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**DIGITAL LEADERSHIP IN THE CONTEXT OF DIGITAL TRANSFORMATION:
AN INTEGRATED THEORETICAL AND COMPETENCY-BASED FRAMEWORK
FOR REMOTE, HYBRID, DISTRIBUTED AND VIRTUAL TEAMS**

Abstract. In the context of the digital transformation of the economy, as well as the rise of remote and hybrid working, the importance of “digital leadership” for a team’s success has increased significantly. Although there is a considerable body of research on digital leadership, digital transformation within organisations and the management of virtual teams, the impact of digital leadership on the success of remote and hybrid teams remains under-explored in contemporary research. Most studies treat digital leadership, digital human resource management and virtual teams as separate subject areas. Consequently, there is a gap in the academic literature regarding the theoretical and practical understanding of the relationship between digital leadership and the key factors that ensure team effectiveness in a digital environment. The aim of this study is to determine the role of digital leadership in ensuring the effectiveness of remote, hybrid, distributed, and virtual teams during the process of digital transformation. The study applied both general and specialised methods, including methods of analysis and generalisation, systemic and comparative approaches, systematisation and conceptual modelling. Through their application, it was possible to identify the essence of digital leadership and systematise its theoretical foundations, as well as key competencies in the context of remote, hybrid, distributed and virtual teams. As a result of the research, the technological, strategic, innovative, learning, communicative and socio-psychological competencies of a digital leader were identified. Based on the integration of contemporary theoretical approaches, an original definition of digital leadership has been formulated and a conceptual model developed, which combines digital technologies, leadership competencies, change management and human capital development. The scientific novelty lies in the development of an integrated, theoretical and competence-oriented approach to digital leadership, which forms the basis for further research into its impact on the effectiveness of remote, hybrid, distributed and virtual teams. The practical value of the findings lies in their potential application to the development of digital leaders’ competencies and the improvement of team management in a digital environment.

Keywords: digital leadership; digital transformation; remote teams; hybrid teams; distributed teams; virtual teams; human resource management; hybrid work; team effectiveness; digital competencies.

INTRODUCTION

In the current conditions of digital transformation of the economy and society, significant changes are taking place in the organization of work, forms of employee interaction and approaches to human resources management. The introduction of digital technologies, the development of cloud services, platforms for online communication and collaboration have contributed to the expansion of remote and hybrid employment models, which have become an

integral part of the activities of many organizations. An additional catalyst for these processes was the COVID-19 pandemic, which forced various industries to quickly adapt to new operating conditions and reconsider traditional approaches to management teams.

At the same time, the transition to remote and hybrid work formats is accompanied by challenges associated with ensuring effective communication, coordinating employee activities, maintaining the appropriate level of motivation and engagement of personnel, building trust in the team, as well as preserving the corporate culture of the organization. With the exception of other physical interactions, the role of the manager is significantly transformed so that effective management increasingly depends on the ability to use digital tools, organize interaction in a virtual environment, and ensure the achievement of the organization's strategic and operational goals.

In this context, the concept of modern digital leadership emerges, which is considered as a set of competencies, skills, and management practices that are essential for effectively leading teams in a digital environment. A digital leader not only uses modern technologies to coordinate employee activities but also forms a culture of trust, promotes the development of staff digital competencies, ensures transparent communication, and encourages innovation in organizational processes.

The issues of managing remote and hybrid teams, as well as the development of digital leadership, are at the center of attention of modern scientific research in the field of management, organizational behavior and human resource management. A significant contribution to the study of the creation of the problem was made by both foreign and domestic scientists who consider the impact of digital technologies on the transformation of management processes, the features of the functioning of virtual teams and factors for increasing their efficiency. Nevertheless, the rapid advancement of digital technologies, the expansion of hybrid work models, and the changing nature of labor relations require further research of the role of digital leadership as one of the key factors in ensuring effective teamwork.

Problem statement. A comparative analysis of scientific publications suggests that, despite the significant volume of scientific work, there is still no comprehensive approach to explaining the relationship between digital leadership and the effectiveness of remote and hybrid teams. Most studies analyze digital leadership, digital transformation, human resource management or the activities of virtual teams as relatively independent areas of scientific research. As a result, the mechanisms of influence of digital leadership on key factors of teamwork effectiveness, in particular the quality of communication, the level of trust between team members, employee involvement, coordination of joint activities, organizational culture and adaptability to change, remain insufficiently revealed.

Furthermore, much of the available empirical research was conducted during the COVID-19 pandemic, when remote work was largely mandatory. In contrast, the current stage of organizational development is characterized by the spread of long-term hybrid work models that combine the advantages of remote and office interaction. This creates new requirements for the competencies of managers and requires a rethinking of the role of digital leadership in ensuring the effectiveness of team activities.

Therefore, the scientific gap is the insufficient development of theoretical and applied aspects of the influence of digital leadership on the effectiveness of remote, hybrid, distributed and virtual teams in the context of digital transformation. Particular attention needs to be paid to determining the factors through which a digital leader is able to influence the effectiveness of teamwork, as well as the formation of a holistic conceptual approach to managing remote, hybrid, distributed and virtual teams in a modern digital environment. It is the need to fill this scientific gap that determines the relevance, theoretical significance and practical value of this study.

Analysis of recent research and publications. The issues of digital leadership, management of remote, hybrid, distributed and virtual teams have become particularly relevant in the context of digital transformation of organizations and the expansion of new employment formats. Scientific interest in the development of the topic was formed at the intersection of leadership, organizational behavior, information and communication technologies, and human resource management.

The development of the concept of the impact of digital technologies on leadership took place in the works of Avolio B. J., Sosik J. J., Kahai S. S., Baker B. [1], where the authors assessed that the digital environment significantly changes the sources and mechanisms of leadership influence, and leadership effectiveness increasingly depends on the ability to use digital channels of interaction and maintain team cohesion in virtual space [1].

The further impact of digital technologies on leadership has been explored by B. J. Avolio, S. Kahai and G. Dodge [2], who proposed the concept of e-leadership. The authors defined e-leadership as a process of social influence, mediated by information technologies, aimed at changing the attitudes, behavior and performance of individual employees, groups or organizations as a whole. According to researchers, digital technologies transform the mechanisms of leadership implementation, changing the ways of communication, coordination and control in organizations [2].

A systematic review of the scientific literature conducted by López-Figueroa J. C., Ochoa-Jiménez S., Palafox-Soto M. O. and Hernández Muñoz D. S. [3], showed that the last two decades of digital leadership have transformed into an independent research direction. After analyzing 74 scientific publications, the authors found that the key thematic clusters of modern research are digital transformation, digitalization of business processes, virtual teams, information and communication technologies and organizational adaptability. At the same time, the researchers emphasize that the theoretical foundations of digital leadership are still in the formation stage, and the conceptual apparatus needs further clarification [3].

An important area of modern research is related to the study of the effectiveness of virtual and remote teams. In analyzing the theory of e-leadership development, Tahirkheli S. A. and co-authors [4] note that digital technologies have become a key means of implementing managerial influence in global teams, and that the success of team activities depends to a greater extent on a leader's ability to support effective interaction among geographically distributed employees [4].

A significant contribution to the development of digital leadership research was also made by Torre T. and Sarti D. [5], who view e-leadership as a system of interaction between technologies, management practices, and organizational processes. According to the authors, digital leadership involves not only the use of technological tools but also the development of new approaches to knowledge management, communication, and human capital development [5].

Recent systematic literature reviews indicate a broadening of the research focus from the technological aspects of digital leadership to its impact on organizational outcomes. Also, Nguyen P. M. B. and co-authors [6], note that digital leadership has a positive impact on organizational change, innovative activity, teamwork effectiveness, and employee creativity. At the same time, the authors emphasize the need for a more detailed study of the mechanisms of this impact at the level of individual teams and organizations [6].

Ukrainian scientific discourse on digital leadership and team management in the context of digital transformation is at a stage of active development. Unlike foreign research, which is mainly focused on the conceptualization of digital leadership and the functioning of virtual teams, Ukrainian scientists pay more attention to the issues of digitalization of personnel

management, transformation of HR processes, and adaptation of organizations to the conditions of the digital economy.

Thus, T. Vorobets and M. Mokhnatskyi [7] investigate the digital transformation of human resources management as a factor in increasing the efficiency of business structures. The authors argue that the introduction of digital technologies contributes to the optimization of HR processes, increased labor productivity and adaptability of organizations to changes in the external environment, while focusing on cybersecurity risks, resistance to change and the shortage of digital competencies of personnel.

A similar position is held by O. Dyakiv, D. Shushpanov, S. Prokhorovska, V. Ostroverkhov, A. Kotsur and O. Khlypovka [8], who consider the digitalization of human resource management to be a tool for improving the efficiency of management processes and the competitiveness of organizations. The researchers emphasize the need to integrate digital technologies into the processes of recruitment, development, and evaluation of personnel, which creates new requirements for the managerial competencies of leaders.

The peculiarities of the digital transformation of human resources management systems are explored by N. Sarkisian [9], who demonstrates that the use of artificial intelligence, cloud technologies, and analytical platforms contributes to improving the quality of management decisions and labor productivity. At the same time, the author emphasizes the importance of fostering a digital culture and developing employees' digital competencies as necessary conditions for the successful transformation of organizations.

The issues of digital leadership are directly considered by M. I. Kopytko, N. J. Mykhalitska and M. R. Yatsyk [10], who define digital leadership as a set of competencies, characteristics, and resources necessary to implement digital transformations in an organization. Researchers focus on such key competencies of a digital leader as strategic thinking, technological literacy, communication skills, adaptability, and the ability to continuous learning.

Ukrainian researchers pay special attention to the role of leadership in the context of digital transformation [11]. Modern works indicate that leadership is a key factor in developing digital competencies of personnel, forming employees' readiness for organizational changes, and ensuring employee involvement in innovation processes [11]. The issues of adapting management practices to the digital environment and developing new models of interaction between managers and employees are gaining particular importance [12].

At the same time, an analysis of Ukrainian publications shows that most studies focus on the digital transformation of human resources management, the digitization of HR functions, and the development of employees' digital competencies. However, insufficient attention is paid to examining the relationship between digital leadership and the effectiveness of remote and hybrid teams. In particular, the mechanisms through which digital leadership influences the building of trust, ensures effective communication, maintains employee engagement, and achieves high team performance in a hybrid work environment require further study. This research gap underscores the relevance of this study and highlights the need for a comprehensive analysis of the role of digital leadership in ensuring the effectiveness of remote and hybrid teams in the context of digital transformation.

An analysis of international and domestic academic sources indicates a significant increase in interest to issues of digital leadership, digital transformation, and the organization of remote, hybrid, distributed and virtual teams. At the same time, research focuses vary depending on the academic school and the specific field of analysis.

Foreign researchers mainly focus on the conceptualization of digital leadership, the study of its impact on organizational change, innovation, adaptability of organizations and the effectiveness of virtual teams. In the works of B. J. Avolio, S. Kahai, M. Van Wart, J. C. López-

Figuerola, P. M. B. Nguyen and other authors, digital leadership is considered as a separate direction of modern management science, which is formed under the influence of digitalization of business processes and the development of information and communication technologies. Special attention is paid to the issues of digital competencies of managers, the organization of interaction in a virtual environment, the formation of trust and maintaining the effectiveness of team activities.

In contrast, Ukrainian researchers focus on the issues of digital transformation of human resources management, digitalization of HR processes, development of digital competencies of employees, and adaptation of organizations to the conditions of the digital economy. The works of T. Vorobets, M. Mokhnatskyi, O. Dyakiv, D. Shushpanov, S. Prokhorovska, V. Ostroverkhov, A. Kotsur, O. Khlypovka, N. Sarkisian, M. Kopytko, N. Mykhalitska, M. Yatsyk and other authors demonstrate significant scientific interest in the implementation of digital technologies in the system of organization and personnel management. At the same time, the issue of digital leadership is mostly considered as a component of the digital transformation of enterprises, while its impact on the effectiveness of remote and hybrid teams remains insufficiently researched.

The purpose of the article is to study the role of digital leadership in ensuring the effectiveness of remote, hybrid, distributed and virtual teams in the context of digital transformation.

To achieve the set goal, the following tasks are planned:

- to reveal the essence and features of digital leadership;
- to systematise contemporary academic approaches to understanding digital leadership;
- to identify and structure the key competency clusters of a digital leader;
- to summarise the theoretical approaches that explain the nature and mechanisms of digital leadership;
- to justify an integrated theoretical approach to the study of digital leadership in the context of digital transformation;
- to formulate an original definition of digital leadership;
- to develop a conceptual model of digital leadership that reflects the interrelationship between digital technologies, leadership competencies, change management and human capital development;
- to define the role of digital leadership in creating the conditions for the effective functioning of remote, hybrid, distributed and virtual teams.

RESEARCH METHODOLOGY

The methodological framework of this study consists of general and specialized research methods, the application of which has made it possible to comprehensively examine the role of digital leadership in ensuring the effectiveness of remote and hybrid teams in the context of digital transformation.

The theoretical foundation of this study is based on contemporary concepts of digital leadership, transformational leadership, social presence theory, media richness theory, self-determination theory, as well as scientific approaches to managing virtual, remote, and hybrid teams. A systems approach was applied in the study, which allowed for the examination of digital leadership as a complex phenomenon that combines technological, organizational, and socio-psychological aspects of management in a digital environment.

Methods of analysis and synthesis were applied to study and synthesize the results of domestic and international scientific research in the fields of digital leadership, digital transformation, and team management. The method of scientific generalization allowed us to systematize existing theoretical approaches to understanding digital leadership and to identify the main groups of competencies of a digital leader.

Methods of structural-functional analysis, logical generalisation and conceptual modelling were applied to integrate the theoretical approaches under consideration, formulate the authors' definition of digital leadership and develop a conceptual model of it. The proposed approach has made it possible to present digital leadership as an integrated system of managerial influence, based on the interconnection of digital technologies, leadership competencies, change management and human capital development in the context of digital transformation.

RESEARCH RESULTS

Digital transformation has become one of the key drivers of change in modern management practices, significantly influencing the ways in which work is organized, employees interact, and management decisions are made. In this context, traditional approaches to leadership are undergoing a transformation, as effective management increasingly depends on leaders' ability to use digital technologies to ensure coordination, communication, and the development of human potential. This is precisely why the concept of digital leadership has emerged in academic discourse, becoming one of the most dynamic areas of research in the field of management in recent years.

The theoretical origins of digital leadership are linked to the concept of e-leadership proposed by B. J. Avolio, S. Kahai, and G. E. Dodge. The researchers defined e-leadership as a process of social influence facilitated by modern information technologies and aimed at shaping the attitudes, behaviors, and performance outcomes of individual employees, groups, or organizational tasks [2]. Unlike traditional leadership, where interaction between a leader and subordinates primarily takes place in a physical environment, e-leadership utilizes digital communication channels as the primary tool for exercising managerial influence.

The further development of information and communication technologies, the expansion of cloud services, collaboration platforms, artificial intelligence, and data analytics have contributed to the evolution of the concept of e-leadership into the broader concept of digital leadership. While early studies focused primarily on the use of technology for communication and coordination among employees, contemporary approaches view digital leadership as a set of managerial competencies, primarily aimed at driving an organization's digital transformation, fostering innovation, and ensuring organizational adaptability.

According to the results of a systematic literature review conducted by J. C. López-Figueroa et al. [3], digital leadership is formed at the intersection of three interrelated components: technological competence, strategic vision and the ability to manage organizational change. In this context, a digital leader acts not only as a user of digital technologies, but also as an initiator of transformational processes aimed at increasing the efficiency of the organization's activities and creating new value for interesting pages.

An important aspect of the modern understanding of digital leadership is its focus on managing in conditions of uncertainty and high speed of change. According to M. Van Wart et al. [13], a digital leader must combine traditional leadership qualities with the ability to work in a digital environment, manage virtual teams, ensure digital interaction and support an innovative culture of the organization. Accordingly, digital leadership goes beyond the purely technological aspect and encompasses the social, psychological and organizational components of management.

Current research shows that digital leadership is becoming a key factor in the successful digital transformation of organizations. Its importance is especially growing in the context of the spread of remote and hybrid work models, when the achievement of team goals largely depends on the ability of the leader to ensure effective communication, maintain trust between team members, coordinate the activities of employees and promote their professional development regardless of the place of work.

The generalization of scientific approaches allows to consider digital leadership as a modern management model that combines leadership competencies, digital technologies, and the ability to drive organizational change in order to ensure the effective performance of an organization and its team in a digital environment.

The effectiveness of digital leadership is largely determined by a set of competencies that enable a leader to function successfully in a digital environment and ensure the achievement of organizational goals. Unlike traditional management models, where the focus was on administrative and organizational skills, modern digital leaders must combine classic management competencies with a high level of digital literacy, strategic thinking, adaptability, and the ability to manage change.

An analysis of the scientific works of B. J. Avolio, M. Van Wart, T. Torre, D. Sarti, J. C. López-Figueroa, P. M. B. Nguyen and other researchers indicates the lack of a unified approach to structuring the competencies of a digital leader. At the same time, most scientists consider them as a set of interconnected knowledge, skills and personal characteristics necessary for effective management of an organization and teams in a digital environment.

In order to systematize existing scientific approaches, the key competencies of a digital leader are summarized in Table 1.

Table 1

Key competencies of a digital leader

Competence group	Content of competencies	Meaning for remote, hybrid, distributed and virtual teams
Technological	digital literacy, use of digital platforms, working with data and analytics	ensuring effective digital interaction and decision-making support
Strategic	strategic thinking, change management, digital vision of organizational development	team adaptation to digital transformation and achievement of long-term goals
Innovative	support for innovation, development of creativity, knowledge management	stimulating organizational development and finding new solutions
Learning	development of digital competencies of staff, support for continuous learning	increasing adaptability and professional development of the team
Communication	organization of synchronous and asynchronous communication, providing feedback	ensuring transparency of interaction and reducing communication barriers
Socio-psychological	emotional intelligence, trust development, staff motivation, psychological support	building employee cohesion and engagement

Source: summarized by the author based on the [1], [13], [5], [3], [6].

When considering the competent profile of a digital leader, it is advisable to describe in more detail the main groups of competencies that ensure the effectiveness of management activities in the context of digital transformation.

Technological competencies form the basis of digital leadership and convey the ability of a manager to effectively use modern digital technologies to support management processes. They include digital literacy, skills in working with digital platforms, information systems, analytical tools and data processing technologies. In today's digital environment, a manager must not only possess basic digital skills, but also understand the potential of the latest technologies to optimize business processes, increase productivity and ensure competitive advantages of the organization.

Strategic competencies are related to the ability to form a vision for the digital development of the organization and ensure its implementation in the conditions of constant change. They include strategic thinking, the ability to predict the consequences of digital transformation, make management decisions under uncertainty and effectively manage change.

For a digital leader, it is important not only to respond to technological changes, but also to anticipate their impact on the organization's activities, form long-term goals and ensure the adaptation of teams to new operating conditions.

Innovative competencies reflect the ability of a leader to stimulate the creation and implementation of new ideas, technologies and approaches to organizing work. In the context of digital transformation, a leader acts as a catalyst for innovative processes, supports employee creativity, knowledge exchange and creates conditions for the generation of new management and technological solutions. It is the innovative orientation that allows organizations to quickly adapt to changes in the external environment and ensure sustainable development in the long term.

Learning competencies characterize the ability of a manager to ensure the continuous development of human capital in the organization. They include supporting professional training of employees, developing digital competencies of personnel, stimulating self-education and forming a culture of continuous learning. In the conditions of rapid development of digital technologies, knowledge and skills quickly lose their relevance, therefore, a digital leader must initiate the continuous professional development of the team and contribute to the formation of an environment focused on the accumulation and expansion of knowledge.

Communication competencies are particularly important in remote and hybrid work environments, where much of the interaction between team members is done through digital channels. This group includes skills in organizing synchronous and asynchronous communications, ensuring effective information exchange, providing constructive feedback, and managing information flows. Effective digital communication helps reduce the risk of misunderstandings, ensures transparency in team activities, and ensures the convenience of all participants in the collaboration.

Socio-psychological competence begins with the ability of a digital leader to create a favorable socio-psychological climate in the team and maintain a high level of employee engagement. These include emotional intelligence, developing trust, motivating staff, maintaining psychological safety, and managing interpersonal relationships. The importance of these competencies is especially high in remote interaction, when the existing contact can affect team cohesion, the level of trust, and the sense of belonging of employees to the negative organization.

The data in Table 1 show that the competencies of a digital leader go far beyond the mastery of digital technologies. Although technological literacy is a prerequisite for effective management in a digital environment, the decisive role is played by the ability of the leader to integrate technological capabilities into the processes of communication, coordination, motivation and development of personnel. Social-psychological and communication competencies are of particular importance, since they ensure the formation of trust, involvement and cohesion of remote and hybrid teams.

The analysis of the results shows that individual groups of digital leader competencies do not function in isolation from each other. Their interaction forms a complex mechanism of managerial influence, which ensures the effectiveness of team activities in the digital environment. At the same time, the influence of digital leadership on the results of the team's work is realized mainly through the quality of communication, the level of trust, employee involvement, the effectiveness of coordination of activities and the development of organizational culture.

Digital leadership does not directly influence team performance. This influence is mediated through a system of organizational and socio-psychological mechanisms that shape the quality of interaction among team members. That is why the development of a digital

leader's competencies should be viewed as one of the key factors in improving the effectiveness of remote, hybrid, distributed and virtual teams in the context of digital transformation.

Thus, a digital leader acts as an integrator of technological, managerial, and social processes within the organization. A leader's competencies ensure not only the effective use of digital technologies but also the creation of a supportive environment for collaboration, innovation, and the achievement of high performance in the team's activities.

The complexity and multidimensional nature of the phenomenon of digital leadership necessitate the application of a comprehensive theoretical approach to its study. Since digital leadership encompasses technological, organizational, communicative, and socio-psychological aspects of management, its study is based on a number of complementary theories that explain the mechanisms through which a leader influences team performance in a digital environment.

One of the most widely accepted theoretical approaches to the study of digital leadership is Transformational Leadership Theory, originally developed by J. M. Burns [14] and further refined by B. M. Bass [15]. According to this concept, an effective leader is able to inspire employees, shape a shared vision of the future, stimulate innovative thinking, and foster the professional development of team members. In the context of digital transformation, the principles of transformational leadership take on particular relevance, as the digital leader acts as a catalyst for organizational change, fosters a culture of innovation, and ensures employees' adaptation to new technological conditions. Research shows that it is the transformational leadership style that contributes most significantly to increasing employee engagement, building trust, and improving the performance of virtual teams.

According to J. Short, E. Williams, and B. Christie [16], Social Presence Theory plays an important role in the study of digital leadership. The main idea of this theory is that the effectiveness of communication largely depends on the level of social presence provided by a given communication channel. In traditional teams, social presence is formed through direct interpersonal contact, whereas in remote and hybrid teams, it depends largely on the use of digital communication tools. From the perspective of this theory, one of the key tasks of a digital leader is to maintain a sense of engagement, mutual trust, and psychological flexibility among team members regardless of their physical location.

Closely related to the previous approach is the Media Richness Theory, developed by R. Daft and R. Lengel [17], [18]. According to this theory, communication channels vary in their ability to convey information, emotions, and contextual messages. Face-to-face communication and video conferencing are considered the "richest" channels, while email and text messages are characterized by a lower level of information density. This theory is particularly important for digital leadership, as the effectiveness of managing remote teams depends largely on the right choice of communication tools based on the complexity of the tasks and the nature of the information being conveyed.

The socio-psychological aspects of digital leadership are largely explained by the Self-Determination Theory developed by E. Deci and R. Ryan [19]. According to this concept, employees' intrinsic motivation is formed through the satisfaction of three basic needs: autonomy, competence and social involvement. Remote work conditions significantly expand the possibilities of employees for autonomous performance of tasks, but at the same time create risks of reducing the level of social interaction and involvement. In this regard, a digital leader must create conditions for the professional development of employees, support their motivation and ensure a sense of belonging to the team.

A separate place in the study of digital leadership is occupied by the concept of Trust in Virtual Teams. In contemporary academic literature, trust is considered as one of the key factors in the effectiveness of teamwork in a digital environment. The lack of constant face-to-face

contact among team members emphasizes the importance of open communication, transparency in decision-making, and predictability in a leader's behavior [20], [21]. The digital leader plays a central role in creating an atmosphere of trust that ensures operational effectiveness, knowledge sharing, and a high level of employee engagement [1], [13].

To systematize the considered theoretical approaches and determine their significance for the study of digital leadership, it is advisable to summarize the main characteristics of the relevant concepts (Table 2).

Table 2

**Theoretical approaches to the study of digital leadership
and its significance for managing remote, hybrid, distributed and virtual teams**

Theoretical approach	Main provisions	Importance for digital leadership	Meaning for remote, hybrid, distributed and virtual teams
Transformational Leadership Theory	A leader inspires employees, creates a vision for development, and supports change.	Explains the role of a digital leader as an agent of digital transformation	Promotes employee engagement, motivation and trust development
Social Presence Theory	The effectiveness of communication depends on the level of social presence of the interaction participants	Justifies the need to maintain interpersonal connections in the digital environment	Explains the mechanisms for building trust and team cohesion
Media Richness Theory	Communication channels differ in their ability to convey information, emotions, and message context.	Allows you to choose the most effective digital channels of interaction	Improves the quality of communication and work coordination
Self-Determination Theory	Employee motivation is formed through satisfying the needs for autonomy, competence, and social inclusion.	Explains mechanisms for supporting internal motivation of staff	Helps increase employee engagement and productivity
Trust in Virtual Teams	Trust is the foundation of effective interaction and collaboration in the digital environment	Emphasizes the role of the digital leader in building psychological safety and trust	Ensures effective collaboration and knowledge sharing between team members

Source: summarized by the author based on the works [13], [15]–[17], [19], [1], [13], [20], [21].

As evidenced by the data in Table 2, each of the theories presented focuses on specific aspects of how digital leadership functions. Furthermore, transformational leadership theory explains the mechanisms of change management and staff development; social presence theory and media richness theory reveal the characteristics of digital communication; self-determination theory explains the factors of employees' intrinsic motivation; and the concept of trust in virtual teams focuses on the socio-psychological mechanisms of interaction in the digital environment.

However, none of these approaches individually offers a comprehensive explanation of the role of digital leadership in ensuring the effectiveness of remote, hybrid, distributed and virtual teams. Therefore, an integrated approach that synthesizes key conceptual frameworks is recommended. This approach facilitates the development of mechanisms for a targeted understanding of how digital leadership influences team activities.

Fig. 1 illustrates the author's view of the relationship between key theoretical approaches and the effectiveness of remote, hybrid, distributed and virtual teams.

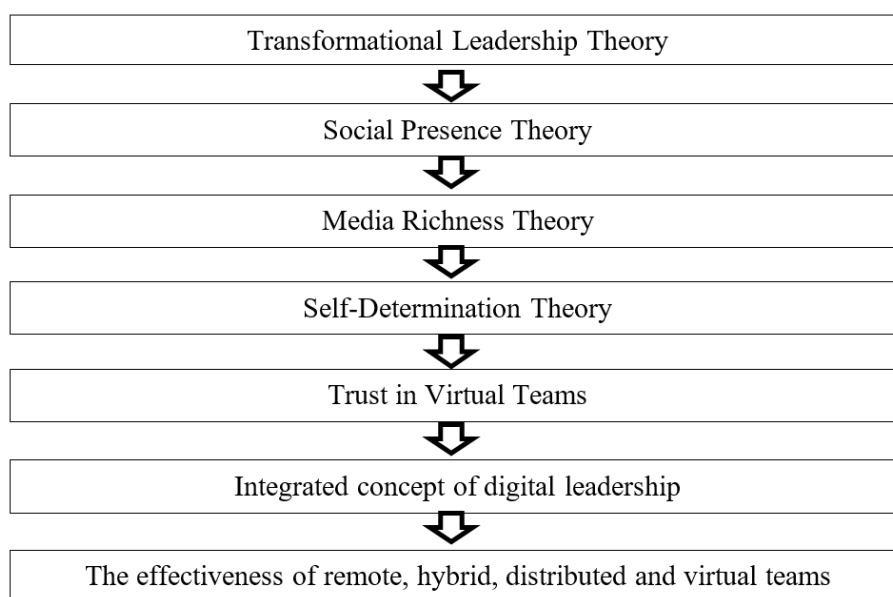


Fig. 1. Theoretical framework for examining the impact of digital leadership on the effectiveness of remote, hybrid, distributed and virtual teams
Source: developed by the author

The proposed conceptual model reflects the logic of this study and demonstrates that digital leadership is formed under the influence of several complementary theoretical approaches. It is their integration that allows us to most fully explain the mechanisms of the influence of digital leadership on communication, trust, motivation, coordination of activities and other factors of the effectiveness of remote, hybrid, distributed and virtual teams. The results obtained create a theoretical basis for further research into the features of the functioning of remote, hybrid, distributed and virtual teams in the context of digital transformation.

A review of the academic literature reveals no universally accepted definition of digital leadership. Contemporary research conceptualizes digital leadership as an extension of e-leadership, a set of digital competencies for managers, a mechanism for facilitating the digital transformation of organizations, or a distinct leadership style in a digital environment. However, most researchers agree that digital leadership encompasses more than just the use of information and communication technologies, extending to a broader spectrum of managerial, organizational, and socio-psychological processes.

A synthesis of the principles of transformational leadership, social presence theory, media richness theory, self-determination theory, and the concept of trust in virtual teams positions digital leadership as an integrated system of managerial influence that supports the effective functioning of organizations and their teams in a digital environment.

In this study, digital leadership is defined as the leader's capacity to achieve organizational goals and enhance team effectiveness by integrating digital technologies, strategic vision, innovation, effective communication, and human capital development during digital transformation.

Unlike approaches that focus solely on the technological dimension of digital leadership, the proposed definition highlights its complexity and positions the digital leader as an integrator of technological, organizational, and socio-psychological processes. Thus, digital leadership serves not only as a means of digitizing management but also as a driving force for building trust, sustaining motivation, and facilitating effective communication and coordination among remote, hybrid, distributed and virtual teams.

The proposed approach posits that the effectiveness of digital leadership is demonstrated through its impact on key factors of team effectiveness, including the quality of communication, trust among team members, employee engagement, collective learning, and adaptability to change and innovation. These mechanisms enable digital leaders to ensure the effectiveness of remote, hybrid, distributed and virtual teams during digital transformation.

To synthesize this approach to digital leadership, a conceptual model illustrating its development and impact on the effectiveness of remote, hybrid, distributed and virtual teams is presented (Fig. 2).

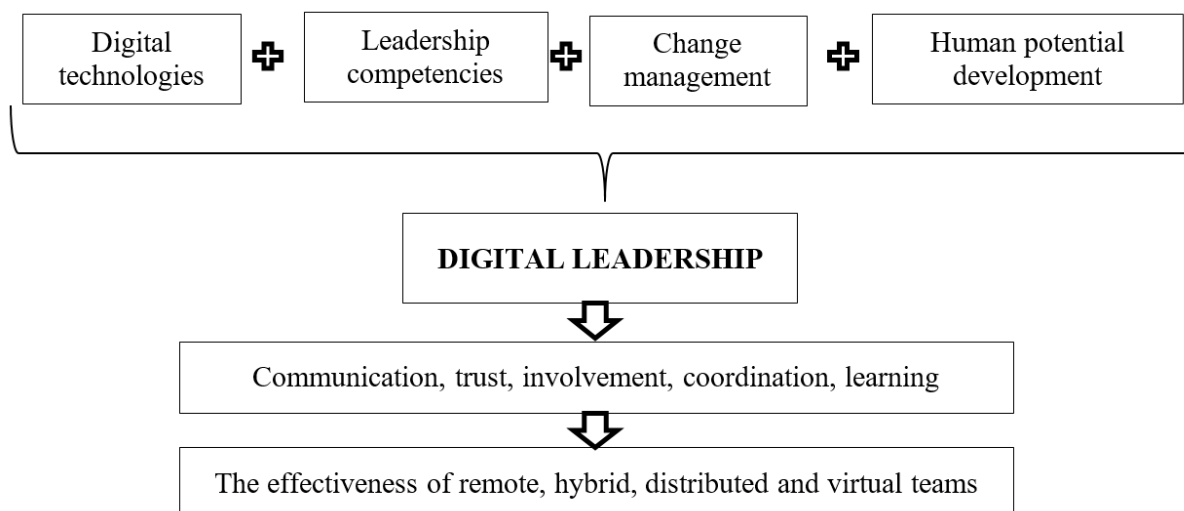


Fig. 2. A conceptual model of digital leadership within the framework of digital transformation

Source: developed by the author

The conceptual model presented in Fig. 2 illustrates the complexity of digital leadership and its role within the management system of contemporary organizations. In contrast to traditional leadership approaches, which primarily emphasize the leader's managerial influence over subordinates, digital leadership emerges at the intersection of several interrelated components: digital technologies, leadership competencies, organizational change management, and human potential development.

The conceptual model proposed in Fig. 2 demonstrates the complex nature of digital leadership and reflects its place in the management system of a modern organization. Unlike traditional approaches to leadership, which mostly focus on the managerial influence of the leader on subordinates, digital leadership is formed at the intersection of several interrelated components: digital technologies, leadership competencies, organizational change management and human potential development.

The presented model shows that digital technologies are a necessary but not sufficient condition for effective management in a digital environment. The ability of a manager to integrate technological capabilities into management processes and use them to support team interaction, decision-making and personnel development is of crucial importance. In this context, digital leadership is viewed not as a set of technical skills, but as a comprehensive system of managerial influence aimed at ensuring the effectiveness of the organization in the conditions of digital transformation.

A feature of the proposed model is the identification of mechanisms through which digital leadership influences the effectiveness of remote, hybrid, distributed and virtual teams. Such

mechanisms include communication, trust, employee involvement, coordination of joint activities and organizational learning. The influence of a digital leader on the productivity, adaptability, and innovation of teamwork is realized through these factors. Accordingly, the effectiveness of digital leadership is determined not only by the level of proficiency in modern technologies, but also by the ability to create a supportive environment for collaboration and the professional development of employees.

In addition, the proposed conceptual model allows to consider digital leadership as an integrating element between the processes of digital transformation of the organization and ensuring the effectiveness of team activities. In modern conditions, it is the leader who acts as a key entity that ensures the adaptation of employees to changes, supports the development of digital competencies, and forms a culture of cooperation in the digital environment.

Thus, digital leadership is a multidimensional phenomenon that combines technological, managerial, and socio-psychological aspects of an organization's activities and is one of the key factors in ensuring the effectiveness of remote, hybrid, distributed and virtual teams.

The analysis of theoretical approaches to the study of digital leadership allows to establish that in the conditions of digital transformation, the effectiveness of management depends to a greater extent on the ability of the manager to combine the use of digital technologies with the development of human potential, maintaining communication, building trust and managing organizational changes. The generalization of scientific approaches made it possible to systematize the key competencies of a digital leader and form the author's vision of digital leadership as an integrated system of managerial influence in the digital environment.

At the same time, the practical implementation of digital leadership is most fully manifested in the process of managing remote, hybrid, distributed and virtual teams, the functioning of which is characterized by specific features of interaction, communication and coordination of activities.

CONCLUSIONS AND PROSPECTS FOR FURTHER RESEARCH

Research has shown that digital leadership in the context of digital transformation is a comprehensive system of managerial influence that combines technological, managerial, organisational and socio-psychological aspects. Its scope extends beyond the use of digital technologies and encompasses a leader's ability to drive organisational change, foster effective collaboration and develop human potential.

As a result of the study, the key competencies of a digital leader have been systematised, comprising technological, strategic, innovative, learning, communication and socio-psychological competencies. By integrating key theoretical approaches, a conceptual model of digital leadership has been developed, reflecting the interrelationship between digital technologies, leadership competencies, change management and the development of human potential.

Further research prospects relate to studying the characteristics of how remote, hybrid, distributed and virtual teams operate, the systematisation of the factors and challenges that determine the effectiveness of their operations, as well as the investigation of the mechanisms through which digital leadership influences communication, trust, employee engagement, coordination of activities and other components of team effectiveness in the digital environment.

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e-mail: inna.hruzina@hneu.net**ЦИФРОВЕ ЛІДЕРСТВО В КОНТЕКСТІ ЦИФРОВОЇ ТРАНСФОРМАЦІЇ:
ІНТЕГРОВАНА ТЕОРЕТИЧНА ТА КОМПЕТЕНТНІСНА МОДЕЛЬ ДЛЯ
ДИСТАНЦІЙНИХ, ГІБРИДНИХ, РОЗПОРІДЖЕНИХ ТА ВІРТУАЛЬНИХ КОМАНД**

Анотація. В умовах цифрової трансформації економіки, а також із поширенням дистанційної та гібридної роботи значення «цифрового лідерства» для успіху команди значно зросло. Хоча існує значна кількість досліджень щодо цифрового лідерства, цифрової трансформації в організаціях та управління віртуальними командами, вплив цифрового лідерства на успіх дистанційних та гібридних команд у сучасних дослідженнях досі залишається недостатньо вивченим. Більшість досліджень розглядають цифрове лідерство, цифрове управління персоналом та віртуальні команди як окремі тематичні сфери. Відповідно, існує прогалина в наукових дослідженнях щодо теоретичного та практичного розуміння взаємозв'язку між цифровим лідерством та тими ключовими факторами, які забезпечують ефективність команд у цифровому середовищі. Метою дослідження є визначення ролі цифрового лідерства у забезпеченні ефективності роботи віддалених, гібридних, розпоріджених та віртуальних команд у процесі цифрової трансформації. У дослідженні використовувалися як загальні, так і спеціалізовані методи, зокрема методи аналізу та узагальнення, системний та порівняльний підходи, систематизація та концептуальне моделювання. Завдяки їх застосуванню вдалося виокремити сутність цифрового лідерства та систематизувати його теоретичні основи, а також ключові компетенції в контексті віддалених, гібридних, розподілених та віртуальних команд. У результаті проведеного дослідження було визначено технологічні, стратегічні, інноваційні, навчальні, комунікативні та соціально-психологічні компетенції цифрового лідера. На основі інтеграції сучасних теоретичних підходів сформульовано авторське визначення цифрового лідерства та розроблено концептуальну модель, яка об'єднує цифрові технології, лідерські компетенції, управління змінами та розвиток людського потенціалу. Наукова новизна полягає у розробці інтегрованого теоретичного та компетентнісно-орієнтованого підходу до цифрового лідерства, який становить основу для подальших досліджень щодо його впливу на ефективність віддалених, гібридних, розподілених та віртуальних команд. Практична цінність результатів полягає у можливості їх використання для розвитку компетенцій цифрових лідерів та вдосконалення управління командами в цифровому середовищі.

Ключові слова: цифрове лідерство; цифрова трансформація; віддалені команди; гібридні команди; розподілені команди; віртуальні команди; управління людськими ресурсами; гібридна робота; ефективність команди; цифрові компетенції.

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