

Derleme Makale

Digital Leadership as a Requirement for the New Business Ecosystem: A Conceptual Review

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Abstract

Organizations need to move their businesses to the virtual environment to reduce costs, eliminate being physically tied to a place, benefit from a qualified workforce, and respond quickly to expectations. Innovative thoughts, information that can be turned into tangible products, and digital skills are seen as the main factors of production in virtual organizations. Managing all these competencies requires a new understanding of leadership different from traditional organizational structures and management understanding. This new form of leadership, called digital leadership, is of great importance in adapting to the conditions of the digital age. Integrating the skills of the digital age with the digitalizing world necessitates digital leadership. For this reason, it is thought that digital leadership is becoming more and more important in virtual organizational structures. Digital leaders have broad imaginations, advanced intellectual aspects, and high digital competencies. The primary purpose of this study is to focus on the transformative aspect of digital leadership, which is a requirement of virtualization in organizations with the spread of remote working. In addition, it is aimed to contribute to the literature on the concept of digital leadership.

Keywords: Virtual Organization, Digital Leadership, Virtual Teams, Telework, Remote Work, Virtual Work, Digital Leadership Competencies, Digitalization in Organizations.

JEL Classification Codes: L20, M15.

Yeni İş Ekosistemi için Bir Gereklilik Olarak Dijital Liderlik: Kavramsal bir İnceleme

Öz

Örgütler maliyetleri azaltmak, fiziksel olarak bir yere bağlı olmaktan kurtulmak, nitelikli işgücünden yararlanabilmek ve beklentilere hızlı cevap verebilmek için işlerini sanal ortama taşıma gereği duymaktadırlar. Sanal örgütlerde yenilikçi düşünceler, somut ürüne dönüştürülebilir bilgiler ve dijital beceriler üretimin temel faktörleri olarak görülmektedir. Bütün bu yetkinliklerin yönetimi, geleneksel örgütsel yapılar ve yönetim anlayışından farklı yeni bir liderlik anlayışını gerektirmektedir. Dijital liderlik denilen bu yeni liderlik biçimi dijital çağın koşullarına uyum sağlamak bakımından büyük önem taşımaktadır. Dijital çağın becerilerini dijitalleşen dünyayla entegre etmek, dijital liderliği zorunlu kılmaktadır. Bu nedenle sanal örgütsel yapılarda dijital liderliğin her geçen gün daha önemli bir konuma geldiği düşünülmektedir. Dijital liderler hayal gücü geniş, entelektüel yönü gelişmiş, dijital yetkinlikleri yüksek liderler olarak öne çıkmaktadır. Bu çalışmanın temel amacı uzaktan çalışmanın yaygınlaşması ile birlikte örgütlerde sanallaşmanın bir gereği olan dijital liderliğin dönüştürücü yönü üzerinde durmaktır. Ayrıca dijital liderlik kavramına ilişkin literatüre katkı sağlamak amaçlanmaktadır.

Anahtar kelimeler: Sanal Örgüt, Dijital Liderlik, Sanal Takımlar, Tele-Çalışma, Uzaktan Çalışma, Sanal Çalışma, Dijital Liderlik Yetkinlikleri, Örgütlerde Dijitalleşme.

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1. Introduction

Recently, the differentiation of the needs and expectations of the market and the disappearance of time and space boundaries thanks to the Internet have led to the emergence of digital business ecosystems. Virtual organizations come to the fore as the organizational structures of the digital business ecosystem. Virtual organizations are organizational structures where people produce goods and services and create financial resources using digital tools (Kuusisto, 2017; Cortellazzo, Bruni & Zampieri, 2019). Virtual organizations are becoming more common as innovative technologies connect the broader world through cyberspace. Virtual organizations require a new managerial understanding and leadership approach that can keep up with the requirements of the digital world (Neubauer, Tarling & Wade, 2017; Pizło, Parzonko, Mazurkiewicz-Pizło, Parzonko, Jędrzejczyk & Bórawski, 2021).

Technology development in today's organizations affects business and service processes and strategies. In virtual organizations, the importance of processing and effective use of intellectual capital, one of the scarce resources, is increasing. Digital tools, information technology solutions, databases, and algorithms in virtual organizations require collecting, processing, and using virtual data. This situation renders the existing leadership understandings insufficient while paving the way for the change of leadership qualities and the emergence of the concept of digital leadership that is compatible with the current era (Danışmaz, 2019; Çelen, 2020; Serafimova, Andreeva & Banabakova, 2022).

Although there is extensive literature on management understanding and leadership styles, there is a gap in the literature on digital leadership and its necessity. Today, especially with digitalization, the importance of digital leadership as a new "leadership style" in organizations is increasing (Eberl & Drews, 2021; Yıkılmaz & Sürücü, 2021; Malik & Raziq, 2022). Digital leadership makes it necessary to constantly search for research new art applications, follow current developments, and learn continuously (GDS, 2020; De Araujo, Priadana, Paramarta & Sunarsi, 2021). The fact that all these changes and learning requirement demands a new approach as well as leadership style in organizations increases the importance of research on digital leadership.

Recently, especially with the effect of the pandemic, organizations have realized that it is imperative to develop new digital technologies. This situation transforms products, processes, organizational structures, and managerial strategies. In a platform where speed, agility, and adaptability to the digital age are seen as basic skills, digital leadership gains importance as an inevitable leadership quality (Neubauer, Tarling & Wade, 2017; Hensellek, 2020). Digital leaders who have a global perspective and digital literacy, are inclined to work with people from different generations, as well as owning distinctive features such as being open to

innovation and change (Mert, 2021). Digital leaders who are also competent in digital technologies whilst being open to continuous learning, can apply digital technology to business processes, and adapt virtual technology to business processes. The digitalization process is defined as a tool that will carry the organization to the future by being managed by the leader (De Waal, Van Outvorst & Ravesteyn, 2016; Bresciani, Ferraris, Romano & Santoro, 2021). For this reason, the digitalization process in organizations necessitates digital leadership, and digital leadership gains importance as a qualification that will carry the organization to the future.

Although digital leadership has strategic importance for the sustainability of organizations, there is limited research on digital leadership. The purpose of this study is to focus on the critical role of digital leadership in the digital transformation process. In addition, by revealing the importance of digital leadership, it is aimed to create a conceptual framework for digital leadership and make contribution to literature for research on the subject. For this purpose, firstly, the reasons for the emergence of virtual organizations and virtualization in organizations are mentioned, and then the conceptual framework of digital leadership, which is one of the essential dynamics of digital transformation in organizations, is emphasized.

2. Conceptual Framework

2.1. New Business Ecosystem and Features

Recently, there has been a significant change in the organization style of organizations and how they do business in dynamic environmental conditions. Organizations require a new approach to meet the already diversified and personalized customer expectations, causing a significant change in the business ecosystem. Contrary to the traditional understanding, transferring business processes to the digital environment requires a new organizational style and leadership approach (Wang & Bai, 2021; Tutar, 2022). This situation, called digital transformation in the business world, requires the successful management of digital technologies. This requirement also necessitates digital leadership, unlike the existing leadership approaches. This situation demands the redesign of organizational models and works patching styles. In the digital transformation process, the way of doing business, especially the leadership style, has changed and has become more competitive and innovative (Wagner, Heil, Hellweg & Schmidt, 2019; Krasnyuk, Kolgan & Medvedeva, 2021). Digitization is dramatically transforming the way organizations do business. The digital business ecosystem is a socio-technical network of individuals, organizations, and technologies that together create value. The digital business ecosystem promotes open and flexible collaboration (Senyo, Liu & Effah, 2019).

The digital business ecosystem is an interactive business ecosystem organized flexibly and expresses institutional interdependence. The digital business

ecosystem places more emphasis on the centrality of digital technology. This new business ecosystem is the virtual business patching style created by digital assets such as software applications, hardware, and processes (Nachira, Dini & Nicolai, 2007; Senyo, Liu & Effah, 2019). The digital ecosystem works as a system that creates, disseminates, and connects digital services over the internet. On the other hand, the digital business ecosystem is an integrated network of individuals and organizations operating outside traditional industry boundaries. Therefore, the new digital business ecosystem functions as a socio-technical environment of individuals, organizations, and digital technologies with collaborative and competitive relationships to create value through digital platforms (Darking & Whitley, 2007; Herdon, Várallyai, & Péntek, 2012). The digital business ecosystem aims to create value and refers to a distributed computing infrastructure that enables businesses to compete globally.

Digital collaboration systems are established with the idea that the value created together is more significant than that created by a single organization (Adner, 2006). Co-creation includes the efforts and resources of different organizations to create value (Prahalad & Ramaswamy, 2004). Value trumps all financial or non-financial benefits from organizational interactions (Vargo, Maglio & Akaka, 2008). As a result, value can be derived from the appropriate combination of lower costs, faster processes, and high-quality services. In the traditional business environment, organizations are seen as the sole creators of value. However, in contemporary business systems, value creation occurs through organizations' joint efforts, partners, and customers (Chuang & Lin, 2015). Since value creation is based on the synergy between different assets, co-creating value is an essential source of motivation in the operation of digital business systems.

The key feature of digital business systems is a platform, symbiosis, co-evolution, and self-organization. Platform refers to a collection of tools, innovations, and services that partners of other digital business systems can use to improve their performance, innovate and collaborate. The digital business systems platform consists of computer hardware, software, and networks. Symbiosis refers to the interdependence between partners, processes, and technologies of digital business systems. Symbiosis aims to create synergy between assets to create more excellent value (Adner, 2006; Selander, Henfridsson, & Svahn, 2013; Senyo, Liu, & Effah, 2018). Co-evolution refers to the ability of digital business systems to collectively transform from one stage to the next with their partners. When changes occur due to opportunities or threats of digital business systems, key partners react dynamically while other partners adapt. Self-organization increases the ability of digital business systems to learn from their environment and respond accordingly (Moore, 1996; Peltoniemi, 2006; Senyo et al., 2018). Because of the complexities in relationships, digital business systems renew themselves to adapt as new requirements, opportunities and threats arise.

Digital business systems are heterogeneous and geographically dispersed organizations that cooperate over the internet by taking advantage of the blessings of digital technology to achieve common goals. Collaborative networks consist of two main categories of relationships, organized and ad hoc collaborations. Organized collaborations consist of long-term strategic relationship networks. On the other hand, temporary collaborations are short-term, mission-specific alliances that can expire after achieving the intended goals (Camarinha-Matos & Afsarmanesh, 2008; Graça & Camarinha-Matos, 2017; Senyo, Liu & Effah, 2019). While the interest in adapting technological innovations to business processes in the digital transformation adventure has increased, the interest in "human," which is at the center of digital transformation and is an essential factor for its success, has remained at a limited level. The need for effective integration of the human factor into the digital transformation understanding and culture along with the need for organizations to direct human resources toward digitalization goals increases the role and responsibility of digital leadership. In digital transformation, coping with destructive competition and effectively operating complex business systems are essential (McKendrick, 2017; Trushkina, Abazov, Rynkevych & Bakhautdinova, 2020).

2.2. Virtual Organizational Structures in the Digital Age

Digital transformation affects organizational structures, business processes, and strategies and restructures organizational structures. Organizations see digitalization as necessary to benefit from the conveniences brought by digital technologies (Vasilev et al., 2020). Virtual organizations, which enable a significant part of their work to be done with the help of digital technologies, make it possible to work in virtual work environments by moving away from the binding of time and space. Virtual organizations must use digital technologies to connect people, objects, and ideas (Meffert & Swaminathan, 2018). In virtual organizations, all or most of the work is done in digital environments, and employees participate in business processes regardless of time and place. The main factor distinguishing virtual organizations from traditional organizational structures is the widespread use of teleworking applications as a new way of working in such organizations. Telework is a contemporary way of working in digital organizations (Popovici & Popovici, 2020).

Teleworking is a form of work in which employees connected to information technologies communicate with each other instead of physically traveling. In other words, teleworking is a contemporary way of doing business where people can work from anywhere with digital technologies (Contreras, Baykal & Abid, 2020). According to the definition of the International Labor Organization, telework is a form of work in which information and communication technologies such as smartphones, tablets, laptop computers, and desktop computers are used for the work performed outside the physical workplace (ILO, 2020). Telework is referred

to by different names in the literature, such as remote work, e-work, cyber work, and virtual work (Mylytkbayeva, 2017; Kılıç, 2020). Teleworking is a form of work carried out through digital technologies outside the traditional workplace, where employees are not supervised while carrying out their work. Both organizations and employees see teleworking as a contemporary way of working because of its versatile flexibility (Beauregard, Basile, & Canónico, 2019; Kim, Mullins, & Yoon, 2021).

A virtual organization is a new structure that has emerged partially or entirely with digital technologies. Virtual organizations are structured in different places where employees do not gather in a particular place, participate in certain stages of the production of a product or service, and constantly communicate in digital environments. It is an organizational structure based on bringing the work to the employee's feet instead of gathering the employees in a particular physical environment with the philosophy of virtual organization (Ganguly, Joseph, Dutta & Dey, 2022). The basis of the virtual organization is that each participating organization contributes to the virtual organization with its essential ability in the area where it is most potent (Atasever, 2017; Yamamoto, 2022). In this type of structure, which is based on a kind of partnership federation and essential talent association, organizations cooperate for a common purpose and commercialize their existing skills. Virtual organizations unite around a common organizational goal, bringing together their resources and capabilities through technology. For many organizations, the organization is an organizational structure that can reduce costs and eliminate spatial dependence (Arrais-Castro et al., 2018; El Yousfi & Anand, 2021).

The difference between virtual and classical organizational structures is that the organization moves from physical spaces to virtual spaces, and the organizational hierarchy becomes horizontal to a significant extent. The abstract structure of the virtual organization eliminates the subordinate-superior relationship and the hierarchy specific to mechanical structures. Virtual organizations are organized as flexible structures to respond to customer and citizen needs more quickly (Megha, 2022). The intensive use of digital technologies in virtual organizations causes the organizational structure to be simpler and flatter. The disappearance of hierarchy in virtual organizations is the replacement of the middle level by digital technologies (Kanbur, 2008; Tutar, 2013; Çakmak, 2016). The more flexible and horizontal organizational structure can quickly respond to customer needs and expectations thanks to virtual organizations.

Situations such as the uncertainty of working time in virtual organizations and the fact that employees are not physically in the same environment make it challenging to manage such organizations from a classical perspective. Digital competence, trust, communication and cooperation are gaining importance in virtual organizations. The most important difference of virtual organizations from classical

organizations is that they need coordination-based digital leadership skills, unlike traditional leadership based on command and command. In addition, the digital structure of virtual organizations forces them to be flexible and dynamic and to benefit more from external resources (Kohntopp & McCann, 2020; Taşçı & Yalçınkaya, 2020). Therefore, the inadequacy of traditional leadership approaches in leading virtual organizational structures is one of the most important reasons for the emergence of the digital leadership approach.

2.3. Causes and Consequences of Organizational Digitization

Social, economic, technological, and political developments are important factors that cause the transformation of societies. In particular, the acceleration of globalization and technology causes the strengthening of these environmental factors and the acceleration of transformation, thus transforming their organizational structures. In this process, the importance of knowledge is increasing more than ever, and knowledge-based production, management, and digital leadership approaches are gaining importance. Due to technological developments, the traditional workplace understanding is changing, and forms of business such as teleworking and working from home are becoming increasingly important (Stiles & Smart, 2021; Lunde et al., 2022).

Developments in the field of digital technology reveal a new digital business ecosystem (Senyo et al., 2019). Today, organizations are trying to create a competitive advantage using digital technologies. Organizations with cheaper, better quality, and faster service approaches have benefited from information technology. Virtual organizations have also emerged to meet this need. Today, businesses that want to take advantage of the flexibility of time and space have their jobs done in countries where the workforce is cheap and far away from the headquarters of the business (Atasever, 2017; Austin-Egole, Iheriohanma & Nwokorie, 2020). Having a job done at an office increases production costs for a business. Therefore, virtual work reduces the costs of doing things by allowing work away from the workplace. Organizations need virtualization to benefit more from the advantages of flexible working.

For traditional organizations, warehousing and holding stocks have a cost-increasing effect. However, spatial costs for virtual organizations are minimal. A virtual organization is a real-time organization that can react instantly to environmental change. Customer orders are received and processed simultaneously, and all related transactions are carried out electronically (Kevük, 2006). When speed is the most critical competitive element, digitalization has become the primary tool for creating a competitive advantage. For this reason, industrial workers are replaced by "knowledge workers" in virtual organizations. The workforce using digital technologies has revealed many new job types, such as Web designer, CRM specialist, networking specialist, internet strategist, medical informatics specialist, technology stock analyst, and e-commerce project specialist

(Atasever, 2017; Aytar, 2019). Leading these emerging digital-based ways of business and virtual employees requires digital leadership.

Virtual organizations use digital technologies intensively in their control and decision-making mechanisms, making decision-making more straightforward and thus gaining a competitive advantage over other organizations. The shortening of the lifespan of products and services increases the importance of innovation, and continuous innovation makes virtualization necessary due to its flexibility. The most important advantage of virtual organizations is their flexibility in terms of time and space. Virtual organizations do not matter where the manager, employee, customer, and target audience are. This aspect reduces production costs and gives flexibility to employees. Another advantage of virtual working is that the same work can be done with less labor. Thanks to digitalization, working at home, on vacation, or in public places is evolving as a new form of work. With teleworking applications, it is possible to perform specific tasks at home or anywhere, thus reducing workplace costs and increasing accessibility (Öztürk, 2017; Pordelan et al., 2022).

Another advantage of teleworking is that the employee has a comprehensive initiative in determining the place and time of work. In addition, employees have more time to develop social activities and personal skills. Teleworking provides workers with a better work-family balance, thus reducing work-life conflicts. Likewise, since the problem of coming to work in the early hours will be eliminated, it is possible for the employees to feel relatively less work pressure and job stress (Aydınöz, 2014; Van Slyke, Duong & Ellis, 2022). In addition to these positive effects, organizational virtualization has revealed a new organizational behavior problem called cyberloafing in some employees in business life (Öztürk, 2015; Aytar, 2019). This is not the disadvantage of digital technologies but the unconscious use of these technologies. Besides that, in the form of teleworking, there may be problems in inspections, alienation from work increases, and the problem of non-interaction between employees and employers arise. In teleworking, flexibility in hours while employees do their jobs can cause coordination problems. In addition, teleworking raises the issue of unregistered employment and creates the problem of working without social security. The employee may be deprived of their job and social security rights in the teleworking application. Informal employment can cause low wages and the problem of unregistered employment. Supervision becomes difficult, corporate culture weakens, and organizational commitment perception may decrease. On top of that, work and personal life order are disrupted (Güz & Tüfekçi, 2020; Filardi, Castro & Zanini, 2020).

2.4. Telework and Digital Leadership

Another form of virtual work is telework, and this concept of teleworking is how information technology employees work by communicating with each other instead of physically traveling. Teleworking is a form where a person can do his/her work from anywhere through communication technologies. Teleworking is a form of flexible working away from the employer or the traditional workplace for a significant part of the time (Ravalet, & Rérat, 2019; López-Igual & Rodríguez-Modroño, 2020). Telework has been called different names in the literature, such as remote work, e-work, cyber work, and virtual work (Mylytkbayeva, 2017; Kılıç, 2020). In an inclusive expression, telework is a form of work in which employees perform their work as if they were in the same workplace, through information and communication technologies, in any place other than the traditional workplace, where their work performance is not regularly monitored and supervised. Digital leaders have the skills to manage all these different ways of working.

Telework is often defined or associated with information and communication technology (ICT) Based Mobile Work. ICT contributes to the organization of work and work environment by providing flexibility in terms of location and time and enabling continuous connectivity. Telework / ICT Based Mobile Work is a work arrangement characterized by working from multiple locations provided by ICT. A distinction is made between the four categories of teleworkers based on their degree of mobility, ICT use, and employment status. Accordingly, regular home-based workers; are employees who often use ICT to work from home. Mobile work often uses ICT and has a high level of mobility. Occasional workplace work is the occasional use of ICT outside the workplace building (Eurofound, 2020). Digital leaders are not only teleworkers but also highly skilled individuals with the skills to manage the digital technologies that underpin teleworking.

Teleworking emphasizes using ICT and the work can be done anytime, anywhere. Other terms, such as "remote work," also used in the US, India, and Japan, refer to work that makes commuting unnecessary. Other terms used outside of telework are e-work and distributed work. Distributed work refers to arrangements that allow employees and their tasks to be shared in environments remote from a central workplace or corporate location. The term 'e-business' is often used to describe business conducted primarily by employees who work and communicate through electronic media (for example, corporate intranets and emails). Although home-based e-business has traditionally been the most common type of remote work, more people are working in multiple locations. "Remote e-work" is a broader term used to describe the expanding use of technology to assist "work completed anywhere and anytime, regardless of location, and flexible work practices. According to this definition, work can be done from home, company sites, hotels, and airports. Home-based telework is a particular form of telework and refers to work done at home using ICT (Charalampous, et al., 2019). Being able to coordinate all these different working models requires exceptional leadership skills. This leadership skill is called digital leadership today.

Economic sectors with the highest rate of teleworking / ICT Based Mobile arrangement are information and communication, professional and scientific activities, financial services, real estate, and public administration. These are sectors with high access to ICT. Some differences can be noted regarding different Telework / ICT Based Mobile arrangements. For example, home-based telework is mainly found in education, and highly mobile telework is scattered across sectors but more concentrated in wholesale and retail trade. Regarding the profession, regular home-based telework is mainly handled by professionals, while the highly mobile group includes a relatively large proportion of technicians, service and sales workers, and craft workers. Remote working is widespread in financial and business services, education, and the public sector. The prominent sub-sectors are the ICT sector, followed by the higher education sector. Telework is relatively low in manufacturing, construction, healthcare, transport, and agriculture (Smulders, Kraan & Pot, 2011; Eurofound, 2020).

2.5. Virtual Work Teams and Digital Leadership

With the change in traditional working approaches, virtual teams that work with digital technologies have emerged. Although they work together in the business environment, virtual teams do not see each other, do not share the same environment, and work within the framework of team logic with the support of technological developments. Virtual teams are employees skilled in digital technologies which adapt quickly to changes (Kirel, 2020; Abarca, Palos-Sanchez & Rus-Arias, 2020). With the digitalization of organizations, the ability to work in virtual teams becomes more critical day by day. Many organizations that have become entirely dependent on technology due to the effect of the pandemic have been forced to manage their employees effectively in virtual environments, work in team consciousness, and work as a team in virtual environments (Abarca, Palos-Sanchez & Aguayo-Camacho, 2021).

Virtual teams that come together in virtual environments to coordinate the tasks assigned to them and work in line with a determined purpose; provide significant advantages for organizations in overcoming travel, coordination, and time costs. Today, organizations are organized in virtual teams with the help of digital technologies in geographically different regions to respond to their dynamic environments and carry out tasks. Individuals working in these teams are employees who are not in the same environment and interact through technological communication tools. Managing virtual teams that have to work remotely requires different skills than managing teams that are physically together. Digital leadership emerged due to this necessity (Nordbäck & Espinosa, 2019; Fidanboy, 2021).

Virtual teams with employees from different cultures; While communicating with each other, they use technologies such as email, remote live video conferencing, and remote meeting systems, and they can do their work efficiently without the need for face-to-face communication. However, the different attitudes and

behaviors that emerge in virtual business environments need to be managed with a different understanding than classical organizational management. This different management approach makes digital leadership mandatory (Gardner, Kil & van Dam, 2019; Kirel, 2020). Considering the changes in the organizational behavior styles of digital organizations, one central issue is managing virtual teams' organizational behavior. To be able to overcome this problem, it requires a different management approach apart from traditional patterns.

Thanks to virtual teams, organizations can overcome time, transportation, rental costs, and accessibility problems. Teams do not need to be together physically, and time and space constraints are eliminated in the virtual environment. This way, employees can continue their work and private lives in harmony. Dynamic team membership allows individuals to move from one project to another quickly, and employees can work in more than one team simultaneously. Teams can respond quickly to the needs of global markets through digital communication (Geister, Konradt & Hertel, 2019; Davidavičienė, Al Majzoub & Meidute-Kavaliauskiene, 2020). Despite the advantages listed, virtual teams also have some disadvantages, such as a lack of physical interaction, a lack of face-to-face communication, and a lack of motivation. As it is known, for individuals to be a group in the organizational socialization processes, it is imperative to have physical closeness, informal communication, and sharing of feelings and thoughts. Face-to-face relations have particular importance, especially in environments where traditional culture is dominant. In these settings, what is not said is often more important than what is said. Organizations with this culture find it difficult for employees to adapt to virtual regulations. Virtual teams can be more successful in organizations that do not have a dominant collective culture and are formed by individuals from different ethnic backgrounds (Savu, 2019; Taşçı & Yalçınkaya, 2020). Despite all these advantages and disadvantages, rapid digitalization in all areas of life makes virtual teams mandatory.

3. Digital Leadership Concept, Characteristics, and Transformative Impact

While leadership was based on power and military intelligence in traditional times, today, leadership is not associated with physical power but with information power. Along with the digital transformation, the new generation of employees' leadership style expectations and perceptions have also begun to transform. This situation has recently prompted management consulting companies, managers, and global researchers to conduct more research on digital leadership. Digital transformation requires a more vigorous and dynamic digital leadership style, which reads industrial and technological developments better, is open to innovations, and has social and technical competencies. With their contribution to the transition to the information society, digital leaders undertake tasks such as raising awareness, providing resources, and developing strategies (Erhan, Uzunbacak & Aydin, 2022; Yopan, Kasali, Balqiah & Pasaribu, 2022; Poiger, 2022).

The new structure, called the information society or network society, is marked by four fundamental structural changes that reshape leadership. These include rapid and wide-ranging technological changes, digitalization of information and communication channels, transition to knowledge-based production, and the spread of organizational structure that is more dispersed and away from the hierarchy. The new social conditions, which had to be adapted very quickly to the effect of the pandemic, reveal the new leadership forms necessary for initiating and maintaining the transitions toward more information-intensive societies (Artüz, 2020; Karakose, Polat & Papadakis, 2021). Leadership in the digital age needs new attitudes, skills, and knowledge acquired through unique professional experiences that respond to specified societal characteristics through information technologies.

According to the digital leadership approach, qualities such as collaborative learning, creativity, effective communication, and interpersonal interaction gain more importance than traditional command-command and control (Sheninger, 2014; Özmen et al., 2020). In order to talk about digital leadership, it would be useful to state that there should be uninterrupted internet access in almost every layer of the environment, open source technology can be used by the organization, and digital devices along with technology can be personalized in accordance with the purposes. Digital leaders: are people who guide, influence, have the knowledge and lead sustainable change, have the foresight, and have critical human relations. Digital leaders have entrepreneurship skills, openness to development, collaboration ability, and innovative behaviors (Sheninger, 2014; Raza, 2016). Digital leadership is doing the right things for the strategic success of digitalization (El Sawy, et al, 2016). Digital leadership is a combination of digital competence and digital culture. Digital leaders mobilize the organization through digital awareness and influence (Westerman, Bonnet & McAfee, 2014; Mihardjo & Sasmoko, 2019). As understood from the definitions, digital leadership in the literature is the ability to do business in a digital environment and adapt traditional leadership skills to the requirements of digital life. Considering the points that need to be emphasized regarding digital leadership; transformative vision, forward-looking perspective, and digital literacy elements come to the fore (Kane et al., 2019).

The essential feature of talking about digital leadership is high digital competencies. In other words, for digital leadership, it can be said that those who are more competent than their competitors in digital competencies are and will be one step ahead. In the literature, digital skills are classified into three main categories: basic, intermediate, and advanced. Using information and communication technologies such as primary computer and mobile technology (such as email, keyboard, and touch screen) are essential skills—documents, books, magazines, etc., through some computer software. The ability to prepare publications for print or publication, as well as to perform e-commerce transactions, are intermediate digital skills. Intermediate digital skills are production-based skills compared to basic digital

skills. Advanced digital skills are technologies that trigger industry 4.0 (such as artificial intelligence, big data, Internet of things, and virtual reality) and digital skills expected to be acquired in today's business and life conditions (Öz, 2020; Gómez-Orjuela, 2021; Mattar, Ramos & Lucas, 2022; Ben Youssef, Dahmani & Ragni, 2022).

For organizations to be successful in a digitalized world, leaders need to show digital competencies by going beyond the limits of traditional leadership understanding. Therefore, the most critical need for most organizations is for leaders to develop digital capabilities. According to the research, 42% of the leading companies in the sector believe that it is imperative to invest in digital leaders today (GDS, 2020). The abilities that leaders must have to be successful in the digital world are discussed in three dimensions: cognitive, behavioral, and emotional transformations. These capabilities show how digital transformation in leadership will be a radical transformation. The digital leadership capabilities required for digital organizations can be expressed as follows (Abbatiello, Knight, Philpot & Roy, 2017; Bach & Sulíková, 2021; Weber, Büttgen & Bartsch, 2022).

Cognitive transformations: It is the ability to conceptualize possibilities in the virtual world, overcome ever-increasing cognitive complexity, think of different and new ways to carry out activities, and make strategic decisions.

Behavioral transformations: It is the ability to adapt to power and influence, cooperate with different teams, value the contribution of new business partners and groups of different interests, learn from failures and work with high energy and motivation.

Emotional transformations: Tolerating an environment of risk and uncertainty, showing flexibility to adapt to changing conditions, having the courage to change business processes, directing change, and having leadership self-confidence.

Three different digital leaders are mentioned in the literature, and it is stated that most organizations will need a combination of these three. These are digital investors, pioneers, and converters (Abbatiello et al., 2017; Andini, 2021; Halid & Hatu, 2022).

Digital investors: Senior executives with a V.C. (venture capital) mindset, unlocking opportunities, investing in talent and ideas, building partnerships, and creating an ecosystem for innovation to flourish.

Digital pioneers: Business and task leaders who can re-imagine the future, shape new and different business models, and spearhead a winning digital strategy.

Digital Transformers: Leaders who can lead people through radical change and transform business.

The main task for digital investors is education. This training is about how digital investors integrate the current business model with digital transformation. Digital education is training that includes setting a vision for the organization, making the business ready for the future, and directing the new digital capabilities of the organization. Digital education also provides a coherent vision and plan for digitalization throughout the organization. Digital converters are the mainstay of leading radical change. Change can only happen with a transformative leader (Andini, 2021; Halid & Hatu, 2022).

A successful digital leader is someone who is aware of digital technology and has the competence to use it in business processes. It is essential for digital leaders to always be aware of the innovations in the digital business world. In their professional life, they must demonstrate the ability to use digital tools in business processes and to organize and design new work. At the heart of any digital transformation are digital tools and solutions that increase processes, productivity, efficiency, and competitiveness. How, when, and where technology is used to increase productivity or improve internal processes is essential (Carretero, Vuorikari & Punie, 2017; Subramanian, 2018).

Based on what has been said so far, we can list the characteristics of digital leaders as follows (Brett, 2019; Öz, 2020; GDS, 2020; Andini, 2021; Cahyadi & Magda, 2021; Erhan, Uzunbacak & Aydın, 2022):

- Ability to perform data-driven analysis instead of subjective analysis,
- Advanced information and data literacy,
- Collaboration through digital technologies,
- Creating digital content,
- Using digital technologies creatively in problem-solving,
- Setting a vision instead of setting goals,
- Develop customer or individual-based strategies instead of business planning,
- Outlining consistent actions rather than monthly performance schedules.
- Developing digital skills across the organization, not just within a separate department,
- Integrating digital processes and technologies to shape business strategies,
- Testing and adapting digital technology and agile working methods,

- To establish a strong communication network using digital technology,
- Setting a solid vision, making employees believe in what we believe,
- Developing digital business models and having digital literacy competence,
- Developing digital company culture and digital business strategies,
- Willingness to try new digital technologies, create a digital workforce,
- Ability to develop flexible and adaptable business models,

It can be said that those who have most of these features have higher leadership potential in the digital age. People who can adapt their characteristics and behaviors to the new age and who step forward by improving their skills are sought after in the digital age. Digital leadership characteristics may show different characteristics according to different sectors. Although some features may differ, these are general features that a digital leader should have.

4. Discussion and Conclusion

Throughout history, information has never been as important as today, and the need to use information at lightning speed has emerged. Organizations that understand the importance of information business today need leaders who will realize the transformation required by digitalization. The formation of the idea of transformation, its adoption by the organization's employees, and its determined implementation require digital leadership. The effort to establish a culture of digitalization and continuous learning is possible with the digital leader's strategy, foresight, and determination. According to the Deloitte (2017) report, 42% of large companies now state that leadership development is increasingly essential, and success in this digital age largely depends on it.

Digitalization provides many conveniences to virtual organizations; however, transformative digital leadership is needed to take advantage of these conveniences and develop digital products and services. The management of organizations needs to follow and adapt to these innovations and developments. It is not easy for organizations lacking technology and digital opportunities to survive in a competitive digital environment. The dissemination of technological opportunities throughout the organization is imperative for sustainable management. Remote work statistics show that digital transformation is inevitable in the future of organizations. The same statistics say full-time workers are four times more likely to be offered remote work than part-time workers. According to these statistics, the growth in telework is ten times faster than in other fields of work (Simovic, 2022). Based on this, it is possible to conclude that teleworking is becoming increasingly popular yearly. There is no doubt that this type of work will continue in the future,

as the traditional work environment has been diverting towards that direction (Hara, Nakazono & Imagawa, 2022).

While millennial workers today make up only 38% of the workforce, it is predicted that this number will reach 58% in 2028. Therefore, considering the new generation's career expectations and libertarian lifestyle, it is not difficult to predict that remote working and virtual organizations will increase, and digital leadership will be a highly sought-after leadership type shortly. In addition, according to statistics, 74% of employees stated that they would quit their current job if more remote work options were offered to employees in another workplace. The same statistics also show that 85% of employees want their employers to provide them with the technology they need to work remotely (Softchoice, 2017). In light of all these data, virtual organizations will be preferred more in the future than today.

Changes in the way of doing business change the management phenomenon. As of 2020, many institutions and organizations worldwide have announced that they will make this situation permanent for positions that can work remotely. The effectiveness of remote working seems to increase with internet access, virtual reality technologies, and data, image, and voice communication in holograms. What is essential for digital organizations today is to be able to collaborate in a hybrid structure and virtual way (Çelebi, 2021; Burns, 2022). According to a study, before the pandemic, only 8% of employees worked from home, and about a third of them had a hybrid work pattern; after the pandemic, 42% of employees continued to work on a hybrid program, and 39% worked entirely from home. (Brown, 2022). In summary, the future of work shows that there will be a hybrid work approach with increasing virtual organizations and digital leaders.

Digitization requires leaders who manage the transformation and can apply it to all organizational processes. The need for digital leaders capable of persuasion, the importance of communication and dialogue, accepting and anticipating change, shaping business strategies accordingly, adopting a dynamic, cooperative, and egalitarian culture, and being accountable, is increasing daily. Businesses need to keep up with the speed of digitalized business processes and applications to gain a competitive advantage. The fact that organizations take a leading position with digital technologies increases the need for digital leaders who are aware of the technological requirements of the day. One of the most prominent problems organizations face in achieving a successful digital transformation is the problem of coordination. A fundamental digital transformation increases the need for digital leaders with the competencies to successfully manage this process (Malakyan, 2019; Asri & Darma, 2020; Ordu & Nayır, 2021).

More theoretical and empirical studies are required for a clearer understanding of digital leadership. In future studies, studies that reveal the similarities and differences between digital leadership and leadership definitions such as technological leadership, transformational leadership, and e-leadership may help to

understand the concept better. Qualitative studies can be conducted with the interview technique to determine how managers and employees perceive digital leadership. Using the themes obtained from qualitative research, scale development studies related to digital leadership can be carried out. Quantitative and mixed-method studies can be conducted to show the effect of digital work on employees.

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