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INSPIRING DIGITAL TRANSFORMATION: AN INTEGRATIVE LEADERSHIP COMPETENCY FRAMEWORK

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Abstract

Leadership inspires digital transformation. Values, skills, and behaviors of leaders are key in driving and leading organizational development processes. The aim of this study was to examine the existing scientific research and develop an integrative framework focused specifically on leadership competencies for digital transformation. For this purpose, a systematic literature review based on Web of Science and Scopus databases has been conducted. In order to analyze and synthesize the qualitative data, the method of content analysis was used. The identified leadership dimensions (competencies) are: why (vision, innovation, flexibility); what (understanding digital technologies, empowerment, collaboration); and how (multiple intelligences, experimentation, continuous learning). The resulting competency framework can be used in the field of business management by leadership and organizational development specialists, educators, as well as current and aspiring leaders of digital transformation. By implementing a proposed future research agenda, the presented results can be further validated, compared and contextualized.

Keywords: digital transformation, leadership competencies, leadership, competency framework, organizational development

1. INTRODUCTION

Digital transformation starts with the vision of leaders inspiring the employees on the digital transformation journey. To digitally reimagine the business, leaders have to be able to create a culture of change and innovation (Kane

et al., 2015). By empowering employees, especially through autonomy and development support (Frick et al., 2021), leadership enables implementation of digital transformation processes as part of the overall organizational development. Through innovative combinations of information, computing, communication, and connectivity technologies (Vial, 2019), digital transformation is aiming to substantially improve an organization and add values to its stakeholders (Gong & Ribiere, 2021). Besides the application of digital technologies in designing disruptive business models, digital transformation also refers to demonstrating new ways of leadership and management (Spremić, 2017). It impacts individuals, businesses, and society as a whole (Gimpel & Röglinger, 2015).

In the environment of rapid changes and increased need for creativity (Jerman et al., 2020), there is a need for continuous assessment and development of leadership competencies. Leadership is an interdisciplinary topic derived from various fields including philosophy, psychology, sociology, anthropology, ethics, education, and organizational behavior (Sowcik & Allen, 2013). It could be defined as one or more people who selects, empowers, and influences one or more followers, causing the followers to willingly and enthusiastically invest their time and energy to fulfil the organizational vision and mission (Winston & Patterson, 2006). Competencies required to demonstrate leadership have been defined with terms describing values, beliefs, knowledge, skills, personal traits and behaviors (Jokinen, 2005). Researchers have developed a range of leadership competency models for specific occupations, companies, and domains of practice (Kragt & Day, 2020). The raised awareness of the importance of leadership competencies shifted the focus from the technical knowledge and skills needed for specific job positions to intrapersonal and interpersonal intelligences of employees (Bolden & Gosling, 2006). The purpose of establishing leadership competency framework is to serve as a roadmap to make leaders and others in their organizations effective (Gigliotti, 2019; Hollenbeck, McCall Jr & Silzer, 2006). Organizational development specialists are looking for research-based principles and procedures to enhance the individual and group work performance, and competency frameworks support leadership assessment, selection and development processes (Horey & Fallesen, 2003).

An initial literature review revealed that there are no systematic literature review papers available in Web of Science and Scopus databases, focused specifically on leadership competencies for digital transformation in organizations. In addition, the majority of existing literature has included leadership only as one of many competencies or factors related to digital transformation, with no descriptions of competencies provided. Therefore, this research gap indicated the need to conduct a systematic literature review of scientific articles to provide a simple and easy to understand conceptual framework based on the identified leadership dimensions and competencies in the context of digital transformation.

The research questions (RQ) in this paper are derived from the abovementioned considerations, as follows. RQ1 What is the state, progress and type of research on leadership competencies for digital transformation? RQ2 What

are the identified leadership dimensions and competencies for digital transformation? The aim of this paper was the development of an integrative leadership competency framework, which can support organizations in driving and leading digital transformation processes.

This paper is structured as follows. After the introduction, Section 2 describes methodology adopted for this research. In Section 3, the results are presented, followed by a discussion which includes theoretical and practical implications of the study, as well as limitations and further research recommendations. Finally, the conclusion highlights the research contributions.

2. METHODS

For the purpose of this study, a systematic literature review was selected as a research approach. Compared to other methods of literature analysis, a systematic review offers a greater reliability of the findings related to specific research questions (Satalkina & Steiner, 2020). According to Liberati et al. (2009, p. 3), the key characteristics of a systematic review are: (a) a clearly stated set of objectives with an explicit, reproducible methodology; (b) a systematic search that attempts to identify all studies that would meet the eligibility criteria; (c) an assessment of the validity of the findings; and (d) systematic presentation and synthesis of the characteristics and findings of the included studies. This method can be applied in business and social science research in the field of digital transformation (Almasri et al., 2021).

The research consisted of two steps: (1) systematic literature review protocol definition and the article selection process using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) method; and (2) qualitative analysis and synthesis of the reviewed articles using the content analysis method. Content analysis provides a replicable methodology applicable to a broad range of organizational development fields (Duriau, Reger, & Pfarrer, 2007). A bibliometric analysis gave answers to RQ1, while the answers to RQ2 are based on the qualitative outcomes from the detailed content analysis of the articles reviewed. The research results formed a basis for the development of an integrative leadership competency framework for digital transformation.

For the first step of this research, a systematic literature review research protocol was designed and is presented in Table 1. The search was conducted on October 27, 2021. The peer-reviewed journal articles and conference papers (hereinafter referred to as "articles") were browsed in two digital databases: Web of Science Core Collection (WoS) and Scopus. Searched terms were "digital transformation" and "leadership competencies" contained in title, abstract and/or keywords. The search was neither restricted to a specific time limit nor topic. In addition, all research areas were included due to interdisciplinary characteristics of both digital transformation and leadership competencies.

Table 1

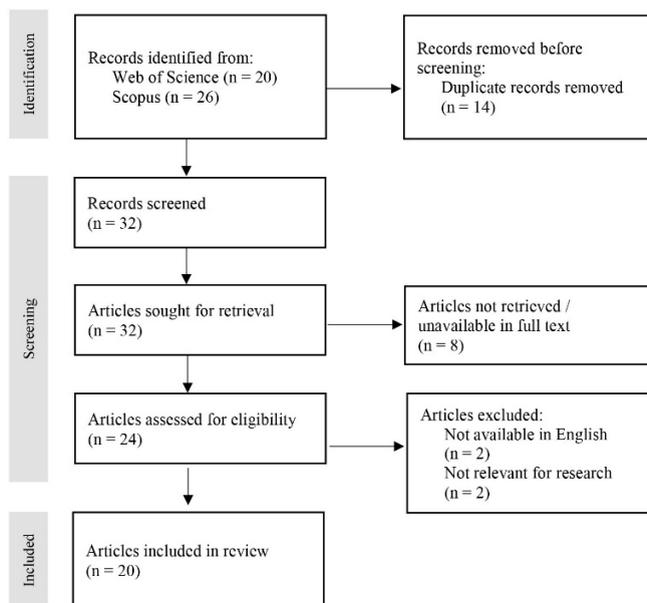
Systematic Literature Review Research Protocol

Protocol element	Translation into research
Digital sources	Web of Science Core Collection and Scopus.
Searched term	Digital transformation AND leadership competencies.
Search strategy	No publication date limit; no topic limit; search terms contained in title, abstract and/or keywords; journal articles and conference papers only.
Inclusion criteria	Keywords digital transformation AND leadership competencies; all research areas.
Exclusion criteria	Journal articles and conference papers without full access and not relevant for the research.

Note: Table structure adapted from Ivančić, Vugec, and Vukšić 2019

Source: Author’s work

The initial search resulted with 46 articles found (20 in WoS and 26 in Scopus). After excluding the duplicate articles, 32 articles remained. These articles were sought for retrieval through Web and Google Scholar, and 24 were available in full text. After the screening of the abstracts and research results, 4 articles were excluded (2 articles were not available in English, and 2 articles were not relevant for this study as their research on data-driven organizations and capacity building framework for e-Government has not included considerations and findings related to leadership competencies). The article selection process using PRISMA flow diagram is presented in Figure 1.



Note: Flow diagram structure adapted from Page et al. 2021

Figure 1 PRISMA Flow Diagram of the Article Selection Process

Source: Author’s work

As a final result of the selection process, 20 articles (9 articles indexed in both WoS and Scopus, 2 only in WoS, 9 only in Scopus) were included in the systematic literature review in this study.

In the second step of the research, the selected articles were further analyzed based on the full text reading and coded by using the program MS Excel. The quantitative results were used to answer RQ1, while the results of the qualitative analysis provided the answers to RQ2.

3. RESULTS

3.1. State, Progress and Type of Research on Leadership Competencies for Digital Transformation

A bibliometric analysis presented in this section responds to RQ1. Figure 2 presents a publishing frequency by the article type. A total of 13 out of 20 reviewed articles were published in 2020 and 2021, among which 7 journal articles and 6 conference papers. In 2021 a total of 6 journal articles were published, while in the previous years there was one or zero journal articles. The rest of only 7 articles (3 journal articles and 4 conference papers) were published in the period from 2014 to 2019.

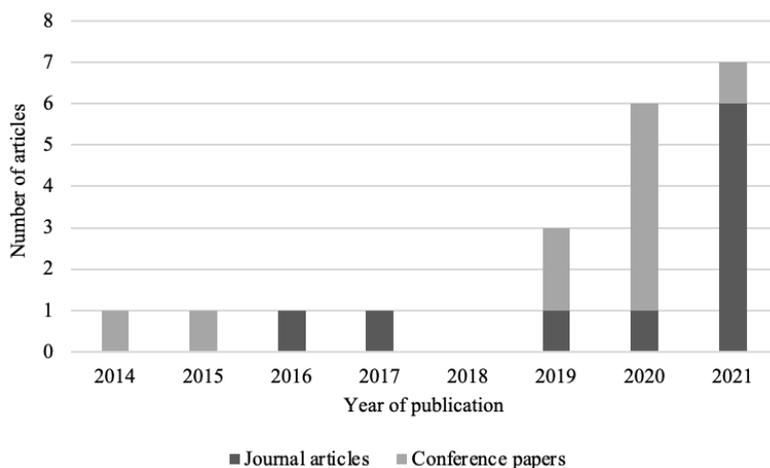


Figure 2 The State and Progress of Research by Publication Year and Article Type

Source: Author's work

The reviewed articles were additionally analyzed with respect to 1) research fields, and 2) methods (type and instrument). The characteristics of the reviewed articles are presented in Table 2.

Table 2

Characteristics of Reviewed Articles

Authors (year)	Research field	Method	Instrument
Philip and Gavrilova Aguilar (2021)	Social Sciences	Mixed	Survey, text analysis
Tungpantong, Nilsook and Wannapiroon (2021)	Computer Science, Social Sciences, Decision Sciences	Qualitative	Literature review
Semenova, Zelenyuk and Savinov (2021)	Education, Educational Research	Qualitative	Observations
Almalki et al. (2020)	Medicine	Mixed	Survey, focus groups
Trenerry et al. (2021)	Psychology	Qualitative	Literature review
Jardim (2021)	Computer Science, Social Sciences, Psychology, Health Professions	Qualitative	Focus group
Imran et al. (2021)	Business, Management and Accounting	Qualitative	Interviews
Noonpakdee et al. (2020)	Engineering, Decision Sciences	Qualitative	Interviews
Solberg, Traavik and Wong (2020)	Business, Management and Accounting	Qualitative	Literature review
Abbu et al. (2020)	Computer Science, Engineering, Medicine, Decision Sciences, Environmental Science	Quantitative	Survey
Hagerer et al. (2020)	Computer Science, Engineering, Social Sciences	Qualitative	Learning game
Imran et al. (2020)	Computer Science, Engineering	Qualitative	Interviews
Vasilieva (2020)	Computer Science	Quantitative	Survey
Christoffels (2019)	Social Sciences	Quantitative	n/a
El Attoti et al. (2019)	Social Sciences	Qualitative	Interviews
Holth and Boe (2019)	Psychology	Mixed	Interviews, survey
Kennedy and Moen (2017)	Engineering, Medicine, Health Professions	Qualitative	Literature review
Remus (2016)	Medicine	Qualitative	Literature review
Valentine and Stewart (2015)	Engineering	Mixed	Survey
Valentine, Stewart and Shiang-Yen (2014)	Computer Science	Mixed	Survey

Note: n/a – information not available

Source: Author's work

The most represented fields related to research of leadership competencies for digital transformation are computer science, engineering, and social sciences (with 6 articles associated with each of these three fields). This analysis indicated the significant lack of research in the field of business management and education (only 2 and one article associated, respectively).

The qualitative method (interviews, focus groups, observations, learning game, text analysis, literature review) was used in the majority of the reviewed articles (12 articles or 60 percent). Only 3 articles or 15 percent used the quantitative method (surveys), while 5 articles or 25 percent applied the mixed research methods. Out of 20 reviewed articles, 5 articles are literature reviews; however, not one of them is a systematic literature review. There are two literature reviews articles related to nursing,

two reviews related to employees' workplaces and beliefs, and only one article related to higher education institutions (where leadership is considered only as one of digital transformation factors for information systems success).

3.2. The Identified Leadership Dimensions and Competencies

In this section, the summarized results of the systematic literature review are presented, responding to RQ2. Table 3 shows leadership competencies for digital transformation identified in the reviewed articles. Out of 20 articles, only 8 of them have leadership competencies in the study focus, while others consider leadership only as one of many competencies or factors required for digital transformation.

Table 3

Leadership Competencies Identified in Reviewed Articles

Authors (year)	Identified leadership competencies
Philip and Gavrilova Aguilar (2021) ^a	Understanding technology, decisiveness, flexibility, collaboration, transformative vision.
Tungpantong, Nilsook and Wannapiroon (2021)	Vision, collaboration, management skills, adaptability, creativity/innovation, digital literacy.
Semenova, Zelenyuk and Savinov (2021) ^a	Influence, motivation, organization and decision making, interdisciplinary knowledge, flexibility.
Almalki et al. (2020)	Communication, motivation, creativity, feedback, responsibility, strategic thinking, teamwork, relationship management.
Trenerry et al. (2021)	Vision and personal recognition, motivation, relationship management, experimentation, responsiveness.
Jardim (2021)	Value creation, vision, influence, creativity, innovation, empowerment.
Imran et al. (2021)	Adaptability, data-driven decision-making, understanding new digital technologies, empowerment, failing fast/learning fast, experimentation/risk-taking, vision.
Noonpakdee et al. (2020)	Cross-dimensional vision, relationship building, diplomacy, HR management, communication, policy and organization.
Solberg, Traavik and Wong (2020)	Self-awareness, assessment of employees' current and potential capabilities, empowerment.
Abbu et al. (2020)	Failing fast, digital technology expertise, data-driven decision making, entrepreneurial mindset, communication, collaboration, innovation.
Hagerer et al. (2020)	Creative self-efficacy, communication, empowerment, envisioning.
Imran et al. (2020) ^a	Digital vision, digital knowledge, failing fast, empowerment, managing diverse teams.
Vasilieva (2020)	Emotional intelligence, creativity, communication, relationship building, flexibility, tolerance for differences.
Christoffels (2019) ^a	Vision, understanding technology.
El Attoti et al. (2019) ^a	Collaboration, self-direction, lifelong learning, flexibility.
Holth and Boe (2019)	Change management, motivation, empowerment, continuous learning.
Kennedy and Moen (2017) ^a	Understanding information technology, communication, collaboration, facilitating/enabling development of workforce, change management.
Remus (2016)	Openness, integrity, empathy, vision, inspiration/motivation, innovation, risk-taking, empowerment.
Valentine and Stewart (2015) ^a	Technology-enabled strategy and planning, investment and risk management, technology-enabled innovation and value creation.
Valentine, Stewart and Shiang-Yen (2014) ^a	Technology-enabled strategy and planning, investment and risk management, technology-enabled innovation and value creation.

Note: ^a The articles having leadership competencies for digital transformation in the study focus

Source: Author's work

The content analysis started with the identification and definition of leadership dimensions. The definition of competencies provided in the Introduction section of this study served as a basis for defining the dimensions. The simple names of the dimensions *why*, *what*, and *how* are given in order to provide an easy to remember and understand framework. This is especially relevant due to many possible practical applications of this leadership competency framework, as it would also enable scholars, and current and aspiring leaders to use it for their self-assessment and leadership development purposes. Table 4 provides definitions of leadership dimensions tailored to the purpose of this study, and includes information on number of leadership competencies and articles associated with each of the three dimensions. The almost equal representation of all three dimensions in the majority of the reviewed articles indicates the relevance of the identified leadership dimensions.

Table 4

Leadership Dimensions in the Context of Digital Transformation

Leadership dimension	Definition	No. of competencies	No. of articles
Why	Values and beliefs answering why leadership drives and leads digital transformation.	8	17
What	Knowledge and skills answering what is needed to implement digital transformation processes.	16	18
How	Personal traits and behaviors answering how digital transformation could be approached and led.	27	18

Source: Author's work

As a result of detailed content analysis, about 51 competencies were initially extracted from the reviewed articles (Table 3). These competencies were then grouped according to the three leadership dimensions which served as codes. Each competency was assigned to one of the three dimensions. All competencies were analyzed and sorted by their relevance evaluated by their frequency of inclusion in the reviewed articles. After iterative reviews and grouping of competencies with similar meaning and/or impact on individual and/or organizational level, for each of the three dimensions three the most relevant competencies were identified, resulting in total with 9 leadership competencies for digital transformation. These competencies are described in the text below.

Vision is recognized in the existing scientific research as one of the most important leadership values needed for digital transformation. It is strongly emphasized in inspirational leadership, where the leader communicates an appealing vision (Jardim, 2021), gains commitment and inspires followers with a vision that is a shared vision (Remus, 2016). In several reviewed articles, the vision as a competency in the context of digital transformation is described more specifically as a transformative (Philip & Gavrilova Aguilar, 2021), cross-dimensional (Noonpakdee et al., 2020), or digital (Imran et al., 2020).

Transformative leadership includes a vision of developing the potential of others and reaching higher levels of organizational development (Remus, 2016). According to the views presented in the study by Philip and Gavrilova Aguilar (2021), it is related to the forward-looking approach regarding market and trends. As digital transformation affects multiple levels of the organization, it should be cross-dimensional to encourage all employees' efforts. Digital vision of leaders looks beyond existing strategies and envisions the digital future of their organizations, and is the first step towards digital transformation (Imran et al., 2020).

Leader's belief that *innovation* is essential for organizational development, together with a shared vision, is what drives digital transformation the most. The success of organizations in the digital environment increasingly depends on their ability to innovate through ensuring an encouraging organizational environment, as well as availability of relevant human, financial, creative and other resources (Stojcic, Hashi & Orlic, 2018). Digital transformation of organizations enhances the creativity, and co-generation of ideas and knowledge that drives innovation processes facilitated by leaders (Cortellazzo, Bruni & Zampieri, 2019). A strong focus on innovation in digital leadership requires a mindset shift, toward promoting innovation at all levels of the organization (Abbu et al., 2020).

Organizational culture that values *flexibility*, as well as adaptability, is essential in effectively leading an organization through the fast changes associated with digital transformation. Leaders should be flexible and adaptable in their opinions and behaviors to adapt to the need for the constant innovation (Philip & Gavrilova Aguilar, 2021; Tungpantong, Nilsook & Wannapiroon, 2021). Digitalization processes rapidly change the labor market and the requirements of employers towards the greater flexibility of employees (Semenova, Zelenyuk & Savinov, 2021) at multiple levels and disciplines. According to Imran et al. (2021), leadership ensures the agility of the organization through adaptability and flexibility; this competency is related to the ability to continuously transform the organizational activities and approaches based on the changing environment and situations.

Raising awareness on the importance and impact of digital transformation on organizational culture, performance and development is one of the key roles of leadership. To perform that role, it is necessary for leaders to *understand digital technologies*. In the literature, this competency is also referred to as digital literacy, knowledge, and/or expertise. However, the research has revealed that the leaders of digital transformation do not have to be experts in digital technologies. A basic technical knowledge and skills are sufficient, as it is more important for leaders to understand how these new technologies can influence structures, processes and operations of their organizations (Imran et al., 2020). What makes leadership effective in implementing digital transformation is not so related to technical knowledge and skills but rather to understanding the impact of digital technologies' role in the organizational development (Philip & Gavrilova Aguilar, 2021).

A leader skilled at *empowerment* takes into consideration the employees' development needs and plans, provides them with feedback, delegates

responsibilities (Jardim, 2021), acts as a coach and mentor, fosters participation in decision making, and encourages them during all phases of digital transformation. When assessing their employees' current and potential capabilities for adoption of digital technologies, empowering leaders do not focus only on their current jobs but rather consider how an employee may be reskilled or upskilled to engage in other possible roles within the organization (Solberg, Traavik & Wong, 2020). Leadership that is committed to continuous empowerment of employees enhances the meaningfulness of work for employees (Hagerer et al., 2020), thereby creating an encouraging work environment.

Collaboration is at the heart of driving and leading various aspects of digital transformation at multiple levels of the organization. Leaders are collaborating across industries and countries, learning best practices from leading firms, and improving their digital strategies accordingly (Philip & Gavrilova Aguilar, 2021). Leaders of digitally mature companies collaborate with different stakeholders to achieve the level of integration needed for the implementation of digital transformation (Abbu et al., 2020). Digital technologies offer the new opportunities to collaborate in hybrid teams (Kennedy & Moen, 2017), and to collaborate in new ways.

For the purpose of synthesizing the research results in this study, the identified 15 competencies related to personal traits and behaviors of leadership are grouped into the competency *multiple intelligences*. The theory of multiple intelligences was first proposed by Gardner (1983), who conceptualize intelligence as a human potential to solve problems or create products that are valuable in a certain culture (Gardner, 2000, 2011). In the context of digital transformation and leadership in general (Goleman, 2014), the intelligences recognized as the most relevant are social (interpersonal) and emotional (intrapersonal). Social intelligence is related to social awareness, including empathy, and the ability to successfully build and manage relationships in different social environments (Goleman, 2007). The most of the identified competencies in this research could be considered as social intelligence, and include, among others, communication, motivation, inspiration, influence, and teamwork. The identified emotional intelligence competencies are related to self-awareness and self-management, and are considered to be key in translating the human potential into the work performance (Goleman, 2006). Managing diverse teams as the identified competency could be associated with cultural intelligence, which is the capability to function effectively in intercultural contexts (Ang, Van Dyne & Rockstuhl, 2015) when individuals can integrate themselves quickly in new cultures, teams, and joint ventures (Earley & Ang, 2003). This competency of cultural intelligence has become especially important for organizations operating in the global and digital economy.

The competency of *experimentation* is a behavior related to experimental learning, risk taking, and agile strategies aimed at quick response and adjustment to failures in the digital transformation processes (Imran et al., 2020). In order to be able to take new risks in the digital environment, employees must trust leaders at all levels of the organization (Abbu et al., 2020). Leader behaviors that

encourage experimentation and taking risks in implementing solutions contribute to more effective digital transformation (Remus, 2016; Trenerry et al., 2021).

Continuous learning is associated with the most of other identified competencies, in relation to both leadership and organizational development. Digital transformation offers possibilities for the use of new technologies in order to facilitate learning and provide employees with diverse learning systems and tools (Holth & Boe, 2019). To enhance the effectiveness of digital transformation and empower employees in these processes, leadership should be committed to development of required competencies. Leading by example is both personal trait and behavior that could create a culture of continuous learning.

Based on the research results, an integrative leadership competency framework for digital transformation was developed (Figure 3).

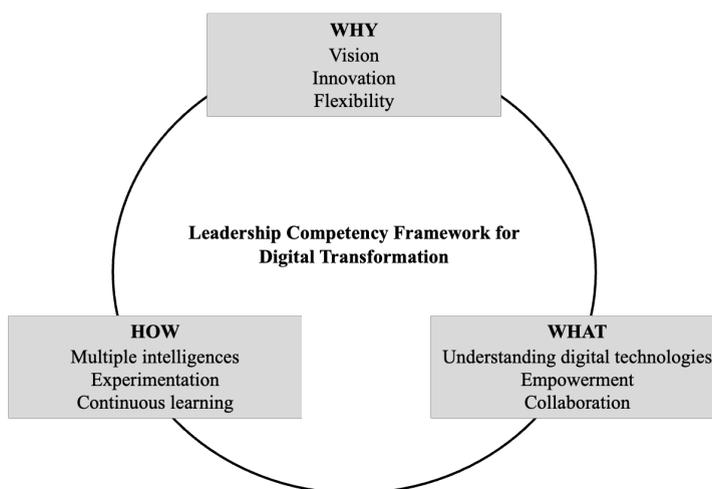


Figure 3 Integrative Leadership Competency Framework for Digital Transformation

Source: Author's work

4. DISCUSSION

The results of this study revealed the growing consideration of leadership competencies and their specifics in the context of digital transformation. The bibliometric analysis responding to the RQ1 indicates that the topic of leadership competencies for digital transformation just recently gained the interest of researchers and scientific community. The majority of the reviewed articles were published in 2020 and 2021, and in 2021 the number of journal articles was for the first time larger than one and surpassed the number of conference papers (see Figure 2). The various research fields associated with the reviewed articles confirm

the interdisciplinary nature of both leadership and digital transformation. As Table 2 shows, there is a significant lack of research in the field of business management, which could be explained by the initial perception of both the business and scientific community that digital transformation is predominately a technology-related phenomenon. In addition, in the current reviewed literature not one of the articles is a systematic literature review paper, which additionally supports the author's selection of the systematic review as the research approach for the purpose of this study.

The systematic literature review resulted with the identified leadership dimensions and competencies responding to the RQ2. The three most frequent competencies identified in the literature and included into the developed integrative leadership competency framework (see Figure 2) are multiple intelligences (dimension *how*), vision, and innovation (dimension *why*). These findings are aligned with conclusions of the study on digital organizational culture where values and beliefs are considered to be one of the most important parts of digital transformation, as even the most advanced strategy may fail if the organization's values do not embrace the required changes (Duerr et al., 2018). Additionally, these findings confirm the assumption of other studies focused on this field (Imran et al., 2020; Kennedy & Moen, 2017; Philip & Gavrilova Aguilar, 2021) that it is sufficient for leaders to have a basic knowledge and skills related to digital technologies (dimension *what*). In other words, leaders do not have to be technical experts but rather they should understand the impact of digital technologies on the organizational culture, performance and development. Their values and behaviors are proven to be more important.

The developed integrative leadership competency framework for digital transformation has certain similarities with global leadership competency models (Goldsmith et al., 2003; Kim & McLean, 2015; Terrell & Rosenbusch, 2013), indicating an interconnection between the global and digital economy. These similarities are related to the competencies of cultural intelligence and understanding digital technologies. Compared with results of other studies which provided general leadership competency frameworks (Coetzee, Visagie & Ukpere, 2013; Ruben, 2019), this study offers more synthesized and specific results with fewer number of identified dimensions and competencies. This is aligned with the author's intention to provide an easy to understand and remember framework to increase the possibilities for its practical application. Unique leadership competencies identified in the field of digital transformation are flexibility, experimentation, and understanding digital technologies. The finding is not surprising, taking into consideration the importance of these values, behaviors and knowledge in the constantly changing environment connected to digital transformation.

The results of this study extend the existing research in the fields of digital transformation and leadership theory. The study introduces definitions of leadership dimensions in the context of digital transformation. The simplicity and alignment of these dimensions with a common understanding and definitions of

competencies, allow their further use and refinement by other researchers. In addition, the proposed leadership dimensions could be adapted to develop integrative competency frameworks in other fields relevant for leadership, and for specific industries, organizations or job positions. Furthermore, the most of the reviewed articles have included leadership only as one of many factors required for digital transformation, with no descriptions of competencies, while this study provided explanations of all identified leadership competencies from an organizational development point of view. Lastly, this study has contributed to the research of leadership competencies for digital transformation, by providing an integrative leadership competency framework which can be further validated and contextualized.

This research has several practical implications in business management and education. Leadership and organizational development specialists could use this research-based leadership competency framework in designing and implementing programs related to human resources development, strategy, and partnerships building related to digital transformation. This framework could also be beneficial to educators delivering undergraduate, graduate or lifelong learning programs specialized in leadership and digital transformation. As leadership is essential for the effective implementation of digital transformation, it would be beneficial for educators of digital transformation to include in the curriculum considerations of leadership competencies required. On the other hand, as digital transformation is increasingly changing the business environment, educators of leadership should take into consideration the need of understanding digital technologies and their impact on organizational development. Furthermore, current and aspiring leaders of digital transformation could use the leadership dimensions and competencies explained in this study for the purpose of self-assessment and self-development.

The limitations of this study include the lack of access to eight articles which have been found through the identification phase of the search process. Their inclusion in the conducted analysis and synthesis could have an impact on the results of the performed systematic literature review. As the scientific literature on the topic is still scarce, the relatively low number of the articles reviewed could be considered as not sufficient for generalization of the conclusions.

With regards to future research, the topic of leadership competencies for digital transformation should be further examined in the field of business management to fill the identified research gap. As the lack of empirical research has been noticed, and most of the findings in qualitative analyses were based on conducted interviews with leaders of digital transformation, the recommendation is to conduct surveys of followers to gain insights into their perceptions of the required leadership competencies. In addition, future research could be directed at validating, contrasting or comparing the impact of practical application of the developed competency framework by each of the potential user groups (leadership and organizational development specialists, educators, current and aspiring leaders). Lastly, future research on leadership competencies for digital

transformation focused on specific industries, organizations and job positions could contextualize and refine the integrative competency framework presented in this study.

5. CONCLUSION

Digital transformation is increasingly influencing many aspects of the organizational development. Continuous disruptions and changes at the organizational and societal levels require specific leadership competencies to effectively drive and lead digital transformation processes. This study presents the results of the systematic literature review based on the articles related to leadership competencies for digital transformation from Web of Science and Scopus databases. According to the author's knowledge, this study represents the first systematic literature review paper focused on articles related to this topic from the named two databases. Moreover, no other systematic literature review papers specifically focused on this topic were found in those databases or in other publicly available sources. The future research recommendations are derived from the findings related to the state, progress and type of the research, as well as from the identified leadership dimensions and competencies. The resulting integrative leadership competency framework has impactful practical implications in business management, leadership education and development. As digital transformation is a rather new field, and the awareness of the importance of leadership competencies has recently increased, it can be expected that the research in this field will continue to grow in the future. This study provides numerous possibilities for building a broad research agenda focused on leadership competencies essential for inspiring digital transformation.

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Orcid: <https://orcid.org/0000-0002-2435-4394>**POTICANJE DIGITALNE TRANSFORMACIJE:
INTEGRATIVNI OKVIR KOMPETENCIJA VODSTVA****Sažetak**

Vodstvo potiče digitalnu transformaciju. Vrijednosti, vještine i ponašanja vođa ključni su u pokretanju i vođenju procesa organizacijskog razvoja. Cilj ovoga rada bio je istražiti postojeća znanstvena istraživanja i razviti integrativni okvir posebno usmjeren na kompetencije vodstva za digitalnu transformaciju. U tu svrhu proveden je sustavni pregled literature na temelju baza podataka Web of Science i Scopus. Za analizu i sintezaciju kvalitativnih podataka korištena je metoda analize sadržaja. Identificirane dimenzije (kompetencije) vodstva su: zašto? (vizija, inovativnost, fleksibilnost); što? (razumijevanje digitalnih tehnologija, osnaživanje, suradnja); i kako? (višestruke inteligencije, eksperimentiranje, kontinuirano učenje). Rezultirajućim okvirom kompetencija u području poslovnog upravljanja mogu se koristiti stručnjaci za vodstvo i organizacijski razvoj, edukatori, kao i sadašnji i budući vođe digitalne transformacije. Provedbom predloženih smjernica budućih istraživanja predstavljeni rezultati mogu se dodatno potvrditi, usporediti i kontekstualizirati.

Ključne riječi: digitalna transformacija, kompetencije vodstva, vodstvo, okvir kompetencija, organizacijski razvoj.

JEL klasifikacija: M10, M15, M21, O32.