Holistic Digital Leadership and 20 Factors Relevant for its Understanding and Implementation

Denis Imhof and Stella Gatziu Grivas

University of Applied Sciences and Arts Northwestern Switzerland FHNW, Institute for Information Systems, Riggenbachstrasse 16, 4600 Olten, Switzerland
denis.imhof@fhnw.ch
stella.gatziugrivas@fhnw.ch

Abstract: Organizations today face challenges like changing organizational structures and value chains, participation in digital eco-systems or fast changing customer expectations. Digital Leadership aims to guide the necessary transformation to overcome these challenges. Thereby a holistic viewpoint is needed since the challenges and conditions concern organizations as a whole. They are not limited to single managers, departments or even the organization's system boundaries. Digital Leadership is a relatively new and well discussed research topic but yet only vaguely defined and understood. This exploratory research contributes to the exploration, understanding and development of Digital Leadership with the elaboration, based on the review of existing literature, of a holistic definition of Digital Leadership, and the proposal, based on semi-structured qualitative expert interviews, of 20 interdependent and mutually influencing Digital Leadership factors within four main areas of Digital Leadership. These 20 factors are relevant for successful and sustainable holistic Digital Leadership and offer a deeper understanding of Digital Leadership. Furthermore, they provide guidance for the implementation and improvement of Digital Leadership for organizations facing the challenges and conditions of the digital age.

Keywords: Digital Leadership, Strategic-position Leadership, Organizational Leadership, Employee Leadership, Self-Leadership, Digital Transformation

1. Introduction

Due to the measures taken by governments all over the world to limit the spread of the Coronavirus disease (COVID-19) most people have experienced in the last two years a push towards a more digital daily living and working environment. The digital age has become more present and tangible for individuals and organizations than ever before. The need for digital transformation and new and innovative business models puts pressure on executives and employees alike. Thereby, challenges and challenging conditions arise that can hardly be predicted (Corsaro and D'Amico, 2022; Stalmachova, Chinoracky, and Strenitzerova, 2022; Li, Voorneveld, and de Koster, 2022). As the review of the literature shows, organizations face for example challenges like changing organizational structures and value chains, participation (and leadership) in digital eco-systems, and changing expectations of employees and customers. In this context, Digital Leadership as the ability to adequately lead in the digital age becomes relevant for all kinds of organizations and their stakeholders to remain competitive.
Since Digital Leadership is a relatively new topic and well discussed in many different research streams but yet only vaguely defined and understood, this exploratory research paper contributes to the exploration, understanding and development of Digital Leadership.

Based on the existing literature the authors have identified challenges and conditions posed by the digital age. Following the identified challenges and conditions of the digital age, four relevant main areas within an organization have been derived for which solutions need to be established to deal with the identified challenges and conditions. In extension to existing definitions of Digital Leadership, these four main areas form the basis for the proposed own and holistic definition. In contrast to existing definitions, the authors suggest a holistic viewpoint since the identified challenges and conditions concern organizations as a whole. They are not limited to single employees, managers, departments or even the organization's system boundaries.

To further detail the four main areas and the proposed definition, the main contribution of this research is the elaboration of 20 Digital Leadership factors by conducting further literature research and semi-structured qualitative expert interviews with experienced managers from different SMEs in the strategic business consulting as well as financial industry. These 20 factors are relevant for successful Digital Leadership and enable an organization to implement Digital Leadership by offering concrete guidance.

This paper is organized as follows: Chapter 2 introduces the reader to the identified challenges and conditions of the digital age. Chapter 3 develops the definition of Digital Leadership and draws the big picture. Chapter 4

elaborates the 20 Digital Leadership factors. Chapter 5 concludes the paper and offers thoughts for future research activities.

2. Identified challenges and conditions of the digital age

Based on the review of the existing literature cited below, the following challenges and conditions of the digital age that organizations face currently, and in the future have been identified.

1. *The VUCA-World:* The business environment in the digital age can be characterized as being increasingly volatile, uncertain, complex, and ambiguous (VUCA) (Bennett and Lemoine, 2014; Mack et al, 2016; Kauffeld, 2019). The digitalization and the globalization lead to an increasing VUCA-World (Kauffeld, 2019; Petry, 2019; Wagner, 2018). The development of the business (model) becomes increasingly less predictable and plannable. Management which relies on detailed and long-term planning needs to be rethought since plannability, in consequence also the implementation of what has been planned, becomes increasingly difficult (Petry, 2019; Schreyögg and Koch, 2020).

2. *Complexity Reduction:* To deal with complexity, organizations define their system's boundaries and select their own specific environment. This reduction of complexity in turn leads to blind spots from which positive or negative surprises and uncertainty can emerge (Luhmann, 1984; Schreyögg and Koch, 2020).

3. *Chang of Company Structures:* Digitalization and globalization, and reduced transaction costs, enable new company structures and reduced company sizes (Schwaferts, 2020). Reduced company sizes positively influence the ability to react agile on changes in the environment, changing customer needs, or on effects of the VUCA-World (Schwaferts and Baldi, 2018). A former in-house value chain of a large company can be distributed on many smaller independent companies, all of which contributing to the final overall value creation and forming a digital age networked arena of collaboration (Schwaferts, 2020).

4. *Digital Arenas and Digital Eco-Systems:* Digital arenas, or if a participating organization can establish a leading position of power and determine system boundaries, collaboration, and conditions, also referred to as digital eco-systems, are a combination of individual participants which contribute unique value to an overall value creation (Schwaferts, 2020). Digital arenas and eco-systems are dynamic and change over time as participants join or exit, and technology and possibilities advance (Um, 2015; Schaffnit, 2020). This demands for agility to adapt fast to changes (Schaffnit, 2020). To participate in a digital arena or eco-system, an organization needs to establish customer centricity, focus on its uniqueness, and contribute its own unique value contribution to the over-all value creation (Schwaferts, 2020).

5. *Change of Competencies:* According to the World Economic Forum (WEF, 2020) the top 10 most asked for employee skills by 2025 are analytical thinking and innovation, complex problem-solving, critical thinking and analysis, creativity, originality and initiative, reasoning, problem solving and ideation, active learning and learning strategies, resilience, stress tolerance and flexibility, leadership and social influence, technology use, monitoring and control, and technology design and programming. 50 percent of all employees will need to re-skill by 2025 as technology adoption increases and due to the economic impact of the COVID-19 pandemic. According to Schwaferts and Baldi (2018) traditional management might struggle to develop the working environment required for employees to support such skills, since it has been laid out originally to push employees in repetitive, standardizable, and measurable tasks, but not to support creative, innovative, and entrepreneurial tasks for employees.

6. *Chang of Employee Expectations and Values:* The virtual man describes a human being which is flexible, can adapt to new technologies, is communicative and cooperative, and participates actively in networks (Kauffeld, 2019). The working environment today is characterized by change, the need for agility, the ability to learn and to adapt quickly to new developments, and the mental capability to process multiple available options. It is impacted by innovations which have the power to disrupt and transform all aspects of life (Kauffeld, 2019). This also impacts expectations and values of employees. Employers need to address these characteristics, too. These efforts should address and enhance expected employee values such as freedom, self-determination, competency, meaningfulness, as well as participation and influence, to support employees to unleash their potential in favour of the organizational development, and to increase satisfaction and motivation (Schermuly, 2016; Hasenbein, 2020; Hofmann, Piele and Piele, 2019; Kollmann, 2020).

7. *Change of Customer Expectations and Values:* The ongoing change of expectations and values also applies for customers. According to Mangelmann (2016) digitalization influences customer behaviour in the following ways: Customers are (1) prequalified, (2) self-determined, (3) individual and with individual

needs, (4) multi-optional, and (5) hybrid. It becomes more difficult to assign customers to categories and segments, and plan product and service developments and marketing activities. Furthermore, shortened product life cycles and the increasing pace of change of customer expectations should be considered (Schwaferts and Baldi, 2018). Customers also become active participants in the development process of products or services, and do, with reviewing or filming products or services, actively contribute to the perception of the product or service among other customers, and ultimately its success.

8. *Technology Developments:* Technology enables new business opportunities, new forms of communication and interaction, and new or further developed business models (Petry, 2019). The exponential growth, economies of digitization, and compatibility have been identified by Brynjolfsson and McAfee (2014; Petry, 2019) as the central factors for the increasingly fast and less predictable technology advancements (and its impacts). These technologies also have an impact on society, and the customers behaviour, expectations, and position in the market change, too. For organizations that cannot keep up with the change and capture value from technology developments for themselves, this can have a disruptive impact when a market participant introduces something new, which leads to the questioning of the existing, changes the market logic, or replaces something existing (Thönnessen, 2020).

9. *Cyber Security and Resilience:* To defend themselves from cybercrime and entailed consequences, organizations need to have cyber security and resilience measures in place. Issues related to cyber security can lead to financial and reputational consequences for organizations, and to fines or prison sentences for individual employees. Cyber security and resilience measures as well as training to reduce vulnerabilities should therefore be of concern for all members of an organization (van der Kleij and Leukfeldt, 2020).

There is discussion in the literature, for example according to Kaehler and Grundei (2019) who carried out a literature survey to identify existing definitions of what management is and does, that management approaches which are a mere variation of theories and thoughts originally stemming from the times of the industrial age, might struggle to deal with the challenges and conditions of the digital age. It is not the goal of this paper to contribute to this discussion. This paper recognizes the above identified challenges and conditions of the digital age for organizations and their stakeholders and tries to contribute to the treatment of the such with offering a solution approach.

3. Development of the definition of digital leadership and its big picture

Considering the above identified challenges and conditions of the digital age, it becomes clear that the identified challenges and conditions affect an organization and its stakeholders as a whole and on different levels. Also, with regards to how an organization can establish the required organizational structures and the necessary working environment for its employees to be able to deal in the best possible way with the identified challenges and conditions. Digital Leadership is therefore not only to be understood as a capability or role of an individual person becoming a Digital Leader, but the organization as a whole is challenged.

The following illustration shows the above identified challenges and conditions of the digital age. The authors have grouped them into four main areas in an organization, for which the respective challenges and conditions can be of concern.

Following figure 1, the four areas (1) organization, (2) employees, (3), personal, and (4) strategy were extracted out of the identified challenges and conditions of the digital age. In a second step, the authors had a closer look into the Digital Leadership literature with a focus on the extracted four main areas. It has become clear that similar areas, but in some cases with a different naming, are mentioned also by other contributors. For example, also in in Petry (2019) it is explained that Digital Leadership is in use for "[…] First, an adequate company leadership in the age of the digital economy, second, for an adequate employee leadership in the digital age, and third, for digitally leading companies." Considering further for example also the explanations in in Wagner (2018) also leading oneself, or the adequate self-leadership, is a relevant topic in the literature.
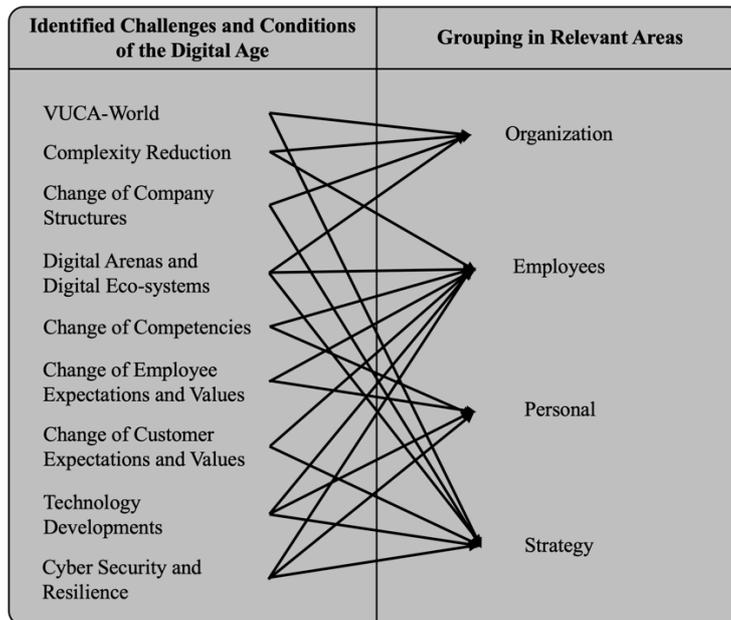
Figure 1: Identified challenges and conditions of the digital age and possible grouping in relevant areas

Considering therefore the above discussed challenges and conditions of the digital age, which should be mastered by the help of Digital Leadership, and considering the existing definitions in the literature with their respective areas of concern, the authors go one step beyond the known definitions and suggest the extension of the existing definitions to obtain a holistic viewpoint and a holistic definition of Digital Leadership. This proposed own holistic definition covers the strategic position, the organizational structures, and the employees, once as members of the organisation, and once as individual persons:

"Digital Leadership is to adequately lead an organization, its employees, and oneself (self-leadership), and to lead the sustainably successful strategic position of the organization in the digital age, under consideration of the challenges and conditions of the digital age."

The following big picture of Digital Leadership (figure 2) shows the derived four main areas of Digital Leadership, (1) Strategic Position Leadership, (2) Organizational Leadership, (3) Employee Leadership, and (4) Self-leadership and represents an organization embedded in the digital economy in the digital age.
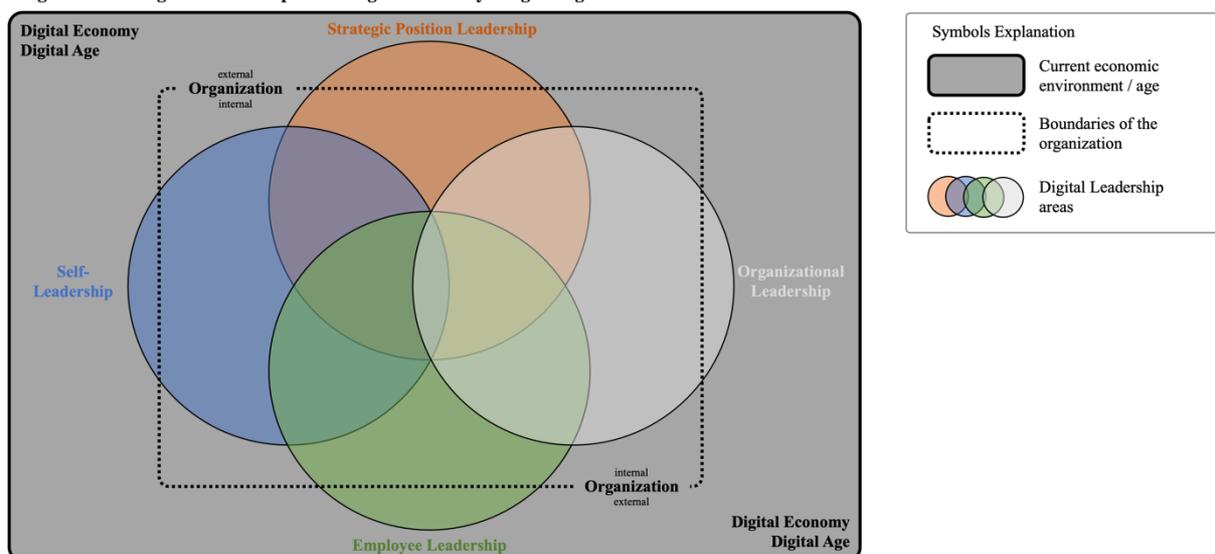
Figure 2: The big picture of Digital Leadership with four main Digital Leadership areas in an organization

Figure 2 shows schematically the four main areas of Digital Leadership within an organization. The four main areas of Digital Leadership are represented as round circles of the same size. They overlap, since they influence each other, are interrelated, and furthermore, because they are equally relevant. The organization's boundaries to its environment, the digital economy in the digital age, are represented with a dotted line. This indicates that the organization's boundaries do not seal off the four main areas of Digital Leadership from external influence. To highlight this exposedness is also why the four circles are drawn to extend beyond the organization's boundaries. While an external influence on the four main areas of Digital Leadership can be for example the customer expectations or the competition, it is also possible that an internal influence on the external environment takes place. This can for example be the case when employee satisfaction contributes to a positive work-life-balance or when a new product or service offered by the organization changes the customers habits and preferences.

The question arises, how the four main areas of Digital Leadership can be further defined and explained, and ultimately be implemented, to be of use for an organization that faces the challenges and conditions of the digital economy in the digital age. As mentioned earlier, the organization as a whole is challenged. This means that the members of an organization need to become Digital Leaders, or at least, need to start developing a Digital Leadership mindset, to be able to transform the organization with their capabilities, to ultimately for the organization as a whole to become a Digital Leader. The following chapter 4 introduces 20 Digital Leadership factors with which the authors aim to offer guidance for how this can be achieved and for how the four main areas of Digital Leadership can be treated.

4. Development of the 20 Digital Leadership Factors

To elaborate a possible solution for this question, further existing literature has been reviewed and semi-structured qualitative expert interviews have been conducted. The experts who have participated are seasoned managers with several years of professional experience in leading positions as all are either representatives of the middle management or managing directors of their respective institutions. All institutions operate in the service industry with a focus on either business and strategic management consulting or financial services. The institution sizes range from small to medium-sized and to large enterprises which are located in Central Europe. The results of the expert interviews have provided the main relevant topics to focus on within the four areas of Digital Leadership, the so called 20 Digital Leadership factors as introduced below. These factors are considered relevant for successful Digital Leadership and ultimately enable concrete options for its implementation by the respective theories and models. With further literature review, the descriptions and characteristics of the identified factors have been further extended and deepened, in addition to the explanations of the experts. The descriptions are provided later in this chapter in table 1.

The 20 equally weighted Digital Leadership factors are: (1) Digital Openness, (2) Customer Centricity, (3) Focus on Uniqueness, (4) Collective Intelligence, (5) Leadership Approach (participative), (6) Agility, (7) Intrapreneurship, (8) Innovation Culture, (9) Cyber Security, (10) Organizational Structures (flat), (11) Mistakes-making Culture (positive), (12) Culture of Trust, (13) Culture of Esteem, (14) Meaningfulness of Work, (15) Empathy, (16) Flexible Working, (17) Remote Work, (18) Digital Responsibility, (19) Self-determination, and (20) Self-engagement. The numbers shall only offer a better orientation, they are not meant as a ranking.

To gain a better overview, the 20 Digital Leadership factors can be located in the big picture of Digital Leadership as follows in figure 3.

Since the four main areas of Digital Leadership overlap and are equally relevant, the 20 factors are to be seen in a holistic manner and as equally relevant for successful Digital Leadership, each being part of the greater context, respectively of the four main areas of Digital Leadership. The location of the factors in the big picture is therefore not to be seen as fixed in just one of the four areas. For this reason, also the part in the middle remains free, to not indicate one factor as a central one. For explanatory reasons and recognizability, it makes sense to provide an illustration in which all 20 factors are visibly located in the big picture.

The following table 1 lists the 20 Digital Leadership factors and summarizes what is understood by each factor, based on the discussion with the experts and extended with additional information from the literature where appropriate.

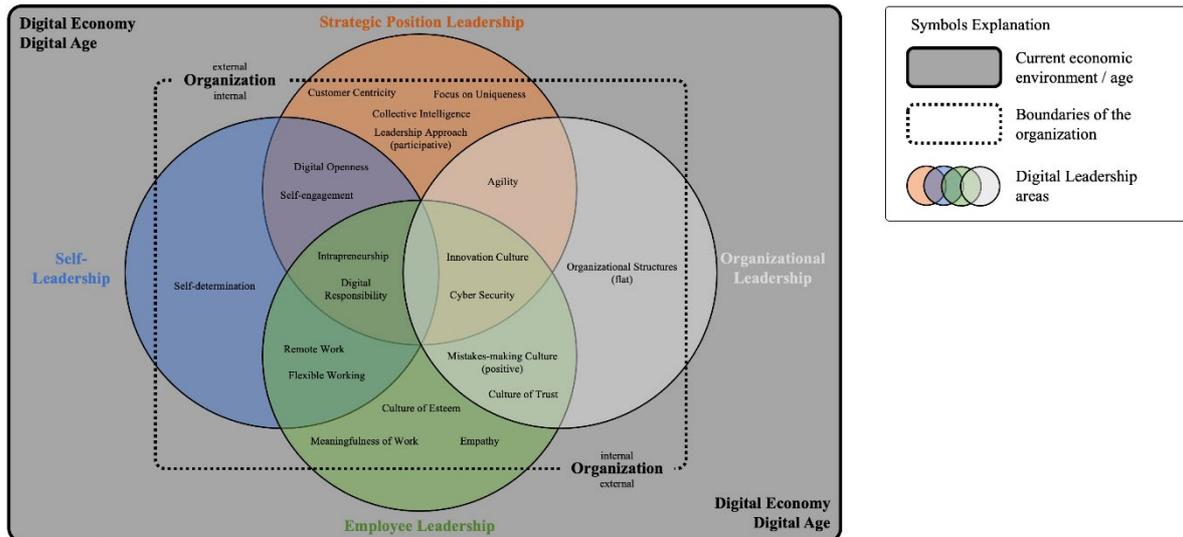Big Picture of Digital Leadership in the Digital Economy / Digital Age with 20 Digital Leadership Factors

Figure 3: The big picture of Digital Leadership in an organization with 20 relevant Digital Leadership factors

Table 1: Overview of the 20 Digital Leadership factors with summarizing explanations

Overview of the 20 Digital Leadership Factors and Explanations	
Digital Leadership Factor	Explanation
(1) Digital Openness	General open-mindedness, interest, and curiosity, but as well will and courage to explore new technologies and possibilities they enable. Adherence to the "old times", rigid organizational structures or fear of making mistakes and risk-taking can counteract this factor (Kollmann, 2020).
(2) Customer Centricity	To identify and create a unique value contribution and to be able to participate in digital arenas or digital eco-systems, a customer centric approach is needed which "[...] thoroughly focuses on identifying customer needs and managing positive customer experience [...] " (Schwaferts and Baldi, 2018).
(3) Focus on Uniqueness	To stay competitive and to participate in digital arenas or digital eco-systems, an organization needs to contribute uniqueness (a unique value contribution/competitive advantage) to the overall value creation of the arena's or eco-system's participants, and serve a need better or cheaper than its competitors. Globalization and digitalization, and reduced transaction costs, enable an organization to focus more on its uniqueness (Schwaferts, 2020).
(4) Collective Intelligence	It is natural that individual human beings do not know everything and are limited in their ability to capture and assess the entirety of relevant influencing factors when taking decisions. The collective brainpower available for the organization should therefore be taken advantage of (Petry, 2016; Wagner, 2018; Kappe, 2016). This also applies in terms of the identification of new customer needs. Teams who make use of collective intelligence are able to produce more innovative solutions (Ehmann, 2019), as well as increase diversity which can lead to the discovery of new ideas no one has thought of before (Stadler et al, 2021a).
(5) Leadership Approach (participative)	Considering the above identified challenges and conditions of the digital age and the complex questions that arise in a business context, the competencies, experiences, and opinions of many are needed to assess the situation and take the most promising decision. This can be achieved with a participative leadership approach at eye level (Geschwill and Nieswandt, 2020). Stadler et al (2021b) mention as well that valuable strategic insights are not limited to the leadership team or consultants. Furthermore, participation in the decision-making process does as well positively influence the acceptance of decisions made and the identification of the employees with their organization.
(6) Agility	Agility describes the ability "to constantly move in line with the changes in the system's environment" (Olbert and Prodoehl, 2019; Kollmann, 2020), to react on the dynamic, digital environment (Kollmann, 2020), and "to learn from own experiences and to act future oriented" (Redmann, 2017; Kollmann, 2020). A volatile, uncertain, complex, and ambiguous (VUCA) environment requires an agile handling.
(7) Intrapreneurship	Employees should be motivated to think and act like entrepreneurs themselves and acquire visionary and innovative entrepreneurial thinking (Petry, 2019; Antoncic and Hisrich, 2001; Kollmann, 2020). This should support the discovery of new customer needs and push innovation of products, services, processes, and business models (Kollmann, 2019; Kollmann, 2020). In turn,

Overview of the 20 Digital Leadership Factors and Explanations	
Digital Leadership Factor	Explanation
	this should also positively influence employee-satisfaction and loyalty, since employees get involved and can contribute to the development of their organization (Petry, 2019).
(8) Innovation Culture	A culture which is open and supportive for creative and innovative thinking from inside and outside the organization is crucial. Because of shortened product life spans and an increasing pace of change in customer expectations (Schwaferts, 2020) but as well because of increased transparency, globalization, and the reduction of market entry barriers which lead to more competition, being innovative is an important asset (Petry, 2019).
(9) Cyber Security	Cyber security and resilience are not only a topic for an organization's IT department. Every member of an organization is affected and responsible in daily work life and even in private life. Cyber security issues can lead to severe financial, reputational, and personal consequences. Having therefore not only the appropriate IT measures in place but also offer the necessary training for users is crucial.
(10) Organizational Structures (flat)	Flatter hierarchies with less management levels and a stronger focus on participation enable shorter decision paths and more agile decision making. This allows an organization to react faster on changes in the market and of customer needs. An example are cross-functional teams (Hofert, 2016; Hofert and Thonet, 2019; Hasenbein, 2020).
(11) Mistakes-making Culture (positive)	Making mistakes should be seen as a learning and improving process which should be in favour of creative and innovative power, and not as incompetency and failing. Considering un-predictability and fast changing customer expectations in an organization's environment, one does not know in advance which solution might work. To trying things out, experiment and test, and learn from mistakes is a productive attitude (Geschwill and Nieswandt, 2020; Petry, 2019).
(12) Culture of Trust	Trust is a prerequisite for many of the discussed Digital Leadership factors and according to the VOPA+ Model (Networking, Openness, Agility, Participation, and the plus sign for Trust) the basis for successful leadership (Buhse, 2014; Hasenbein, 2020). It is furthermore the basis for successful negotiations and sustainable business relationships, and for being trusted with high value assets such as data.
(13) Culture of Esteem	Esteem means the wish for appreciation, recognition, and respect, but also the human ability to fulfil this wish (Maslow, 1954; Schreyögg and Koch, 2020). With regards to changing expectations and values of customers and employees, esteem is an important asset, and to value co-workers or business partners and their contributions does positively influence the recipient's motivation, performance, and loyalty.
(14) Meaningfulness of Work	Perceiving a meaning in work tasks or one's work in general does positively influence employee-satisfaction, motivation, and performance. Work should be a meaningful part of life. The division of labour for example can negatively influence the perception of fulfilling meaningful work (Schreyögg and Koch, 2020; Kollmann, 2020; Petry, 2019; Hasenbein, 2020).
(15) Empathy	Empathy is an important ability, not only in the context of social situations and interactions but also with regards to the understanding of customers and the identification of new customer needs (Körner, 1998; Hellert, Müller and Mander, 2019). Furthermore, with regards to the increasing automatization of work tasks, empathy is as a unique human ability which cannot yet be copied by machines.
(16) Flexible Working	Similarly to remote work, also having the possibility to choose start and end time, and the duration of a workday in a self-determined manner should on the one hand side positively influence the performance, and on the other hand side also an advantageous work-life-balance (Creusen, Gall and Hackl, 2017; Covey et al, 1994).
(17) Remote Work	Remote work means work performed outside of the employer's buildings, either mobile or stationary, permanently, or temporarily, or both. Having the possibility to choose the work location in a self-determined manner should on the one hand side positively influence the performance, and on the other hand side also an advantageous work-life-balance (Creusen, Gall and Hackl, 2017; Covey et al, 1994).
(18) Digital Responsibility	Considering the increasing use of digital technologies in work and everyday life situations, it is important to maintain a responsible usage. For example, locking the screen, respecting other people's privacy, a respectful communication and interaction also online, or a professional background and sufficient lighting in online meetings. This is not only to promote one's own reputation also online but also to ensure a positive environment for online interactions with others.
(19) Self-determination	Having the possibility to self-determine and organize work tasks and workdays is considered to have a positive impact on employee-satisfaction, motivation, and performance (Petry, 2019; Hasenbein, 2020). This stands in contrast to external-determination where an external source

Overview of the 20 Digital Leadership Factors and Explanations	
Digital Leadership Factor	Explanation
	does command work tasks and workdays, and which is considered to negatively influence employee-satisfaction, motivation, and performance (Schreyögg and Koch, 2020).
(20) Self-engagement	Intrinsic engagement and motivation for constant learning (and learning from mistakes) and interest in new technologies. But also, with regards to thinking about customer needs, business opportunities, and the initiative to drive change and innovation. Keeping in mind the ongoing automatization of work tasks, staying engaged for new tasks and tasks that require human abilities is crucial.

As indicated above, the 20 factors offer now the guidance for the reader to go into greater detail with factor-specific literature, and its respective leadership theories and models, depending on the individual needs and requirements, but by supporting the view for the greater context.

5. Conclusion

Based on identified challenges and conditions of the digital age faced by organizations, and based on the existing Digital Leadership literature, the authors have proposed a holistic definition of Digital Leadership. Based on this definition the big picture of Digital Leadership has been drawn with the four main Digital Leadership areas (1) Strategic Position Leadership, (2) Organizational Leadership, (3) Employee Leadership, and (4) Self-Leadership. The main unique contribution of this paper is the elaboration, based on qualitative expert interviews, of 20 factors relevant for the deeper understanding of (the four main areas and the big picture of) Digital Leadership and its implementation in organizations that need to deal with the challenges and conditions of the digital age.

Further research is suggested in terms of the further and more detailed elaboration of the introduced 20 Digital Leadership factors and possible indicators which enable the measurement of the respective factors to support their implementation and monitoring. In the authors opinion, it should be the goal to develop even industry or department specific indicators for organizations to address individual needs and be able to offer tailor made guidance. With this, the basis can be created for comprehensive Digital Leadership assessments and improvement suggestions at various organizational levels and in organizations of all kinds and branches to support organizations as individually as possible in staying competitive.

References

Antoncic, B. and Hisrich, R. (2001) "Intrapreneurship: Construct Refinement and Cross-Cultural Validation", *Journal of Business Venturing*, Vol 16, No. 5, pp 495-527.

Bennett, N. and Lemoine, G. J. (2014) "What a Difference a Word makes: Understanding Threats to Perform in a VUCA World", *Business Horizons*, Vol 57, No. 3, pp 311-317.

Brynjolfsson, E. and McAfee, A. (2014) "The Second Machine Age: An Industrial Revolution Powered by Digital Technologies", *Digital Transformation Review*, Vol 5, pp 12-17.

Buhse, W. (2014) *Management bei Internet: Neue Führungsmodelle für Unternehmen in Zeiten der digitalen Transformation,* Börsenmedien, Kulmbach.

Corsaro, D. and D'Amico, V. (2022) "How the Digital Transformation from COVID-19 Affected the Relational Approaches in B2B", *Journal of Business & Industrial Marketing*, Vol ahead-of-print, No. ahead-of-print.

Covey, S., Merrill, A., Roger, M. and Rebecca, R. (1994) *First Things First,* Simon & Schuster, New York.

Creusen, U., Gall, B. and Hackl, O. (2017) *Digital Leadership – Führung in Zeiten des digitalen Wandels,* Springer Gabler, Wiesbaden.

Ehmann, B. (2019) *Quick Guide Agile Methoden für Personaler – So gelingt der Wandel in die agile Unternehmenskultur,* Springer Gabler, Wiesbaden.

Geschwill, R. and Nieswandt, M. (2020) *Laterales Management – Das Erfolgsprinzip für Unternehmen im digitalen Zeitalter (2. Auflage),* Springer, Wiesbaden.

Hasenbein, M. (2020) *Der Mensch im Fokus der digitalen Arbeitswelt – Wirtschaftspsychologische Perspektiven und Anwendungsfelder,* Springer-Verlag GmbH, Berlin.

Hellert, U., Müller, F. and Mander, R. (2019) *Zeitkompetenz, Vertrauen und Prozessfeedback im Virtual Work Resource Model,* in Hermeier, B., Heupel, T. and Fichtner-Rosada, S. (Eds.) Arbeitswelten der Zukunft – Wie die Digitalisierung unsere Arbeitsplätze und Arbeitsweisen verändert (pp 145-161), Springer Gabler, Wiesbaden.

Hoffmann, J., Piele, A. and Piele, C. (2019) *New Work: Best Practices und Zukunftsmodelle, Arbeitsbericht,* Fraunhofer-Institut für Arbeitswirtschaft und Organisation, Stuttgart.

Hofert, S. (2016) *Agiler Führen – Einfache Massnahmen für bessere Teamarbeit, mehr Leistung und Kreativität,* Springer Gabler, Wiesbaden.

Hofert, S. and Thonet, C. (2019) *Der agile Kulturwandel. 33 Lösungen für Veränderungen in Organisationen,* Springer Gabler, Wiesbaden.

Kappe, D. (2016) *High Performance Leader – Dauerhaft erfolgreich auf der Top-Ebene: Wirksame Selbst- und Unternehmenssteuerung,* Springer Gabler, Wiesbaden.

Kauffeld, S. (2019) *Arbeits-, Organisations- und Personalpsychologie für Bachelor (3. Auflage),* Springer-Verlag GmbH, Berlin.

Kollmann, T. (2019) *E-Entrepreneurship: Grundlagen der Unternehmensgründung in der Digitalen Wirtschaft (7. Auflage),* Springer Gabler, Wiesbaden.

Kollmann, T. (2020) *Digital Leadership – Grundlagen der Unternehmensführung in der Digitalen Wirtschaft,* Springer Gabler, Wiesbaden.

Körner, J. (1998) "Einfühlung: Über Empathie", *Forum Psychoanal*, Vol 14, pp 1-17.

Li, X., Voorneveld, M., and de Koster, R. (2022) "Business Transformation in an Age of Turbulence – Lessons Learned from COVID-19", *Technological Forecasting & Social Change*, Vol 176.

Luhmann, N. (1984) *Soziale Systeme – Grundriss einer allgemeinen Theorie,* Surhkamp, Frankfurt.

Mack, O. J., Khare, A., Krämer, A. and Burgartz, T. (2016) *Managing in a VUCA World,* Springer, Berlin.

Maslow, A. (1954) *Motivation and Personality,* Harper, New York.

Olbert, S. and Prodoehl, H. G. (2019) *10 Thesen zum Agilitäts-Management in Organisationen,* in Olbert, S. and Prodoehl, H. G. (Eds.) *Überlebenselexier Agilität – Wie Agilitäts-Management die Wettbewerbsfähigkeit von Unternehmen sichert* (pp 1-10), Springer Gabler, Wiesbaden.

Petry, T. (2019) *Digital Leadership – Erfolgreiches Führen in Zeiten der Digital Economy (2. Auflage),* Haufe-Lexware GmbH & Co. KG, Freiburg.

Redmann, B. (2017) *Agiles Arbeiten im Unternehmen – Rechtliche Rahmenbedingungen und gesetzliche Anforderungen,* Haufe, Freiburg.

Schaffnit, M. (2020) *Digital Ecosystems,* in Gatziu Grivas, S. (Ed.) *Digital Business Development – Die Auswirkungen der Digitalisierung auf Geschäftsmodelle und Märkte* (pp 53-71), Springer Gabler, Berlin.

Schermuly, C. C. (2016) *New Work – Gute Arbeit gestalten,* Haufe, Freiburg.

Schreyögg, G. and Koch, J. (2020) *Management – Grundlagen der Unternehmensführung (8. Auflage),* Springer Gabler, Wiesbaden.

Schwaferts, D. and Baldi, S. (2018) *Digital Transformation Management and Digital Business Development,* in Dornberger, R. (Ed.) *Business Information Systems and Technology 4.0 – New Trends in the Age of Digital Change* (pp 147-159), Springer International Publishing AG, Cham.

Schwaferts, D. (2020) *Digital Business Development – Die Agilität des digitalen Zeitalters managen,* in Gatziu Grivas, S. (Ed.) *Digital Business Development – Die Auswirkungen der Digitalisierung auf Geschäftsmodelle und Märkte* (pp 5-25), Springer Gabler, Berlin.

Stadler, C., Hautz, J., Matzler, K. and Friedrich von den Eichen, S. (2021a) *Open Strategy – Mastering Disruption from Outside the C-Suite*, MIT Press, Cambridge,

Stadler, C., Hautz, J., Matzler, K. and Friedrich von den Eichen, S. (2021b) "Open Up Your Strategy", *MIT Sloan Management Review*.

Stalmachova, K., Chinoracky, R., and Strenitzerova, M. (2022) "Changes in Business Models Caused by Digital Transformation and the COVID-19 Pandemic and Possibilities of their Measurement – Case Study", *Sustainability*, Vol 14, No. 1, pp 1-27.

Thönnessen, F. (2020) *Start-ups und Unternehmen zu Zeiten der digitalen Disruption,* in Gatziu Grivas, S. (Ed.) *Digital Business Development – Die Auswirkungen der Digitalisierung auf Geschäftsmodelle und Märkte* (pp 27-52), Springer Gabler, Berlin.

Um, S., Yoo, Y. and Wattal, S. (2015) "The Evolution of Digital Ecosystems: A Case of WordPress from 2004 to 2014", Paper presented at the 2015 International Conference of Information Systems ICIS. N. p.

Van der Kleij, R. and Leukfeldt, R. (2020) *Cyber Resilient Behavior: Integrating Human Behavioral Models and Resilience Engineering Capabilities into Cyber Security*, in Ahram, T. and Karwowski, W. (Eds.) *Advances in Human Factors in Cybersecurity* (pp. 16-27), Springer Nature, Cham.

Wagner, D. J. (2018) *Digital Leadership – Kompetenzen, Führungsverhalten, Umsetzungsempfehlungen,* Springer Gabler, Wiesbaden.

World Economic Forum (WEF) (2020) "These are the Top 10 Job Skills of Tomorrow – And How Long it Takes to Learn Them", [online], Geneva, Switzerland. https://www.weforum.org/agenda/2020/10/top-10-work-skills-of-tomorrow-how-long-it-takes-to-learn-them/.