Digital Leadership:
A Framework for Successful Leadership in the Digital Age

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ABSTRACT

Advances in digitalization place completely new demands on both political and economic leaders as well as on society as a whole. In addition to technical skills as a basis for dealing with and understanding digital technologies, digitalization demands that relevant decision-makers have a digital mindset so that they can recognize and correctly assess the opportunities and challenges associated with digitalization. Against this backdrop, this article presents a conceptual framework for digital leadership and explains the motives as well as the opportunities and challenges associated with it. It also shows how the critical capabilities of a digital leader contributes to the realization of their strategic vision of successful digitalization. The article concludes by discussing whether and how digital leadership can support successful digital transformation in the economy and society, and it points out possible fields for future research.

KEYWORDS

Digital Economy, Digital Leadership, Digital Transformation, Digitalization, Leadership Styles, VUCA Environment

INTRODUCTION

Currently, digital business models are enjoying enormous success, which can be attributed to the driving force of electronic information and the value it generates (Amit & Zott, 2001; Kollmann & Hensellek, 2016, 2017). The three most valuable companies in the world (Microsoft, Apple, and Alphabet) are not only equipped with a market capitalization exceeding that of all companies in the German DAX30 index but also they are operating in the digital economy and are particularly proficient in dealing with digital information and the associated "information triple jump," which comprises the three steps of information gathering, processing, and transfer (Kollmann, 2019; Kollmann & Hensellek, 2016, 2017). In addition to their highly digitally oriented business model, these companies also have in common that they were led to success by outstanding personalities. This raises a question regarding which skills and ways of thinking and acting are necessary in the digital age to lead a digital company to success or to successfully lead a company from the classical economy through the process of digital transformation. In this vein, the classic requirements for good leadership are not obsolete, but must be supplemented and transformed.

The pressure to innovate is reflected in two particularly relevant theoretical approaches in leadership research (Leitch, McMullan, & Harrison, 2013). First, the focus has shifted away from the interest in classic personality traits of a lonely leader at the top toward leadership as a role in itself that is not defined by individuals' traits but by their interactions in a social and organizational context (Day, 2000; Thorpe, Cope, Ram, & Pedler, 2009). Second, leadership, similar to digital transformation, is increasingly understood as a process that involves all members of an organization and is intended to develop leadership competence throughout the entire organization rather than just individual executives, which also points at the importance of good leadership at lower levels of an organization (Day, 2000; Leitch et al., 2013). Together, these two developments highlight the importance of the social and organizational context as an influencing factor for successful leadership (Fiedler & Chemers, 1974; Leitch et al., 2013).

Today, this context is strongly shaped by digitalization (Bharadwaj, El Sawy, Pavlou, & Venkatraman, 2013). On the one hand, this leads to a more complex and rapidly changing environment through which leaders need to navigate their organizations and to which they need to adapt their leadership (Fitzgerald, Kruschwitz, Bonnet, & Welch, 2014). On the other hand, it also offers new ways of work and leadership. For instance, the use of digital technologies in combination with modern leadership styles such as entrepreneurial leadership allow employees on lower levels to enjoy greater freedom and even a certain degree of self-leadership as long as they contribute to the organizational goals (Renko, El Tarabishy, Carsrud, & Brännback, 2015). For leaders, digital technologies mean new forms of communicating and organizing (El Sawy, Kræmmergaard, Amsinck, & Vinther, 2016). Against this backdrop, the present paper argues that digitalization is the driving force for the future success of organizations but classic leadership styles do not sufficiently address the opportunities and challenges arising from digitalization. In more details, I argue that digital leaders need to create an overarching digital vision of the future and possess the necessary skills and mindset to enable a people-centric implementation of this vision.

Since the body of literature on digital leadership is still fragmented and relatively small, this paper draws from existing literature in related fields (i.e., general leadership and digitalization literature) in order to lay the foundations for developing a suitable framework for digital leadership based on prior research. Against this background, the reminder of the article will elaborate on the significance of digitalization as an opportunity and challenge for leadership in the digital age. Existing concepts on leadership styles such as transactional, transformational, and entrepreneurial leadership are briefly discussed and their possible implications in the context of digitalization are derived. Finally, a framework for successful leadership in the digital age is presented. It can serve both researchers as an impetus for further developments in the field of digital leadership as well as organizational leaders in their daily work.

LITERATURE REVIEW: THE IMPORTANCE OF DIGITALIZATION FOR LEADERSHIP

In general, the term "digitalization" can be viewed from two angles (Petry, 2016). On the one hand, it can be understood purely technically as the conversion of analog data into digital information. On the other hand, it can be seen holistically as a development of society as a whole that is driven by technological developments in electronic data processing. It leads to both new challenges and opportunities, as it produces far-reaching changes at all levels of the economy and society, fundamentally changing the way people communicate and interact with each other and the way companies operate in the market.

The Organisation for Economic Co-operation and Development (OECD, 2016) described digitalization as a current megatrend that has an impact on all areas of our lives. In the context of this article, digitalization is understood as a holistic concept, because this is the only way to explain its profound influence on established business models and management approaches (Petry, 2016).

This view is confirmed by an international survey of 3,700 corporate decision-makers, 90% of whom said that digitalization will change their industry dramatically or even disruptively (Kane, Palmer, Phillips, Kiron, & Buckley, 2016). However, the fact that 56% of respondents did not consider their company to be sufficiently prepared for digitalization underscores the relevance of digital leadership for enabling executives to successfully maneuver their companies through the digital transformation or, ideally, actively participate in it themselves.

While so-called "digital natives", that is, the generation that grew up with digital technologies, seem to have internalized digitalization and their digital skills and mindset can be seen as intrinsic factors, for the majority of established executives, digitalization seems to be an extrinsic force influencing companies, their employees, and their business models (see also Kensbock, 2018 on the external influence of digitalization on established companies). At this point, however, we must not think binarily; both views on the influence of digitalization are correct, and it is important to recognize them as equally important.

A similar picture emerges for companies. Young and agile start-ups define the digital business world with their innovative products and services (Kollmann, Stöckmann, Hensellek, & Kensbock, 2016), and established companies often find it difficult to exploit the potential of digitalization (Criscuolo, Nicolaou, & Salter, 2012). This leads to the emergence and success of companies such as Facebook, Alibaba, and Uber, which transformed from start-ups to among the highest-rated companies in the world over the course of only a few years.

At the company level, the drivers of digitalization can be generally divided into external and internal drivers. The most important external drivers of digitalization include technological developments, such as mobile Internet, cloud computing, the Internet of things, 3D printing, augmented and virtual reality, Blockchain or big data, and artificial intelligence (Brynjolfsson & McAfee, 2014; Kollmann, 2019). On the one hand, these new technologies open up completely new possibilities and fields of business, but on the other hand, they threaten to disrupt existing technologies and business models (e.g., Netflix is a threat to cable television). It is also important to consider the increased networking of people (and things) via the Internet, which, in combination with methods of mobile data transmission such as LTE or 5G, allows one to use many services today independent of one's location, time, and device. This potential for permanent accessibility influences not only the way of communication between individuals (both in private and in corporate contexts) but also communication between individuals and companies (in both directions). Factors such as the speed of response or provision of information and the individualization of communication are becoming increasingly important, especially in communication between individuals and companies (Kollmann, 2013, 2019).

The internal drivers of digitalization include factors that enable companies to take advantage of or actively shape digitalization. In this context, digitalization promotes companies' agility to handle new technological opportunities, enabling them to develop products and bring them to market more quickly. Buzzwords in this area include the lean startup method (Bosch, Olsson, Björk, & Ljungblad, 2013; Brandes, Gemmer, Koschek, & Schültken, 2014) and digital prototyping (Bullinger, Warschat, & Fischer, 2000), which aim to bring an executable minimum viable product to the market with a manageable expenditure of time and resources. Specifically, digital prototyping refers to the mere marketing of only a prototype via, for example, marketing videos or crowdfunding campaigns without any stock of the product ready for shipping. Companies' agility and creativity are often promoted by new, innovative forms of work, which are subsumed under the terms "work 4.0" and "new work" (Lindner, Ludwig, & Amberg, 2018). Work 4.0 refers to the technological possibilities available in the workplace, such as digital tools, software, or remote workplaces, while new work describes the way in which people work in the digital age, which is characterized by independence from a given time and place as well as changing work requirements in general. In organizational terms, this leads to the emergence of telework and phenomena such as virtual teams (Gilson, Maynard, Jones Young, Vartiainen, & Hakonen, 2015). In general, it can be said that simplified (digital) communication
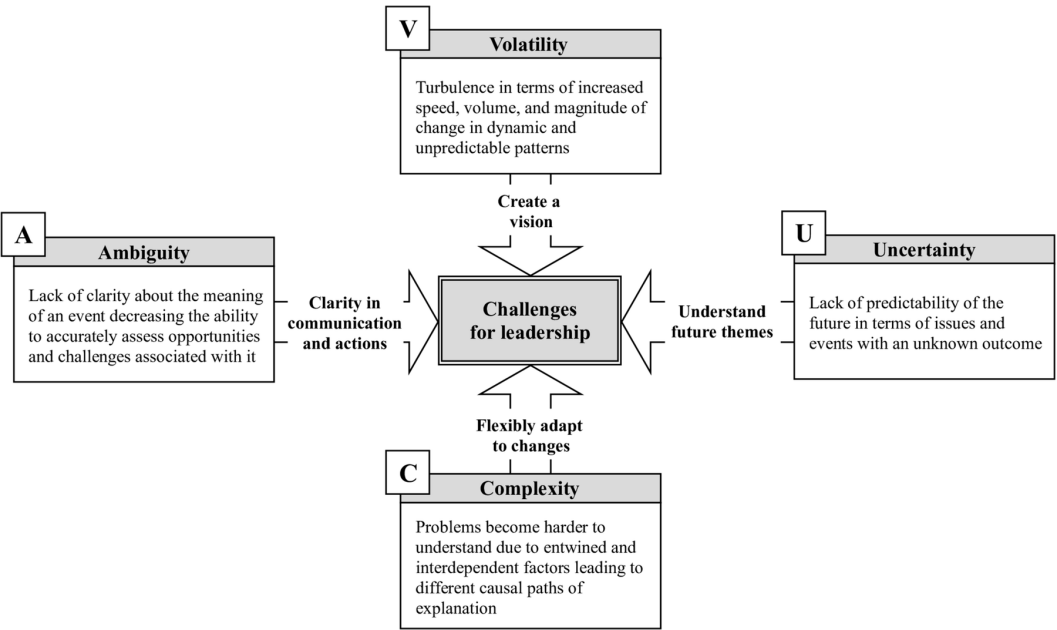
between people can promote autonomy, flexibility, and innovation among employees (Diaz, Chiaburu, Zimmerman, & Boswell, 2012).

Overall, digitalization has resulted in significant changes in at least three areas relevant to corporate leadership and governance (Brynjolfsson & McAfee, 2014). First, the competitive situation is changing due to lower entry barriers for new entrants (sometimes a single computer is enough to code an app) and ever-shorter innovation cycles. Second, the role of customers is changing in terms of communication, values, and consumer behavior. Third, the world of work itself is changing in terms of workplace needs and design. The environment in which companies operate today, which is characterized by these dynamic changes, is typically referred to as the VUCA (which stands for volatility, uncertainty, complexity, and ambiguity) environment (Bennett & Lemoine, 2014a; Rodriguez & Rodriguez, 2015).

The characteristics of the VUCA environment impose different challenges on leaders, as outlined in more detail below and depicted in Figure 1.

Volatility refers to increased turbulence in terms of speed, volume, and magnitude of change in dynamic and unpredictable patterns (Lawrence, 2013). This makes it increasingly hard for leaders to create a vision for the future. Uncertainty describes the lack of predictability of the future in terms of issues and events with an unknown outcome (Packard, Clark, & Klein, 2017). Hence, leaders may find it difficult to understand future themes relevant for the success of their organization. Complexity implies that problems become harder to understand due to entwined and interdependent (internal and external) factors, which lead to different causal paths of explanation (Berger & Kuckertz, 2016). In this regard, complexity increases the need for more flexible adaptation to changes as well as openness to adjust and reformulate existing goals. Ambiguity stands for a lack of clarity about the meaning of an event, thereby decreasing the ability to accurately assess opportunities and risks associated with it (Bennett & Lemoine, 2014b). Higher levels of environmental ambiguity render the need for clear communication and actions of leaders more important so others can understand and make sense out of it.

Figure 1. Characteristics and challenges of the VUCA environment. Source: Own presentation following Bennett and Lemoine (2014a, 2014b).

A good example of the volatility and lack of security in this environment is Snapchat, which suffered a price loss of about 1.7 billion US dollars (approximately 8% of its total market valuation) due to a negative tweet by the influencer Kylie Jenner (Spiegel, 2018). In more general, a study of the Boston Consulting Group found that the level of financial turbulence has increased since 2002 (Bhattacharya et al., 2013). Against the background of today's VUCA environment, sustainable digital leadership is crucial to the long-term success of firms in an increasingly globalized and digitalized market. The following sections present relevant developments in the area of leadership so that executives can successfully take advantage of these developments.

Leadership in the Digital Age

Development of Modern Leadership

The concept of leadership was already proposed by Socrates and Xenophon, one of Socrates' students, in a transcription of their dialogues written in the 5th century BC. The basic features of their definition of leadership are still relevant today; in addition to knowledge, experience, and talent, Socrates emphasized that leaders must be motivational and function as role models (Audring, 1992). In this respect, it seems intuitive that leadership is not a unidirectional concept, but an exchange-based relationship between a leader and other parties, such as employees or other stakeholders (Bass & Riggio, 2006). Moreover, the Socratic concept of leadership highlights the need for flexibility and adaptability in changing environmental conditions, which—more than ever—seems essential today for leaders and companies to succeed in an increasingly dynamic environment (Fisher, 2012; Piva, Rossi-Lamastra, & De Massis, 2013; Rothaermel, 2002).

In order to meet increasingly complex and changing demands, leadership styles themselves must undergo constant change. In this context, the concepts of transactional, transformational, and entrepreneurial leadership have emerged as the most relevant leadership styles (Eagly, Johannesen-Schmidt, & Van Engen, 2003). These leadership styles are explained in more detail below. Building on these explanations, the article defines the concept of digital leadership.

From Transactional to Transformational Leadership

Since the publication of the fundamental article by Burns (1978), the concept of transformational leadership has been regarded as an extension of transactional leadership. Among other elements, it incorporates charismatic leadership, which was described by Weber (1947) in his seminal work (Conger & Kanungo, 1987; Tucker, 1968). According to Bass and Avolio (1990), transformational leadership consists of four "I's:

- **Idealized influence (the function of role models in terms of quality and behavior):** Leaders must assume the function of a role model. In this regard, they must have appropriate characteristics so that employees respect and identify with them. This relationship with employees is usually fostered through self-confidence and trust, which is built by clearly communicating the company's values and mission.
- **Inspirational motivation:** Leaders set an inspiring vision as their goal and exhibit optimism to motivate employees to realize this vision or actively participate in shaping it.
- **Intellectual stimulation:** Leaders intellectually stimulate employees to bring out the best in them. This can be done by encouraging them to produce creative and innovative solutions or by challenging employees to find solutions without the leader or recognize the potential for optimization on their own.
- **Individualized consideration (individual support):** Leaders respond to employees according to their individual abilities and needs. They tend to act as mentors and are concerned with the individual development of each individual employee.

Although transactional and transformational leadership are empirically distinct, there is broad consensus in the literature that effective leadership contains both transactional and transformational elements (Bass & Avolio, 1990; Eagly et al., 2003). In contrast to transformational leadership, transactional leadership tends to encompass a classic understanding of management, which sees leaders—similar to managers—as responsible for defining responsibilities, delegating tasks, reviewing their execution and rewarding employees accordingly, and intervening to correct mistakes (Burns, 1978). As a development of this concept, the transformational leader, however, sees himself or herself as responsible for proactively minimizing errors through anticipation and regular monitoring. Should mistakes occur, they are understood as opportunities for learning; transformational leaders do not denounce them or criticize or punish employees (Bass & Avolio, 1990). In this respect, transformation leaders see mistakes as an opportunity for further development and optimization for the future. Studies have empirically proven that transformational leadership leads to an increase in organizational learning and innovation, which in turn leads to improved business performance (García-Morales, Jiménez-Barrionuevo, & Gutiérrez-Gutiérrez, 2012).

Entrepreneurial Leadership

Although transformational leadership represents a significant development in the classic leadership style, the entrepreneurial skills of leaders in both young and established companies are in high demand, especially in dynamic business environments, due to constantly increasing global competition (Gupta, MacMillan, & Surie, 2004). In addition to the identification and exploitation of opportunities, the focus of this leadership type is also on an entrepreneurial orientation, which describes the tendency of companies (Lumpkin & Dess, 1996) and individuals (Kollmann, Stöckmann, Meves, & Kensbock, 2016) to engage in innovativeness, risk-taking, proactiveness, autonomy, and competitive aggressiveness. Incorporation of entrepreneurial ways of thinking and acting is intended to increase innovativeness, adaptability, and performance, which are needed to survive in the market in the long run (Brettel, Mauer, Engelen, & Küpper, 2012; Kollmann & Stöckmann, 2014; Rauch, Wiklund, Lumpkin, & Frese, 2009).

Based on the principles of transformational leadership, Gupta et al. (2004) argue that the elements of team-oriented leadership and value-based leadership facilitate entrepreneurial leadership. With regard to team-oriented leadership, the authors emphasize that entrepreneurial leaders must generate a high degree of commitment and participation in the team in order to create flexible role models who can overcome volatile environmental conditions. With regard to value-oriented leadership, the authors emphasize the ability of leaders to formulate a clear vision and mission and to inspire employees by setting a good example themselves. Based on these leadership concepts, the authors formulated two dimensions of entrepreneurial leadership with two sub-dimensions describing the roles and attributes of such leaders more specifically. Then, they empirically tested the model with data from the Global Leadership and Organizational Behavior Effectiveness study.

The first dimension concerns future scenarios and their implementation. Within the framework of a future scenario for the company, an entrepreneurial leader formulates challenges that push his or her employees to their limits but do not overtax them. In this respect, the digital leader strikes a balance between an ambitious vision and a pragmatic understanding of his or her team's abilities in order to achieve the vision (McGrath, Arrow, & Berdahl, 2000). The ultimate goal is to create a persistent vision (Gupta et al., 2004). The leader bears responsibility for this vision, although his or her employees contribute significantly to its implementation. In particular, the entrepreneurial leader must absorb uncertainties related to the vision of the future and its achievement. It is important to note that the leader needs to build trust in order to realize the vision. A similar pattern can be observed among, for example, so-called product champions in the context of research and development projects (Shane, 1994). Finally, an entrepreneurial leader must clear the way and facilitate achievement of the vision by anticipating and eliminating internal and external barriers and by involving key stakeholders and gaining their support (Gupta et al., 2004).

The second dimension concerns the implementation of the future scenario by personnel. An entrepreneurial leader must use team-building skills to inspire his or her team and build commitment to achieving the vision (Gupta et al., 2004). The goal is getting the employees' full commitment to support the realization of this vision. In addition, if the vision is ambitious, it is important for the leader to set limits, guide employees' commitment, and use limited resources efficiently and effectively (Gupta et al., 2004). In this vein, previous studies have shown that clearly setting boundaries regarding the formulation and achievement of objectives can lead to new breakthroughs in product innovation (Clark, Hayes, & Lorenz, 1985).

Although the two dimensions described above embrace different facets of leadership, they are intuitively linked; on the one hand, a future scenario cannot be implemented without the right people, and on the other hand, the right team can be put together only once a vision of the future has been formulated. Hence, both processes of entrepreneurial leadership can be understood as cumulative and iterative (Gupta et al., 2004).

Digital Leadership

As the review of existing leadership concepts shows, both transformational and entrepreneurial leadership follow a vision for the future formulated by the leader. This appears to be of particular relevance in the field of digitalization because digitalization offers technological possibilities that many people still find difficult to imagine. In fact, in many countries, such as Germany, people are even afraid of the effects of digitalization. In a survey conducted by the German Federal Ministry of Education and Research (BMBF, 2017), almost 60% of respondents stated that they believe more jobs are lost than created as a result of digitalization and the introduction of robots to the workplace.

Against this backdrop, the overarching principle for a digital vision is that it has to be meaningful in terms of sensemaking, because digitalization is ultimately about people (Fors, 2010; Parviainen, Tihinen, Kääriäinen, & Teppola, 2017). In this respect, the digital leader must formulate a digital vision that is clearly articulated and hence is understandable (and acceptable) for employees. Empty phrases such as "we have to digitalize all our processes" are too imprecise and unsuitable for encouraging employees to support digitalization. Furthermore, the digital vision must be ambitious enough to survive international competition against agile and innovative start-ups as well as large digital companies from the US (e.g., Uber and Airbnb) and Asia (e.g., Alibaba and Tencent). As a result of the first two requirements, the vision must also be holistic, addressing all areas of a company including its value creation chain as well as its employees and not only individual sub-areas or processes. In addition, ideally, it should cover the other stakeholders of a company, since they can also contribute significantly to a company's value creation (Harrison, Bosse, & Phillips, 2010). This ultimately means that a digital vision must be sustainable; only if digitalization is successfully implemented into both the strategy and operations of a company can the company gain a competitive advantage from it (Casadesus-Masanell & Ricart, 2010). In addition, a meaningful digital vision is a prerequisite for good digital leadership. However, the vision alone is insufficient; it must also be successfully implemented. In line with Kollmann (2019), the digital leadership framework in the present paper proposes three building blocks that digital leaders must fulfill: they must possess (or learn) a digital mindset and a digital skillset and combine these two elements for digital implementation in order to realize the overarching digital vision.

A digital mindset is a leader's attitude towards digital technologies in general and their use in the corporate context in particular. A general openness to new (digital) technologies is indispensable. Digital natives often seem better equipped for this, as established managers or investors are oftentimes wrong in their assessments of the potential of new technologies and overestimate their digital abilities. To reduce this problem, they should internalize the concept of lifelong learning and familiarize themselves with new technologies and their significance to the company through targeted training and education. Also, they must possess a strong will to change; a digital leader should regularly question

the status quo and strive for continuous development in order to keep pace with developments in today's dynamic environment.

Although the right attitude is an important first step, a digital leader must also have a digital skillset, defined as the necessary skills to understand digital technologies, handle them as effortlessly as possible, and use them sensibly. In particular, it is crucial for leaders to be able to recognize opportunities and assess risks associated with digitalization, a skill that is closely linked to a digital mindset and that can be understood as an iterative learning process. Digital skills can be further subdivided into digital user knowledge—for example, the safe use of certain digital devices, software, and media—and digital behavior—for example, the inclusion of digital patterns of thought in decision-making processes (Crummenerl & Kemmer, 2015). A digital leader must be able to effectively and efficiently integrate digital technologies into the day-to-day work of both themselves and their employees. This is because, on the one hand, they enable more innovative forms of work with more autonomy and flexibility but, on the other hand, users today are often quickly overwhelmed by the daily flood of e-mail and the pressure to be constantly available because, for example, they lack the appropriate behavioral mechanisms to deal with these stressors and reduce potential stress (Mazmanian, 2013). The advantages and disadvantages of digital technologies relate to another ability that a digital leader must possess: the ability to recognize and balance the opportunities and risks of digitalization. In the context of digitalization, a leader can benefit from entrepreneurial skills, as entrepreneurs are regularly confronted with uncertainty and must balance risks and opportunities. Possible entrepreneurial skills in this context include, among others, bricolage (Baker & Nelson, 2005), effectuation (Sarasvathy, 2001), and agile methods such as lean startup, which can help companies develop and test the minimum viable product in the market with manageable risk and in a timely manner (Bosch et al., 2013; Brandes et al., 2014).

If a digital leader is equipped with a digital mindset and digital skillset, he or she must use them to advance digital implementation, specifically implementation of the vision he or she formulated. The digital leader must also set a good example and take responsibility for digitalization efforts in order to signal his or her strong commitment. Like entrepreneurial leaders, the digital leader must mitigate the inherent uncertainties of risky digitalization efforts. However, the approach of leading by example must not be misunderstood as exclusivity. It is not uncommon for executives to lead digitalization only in their own workplaces, leaving the rest of the company insufficiently digitalized, which can, in turn, lead to a digital divide in the company and have a negative impact on employee motivation or even increase concerns about digitalization (Kroker, 2018). In Germany, for example, almost half (45%) of employees describe their own company as a technological latecomer, and only 11% describe their company as a technological pioneer.
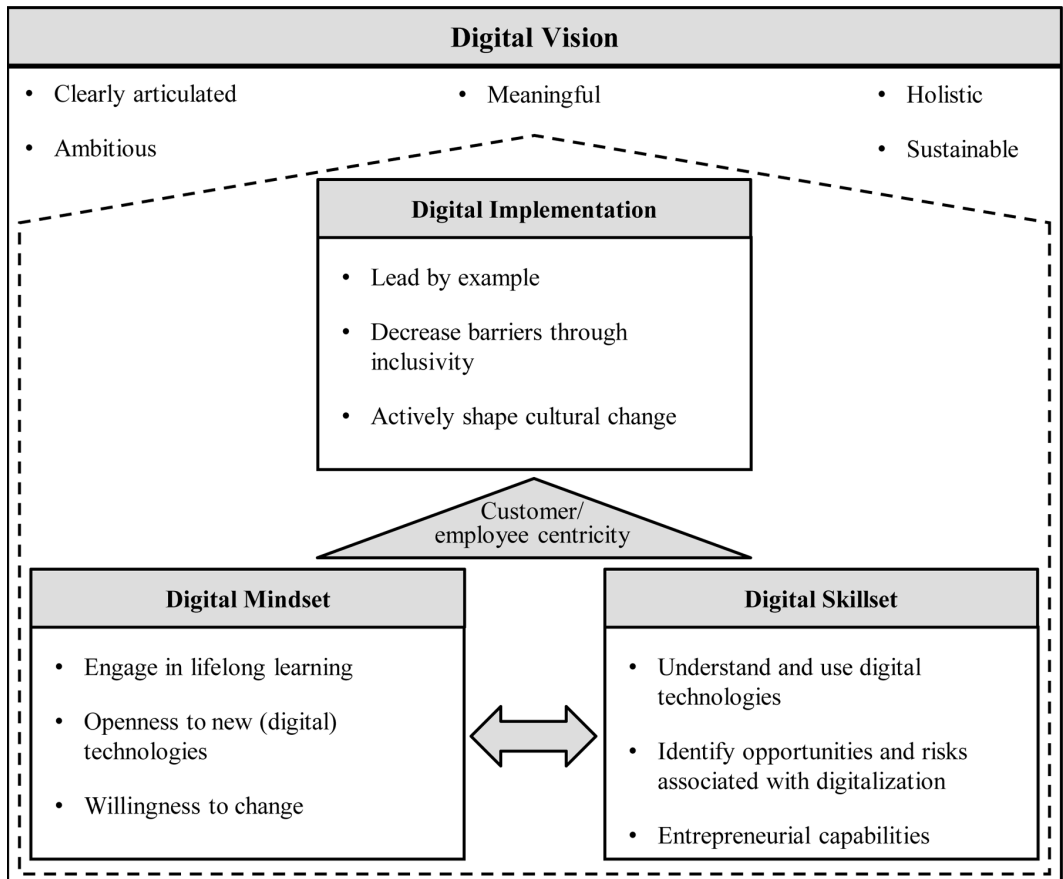
Compared to executives, managers more frequently serve as a pioneer for themselves or their company. In order to avoid the problems described above, digitalization must be inclusive rather than exclusive and must encompass all aspects of the company, including all its employees (i.e., employee centricity). In addition, it should extend beyond the company's boundaries and include other relevant stakeholder groups that can provide an impetus for digital transformation, including (and perhaps especially) the (potential) customers of a company, who can be included in efforts such as virtual customer integration (Peschl, 2018). Customer centricity plays a particularly important role in digitalization (Gummesson, 2008; Kollmann, 2019; Kollmann & Schmidt, 2016). Furthermore, concepts such as open innovation (Pohl & Engel, 2018) or coopetition (Bengtsson & Kock, 2000) can be beneficial when pursuing digital transformation. Such transformation is accompanied by the need for a radical cultural change, which digital leaders must actively shape. However, the leaders should not be the only ones actively shaping this change. The principle of inclusivity applies here; at least the entire company, including its employees and, ideally, stakeholders from outside the company such as suppliers and customers—should be involved in this cultural change. Companies may also allow stakeholder groups to bring in external impulses for digitalization and change.

In summary, a digital leader is able to articulate a meaningful strategic vision for a digital future (i.e., a digital vision) and has both the appropriate attitude (i.e., a digital mindset) and the necessary skills (i.e., a digital skillset) to successfully implement the vision in a company (i.e., digital implementation). A leader must simultaneously fulfill all three requirements (i.e., have a digital mindset and skillset and perform digital implementation) in order to be classified as a digital leader. This allows him or her to credibly formulate a digital vision and realize it accordingly. Thus, previous leadership concepts, such as transformational or entrepreneurial leadership, are not obsolete; rather, they form an important basis for the digital leadership framework developed here, which is visualized in Figure 2.

Opportunities and Challenges of Digital Leadership

Digitalization is a process of constant change with an open outcome that requires constant readjustment at all levels of an organization. Because of the power of digitalization today, leaders need to recognize that their working environment and the demands that are placed on both themselves and their employees are changing. Leadership no longer involves only distributing and monitoring tasks and how they are completed; it also involves creating a space for development of employees' creative potential through collaboration and continuous learning (Bass & Riggio, 2006; Eagly et al., 2003), in which the leaders should also actively participate. This is the only way to create a pool of employees with valuable skills,

Figure 2. The digital leadership framework (Hensellek, 2019)

which is necessary for a company to survive in the market. The possibility of increasing a company's resource pool through digital transformation should thus be seen as an opportunity.

Individuals who want to become good digital leaders must learn to withdraw themselves in certain situations, granting employees more freedom and relying on their expertise, similar to a transformational or entrepreneurial leader. Sometimes, this leads to a shift in values going away from understanding a leadership position as a kind of reward and towards understanding a leadership position as an opportunity to make a difference through direct exchanges with one's employees and colleagues. In this case, the result is the reward for all participants. Thus, digital leadership is a reciprocal concept and is not tied solely to top management positions in the sense of a top-down approach; a holistic approach should be adopted, and employees at lower hierarchical levels should be actively involved in digital leadership. Three questions are central to the reciprocal concept of effective digital leadership: How do I want to take over digital leadership myself? How do I want to be digitally led? How do I want to integrate digitalization into my everyday work?

In addition to a considerable amount of communication-related effort, this may result in fundamentally new questions regarding, for example, completely new tasks and job profiles created by digitalization and thus the opportunity for digitalization to create new jobs. In this respect, employees who take on new tasks in companies within the frame of digitalization are also obligated to perform digital leadership because they are largely responsible for acting as digital ambassadors or digital champions vis-à-vis their colleagues as well as senior executives, sensitizing them to the opportunities and risks of digitalization. Inherent to digitalization are the necessity of communicating the need for resources for new digital projects and helping digital initiatives in the company to succeed despite initial resistance. In the long term, such behaviors open up opportunities to break down barriers in the company and promote a company-wide culture of (digital) innovation.

A challenge in this context is that no parallel structures are set up within the framework of companies' digital transformation. Although many companies are supposedly willing to embrace the new, they do not dismantle the old structures that are too rigid for digitalization. These firms are thus entering into a fundamental conflict between new and old structures, policies, and patterns of thought. Such conflicts tend to result from fear and a lack of knowledge about digital topics, so companies have to react by training their employees and managers (Kollmann & Schmidt, 2016). The need for training has apparently already been acknowledged by employees, because 9 out of 10 employees agree with the statement that continuous training is indispensable for professional success today (BMBF, 2017). However, there still seems to be a lot of catching up to do; 81% of participants in the BMBF (2017) study fear that digitalization will cause increasingly more people to lose their jobs, and 84% believe that salary differences will increase. In no case should digitalization lead to a two-tier society among executives and employees.

In this regard, companies, especially highly innovative and progressive start-ups, must be careful to find the right "fit" between their digital products and services, their own digital leadership, and the environment. If in doubt, they might promote their own understanding of digital technologies; for example, Google (Alphabet) provides free online courses to sensitize people to digital topics. Facebook founder and CEO Mark Zuckerberg, who came under scrutiny for passing on user data to third-party companies, is another interesting example of an executive weighing the challenges and risks of digitalization. He was accused of leaving users in the dark about this disclosure. In this context, it seems even more paradox that a photo of him exists which shows that the webcam on his notebook is blocked with an opaque adhesive strip, probably as a precautionary measure to protect his privacy or business secrets. It seems worthwhile to discuss how far openness to and trust in digital technologies must go and how leaders lead by example. In any case, digital leaders should always critically analyze and question the opportunities and risks associated with digitalization and show through example how one can reconcile them.

Another example of the opportunities and challenges of digital leadership and stakeholder inclusion relates to Elon Musk, the founder and CEO of the electric car pioneer Tesla who is known

for his visionary ideas. Via the online short message and news platform Twitter, a customer directly sent Musk (@elonmusk) criticisms and suggestions for improvement directly. Musk promised via Twitter only 24 minutes later to implement this improvement immediately with the next software update (Bariso, 2017). Another proactive call for more suggestions for a new car, Model 3, received more than 2,100 responses (Ophüls, 2018). It is obvious that this direct contact with customers (as well as all other stakeholders) is a great opportunity, but it is also a great challenge. Critics can easily make their voices heard, or the missteps of company leaders can immediately become public and be remembered on the Internet for years. Elon Musk can also be cited as an example here, since he triggered a considerable jump in the price of Tesla shares by tweeting about the potential of delisting Tesla and indicating the possible repurchase price per share. This caused the United States Securities and Exchange Commission to launch an investigation due to suspicion of possible price manipulation (Osborne, 2018).

Beyond these individual examples, however, digital transformation appears to have an overall positive influence on companies in general. For example, empirical studies have reported the positive effects of digital capabilities or a digital strategy on companies' performance (Bharadwaj, 2000; Bharadwaj et al., 2013; Mithas, Ramasubbu, & Sambamurthy, 2011).

CONCLUSION AND FUTURE RESEARCH

As the positive and negative examples described above have shown, the possibilities of digitalization are accompanied by digital leaders' great responsibility to their companies, employees, and other stakeholders. This article provides practitioners and researchers with a possible framework for meeting the challenges of digitalization and, ideally, actively shaping it. To this end, it is important to view digital leadership as a holistic concept and implement it throughout the entire organization, as overly hesitant or half-hearted implementation will not be able to protect companies from the disruptive power of digitalization (Kollmann & Schmidt, 2016).

Although partly outlined above, future research should analyze digital leadership in the sense of a political digital leadership in greater detail, since digitalization and its effects have and will continue to have considerable implications for society as a whole. For example, it raises questions regarding infrastructure development as well as complex social issues, such as the potential for basic income in the post-digitalization era. The generic definition of the basic requirements for good digital leadership presented in this article may provide some initial starting points for future research. However, digital leadership can by no means be regarded as a static concept; it will (have to) evolve over time as society becomes more and more digitalized.

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