception evolved into many parallel tracks and theories, such as “Servant Leadership” of Greenleaf (1977) and Patterson (2003), “Connective leadership” (Lipman-Blumen, 1996), “Contextual Leadership” (Osborn et al., 2002) to name a few. However, two of the strongest constructs of VBL have been further researched lately: the transformational leadership (Bass, 1985) and the authentic leadership (Avolio and Gardner, 2005). Interestingly, all of these can be found in the combined works of O’Toole (1995).

James O’Toole saw moral leadership or values based leadership as a way to empower the organisation toward achieving its overall goal (O’Toole, 1995). By setting clear visions with passion, as well as upholding integrity, engaging the workers to follow the leader’s authentic example and encouraging them to raise their voices, the whole become greater (O’Toole, 1995). What he countered, was the bad example of leadership called contingency-based leadership (Copeland, 2014), which according to O’Toole was both situational and “prescriptive, judgemental and deterministic – exactly the opposite of what is claimed to be its greatest virtues” (O’Toole, 1995, p. 8). O’Toole therefore highlights four key areas of VBL that emphasised the essence of values based leadership.

Integrity. In reference to President Jefferson and President Lincoln, O'Toole stresses the importance of how they stood their ground in opposition to slavery in the 19th century (O'Toole, 1995, p. 23). Although it was a heavy political price to pay, their integrity and strength of being both pragmatists and principalists in the end helped them in leading victoriously. By standing by what was morally right and the long-term benefit of such an action towards equality, showed admirable value based leadership. Even the creation of a vision and a value document such as the declaration of independence was viewed as a way to empower and encourage the people to action (O'Toole, 1995).

Trust. A leader needs to be a “champion of the people” in reference to old Roman times (O'Toole, 1995, p. 27). By setting the ideal that the leader is a servant of the people, with the responsibilities as well as the privileges of such a role shared throughout the people. Be enabling the followers with courage and optimism, and becoming the voice of their wants and needs, the leader raised as the chosen leader. The aspirations and values of the members are what is of essence, and the leader becomes their vessel. By trusting the leader and vice-versa, the group strengthens (O'Toole, 1995).

Listening. President Washington and Lincoln were both avid listeners, holding the philosophy that it was by listening to the people they served, that they could succeeded in doing what was right for the democracy (O'Toole, 1995). Washington, who was credited for his strong leadership, was the most silent the presidents (O'Toole, 1995, p. 29). By listening during the four months as chairman of the constitutional convention and only speaking once, he understood what the public was asking for (Ibid). In organisations, this does not differ: a leader who listens to his followers or members of the organisation, understands the wishes of his organisation (O'Toole, 1995).

Respect of followers. There is “no such thing as the leader, there must be only a leader of leaders” (O'Toole, 1995, p. 32). According to Jefferson, the right kind of leading is more similar to teaching than commanding. Referencing to the presidents in the book, all were great teachers to their followers. In organisations, the leader is both a teacher and an empowering persona, by encouraging the members to

follow certain values and internalise them, the leadership is enlarged by the group as a whole. Leadership then becomes about each individual, leading together (O'Toole, 1995).

2.2.2 Transformational Leadership

Transformational leadership was coined and conceptualised by James MacGregor Burns in his work "Leadership" in the 1978 (Bass and Avolio, 1994; Burns, 1978). After observing how political leaders helped each other to achieve higher levels of motivation and morale, and their way of either offering reward or punishment as a means of leading, he finally conceptualised transactional leadership and transformational leadership (Burns, 1978). The difference between the two concepts are essentially rooted in the intentional functionality of the leader (Jackson & Perry, 2011).

Transactional leaders, or managerial leaders are essentially operational; setting goals, arranging exchanges between leaders and the members as to what is expected of the members, and what the reward would be for their performance and compliance (Vera and Crossan, 2004). Similar to what was earlier described in "The human side of enterprise" by Douglas McGregor in his theory X, the structural routines, rules and procedures are represented as formal contracts, performance systems and standardised practices to ensure operationalisation (McGregor, 1960).

A transformational leader however, views the organisation as an entity in which one can through persuasion and motivation, encourage, convince and finally induce change (Buchanan and Badham, 2008; Schein, 2006; Yukl, 2012). A transformational leader is a change agent, who "defines organisational reality through the articulation of a vision, and generation of strategies to realise that vision" (Jackson & Perry, 2004. P. 31) and is therefore also part of the organisational context, rather than the distant heroic leader (Alimo-Metcalfe and Alban-Metcalfe, 2005). By inspiring and incorporating members, the leader motivates as well as finds growth opportunities, increases effectiveness and guides the organisation by the values and higher ideals set as the long-term vision of the organisation (Dulewicz and Higgs, 2005; Maurik, 2001). Bass (1985) accordingly then developed and extended the work of Burns (1978) adding underlying and measurable psychological mechanisms to the model, in order to more clearly analyse the impact on performance and motivation a

transformational leader has. **Four key components** of transformational leadership was later on identified through factor analytic studies by Bass (1985), Howell and Avolio (1993), Bycio, Hackett and Allen (1995) and finally Avolio, Bass and Jung (1999). Below summary is from “Transformational Leadership” (Bass & Riggio, 2006).

Idealised influence. Leaders serve as role models to their followers and apply charismatic behaviours. They are trusted, admired and respected by their loyal following. Followers try to mimic the leader and identify with them as persons, as well as prescribe the leaders with extraordinary capabilities and persistence. The two aspects of idealised influence are rooted in the behaviours of the transformational leader and the attributes given to her by the followers. Transformational leaders thus work toward states of idealised influence such as leading by example, acting with optimism and confidence, having high moral and ethical standings in their decision making (Bass & Riggio, 2008).

Inspirational motivation. Leaders are inspirational and motivating, in order to lift the team spirit and challenge the co-workers whilst inducing meaning and a higher purpose to their work. By articulating a clear and optimistic vision of the future and by involving the followers in meaningful tasks, leaders build commitment through the shared vision and can accordingly request commitment from the followers. Together with idealised influencing, inspirational motivation describes the combined research area of “charismatic leadership theory” (Bass & Avolio, 1991; House, 1976).

Intellectual stimulation. Leaders stimulate the efforts and self-reflection of followers, through creative and innovative questioning of assumptions, without any criticism or negativity in regards to their ideas. No public criticism, blame or mistakes is to occur, on the contrary, the ideas are allowed to differ from the leaders, to enable different perspectives to the issue without the fear of punishment or ridicule. Leaders asks followers to take a different view on an old issue, encourages radical and controversial suggestions and overall co-creative setting of knowledge sharing (Bass & Riggio, 2008).

Individualised consideration. Leaders engage in a role of teaching and coaching, whilst paying special attention to each individual followers wants and needs. By acting as mentors, leaders focus on the needs and desires that should be met in order to foster further growth and achievement among of the followers. Leaders listen, recognise and accept the differences in nature of their needs, and accordingly adapt to this by being more nurturing, guiding and flexible to some followers, and tougher and more task-orientated towards other. The leader also enable safe environments for the follower to learn and try new tasks, in a supportive setting as well as monitoring if changes need to be made for continuous development (Bass & Riggio, 2008). Coupled together, these four components are viewed as the foundation of transformational leadership, and is still a potent and active concept as of today (Kakabadse et al. 2011; Rogers, 2016).

2.2.3 Authentic Leadership

Similar to the era of leadership failures described above, Bill George, leadership consultant and academic, together with several scholars (George, 2003; May, Chan, Hodges, & Avolio 2003; Avolio & Gardner 2005) articulated the need for leaders who “lead with purpose, values, and integrity; leaders who build enduring organisations, motivate their employees to provide superior customer service, and create long-term value for shareholders” (George, 2003, p. 9). What was then identified and developed by Avolio, Gardner, Walumbwa, Luthans & May (2004) through the theoretical concept of authenticity coupled with positive psychology, was the concept of “Authentic leadership development” or “ALD”: a critical attribute to possess as a 21st century leader (Copeland, 2014). Authentic leadership develops the perspective that in order to truly impact and be of benefit for individuals, corporations, nations and societies, authentic leaders must possess inner characteristics beyond transformative and charismatic leadership (Copeland, 2014). Luthans and Avolio (2003) defined it as “a process that draws from both positive psychological capacities and a highly developed organisational context, which results in both greater self-awareness and self-regulated positive behaviours on the part of leaders and associates, fostering positive self-development” (2003, p. 243). Although authentic leadership is at its early stages of concept-development (Walumbwa et al. 2008), Liles et al. (2005) drew further on Michael Kernis’s concept of authenticity (2003) and developed a four-component model focusing on self-awareness,

unbiased processing, authentic behaviour & acting and authentic relations orientation. Combined with the works of Gardner, Avolio, Luthans, et al (2005), a conceptual consensus was reached of four distinct qualities present in authentic leaders (Walumbwa et al. 2008).

Self-Awareness. A self-aware leader seeks to understand how to create meaningful interaction and impact in the world (Avolio & Gardner, 2005). By seeking feedback in others as well as improving dialogue with individuals, the leader demonstrates the ability to gain inner insight through exposure to others, viewing oneself through other eyes and the impact of decisions processes (Kernis, 2003). A self-aware leader can also describe her shortcomings as well as understand the more multifaceted nature of herself (Walumbwa et. al., 2008).

Relational Transparency. A fully authentic and transparent leader instils trust and promotes involvement, by sharing one's feelings and thoughts as well as openly sharing information with others, whilst trying to balance and minimise one's inappropriate emotions (Kernis, 2003). Relationally transparent leaders value genuineness, truthfulness and openness, and guide their followers in the understanding of both the negative and positive sides of their true self's (Luthans, Norman, Hughes, 2006).

Balanced Processing. Leaders whom make rigorous objective data-analysis before arriving at a decision, utilise a balanced processing approach (Kernis, 2003). A leader that is able to be objective, does not only have optimal self-esteem according to Luthans, Norman and Hughes (2006), but is able to process both relevant and non-relevant information, without ignorant, distorted, exaggerated or distorted assumptions (Ibid). By arriving at an objective conclusion, accepting both the negative and positive results of the analysis, the leader is far more authentic then one driven by biased information processing (Avolio, Gardner, 2005).

Internalised Moral Perspective. Refers to one's ability to integrate self-regulatory functions, allowing the leader to be guided by values and moral standards, standing against group's social pressure (Walumbra et al., 2008). As Avolio and Gardner simply put it "self-regulation is the process through which authentic leaders align their values with their intentions and actions." (2005, p. 325).

2.3 Theoretical framework

As described above in the section of "digitalisation and digital transformation" as well as "leading digital change", the transformative effects of digitalisation can be viewed from several different aspects and perspectives, with a wide array of complex features ascribed to the phenomenon. To better understand this occurrence, the broader literature survey was conducted to outline the main and common features of the phenomenon, in order to create a framework of analysis. After the completion of the survey, six main features and reoccurring themes could be found as common characteristics of digitalisation. Each is here described, before they are used to analyse how digitalisation effects top management leadership.

2.3.1 Six characteristics of Digitalisation

(1) Interconnectedness. The Interconnection and integration (Berman and Marshall, 2014; Chew, 2013; Westerman et al., 2014) of businesses (Nachira et al. 2007), tools (Berman, 2012), communication and social interaction (Bounfour, 2016) as well as organisations has greatly increased due to digitalisation (Collin et al., 2015). The interconnectedness in multidisciplinary research for example, has according to Nachira et. al (2007) enabled "the sharing of knowledge and practices and the modelling of micro- and macro-economic contexts, which will drive productivity, sustainability, quality and effectiveness in structured environments while unleashing creativity, innovation, dynamic networking, and participation in unstructured settings" (Nachira et al. 2007, p. 12).

(2) Diminishing time lag and abundance of information. Shorter timeframes for decision-making (Rogers, 2016), increased speed of information (Westerman et al., 2014), real-time organisational management (Collin et al., 2015) and increased forms of interaction (Bounfour, 2016) are results of diminished time lag and abundance of information (Korhonen, 2015). This characteristic is according to Bergman (2012) enabled by for example smart phones, tablets and social media, requiring “powerful business analytics to make sense of the information and take full advantage of it” (Berman, 2012, p. 16). The access and abundance of information was for example, used by Vogelsang (2010) to analyse the global volumes of trade for digital goods, highlighting how innovations in telecom, Voice over IP and TV are interlinked and aided by digitalisation (Vogelsang, 2010, p. 31).

(3) Increased transparency and complexity. In the face of increased organisational complexity (Andervin and Jansson, 2016), further transparency is needed in order to manage organisational transformation (Kakabadse et al., 2011; Rogers, 2016). As discussed in Collin (2015) “Digitalization of the consumer inevitably generates the need for transparency to the retailer’s business processes” (Mäenpää & Collin, 2015, p. 91). When discussing digital leadership in the educational sector, Sheninger (2014) also emphasises how the increased complexity of technology, shifts and challenges how education will be conducted in a digital age (Sheninger, 2014).

(4) Hierarchy removal and dissolution of personal barriers. As organisations become more fluid (Chew, 2013; Schein, 2006), changes in the organisational hierarchy structure follows (Bounfour, 2016). Westerman et al. (2014) for instance, introduces the notion of “reverse-mentoring programs” (Westerman et al., 2014, p. 229), enabling top management and senior executives to learn from the younger generations, by diverging from formal and professional barriers as well corporate positions in the company. Hiekkanen (2015) also highlights the occurrence of this characteristic by the “alignment of business and IT – so called strategic alignment” (Hiekkanen, 2015, p. 45), occurring on many levels of the organisation, for overall

increase of performance in regards to IT governance. From a leadership-perspective, Westerman et al. (2014) for example argues that “time and attendance are artificial barriers that can be removed allowing employees to have a far greater say in how they work” (Westerman et al., 2014, p. 216).

(5) Decision enabler and integrity enhancing. Digitalisation enables faster decision-making processes (Berman and Marshall, 2014; Chew, 2013): from strategic decisions in the corporate boardroom (Andervin and Jansson, 2016) to consumer purchase decisions (Berman, 2012). As described in Lui et al. (2011) “Tomorrow’s management, supported by digital transformation, reflects many different tensions; notably between internal and external resources, horisontality and verticality in organisations, and short timeframes for decision making” (Liu et al., 2011, p. 1732). With the above four characteristics, digitalisation also effects personal integrity, as mutual trust for example is becoming a significant factor when selecting business partners (Liu et al., 2011).

(6) Humanising effect. As digitalisation reshapes the five key domains of customers, competition, data, innovation and value according to Rogers (2016), it also enables humans to easier interact, communicate and interlink through virtual platforms and tools (Tapscott, 1996a), in a more authentic and intuitive way. As man and machine continue to interconnect (Garsombke and Garsombke, 1989), more “people work side by side with automatons [Robots]... and human-robot collaborations are only getting closer. Robots are rapidly getting better at seeing, feeling, and otherwise sensing their environments, which enables them to take on more and more work” (Westerman et al., 2014, p. 247). As human beings are becoming more interlinked with computers (Vogelsang, 2010), the future of interactivity according to Berman and Marshall, “will be “symbiotic”, a system in which virtually everyone and everything are mutually interdependent” (Berman and Marshall, 2014, p. 13).

The six characteristics identified above are generalised, complementary, dualistic and overlapping of each other as each characteristic relates to different perspectives and features of digitalisation. The characteristics will now be used as the theoretical toolbox, to analyse the effects of digitalisation on the three contemporary top management leadership forms described by Copeland (2014), O'Toole (1995), Bass and Riggio (2006) and Avolio and Gardner: values-based leadership, transformational leadership and authentic leadership.

3. Research design

As the thesis sought to answer “how digitalisation effects top management leadership”, through (1) identifying the characteristics of digitalisation, and (2) analysing how these characteristics effects top management leadership, a research design to serve this aim was chosen. Through the literature survey, the six characteristics of digitalisation were identified, bringing the study to the task of confirming and analysing the effects of these characteristics on the three chosen forms of leadership: values-based, transformative and authentic leadership. The purpose of the study was therefore to deepen the understanding of how digitalisation effects leadership and top management of organisations.

3.1 Method

In order to problematise, discuss and understand the effects of the six characteristics of digitalisation on three top management leadership styles, it was concluded that the best course of action was to base the research on qualitative research methods (Flick, 2014). As the foundation of the six characteristics of digitalisation was identified and set through the literature survey, it was however in need of further scrutiny and confirmation. The researcher considered a quantitative approach in regards to observational and survey research, but concluded that in order to arrive in a deeper understanding of what digitalisation is and its effects on leadership, the critically reflective approach of in-depth interviews was more suited for the study. This approach allowed for greater exploration and deeper insight (Bryman and Bell, 2013) directly from the leaders regarding their perspective on digitalisation and its effects on themselves and

their leadership. As the purpose of this study was not only to identify the characteristics, but also to confirm and analyse its effects on top management leadership, qualitative interviews were conducted.

3.2 Interview process

13 semi-structured interviews with top managers and executives of selected organisation, henceforth called “leaders”, were conducted for this study. Two pilot interviews were conducted prior to the main 13 interviews in order to test the interview format, structure of questions and overall reliability and validity of the interview session (Bryman and Bell, 2013). The main interviews were 65 – 95 minutes long, averaging at 70 min and structured into three parts. The first section discussed digitalisation and digital transformation, the second their leadership styles and third the intersection between these two: leading digital change. Due to the complex nature of the theme digitalisation, substantial time was given to the interviewees in order to allow for reflected and comprehensive answers as noticed from the pilot interviews. Special consideration was also given to the allowance of shorter breaks, due to the considerable length of each interview. Further interviews were not conducted due to saturation of the data received from the interviews in regards to digitalisation and its effects on their leadership practices.

3.3 Empirical data: selection of top managers and leaders

As digitalisation according to scholars such as Rogers (2016) and Bounfour (2016), is understood as an overarching and transformational concept, effecting most organisations (Andervin and Jansson, 2016) and is considered a prime challenge for top managers and leaders (Westerman et al., 2014), a broad and differentiated selection of leaders was made in order to satisfy the research question. Although the study could perhaps have generated a higher degree of generalisation through an industry-specific selection of leaders, it was more important to gather the different and deviating perspectives of digitalisation and its effects on leadership from multiple industries, why this path was chosen (Flick, 2014). The 13 leaders (6 CEO’s, 3 CTO’s, 2 CFO’s and 2 COO’s)³ were all chosen for their in prior knowledge and understanding of leadership and management of complex and changing organisations. Eight of the

³ CEO – Chief Executive Officer, CTO – Chief Technical Officer, CFO – Chief Finance Officer, COO – Chief Operating Officer

leaders were men and five were women, although considerable effort was put into finding a balance between the segmentation of women and men for the study, without the loss of the above selection parameters. Jari Collin (2015) in his paper “Digitalization and dualistic IT” describes telecom, banking, insurance and media businesses as “examples of pioneering industries that are in the middle of digital transformation” (Collin et al., 2015, p. 29), why leaders from these four sectors were chosen. Due to the researcher’s background within the business community and within the field of digitalisation, several of these leaders had already been identified as potential interview subjects prior to the study.

Contact and meetings were arranged through LinkedIn, emails, phone calls, direct meetings and conversations with fellow business-peers. These channels were used in order to effectively structure and systematise the selection of candidates, as well as document and simplify the ongoing selection process. Once contact and interest was established by the researcher, the interviewee received an email stating the purpose of the study as well as information in regards to the nature of the questions that were to be discussed. This was done in order to prepare the interviewees for the in-depth discussions that would occur during the interviews-sessions (Flick, 2014). The interviews were then conducted at their workplaces, in specified, quiet and pre-booked meeting rooms (Bryman and Bell, 2013). All 13 interviews were recorded and transcribed in order to conduct conversational and data analysis, as well as structure the findings coherently. Due to the interviewees executive roles and potential threat to their businesses in regards to competitors, organisational reputation and personal images, all leaders were reassured of the anonymity of the interviews in this study (Flick, 2014).

3.4 Dual aspects of consideration

During the main interview and pilot interviews, two interesting aspects regarding the interviewees and the theme of digitalisation were revealed and should be considered in the case of future replication of this study: the age and roles of the leaders. Two of the main interviews and one of the pilot interviews were conducted with leaders beneath the age of 30. These individuals had difficulties answering questions in regards to how digitalisation had changed their leadership, or how it had manifested itself in different ways in their lives. This was difficult for them mainly because, according to them, they had

not experienced a world where digitalisation was not an overarching and ongoing occurrence. Digitalisation was so imminent for these leaders that they could not describe their leadership nor their perspective, in a world where digitalisation had not occurred.

The second aspect was in regards to their professional roles: as most of the leaders were higher executives and top managers, tasked with leading larger corporations and upholding personal images as knowledgeable leaders, several of the leaders had difficulty stepping out of their roles and admitting to their lacking knowledge of digitalisation. When faced with questions regarding digitalisation and digital transformation, several interviewees would redirect the question towards areas or fields they felt comfortable discussing, rather than the question asked. However, after 20-30 minutes from the start of the interviews, most answered more honestly and started to reflect extensively on the following questions asked, which resulted in more in-depth and insightful conclusions and discussions. The first aspect appeared mainly due to the researcher's lack of foresight, and the second due to the comfortability of the interviewee, but nonetheless interesting observations and points of awareness in future events of replication.

3.5 Biases, limitations and ethical considerations

Due to the shifting role of the researcher; as a management student, a fellow business practitioner as well as governmental expert on digitalisation, it is to be noted that this may have impacted the discussions during the interviews. Most Interviewees were aware of the researcher's role as an expert advisor to the Digitalisation Commission⁴, and therefore initially minimised their knowledge of digitalisation and digital transformation, by starting sentences with *"while I'm not as good as you regarding these issues"* – Leader G, *"Well you know better than me, but"* – Leader K *"I'm not the expert here, but"* – Leader A. This however ended when the interviewees felt more comfortable, and could then due to the extended timeframe, reflect freely and honestly on the questions.

⁴ The Digitalisation Commission of Sweden, established by the Swedish Government in 2012 to analyse and monitor progress in terms of meeting the ICT-policy goal.

Further biases occurred in the selection of the interviewee's by the researcher. Due to prior knowledge and accessibility of these leaders, the interviewee's were contacted and selected due to their educational background, experience of managing and leading organisations in transformation as well as their knowledge of digitalisation. These parameters were deemed sufficient by the researcher in order to select credible interviewees. Although the researcher's intention of objectivity, the risk of subjective and personal preferences are nonetheless imminent in qualitative research (Flick, 2014). The limitations of this method is also in regards to the data and material gathered through the answers of the leaders. The conclusions of this qualitative study is therefore not to be used for broader generalisation. The data, analysis and conclusion is contingent on the geographical, cultural and regional biases of the leaders interviewed. All interviews took place in Stockholm, Sweden, where digitalisation is a greatly discussed phenomenon (Regeringskansliet, 2015). The replication of these interviews in other countries and geographical regions would garner considerably different answers depending on the awareness of the phenomenon in the respective country and knowledge level of the interviewee's. Due to the above stated selection and interview process, considerable attention to ethical parameters were considered. For every interviewee, informed mutual consent, authorship of the study as well as discussions in regards to conflict of interest were resolved prior to the conduction of the interviews (Bryman and Bell, 2013). No harm to the interviewee's personal nor professional situation occurred as a result of these interviews and this study, and the four overall principles of research ethics of Diener & Crandall (1978) were upheld.

4. Findings and analysis

As the aim of the thesis was to (1) identify the characteristics of digitalisation, and (2) analyse how these characteristics effect top management leadership, a broad literature review was conducted and resulted in the identification of six characteristics of digitalisation. These characteristics were however in need of further testing and confirmation through empirical data, to explore their relevance on the three contemporary leadership described by O'Toole (1995), Bass & Riggio (2006) and Copeland (2014) for managing complex and changing organisations: values-based, transformational and authentic leadership.

The first part of this section will therefore present and discuss the 13 leader's understanding of digitalisation and what they regarded as fundamental characteristics of digitalisation. With this concluded, *the second part* continues with the analysis of how these characteristics effected each of the three forms of leadership. *The third and final part* highlights other findings regarding leadership, derived from the empirical data.

4.1 Managing of empirical data and confirmation of characteristics

The findings and analysis was initially structured after the six characteristics of digitalisation, with all three leadership theories analysed and presented together under sub-headings. This however removed much of the different intricacies, nuances and effects stemming from the analysis of each separate leadership practice. The structure of the analysis was therefore changed, reviewing the data now under each of the three forms of leadership instead. This allowed for further and deepened analysis, as well as the utilisation of the four subsections of each leadership form described in the literature review, to pinpoint which characteristic and effects could be ascribed to each leadership form. The analysis is therefore arranged under three umbrellas, one for each leadership form, starting with values-based leadership, transformational leadership and finally authentic leadership, with their four respective subsections.

4.2 Understanding digitalisation and digital transformation

All the interviewees were unanimous in the notion that digitalisation and digital transformation fundamentally effected their leadership, their organisations and themselves. Interestingly enough however, was that few could clearly pinpoint how and why in the beginning of the interviews. Even when asking them to explain what they meant by digitalisation, few could derive at a direct and concise conclusion of the term.

“We actually have no idea how it [digitalisation] will look like, which means that the more you think about this, the more confusing it gets. It's so easy to look back at we've talked about. The discovery of oil. When they found it, it was similar to this, the electricity was also like this. It's hard to define. But if we stay in this position and think: wait a minute, where the hell does digitisation take us? We have no idea.” – Leader A

Here, the leader instead discusses other larger macroeconomic effects in association with digitalisation, such as the Kondratiev waves, long economic waves that have changed societies (Vogelsang, 2010). Leader A, among several others leaders also described digitalisation in the same sense as Berman (2012), Fitzgerald et al. (2013) and Collin (2015): digitalisation was effecting their organisations through several disruptive and so called transformational changes: from the individual level to the whole organisation. What the leaders also could conclude with precision was what processes or actions digitalisation and digital transformation enabled. **Digitalisation** was often described as a conversion of information, methods and processes, from the analogue to the digital form.

“It's a conversion from old to new as you could say. The ones and zeros. Digitalisation is the taking of old stuff, and actually store the old stuff in the ones or zeros. In my world, that's digitalising.” - Leader B

When explaining the phenomenon throughout the interviews, most leaders used “digitisation” and “digitalisation” interchangeably to describe the same process, as shown in Collin (2015) as well as

Westerman et al. (2014). The conversion of information was the main action of digitalisation according to the discussions in 11 of the 13 interviews. *Digital transformation* however was much more clouded, differentiated and holistic, viewed and explained as a vast interlinked, networked-based and ecological system, in line with Nachira et al. (2007) and Collin (2015). Digital transformation was viewed as a technological, psychological, fundamentally change-driving, disruptive and transformational process, both within and without business and society. Each person viewed this form of transformation through different perspectives, often in accordance to strategic, societal, organisational, technological or regulatory changes and trends pinpointed by Bounfour (2016). Digital transformation was even viewed as an enabler of changes of human behaviour:

“Digital transformation is extremely disruptive, I do not think we had the potential to fundamentally change behaviors in such a short time at any point in world history for either mankind or animals where our environment is changing so rapidly that we have completely different conditions for changes in behavior in such a short time” – Leader D

Korhonen (2015) in “IT in Enterprise Transformation” also highlights the fundamental behavioural consequences of digital change and increased connectivity. The majority of leaders were however also concerned with the overall effects of digitalisation and its repercussions on business, society and the individual.

4.3 Leadership in the digital age

With the identification of the six characteristics of digitalisation concluded, the second part finally treads back and discusses the research question: “how digitalisation effects top management leadership”. The analysis was conducted on three contemporary forms of leadership for managing complex and changing organisations described by O’Toole (1995), Bass and Riggio (2006) and Avolio and Gardner (2005) as values-based, transformational and authentic leadership. All 13 leaders described during the interviews these three forms as part of their leadership practices. These practices were however deemed as somewhat obvious traits for most contemporary leaders, and each subsequent feature had for the most

part been internalised by the leaders. I will therefore add the six characteristics of digitalisation upon each model, to see if and how they have effected these three leadership practices.

4.3.1 Values-based leadership

O'Toole (1995) developed the Rushmorean leadership or values-based leadership through four distinct features of a leader: Integrity, Trust, Listening and Respect for the follower. From the interviews, it was extrapolated that 11 of the interviewees could be segmented as carrying the feature of "Integrity", 12 carrying the feature of "Trust", 12 the feature of "Listening" and 13 carrying the feature of "Respect of the follower". Therefore we can conclude that most of interviewees were values-based leaders in the form developed by O'toole (1995) and analysed by Copeland (2014). With this concluded we can then move on and analyse the four segments with the six characteristics of digitalisation.

Integrity. Most leaders highlighted **integrity** as a core attribute for leaders to be firm and strict about. Similar to the Jefferson and Lincoln opposition to slavery in the 19th century, contemporary leaders have new challenges of integrity to address:

"I think all the technology and digitalisation has improved man. Man has not become more crude, mean nor stupid. In contrast, we have come to a greater understanding of what evil effects life. Sometimes you can connect the wickedness of man with technology that conveys or permits the execution of evil but it is actually still man behind it. The question is really just what we are to do with it and how we are to strengthen our integrity regarding these difficult questions and issues." –Leader E

This deepened analysis of Leader E, of the effects of technology, reflects how the importance of integrity has been further enhanced and highlighted by the (1) **Interconnectedness**, (3) **increased transparency** and (5) **decision enabling** characteristics of digitalisation. Leaders today have possibilities of showing strong integrity by utilising the interconnected nature of technology and being more transparent with their vision and values. However, as the world grows more complex with increased uncertainty

regarding correct decision-making (Collin et al., 2015; Kakabadse et al., 2011), battles of integrity will likely follow. This double-edged sword shows that although digitalisation can act as an integrity enhancer, it also enhances the pressure on the leader and the possibility of scrutiny through increased transparency:

“Everyone sees everything. It is very difficult to move away from a problem you have with a colleague or worker now that you are connected to them 24/7. At my first job, if I had a problem at home or felt sad, I could keep that to myself. Today, its common knowledge before I even get to tell it to people personally because of Facebook or Instagram, even as a leader.” – Leader F

Trust. Most leaders were the “champions of the people” as described in (O’Toole, 1995, p. 27), sharing the privileges and responsibilities of the organisation with the followers. However, trust was now not only a perspective towards the followers, but also towards the digital systems utilised to enable the shared and co-created leadership (Chew, 2013; Iansiti and Levien, 2004). When asking Leader M how to instil trust in the followers, the leader responded:

“I ask them if they want help with something, actually. Trust is built on a mutual foundation. For example, I am not good with IT or computers. So if they want help to start a computer, I try to help them, even with my bad computer skills. This creates this kind of equality in the situation. I create equality that it is not us and them, but we are together.” – Leader M

(4) Hierarchy removal and the **(6) humanising effects** of digitalisation manifests themselves in these situations. By facing the problematic question of digital competency among the staff, several leaders used these opportunities to humanise their behaviour towards their followers, gaining trust, loyalty and influence among the groups. This trust could also be built on the accomplishment of successful work towards a client:

“A document [for a client] can now be sent back and forth seven times before lunch. It quickly gets finished and onwards to the client. Digitalisation simplifies good business, we can provide customers with very quick service so that they can move on and agree with all the other parties and make them satisfied. This creates trust and it's amazing how things flow and the whole business work better.” – Leader G

The (2) *diminishing time lag and abundance of information* makes the process of instilling trust easier by swift delivery of complex analysis and legal documents as described by Leader G. Digitalisation therefore not only enhanced the peer-to-peer trust gaining process described by Leader M, but also indirectly as Saul Berman (2012) described, through increased customer collaboration and interaction, with increased trust as a result.

Listening. Being present, listening in directly or indirectly to the needs of the followers were basic internalised mechanisms of all but one of the leaders (O’Toole, 1995). But instead of actively and personally listening to the followers, in order to understand their perspective, this had been standardised through several digital tools and processes for efficiency (Korhonen, 2015):

“Absolutely. Of course I listen, but we have good standardised employee surveys from both the workers and also the co-owner now. It is quite thorough and the anonymous comments are often that I have a good style and that I listen in, but also that I am very decisive and clear. It’s very comprehensive.” – Leader L

According to Leader L and Leader A, leading in today’s digital climate sets pressure on the gaining of insight and listening in within the organisation as well as outside (Westerman et al., 2014). Leaders need to have the ability to understand and manage the abundance of information, and adapt to the very complex context of contemporary organisational development (Kakabadse et al., 2011). The increased (1) *interconnectedness* of organisations and their personnel makes it harder to manage the (2)

abundance of information, why digital methods for information synthesis were being used as described by Leader L.

Respect for the follower. A listening leader is much like a teaching leader according to O'Toole (1995). Leaders empower their followers and encourage them to follow and internalise values, resulting in a broader and more co-created leadership within the group. Leader I, discussed this thoroughly during the interview addressing the digital challenge of co-creating leadership and value within the workgroups (Iansiti and Levien, 2004):

“We have a digital innovation box and initiatives where different employees can come up with ideas and co-create. We empower them and always ensure that you will have good digital teams with diverse backgrounds and skills in order to get the right conditions so that it is not just people who agree with each other. As digitalisation is one of our major initiatives in the company, we try to stay on top of it.” – Leader I

Leader H also developed a view on the strengths of leading through learning and narratives in a changing environment:

“I think that as part of the digital leadership you must understand that you cannot preserve what you have, but must be willing to change and dare to ask questions. Leading and learning your way forward. I'm quite fond of explaining through a rather broad narrative, why are we here, what is the point of going to the office every day, if everyone understands the story then there is less need for control and more fore empowerment.” – Leader H

The examples from Leader I and Leader H illustrate several characteristics of digitalisation in play. The complexity of generating ideas is solved by the encouragement and empowerment of the staff to co-learn and co-create initiatives in diverse groups (Iansiti and Levien, 2004). **(1) Interconnectedness** and **(4) hierarchy removal** are self-evident characteristics that advance the co-creation between the

employees. As Leader I described, digital tools, methods and processes were frequently used to aid the empowering process, and to help the workgroups make decisions together and lead the processes forward (Westerman et al., 2014). Leader H also stressed how narratives (5) *enabled decision-making* of the individuals in the organisation: if everyone could self-guide their decision-making after the values and narrative set by the leader, the organisation would be more efficient (Westerman et al., 2014).

4.3.2 Transformational leadership

Developed by Burns (1978) and later on Bass (1985), transformational leadership has just as values-based leadership, identified four distinct features that transformational leaders have: idealised influence, inspirational motivation, intellectual stimulation and individualised consideration (Bass and Riggio, 2006). Through the 13 interviewees, all four aspects of transformational leadership were clearly represented in each of the leader's styles.

Idealised influence. As described in the literature review, transformational leader's views organisations as entities in which they through persuasion and motivation, can encourage, convince and finally induce change (Buchanan & Badham, 2008; Schein, 2004; Yulk, 2008). Typically, idealised influencers lead by example, distil admiration, trust and respect among their followers and are prescribed extraordinary capabilities in the face challenges (Bass and Riggio, 2006). What was however described in most interviews was that although they were idealised influencers, the manifestation of these attributes took new forms in the face of digitalisation:

From a leadership perspective, it is a natural disposition to be very controlling, something that I think it will be harder now to act out in with these more unstructured networking companies where they interact more with the different parties and more complex structures. As the boundaries of the firm is removed, we have to find new ways to encourage and influence our employees. – Leader C

Here, Leader C as well as several other leaders described the further effects of digitalisation on their leadership practices: increased complexity coupled with unstructured and more fluid organisations changes the ways they sustained the roles as idealised influencers (Bass, 1985). ***Through increased transparency (3) and (2) abundance of information***, several leaders found alternative ways in order to remain idealised influencers in the eyes of the followers (Westerman et al., 2014):

“What people like about my leadership through the reviews, is that I am available and non-controlling. I let people run with their ideas, and that creates trust and admiration. I have no hard time to put my foot down and say now we do this. It's probably a combination of factors of indirect influence and encouragement that enables them to act with very great freedom.” – Leader H

Inspirational motivation. Typically behaving in an inspirational and motivational way, utilising visions to increase team-spirit, most of the leaders interviewed had other techniques to induce understanding of the higher purpose of work (Bycio et al., 1995). Leader H already described her way of being present and creating narratives, Leader J however focused on another aspect of digital leadership:

“I come from the world of hockey. In order to achieve something together, I set the scene, then step back. You have to create an environment where you can tell them that you have to work on all seven days of the week, and that's no problem. In my previous roles, I have lead teams of people from different countries, without ever meeting them in person. Digital leadership then becomes about being honest when setting the goals, and letting the guys apply self-leadership.” – Leader J

In Leader J's case, the **(5) decision enabling** and **(3) increased transparency** characteristics of digitalisation empowered his motivational range through technological and digital means, simplifying the process of motivating and clarifying the higher purpose of work to the employees. Several leaders emphasised this feature as a crucial part in the negotiation of commitment (Bass and Avolio, 1994): by co-creating the vision and its fundamental structure with the employees, the shared vision was no longer

a hollow document constructed by top management and the executives, but a living document, embodied in most of the staff (Bounfour, 2016; Rogers, 2016; Westerman et al., 2014) .

Intellectual stimulation. This feature was not a strongly focused area of discussion, but nevertheless implied throughout the discussions. Formal feedback through physical conversations, emails, social media or employee enhancement meetings were diminishing forms of feedback (Bass and Riggio, 2006). Most leaders appreciated discussions with the staff, but did not premiere this as a strong feature of their leadership. Leader B however, with long experience as an executive had a very different analysis:

“Corporate culture is A and O in this digital climate. If you don’t foster a way of being where everything is up for discussion, whether you’re a new employee or the big dog chief, consider your organisation doomed. Before, management wasn’t interested in what people on the floor said, now it’s the opposite and we crave the intel that our employees have about the business”

– Leader B

(4) Hierarchy removal, dissolvment of personal barriers and **(2) diminishing time lag** was important aspects of managing organisations in a digital age according to Leader B. With lessened hierarchies and barriers, intel could be gathered and shared much quicker (Collin et al., 2015). With the possibility of real-time, second-by-second market analysis, discussions and implementation of tasks, digitalisation had revolutionised the whole organisations way of conducting business (Korhonen, 2015). Everything according to Leader B was now in real-time, discussions between the leader and employees were no longer aspects of intellectual stimulation through safe environments and discussions, but part of the co-created organisational decision-making process (Chew, 2013). Suggestions and discussion were now used for direct actions.

Individualised consideration. Mentoring leadership by focusing on the needs and desires of one’s employees was perhaps the most salient feature of the leader’s transformative leadership (Kakabadse et al., 2011). Many referenced this to the function of a sports team, where each player needs to be listened

to, guided and challenged in order to grow and mature. In contemporary organisations, digitalisation had now through its (1) *interconnectedness* and (6) *humanising effect*, lifted the soft side of management according to the leaders. Four of the most senior leaders had felt a strong shift from previously being distant mentors, and now being on more equal levels with the staff, showing vulnerability through for example openness regarding their own lacking digital competency, in order to show better leadership:

“People often feel shame about their lacking digital skills, that they are unskilled or unworthy because they lack digital competency in something. This is a saddening fact, as digitalisation also is making us very lonely. Even though you have the whole world at your screen, I always share my embarrassment regarding this with my employees, to level with them so they know it’s normal.” – Leader F

Instead of acting from a position strength or influence, the leaders showed their own weaknesses, in order to nurture and guide the employee’s development and create a safer environment. By normalising the overall lacking of digital skills and competency of the employees in regards to using corporate software and apps, the mentor and mentee together faced the challenge.

4.3.3 Authentic leadership

This third and final leadership form was developed as the combined works of Gardner, Avolio, Luthans, et al (2005), Liles et al (2005) as a conceptual consensus of four distinct qualities present as authentic leaders (Walumbwa et al. 2008). Among the three main leadership theories, this was the strongest form of leadership displayed by all leaders. Both in descriptions and statements, many felt as authentic leaders and advocated its self-assessing style to their followers.

Self-Awareness. Similar to values-based leadership, in order to truly impact and be of benefit for individuals, corporations, nations and societies, leaders must possess inner characteristics beyond transformative and charismatic leadership (Copeland, 2014; Walumbwa et al., 2007). The first feature

of self-awareness demands a leader to understand and see meaningfulness through dialogue and improved inner insight (Gardner et al., 2005). 12 of the 13 leaders pressed the issue of leading from one's own personality, being insightful of their own shortcomings and flaws, as well as accepting these in order to help others (George, 2003). The speed of digitalisation i.e. (2) *diminishing time lag of information* and (3) *increased complexity through transparency* aided most leaders in this process, nudging them into an (6) *humanising*, more open and honest leadership style:

“The digitalisation brings out that in me: nowadays, I almost can't be anyone but myself at the office, at clients or anywhere else. If I'm trying to be something or someone I'm not, it will shine right through and people will quickly lose respect for me as a leader. I have to be me fully, with my strengths and weaknesses.” – Leader D

Leader D however, continued to describe how this also could be problematic in the long run, as the self-assessing effect of digitalisation is at the same time inviting other individuals to constantly comment on one's identity, forcing constant re-assessment and scrutiny of the person. Today, with the wide-spread platforms of social media, it has become harder for leaders to be openly self-aware and share one's flaws. The constant scrutinisation of one's virtual persona, which transfers to the physical persona, sometimes hinders the quest for open and meaningful dialogue and insight.

Balanced processing. Digitalisation had very strongly enhanced this feature of authentic leadership according the leaders (Rogers, 2016). The perspective of engaging in rigorous data-analysis to aid the decision-making was premiered by all 13 of the leaders (Avolio et al., 2004; George, 2003; Walumbwa et al., 2007). However, this became a difficult discussion later on in the interviews, as most leaders started questioning how much they actually utilised all the (2) *abundant information* for their decision-making processes:

“Even though we have all this information, it's very difficult to be unbiased in my decision-making to be honest. As the CEO, I was the one together with my executives who set out the

digital vision of the organisation, so all decision made by my staff are to fulfil my goals. When I'm presented with alternative A, B or C, I still go with my gut feeling or intuition of what's best for my company, not what all the data says.”- Leader M

Information was in accordance with balanced processing, used to bring forward data-analysed prognoses and material, to further **(5) enable the decision-making process**, but the actual decisions were ultimately based on the intuition, gut feeling and biases of the leader. Most were open about their often distorted assumptions and exaggerated beliefs on certain trends, which were often described as the result of the new reality of the digital climate facing organisations:

“There is now the danger that we can easy misjudge the market and be swept away by in all possibilities and technical solutions out there. Daring to be part of a product test faster, more trial and errors, forces us to act instead of reflect, letting the market decide. The time between idea and realisation has become much shorter.” – Leader I

Relational transparency. Most leaders felt closely related to this aspect of genuinity in regards to their leadership. Digitalisation had with or without their consent, forced or enabled them, to be more honest, transparent and straightforward as leaders (Avolio et al., 2004; Gardner et al., 2005; George, 2003; Westerman et al., 2014). According to the leaders, the **(4) dissolvment of personal barriers**, **(6) humanising** instead of idealising of leaders and overall **(1) interconnectedness** has led to a more effortless and genuine leadership style. Drawing comparence to a pre-digital era, 7 of the 13 leaders mentioned that it was no longer necessary to uphold a certain leadership-persona, and that the “The armour of leadership” as described by Leader E, was not necessary anymore:

“When I took on the role of Company X, it was a national undertaking. I made a personal decision, knowing that I wouldn't be able to take of this amour or persona for several years. It was the one of the toughest decisions of my life, but at the time, it was necessary in order to be

respected and lead through the change. Today, the same challenge can be tackled and solved with genuinity and honesty instead, thanks to the openness of the digital era". – Leader E

Leaders A, G, I, and K, also concurred with this perspective on leadership, emphasising how relational transparency now could be conducted both in real life, but also very much in the virtual world and digital channels, through emails, emojis and snaps⁵.

Internalised moral perspective. As discussed in the values-based leadership section, the aligning of values, intentions and actions was a well-practiced method of leadership by all 13 leaders (Gardner et al., 2005; Walumbwa et al., 2007). What stood out was how they utilised continuous mass communication, idealised documents for management and almost the Rushmorean type of leadership (O'Toole, 1995), in order to integrate self-regulatory functions even within the followers. When describing some of the positive effects of digitalisation for leadership, Leader F emphasised the ability to get ones message across through enhanced technical features and digital channels:

"Oh yes there are a lot of benefits. For instance the mailbox in how I reach my colleagues and personnel. My type of mailbox allows me to send my messages to everyone. I write once and communicate with more than 50 people. Some may not read, but then you have to encourage them all the time. I think we help each other and find it easier. When I send SMS, call etc. I want everyone to understand." – Leader F

The increased transparency coupled with interconnectedness of tools, processes and methods to virtualise one's leadership, was used for both the further alignment of their own values and morals with implemented actions, as well as to control that the employees mirrored this internalisation. This method was in conflict with the other aspects of genuine and honest leadership premiered throughout the discussions, illustrating the contextual nature of different leadership styles.

⁵ Types of communication through social media.

4.4 Further aspects of digital leadership

Throughout the 13 interviews, three main trends of reoccurring discussions regarding leadership were often concentrated on when trying to explain their way of leading through digital change.

Holistic leadership perspective. According to the interviewees, leadership today is about holism, to understand the overall perspective of the problem, challenge or dilemma (Rogers, 2016). Holism was mentioned several times during the interviews, as a crucial aspect of leadership in the digital age (Westerman et al., 2014). The CEO's role was no longer bound only to the executive decision-making: the CEO now has to have a hawk-eye on all perspectives: internal and external, organisational and the self, employee and customer, micro and macro trends to name a few. An all-around understanding and awareness, often summarised in the interviews as a "holistic leadership perspective". This however, comes as no surprise: if we assume the characteristics of digitalisation developed in this thesis, this climate described would demand someone who would be able to navigate through and manage these effects of digitalisation (Collin et al., 2015). This task often falls upon the leader, whom needs to find the way forward (Andervin and Jansson, 2016). A leader focused on the big picture is therefore no surprising form of leadership, but nonetheless an interesting observation regarding the aspects of modern leadership.

Virtual leadership perspective. Although not explicitly discussed as main points in their arguments, the component of virtuality was surprisingly strong among all the leaders. The virtual leadership was the clear distinction in how most leaders today practiced their leadership. Communication through digital channels and means, enhanced virtual presence and profiling, virtual identity building, melding and creation as well as governance from a virtual point of view. Being able to lead the followers by extending their physical personalities and traits to the digital realm, most leaders could enhance the aspects of their values-bases, transformational and authentic leadership styles. Leader K put it clearly: *"I lead better through digital and virtual channels, you can reach hundreds within a heartbeat, and be superiorly mobile and agile than any physical leader trying to talk to everyone individually. Governance through virtual means is today and will continue to be a complete game changer for leaders and organisations"*.

Although used as interchangeable terms, digitalised or virtualised leadership was internalised to the extent that none of the leaders even mentioned it as a strong component of importance.

Hub and networked-based leadership perspective. All interviewed leaders, regardless of seniority or level in the organisation, were keen on managing their specific group of followers. They often saw the importance of the whole organisation, but tended their own group first. Once the group, or “Hub” was secured, leaders would move outside the hub to explore other hub leaders to interlink and meld with and exchange knowledge that they could bring back to the original hub (Kakabadse et al., 2011). This created a networked-based leadership perspective where small, but controlled hubs melded together in order to efficiently advance forward through knowledge sharing and immateriality (Bounfour, 2016). By utilising this way of managing and leading, cross-disciplinary approaches and solutions could easier be found, whilst the overall network gained more perspectives from the co-creation and sharing of knowledge by the smaller hubs.

5. Discussion & critical reflection

The research question of “how digitalisation effects top management leadership” was difficult to approach, discuss, analyse let alone answer, due to the non-existence of a coherent and agreed upon conceptualisation of the phenomenon by previous research scholars within the field (Andervin and Jansson, 2016). Although the thesis had its starting point in the organisational change management literature of Philips (1982), Conner (1993), Ackerman Anderson (1990), Kotter (1996) and Dean (2009), the research on the enabling factors, functions and features of digitalisation however remained scarce. Through the literature survey, it became apparent that multiple converging (Collin et al., 2015; Tapscott, 1996a) and diverging (BarNir et al., 2003; Rogers, 2016) perspectives of digitalisation existed, why a thematic framework was in need of development, extracted through previous research in the field, into an analytical framework of six characteristics of digitalisation.

Once the analytical framework was applied on the three leadership forms, the six characteristics of digitalisation could plentifully be found in each of the three forms of leadership. Although restricting

the analysis to two characteristics per sub-feature of each leadership form, the characteristics were not only identified as ongoing effects within the 13 leader's organisations, but also essential elements to their own leadership, internalised by the leaders and considerably effecting their three forms of leadership. (1) *Interconnectedness* for example, had brought forth complex management tools, employee-reviewing and data-visualisation methods in order to better probe, understand and manage the followers within the organisation, similar to analysis done in Westerman et al. (2014). The (2) *diminishing time lag and abundance of information* allowed for real-time management, requiring more trust and listening towards the follower from the leader's point of view, also found in Bass and Riggio (2006). (3) *Increased transparency and complexity* similarly described by Tapscott (1996), enabled and enhanced features of transformational leadership such as idealised influence, according to the leaders. As in Avolio et al. (2004) the (4) *Hierarchy removal and dissolution of personal barriers* functioned as an authenticating effect; using self-awareness of one's weakness in regards to one's lacking knowledge of digital tools for instance, to further deepen the leader's bond with the followers. Strategic decisions (Berman and Marshall, 2014) could be made faster due to the (5) *Decision enabling and Integrity enhancing* effects of digitalisation and finally honesty, openness and co-creation (Chew, 2013; George, 2003; Westerman et al., 2014) were values brought forward by the (6) *humanising effects* of digitalisation. These few examples illustrate that digitalisation has fundamentally effected and changed how top management leadership is practiced in this digital age (Rogers, 2016).

5.1 The backside of digitalisation

Although the six characteristics brought forward the above interesting findings in itself, what could be further argued was that the characteristics of digitalisation also brought forward dualistic and contradictory perspectives from a leadership standpoint. For instance, not only did digitalisation have (6) *humanising effects* from a leadership point of view, but it also had *de-humanising effects* through the increased use of digital communication, emailing and messaging. As face-to-face communication, physical meetings and the emotional connection between the leaders and employees were diminishing due to more objectifying forms of communication and decision-making processes such as the employee-surveys and big data analysis, digitalisation had generated increased *disconnectedness* rather than (1)

interconnectedness in terms of trust, individual consideration, motivation. The (3) increased complexity and transparency for example also challenges the question of (5) personal and employee integrity. As social media illuminates one's personal life, for co-workers and leaders alike, the border of work-life balance shifts, blurring the lines between what was regarded as private information and one's persona as an employee. Finally in regards to (5) decision-making, digitalisation also had *paralysing effects* due to the (2) diminished time lag and vast amounts of data now available, leading managers to make decisions on "gut-feeling" rather than balanced processing. This above illustrates the dual nature of digitalisation, both as an enabling and disabling aspect of leadership.

5.2 Critical learnings: virtual, holistic and networked hubs

What these characteristics above have illustrated is the overall changing nature of leadership. Digitalisation has brought forward and lead to the manifestation of new forms of channels, tools and methods for top management to utilise, in order to carry out and apply their leadership practices. As the leader's physical presence was being substituted for digitalised methods of leadership, much focus was put on the interactive and virtual nature of exercising their leadership. This virtual leadership practice was therefore vital for the ongoing development of the organisation and highlighted in the majority of their examples. This virtual aspect was also interlinked with another strong effect of digitalisation: the focus on holism. For the leaders it was now essential to be aware of the changes and effects to the whole: be it in business, society or for the individual. A holistic approach was therefore premiered by the leaders as an indispensable quality to possess, as a contemporary leader of a complex and changing organisation. Finally, the irreversible effects of digitalisation had also brought forth much discussions regarding the aspect of leading one's group. Most leaders referred to their close group of people as a hub, connected to a much larger network of hubs, which was the rest of the organisation. The safeguarding of the own hub of followers or employees was their first priority, before connecting to other hubs in the organisation in order to work cross-disciplinary or cross-functionally for example. The leaders therefore viewed the organisation as a network of hubs, each connected and safeguarded by its own leader of the hub for increased efficiency.

The three above perspectives of *virtualism*, *holism* and *networked hubs* are all perspectives to consider from a critical management and leadership studies. Although not features that can be added directly as parts of values-based, transformational or authentic leadership, they were fundamental aspects considered and discussed frequently by the 13 leaders, pointing towards their future importance for leadership studies. Each of these perspectives have their similarities in the works of Tapscott (1996), Rogers (2016) and Westerman et al. (2014) but are in need of further investigation in connection with leadership studies.

The main knowledge contribution of this study is the further development of the concept of digitalisation, with six added characteristics to understand its effects. This contribution in connection with its effect on top management leadership, contributes knowledge to the scarcely researched intersection of leadership studies and digitalisation. As digitalisation is a non-reversible societal effect, changing, enabling and creating new ways of communication, leading, working and existing as individuals, organisations and societies, further research in this area is highly recommended. Although the six characteristics and its effects on top management leadership were thoroughly explored through the use of literature survey as well as the empirical data, concluding in satisfactory findings to inform and answer the research question, this study should be reviewed and revised, with extra caution in order to critically test its assumptions, validity and relevance. The theoretical framework of the characteristics of digitalisation in conjunction with the three forms of leadership, resulted in more than satisfactory findings in order to answer the research question, as well as produce practical and relevant knowledge contributions as described above.

6. Conclusion and limitations

Digitalisation according to several contemporary researchers (Andervin and Jansson, 2016; Berman and Marshall, 2014; Berman, 2012; Bouée, 2015; Rogers, 2016; Vogelsang, 2010; Westerman et al., 2014), is having a fundamental effect on businesses, societies and individuals alike. Considered a prime challenge for the leadership and top management of contemporary, complex and changing organisations (Collin et al., 2015; Kakabadse et al., 2011; Westerman et al., 2014), research in the intersection of leadership and digitalisation however remains scarce. This study aimed to discuss and describe “how digitalisation effects top management leadership”. This was done by (1) developing a set of characteristics of digitalisation, derived from a broad literature survey. This analytical framework was thereafter used to (2) analyse how digitalisation effected three forms of contemporary leadership practices, described by O’Toole (1995), Bass & Riggio (2006) and Avolio & Gardner (2005) as values-based, transformational and authentic leadership.

What was identified and confirmed through the literature survey and 13 in-depth interviews were six characteristics of digitalisation: (1) *Interconnectedness*, (2) *Diminishing time lag and abundance of information*, (3) *Increased transparency and complexity*, (4) *Hierarchy removal and dissolvment of personal barriers*, (5) *Decision enabler and Integrity enhancing* and the (6) *Humanising effect*. These six were then applied on each of the three forms of leadership, in order to analyse its effects on each leadership form. The result was that the effects of digitalisation could plentifully be found in each leadership form. Also, the effects of digitalisation had been internalised by the leaders and utilised to enhance each of the leadership forms. Digitalisation had therefore fundamentally changed how the leaders practiced their leadership and how each sub-feature manifested itself in its application.

Furthermore, In the face of digitalisation, the leaders developed other vital and complementary perspectives on leadership in this digital age. Virtual leadership was a cornerstone of how the leaders executed and applied these three forms of leadership. Through digital tools, methods and practices, the leaders enhanced their virtual presence, applying and practicing their leadership on the virtual plane. The second perspective was in regards to holism: a holistic approach was a necessary quality to possess as a contemporary leader of a complex and changing organisation. The leader had to be strongly aware

of the external effects of business and society on the organisation, as well the internal ongoing occurrences within the organisation in order to understand and lead. The final perspective was in regards to their own workgroups: as digitalisation enabled faster transformation in their organisations, and with the increased demand of cross-disciplinary and cross-functional work, the leaders were more concerned with the safeguarding of their close group of employees, regarding them as their own hub, in a network of hubs, interlinking and working together within and without the organisation in order to achieve higher efficiency. This study on digitalisation, digital leadership and the research on leading digital change is in need of rigorous and further development. The six characteristics identified here can be used as a fundamental but rudimentary structure to build future studies on within this and adjacent fields. While research in the area of digitalisation and digital leadership is being conducted, this study should however be considerably scrutinised, tested and further developed.

The knowledge contribution of this study is two folded: the six characteristics of digitalisation has brought forward a deeper understanding of what constitutes as digitalisation, what attributes can be ascribed to the phenomenon and how it effects leadership. This allows future researchers to apply this analytical framework on adjacent fields of digital transformation, to further complement and understand its effects. The second contribution is the development within the intersection of leadership studies and digitalisation. Scholars of leadership and management studies must quickly grasp the notion of digitalisation, as it is often considered a strategic challenge for top management to address. Through the aspect of leadership, this thesis has opened up for future studies in value-based, transformational and authentic leadership, as well as in each sub-feature. To further study how digitalisation effects aspects of trust, integrity, listening and respect of the follower for example, would broaden our understanding of the effects of digital change on business and society, as well as its implications on leadership. As digitalisation effects an abundance of adjacent fields, future research recommendations will be left to the discretion of the reader. A scarce field is now further populated with this study of digitalisation, but will require immense and further research before adequately being able to draw generalising conclusions.

The limitations of this study follows from the nature of the study. Other than the general limitations of a qualitative, semi-structured interview-based scholarly paper, within a less developed research field, as

well as the interviewee's biases towards their understanding and interpretation of digitalisation and leadership, most of the arguments in this thesis are in need of further grounding in relevant theory. The description and definition of digitalisation and its characteristics is also contingent on the researcher's limited, restricted and prior knowledge and bias towards the literature in order to identify the characteristics of digitalisation. The qualitative nature of the study also removes the aspect of generalisation of the study, and 13 interviews is far too few in order to significantly and truly confirm the aspects of digitalisation found throughout the study. The study was also too small for such an undefined research field, resulting a rudimentary and simplified analysis in regards to effects of digitalisation on the three forms of leadership to say the least. Research however, has to start somewhere, even in newer fields.

Digitalisation and digital transformation is discussed and researched for a reason: as individuals, businesses and societies are fundamentally changing as Kotter (1996) described in a state of transformation, the highly complex situation of leading through this digital change is therefore placed on leaders of organisations: tasked to lead in a state of constant change, into an unknown digitalised future.

7. References

- Alimo-Metcalfe, B., Alban-Metcalfe, J., (2005). *Leadership: Time for a New Direction?* Leadership 1, February 2005 vol. 1 no. 1, 51–71.
- Andervin, M., Jansson, J., (2016). *Att leda digital transformation*, 1st ed. Hoi Förlag.
- Avolio, B.J., Bass, B.M., Jung, D.I., (1999). *Re-examining the components of transformational and transactional leadership using the Multifactor Leadership*. Journal of Occupational and Organizational Psychology. 72, 441–462.
- Avolio, B.J., Gardner, W.L., (2005). *Authentic leadership development: Getting to the root of positive forms of leadership*. The Leadership Quarterly. 16, 315–338.
- Avolio, B.J., Gardner, W.L., Walumbwa, F.O., Luthans, F., May, D.R., (2004). *Unlocking the mask: a look at the process by which authentic leaders impact follower attitudes and behaviors*. The Leadership Quarterly. 15, 801–823.
- BarNir, A., Gallagher, J.M., Auger, P., (2003). *Business process digitization, strategy, and the impact of firm age and size: the case of the magazine publishing industry*. Journal of Business Venturing. 18, 789–814.
- Bass, B.M., (1985). *Leadership and performance beyond expectations*. Free Press, New York : London.
- Bass, B.M., Avolio, B.J., (1994). *Improving Organizational Effectiveness Through Transformational Leadership*. Sage Publications.
- Bass, B.M., Avolio, B.J., (1993). *Transformational leadership: A response to critiques*, in: Chemers, M.M., Ayman, R. (Eds.), *Leadership Theory and Research: Perspectives and Directions*. Academic Press, San Diego, CA, US, 49–80.
- Bass, B.M., Riggio, R.E., (2006). *Transformational leadership*, 2nd ed. L. Erlbaum Associates, Mahwah, N.J.
- Bátiz-lazo, B., Boyns, T., (2004). *The business and financial history of mechanisation and technological change in twentieth-century banking*. Accounting, Business & Financial History. 14, 225–232.
- Bengtsson, R., Sverige, Regeringskansliet, (2014). *Rapport: Strategiska trender i globalt perspektiv - 2025: en helt annan värld?* Kansliet för strategisk analys (SA), Regeringskansliet, Stockholm.
- Berman, S., Marshall, A., (2014). *The next digital transformation: from an individual-centered to an everyone-to-everyone economy*. Strategy & Leadership. Vol. 42 Iss 5, 9–17.
- Berman, S.J., (2012). *Digital transformation: opportunities to create new business models*. Strategy & Leadership. Vol. 40 Iss 2, 16–24.

- Blanchard, K., (2007). *Leading at a Higher Level: Blanchard on Leadership and Creating High Performing Organizations*. Pearson/Prentice Hall.
- Blanchard, K., Zigarmi, P., Zigarmi, D., (2013). *Leadership and the One Minute Manager: Increasing Effectiveness Through Situational Leadership*. Harper Collins.
- Boole, G., (2009) [1854]. *An Investigation of the Laws of Thought on Which are Founded the Mathematical Theories of Logic and Probabilities* (Macmillan, Dover Publications, reprinted with corrections [1958] ed.). New York: Cambridge University Press.
- Boole, G., (2003). *The Laws of Thought. Great Books in Philosophy*. Amherst, N.Y: Prometheus Books.
- Bonnet, D., McAfee, A., Westerman, G., (2014). *The Nine Elements of Digital Transformation*. MIT Sloan Management Review.
- Bouée, C.-E., (2015). *Digital Transformation Doesn't Have to Leave Employees Behind*. Harvard Business Review.
- Bounfour, A., (2016). *Digital Futures, Digital Transformation*, Progress in IS. Springer International Publishing, Cham.
- Brown, M.T., (2005). *Corporate Integrity: Rethinking Organizational Ethics and Leadership*. Cambridge University Press.
- Bryman, A., (1992). *Charisma and Leadership in Organizations*. Sage Publications.
- Bryman, A., Bell, E., (2013). *Företagsekonomiska forskningsmetoder*. Liber, Stockholm.
- Buchanan, D., Badham, R., (2008). *Power, Politics, and Organizational Change: Winning the Turf Game*. Sage Publications.
- Burke, R.J., Cooper, C., (2006). *Inspiring Leaders*. Routledge.
- Burns, J.M., (2012). *Leadership*. elec. ed. Open Road Media. New York. NY.
- Burns, J.M., (1978). *Leadership*, 1st ed. Harper & Row.
- Burns, S., Wilson, K., (2010). *Trends in leadership writing and research: a short review of the leadership literature*. Centre for Cultural Leadership Susanne Burns.
- Bycio, P., Hackett, R.D., Allen, J.S., (1995). *Further assessments of Bass's (1985) conceptualization of transactional and transformational leadership*. Journal of Applied Psychology. 80, 468–478.
- Chew, E.K., (2013). *Value Co-creation in the Organizations of the Future*. Published in: Collin, J., Hiekkanen, K., Korhonen, J.J., Halén, M., Itälä, T., Helenius, M., others, 2015. IT Leadership in Transition-The Impact of Digitalization on Finnish Organizations.

- Collin, J., Hiekkanen, K., Korhonen, J.J., Halén, M., Itälä, T., Helenius, M., (2015). *IT Leadership in Transition-The Impact of Digitalization on Finnish Organizations*. Research rapport, Aalto University. Department of Computer Science.
- Conner, D., (1993). *Managing at the speed of change: how resilient managers succeed and prosper where others fail*, 1st ed. Villard Books, New York.
- Copeland, M.K., (2014). *The emerging significance of values based leadership: a literature review*. International Journal of Leadership Studies. Vol 8, 105-135.
- Coyle, K., (2006). *Mass digitization of books*. The Journal of Academic Librarianship. 32, 641–645.
- Dean, C., (2009). *RIMER Managing Successful Change*. Australia: Uniforte Pty Ltd
- Diener, E., Crandall, R., (1978). *Ethics in social and behavioural research*. University of Chicago Press, Chicago.
- Dulewicz, Higgs, (2005). *Assessing leadership styles and organisational context.*” Journal of Managerial Psychology, Vol. 20, No. 2, 105-123.
- Dym, B., Hutson, H., (2005). *Leadership in Nonprofit Organizations: Lessons From the Third Sector: Lessons From the Third Sector*. SAGE Publications.
- Fitzgerald et al., (2013). *Embracing Digital Technology*. MIT Sloan Management Review.
- Flick, U., (2014). *An introduction to qualitative research*, Fifth edition. Sage Publications, Los Angeles.
- Gardner, W.L., Avolio, B.J., Luthans, F., May, D.R., Walumbwa, F., (2005). “*Can you see the real me?*” *A self-based model of authentic leader and follower development*. The Leadership Quarterly. 16, 343–372.
- Garsombke, T.W., Garsombke, D.J., (1989). *Strategic Implications Facing Small Manufacturers: The Linkage Between Robotization, Computerization, Automation and Performance*. Journal of Small Business Management. 27, 34–44.
- George, B., (2003). *Authentic Leadership: Rediscovering the Secrets to Creating Lasting Value*. John Wiley & Sons.
- Goleman, D., Boyatzis, R.E., MacKee, A., (2003). *The New Leaders: Transforming the Art of Leadership Into the Science of Results*. Sphere Books.
- Gordon, J., (2007). *The Pfeiffer Book of Successful Leadership Development Tools*. John Wiley & Sons.
- Greenleaf, R.K., Spears, L.C., (1977). *Servant Leadership: A Journey Into the Nature of Legitimate Power and Greatness*, 1st edition. Paulist Press.

- Hall, G.E., Hord, S.M., (2001). *Implementing Change: Patterns, Principles, and Potholes*. Allyn and Bacon.
- Hiekkanen, K., (2015). *Strategic Alignment and Internal IT*. Published in: Collin, J., Hiekkanen, K., Korhonen, J.J., Halén, M., Itälä, T., Helenius, M., (2015). *IT Leadership in Transition-The Impact of Digitalization on Finnish Organizations*. Research rapport, Aalto University. Department of Computer Science.
- Hill, L.A., (2013). *Becoming a Manager: How New Managers Master the Challenges of Leadership*. Harvard Business Press.
- House, R.J., (1976). *A 1976 theory of charismatic leadership*. University of Toronto, Faculty of Management Studies.
- Housewright, R., Schonfeld, R.C., (2008). *Ithaka's 2006 studies of key stakeholders in the digital transformation in higher education*. Ithaka, New York, NY.
- Howell, J.M., Avolio, B.J., (1993). *Transformational leadership, transactional leadership, locus of control, and support for innovation: Key predictors of consolidated-business-unit performance*. *Journal of Applied Psychology*. 78, 891–902.
- Iansiti, M., Levien, R., (2004a). *Strategy as Ecology*. Harvard Business Press.
- Iansiti, M., Levien, R., (2004b). *The Keystone Advantage: What the New Dynamics of Business Ecosystems Mean for Strategy, Innovation, and Sustainability*. Harvard Business Press.
- Ilies, R., Morgeson, F.P., Nahrgang, J.D., (2005). *Authentic leadership and eudaemonic well-being: Understanding leader–follower outcomes*. *The Leadership Quarterly*. 16, 373–394.
- Irvine, M. M. (2001). *Early Digital Computers at Bell Telephone Laboratories*. *IEEE Annals of the History of Computing* 23, no. 3 (July 2001): 22
- ISD, (2014). *Les Essentiels*, Vauge B, ISD International research Foundation, Foundation Cigref.
- Jackson, B., Parry, K., (2011). *A Very Short Fairly Interesting and Reasonably Cheap Book About Studying Leadership*. Sage publications.
- Kakabadse, A., Omar Abdulla, M., Abouchakra, R., Jawad, A., (2011). *Leading Smart Transformation*. Palgrave Macmillan, Basingstoke.
- Kernis, M.H., (2003). *Toward a conceptualization of optimal self-esteem*. *Psychological inquiry*. 14, 1–26.
- Korhonen, J.J., (2015) *IT in Enterprise Transformation*. Published in: Collin, J., Hiekkanen, K., Korhonen, J.J., Halén, M., Itälä, T., Helenius, M., (2015). *IT Leadership in Transition-The Impact of Digitalization on Finnish Organizations*. Research rapport, Aalto University. Department of Computer Science.

- Korhonen, J.J., (2015) *The Changing Role of the CIO*. Published in: Collin, J., Hiekkänen, K., Korhonen, J.J., Halén, M., Itälä, T., Helenius, M., (2015). *IT Leadership in Transition-The Impact of Digitalization on Finnish Organizations*. Research rapport, Aalto University. Department of Computer Science.
- Kotter, J.P., (1996). *Leading Change*. Harvard Business Press.
- Leibniz G., (1703). *Explication de l'Arithmétique Binaire*, Die Sciences. Académie royale des sciences Année 1703.
- Leibniz G., (1879). *Explication de l'Arithmétique Binaire*, Die Mathematische Schriften, ed. C. Gerhardt, Berlin 1879, vol.7. Translated from French.
- Lipman-Blumen, Jean (1996). *Connective Leadership: Managing in a Changing World*. Oxford University Press. Oxford.
- Liu, D., Chen, S., Chou, T., (2011). *Resource fit in digital transformation: Lessons learned from the CBC Bank global e-banking project*. Management Decision. 49, 1728–1742.
- Luthans F., Norman, S., Hughes, L., (2006). *Authentic Leadership: A new approach in time*. Published in: Burke, R.J., Cooper, C., (2006). *Inspiring Leaders*. Routledge.
- Maurik, J.V., (2001). *Writers on Leadership*. Penguin UK.
- McGregor, D., (1960). *The human side of enterprise*. McGraw-Hill.
- Murphy, K.M., Shleifer, A., Vishny, R.W., (1988). *Industrialization and the big push*. National Bureau of Economic Research Cambridge, Massachusetts, USA.
- Mäenpää, R., Korhonen, J.J., (2015) *Digitalization in Retail: The Impact on Competition*, Published in: Collin, J., Hiekkänen, K., Korhonen, J.J., Halén, M., Itälä, T., Helenius, M., (2015). *IT Leadership in Transition-The Impact of Digitalization on Finnish Organizations*. Research rapport, Aalto University. Department of Computer Science.
- Nachira, F., Nicolai, A., Dini, P., Louarn, M., Leon, R., (2007). *Digital Business Ecosystems*. European Commission.
- Northouse, P.G., (2007). *Leadership: Theory and Practice*. Sage Publications.
- Osborn, R.N., Hunt, J.G., Jauch, L.R., (2002). *Toward a contextual theory of leadership*. The Leadership Quarterly. 13, 797–837.
- O'Toole, J., (1995). *Leading Change: The Argument for Values-based Leadership*. Ballentine Books.
- Panel, I.L., (2002). *Digital transformation: A framework for ICT literacy*. Educational Testing Service. ETS, ISkills.

- Parthasarthy, R., Sethi, S.P., (1992). *The Impact of Flexible Automation on Business Strategy and Organizational Structure*. *Academy of Management Review*. 17, 86–111.
- Regeringskansliet, Sweden, (2015). *Gör Sverige i framtiden: digital kompetens, Statens offentliga utredningar*. Rapport, Fritze, Stockholm.
- Rogers, D., (2016). *The Digital Transformation Playbook: Rethink Your Business for the Digital Age*. Columbia University Press.
- Schein, E.H., (2006). *Organizational Culture and Leadership*, 3rd edition. John Wiley & Sons.
- Shannon, C. E. (1938). *A Symbolic Analysis of Relay and Switching Circuits*. *Trans. AIEE* **57** (12): 713–723. Cambridge: Massachusetts Institute of Technology
- Sheninger, E., (2014). *Digital Leadership: Changing Paradigms for Changing Times*. Corwin Press.
- Tapscott, D., (1996). *The digital economy: promise and peril in the age of networked intelligence*. McGraw-Hill, New York, NY.
- Tropp, H. S., (1993), "Stibitz, George Robert," in Anthony Ralston and Edwin D. Reilly, eds., *Encyclopedia of Computer Science*, Third Edition (New York: van Nostrand Rheinhold, 1993), pp. 1284–1286.
- Van der Voet, J., (2014). *The effectiveness and specificity of change management in a public organization: Transformational leadership and a bureaucratic organizational structure*. *European Management Journal*. 32, 373–382.
- Vera, D., Crossan, M., (2004). *Strategic Leadership and Organizational Learning*. *Academy of Management Review*. 29, 222–240.
- Vogelsang, M., (2010). *Digitalization in Open Economies, Contributions to Economics*. Physica-Verlag HD, Heidelberg.
- Walumbwa, F.O., Avolio, B.J., Gardner, W.L., Wernsing, T.S., Peterson, S.J., (2007). *Authentic Leadership: Development and Validation of a Theory-Based Measure*. *Journal of Management*. 34, 89–126.
- Westerman, G., Bonnet, D., McAfee, A., (2014). *Leading digital: turning technology into business transformation*. Harvard Business Press.
- Wilson III, E.J., Goethals, G.R., Sorenson, G., Burns, J.M., (2004). *Leadership in the digital age*. *Encyclopedia of leadership*. 858–861.
- Yukl, G.A., (2012). *Leadership in Organizations*, 8th edition. Pearson Education.
- Yukl, G.A., (2008). *Leadership in Organizations*, 7th edition. Prentice Hall, Upper Saddle River, N.J.

Zhu, W., May, D.R., Avolio, B.J., (2004). *The Impact of Ethical Leadership Behavior on Employee Outcomes: The Roles of Psychological Empowerment and Authenticity*. *Journal of Leadership & Organizational Studies*. 11, 16–26.