UDC: 005.32:004
JEL Classification: M12, M15, O33
https://doi.org/10.31891/dsim-2026-16(36)

MECHANISMS OF DIGITAL LEADERSHIP INFLUENCE ON THE EFFECTIVENESS OF REMOTE, HYBRID, DISTRIBUTED AND VIRTUAL TEAMS

PERERVA Ivanna
PhD in Economics, Associate Professor,
Associate Professor of the Department of Management, Business and Administration,
Simon Kuznets Kharkiv National University of Economics
https://orcid.org/0000-0002-8119-7022
e-mail: ivanna.matsikanych@hneu.net
HRUZINA Inna
Doctor of Sciences in Economics, Associate Professor,
Professor of the Department of Management, Business and Administration,
Simon Kuznets Kharkiv National University of Economics
https://orcid.org/0000-0002-8156-1090
e-mail: inna.hruzina@hneu.net

The mechanisms by which digital leadership influences the effectiveness of remote, hybrid, distributed and virtual teams in the context of digital transformation are examined. The aim of the study is to systematise the managerial challenges relating to team management and the factors influencing the effectiveness of teamwork in a digital environment, as well as to develop a conceptual model of the interrelationships between the competencies of a digital leader, mechanisms of managerial influence and the outcomes of team activity. Systemic and comprehensive approaches were applied, along with methods of analysis, synthesis, comparison, generalisation and conceptual modelling.

The characteristics of various formats of teamwork have been identified, and it has been demonstrated that spatial distance, work arrangements and the degree of virtuality can coexist within a single team. The communication, organisational, socio-psychological, motivational, technological and cultural-temporal challenges have been systematised. Mechanisms for digital communication, trust-building, maintaining employee engagement, coordinating activities, intercultural integration and organisational learning have been substantiated. An original four-block conceptual model has been developed, combining the competencies of a digital leader, mechanisms of managerial influence, factors of effectiveness and the outcomes of teamwork. A distinctive feature of the proposed model is its consideration of the contextual characteristics of teams, namely geographical and spatial dispersion, the degree of virtuality, working arrangements, time differences, and cultural and linguistic diversity.

Differentiated recommendations have been proposed for organising communication, ensuring the equal participation of staff, coordinating tasks and developing intercultural interaction. The practical significance of the findings lies in the possibility of using the model as a basis for selecting management practices, taking into account the specific characteristics of a particular team.

Keywords: digital leadership, digital transformation, remote teams, hybrid teams, distributed teams, virtual teams, cross-cultural teams, team effectiveness, management mechanisms.

МЕХАНІЗМИ ВПЛИВУ ЦИФРОВОГО ЛІДЕРСТВА НА ЕФЕКТИВНІСТЬ ВІДДАЛЕНИХ, ГІБРИДНИХ, РОЗПОДІЛЕНИХ І ВІРТУАЛЬНИХ КОМАНД

ПЕРЕРВА Іванна, ГРУЗІНА Інна
Харківський національний економічний університет імені Семена Кузнеця

Розглянуто механізми впливу цифрового лідерства на ефективність віддалених, гібридних, розподілених та віртуальних команд в умовах цифрової трансформації. Метою дослідження є систематизація управлінських викликів щодо управління командами та чинників ефективності командної роботи в цифровому середовищі, а також розробка концептуальної моделі взаємозв'язків між компетенціями цифрового лідера, механізмами управлінського впливу та результатами командної діяльності. Застосовано системний та комплексний підходи, методи аналізу, синтезу, порівняння, узагальнення та концептуального моделювання.

Визначено особливості різних форматів командної роботи та показано, що просторова віддаленість, режим зайнятості та ступінь віртуальності можуть поєднуватися в межах однієї команди. Систематизовано комунікаційні, організаційні, соціально-психологічні, мотиваційні, технологічні та культурно-часові виклики. Обґрунтовано механізми цифрової комунікації, формування довіри, підтримання залученості співробітників, координації діяльності, міжкультурної інтеграції та організаційного навчання. Розроблено авторську чотириблокову концептуальну модель, що об'єднує компетенції цифрового лідера, механізми управлінського впливу, чинники ефективності та результати командної роботи. Особливістю запропонованої моделі є врахування контекстуальних характеристик команд, а саме географічної та просторової розрізненості, рівня віртуальності, режиму роботи, часових відмінностей, культурного та мовного різноманіття.

Запропоновано диференційовані рекомендації щодо організації комунікації, забезпечення рівноправної участі співробітників, координації завдань та розвитку міжкультурної взаємодії. Практичне значення результатів полягає в можливості використовувати модель як основу для вибору управлінських практик з урахуванням особливостей конкретної команди.

Ключові слова: цифрове лідерство, цифрова трансформація, віддалені команди, гібридні команди, розподілені команди, віртуальні команди, крос-культурні команди, ефективність командної діяльності, управлінські механізми.

Стаття надійшла до редакції / Received 03.10.2026
Прийнята до друку / Accepted 10.11.2026
Опубліковано / Published 26.11.2026

This is an Open Access article distributed under the terms of the Creative Commons CC-BY 4.0

© PERERVA Ivanna, HRUZINA Inna

A GENERAL OVERVIEW OF THE PROBLEM AND ITS RELATIONSHIP TO KEY SCIENTIFIC OR PRACTICAL ISSUES

The digital transformation of modern organisations is accompanied by changes in approaches to work organisation and team management. The development of information and communication technologies, the widespread use of digital collaboration platforms and the growing need for flexible organisational models are contributing to the emergence of new forms of teamwork, amongst which remote, hybrid, distributed and virtual teams are becoming particularly significant. Their operation is characterised by varying degrees of geographical dispersion among staff, the use of digital communication tools and a combination of face-to-face and remote interaction, which necessitates a re-evaluation of traditional management approaches.

The use of these forms of teamwork creates new opportunities to enhance organisational flexibility, engage specialists regardless of their location, optimise work processes and foster inter-organisational cooperation. At the same time, the physical distance between participants, limited face-to-face interaction, differences in time zones, uneven access to information and reliance on digital technologies can complicate communication, the coordination of activities, the building of trust and the maintenance of staff engagement. These circumstances highlight the challenge of ensuring effective teamwork in a digital environment and the need to identify management mechanisms capable of minimising the associated risks.

In such circumstances, digital leadership takes on particular significance, combining the use of digital technologies with modern management approaches and the development of human potential. A leader's ability to ensure effective collaboration amongst employees in a digital environment becomes a key prerequisite for successful teamwork. This highlights the need to investigate the mechanisms through which digital leadership influences the effectiveness of remote, hybrid, distributed and virtual teams.

ANALYSIS OF RESEARCH AND PUBLICATIONS

The issues of digital leadership and team management in a digital environment are being actively researched by international academics. In particular, F. Contreras, E. Baykal and G. Abid [1] view digital leadership as a key component of managing remote work, emphasising organisational, technological and social aspects. L. Gilson and co-authors [2] have systematised the main areas of research into virtual teams, in particular the issues of trust, leadership, technological interaction and team performance. L. Larson and L. DeChurch [3] have justified the need to rethink leadership in the context of the role of digital technologies in teamwork, whilst N. Greimel, D. Kanbach and M. Chelaru [4] have investigated the characteristics of transformational leadership in virtual teams.

Among Ukrainian researchers, the issues of digital leadership and team interaction have been highlighted in the works of H. Mazur, O. Gudz and O. Zalizniak [5], who investigated the digital profile of an organisation and the characteristics of digital leadership. L. Ilich and O. Akilina [6] have focused on the role of emotional intelligence in building trust and productive collaboration within remote teams. Y. Shevel, O. Garafonova and I. Dvornyk [7] examined the use of digital communication tools in the management of remote project teams, whilst D. Dehtiar [8] investigated the mechanism for managing geographically distributed teams in the IT sector. The theoretical and competency-based aspects of digital leadership in the context of remote, hybrid, distributed and virtual teams have also been systematised in the study conducted by I. Pererva and I. Gruzina [9], which provides a foundation for further investigation into the mechanisms through which digital leadership influences team performance.

Despite the considerable scientific achievements in the field of digital leadership and modern team management, further research is needed regarding the mechanisms through which a digital leader's competencies are linked to the effectiveness of team performance. In particular, there remains a need for a comprehensive analysis of the interrelationships between managerial influence, communication, trust, employee engagement, coordination of activities and team performance, taking into account the specific characteristics of remote, hybrid, distributed and virtual working formats. This necessitates the systematisation of the factors influencing the effectiveness of such teams and the development of a conceptual model that reflects the mechanisms through which digital leadership influences their performance.

FORMULATION OF ARTICLE OBJECTIVES

The aim of the article is to investigate the mechanisms through which digital leadership influences the effectiveness of remote, hybrid, distributed and virtual teams in the context of digital transformation, as well as to develop a conceptual model of the relationships between digital leader competencies, mechanisms of managerial influence and team performance outcomes.

To achieve this aim, the following objectives have been established:

- ✓ to characterise the operational features of remote, hybrid, distributed and virtual teams and identify their common and distinctive characteristics;
- ✓ to systematise the main challenges of managing teams in a digital environment;
- ✓ to identify the key factors influencing team effectiveness and the specific ways in which they manifest themselves across different team working arrangements;
- ✓ to substantiate the mechanisms through which digital leadership influences communication, trust, employee engagement, activity coordination and organisational learning;
- ✓ to develop a conceptual model of the influence of digital leadership on the effectiveness of remote, hybrid, distributed and virtual teams;
- ✓ to formulate practical recommendations for improving team management, taking into account the specific characteristics of team functioning in a digital environment.

The methodological basis of the study comprises systemic and comprehensive approaches to examining digital leadership and team effectiveness. The study employs methods of analysis and synthesis to generalise scientific approaches to team management in a digital environment; comparative analysis to identify common and distinctive characteristics of remote, hybrid, distributed and virtual teams; systematisation and generalisation to identify the main managerial challenges and factors influencing team effectiveness; and conceptual modelling to substantiate the relationships between digital leader competencies, mechanisms of managerial influence and team performance outcomes.

PRESENTATION OF THE MAIN RESEARCH MATERIAL WITH A COMPREHENSIVE SUBSTANTIATION OF THE SCIENTIFIC RESULTS OBTAINED

The digital transformation of organisations is driving the development of various forms of team working, which differ in their spatial organisation, communication patterns and methods of coordinating joint activities. Alongside traditional teams, remote, hybrid, distributed and virtual teams are becoming increasingly widespread, and their functioning requires management approaches to be adapted to the conditions of the digital environment.

Whereas remote working was previously regarded primarily as an alternative form of employment for certain categories of employees, it has now become an important element of contemporary organisational management models. These working arrangements gained particular relevance following the COVID-19 pandemic, which significantly accelerated the digitalisation of employment relationships and the adoption of flexible approaches to work organisation.

Remote teams are groups of employees whose members perform their work outside a shared office environment [10]. Hybrid teams combine remote and office-based working arrangements, enabling greater flexibility in organising employee interaction depending on the nature of tasks and organisational needs [11]. Distributed teams bring together employees located in different geographical locations [12], whereas virtual teams are characterised by the predominant use of digital technologies for communication, coordination and the performance of joint tasks [13, 14]. Despite differences in their working arrangements, all these types of teams are characterised by a high degree of dependence on digital technologies and require new approaches to management, communication and the coordination of activities. These characteristics may coexist within a single team, necessitating their comprehensive consideration.

To identify the specific characteristics of the forms of work organisation under investigation, it is appropriate to conduct a comparative analysis of these team working arrangements (Table 1).

Table 1

Comparative characteristics of traditional, remote, hybrid, distributed and virtual teams

Criterion	Traditional	Remote	Hybrid	Distributed	Virtual
Spatial organization	Shared workspace	Outside the shared office	Combination of office-based and remote working	Different geographical locations	May vary
Communication	Predominantly face-to-face	Predominantly digital	Face-to-face and digital	Digital, occasionally face-to-face	Predominantly digital
Coordination of activities	Face-to-face interaction and organisational procedures	Digital platforms and agreed procedures	Combination of face-to-face and digital coordination	Coordination of work across locations	Digital coordination tools
Flexibility in work organization	Depends on the established working arrangements	High spatial flexibility	Flexibility in choosing the place of work	Depends on the organisational model	Depends on the nature of tasks
Trust-building	Face-to-face interaction	Digital communication and fulfilment of commitments	Face-to-face and remote interaction	Coordination of activities across locations	Transparency of communication and reliability of interaction
Typical management challenges	Coordination and interpersonal conflicts	Social isolation, limited informal interaction	Unequal access to information and participation	Time zones, cultural differences and geographical distance	Limited social cues and technological dependence

Source: summarised by the author based on a conceptual analysis of the characteristics of teamwork organisation, drawing on the following studies [10-14]

The comparative analysis indicates that differences between teams are determined not only by where work is performed but also by the characteristics of communication, coordination and the use of digital technologies. Furthermore, geographical dispersion and a high level of digital interaction may simultaneously characterise a single team, complicating the application of universal management approaches.

Accordingly, ensuring team effectiveness requires consideration of specific organisational conditions, the development of leaders' digital competencies and the application of management mechanisms aimed at maintaining trust, engagement and coordination of joint activities.

Despite the considerable opportunities offered by contemporary forms of team working, their functioning is accompanied by a range of management challenges associated with the geographical dispersion of employees, their cross-cultural characteristics, limited face-to-face interaction and dependence on digital technologies. The nature and severity of these challenges depend on the specific arrangements of work organisation, the degree of geographical dispersion within the team and the intensity of digital communication. Unlike traditional teams, in which a significant proportion of managerial functions are performed through direct interaction between employees and their leader, the digital environment requires the adaptation of mechanisms for communication, coordination, motivation and performance monitoring. A summary of the main challenges associated with managing remote, hybrid, distributed and virtual teams is presented in table 2.

Table 2

Main challenges of team management in a digital environment

Group of chalanges	Main manifestations	Specific manifestations across different team formats
Communication-related	Information barriers, misunderstandings, insufficient feedback, limited informal communication	In remote and virtual teams – dependence on digital communication; in hybrid teams – information asymmetry between office-based and remote employees; in distributed teams – difficulties in exchanging information across locations
Organisational	Increased complexity of task coordination, allocation of responsibilities, performance monitoring and synchronisation of work processes	In hybrid teams – the need to coordinate different working arrangements; in distributed teams – coordination across departments and locations; in remote and virtual teams – the need for transparent digital procedures
Socio-psychological	Weakening of interpersonal relationships, difficulties in building trust, social isolation, reduced sense of belonging to the team	Particularly evident when face-to-face interaction is limited; in virtual teams, the lack of non-verbal cues is an additional significant factor
Motivational	Reduced engagement, difficulties in maintaining team spirit, insufficient recognition of individual contributions, risk of professional burnout	In remote and virtual teams – limited personal support; in hybrid teams – the risk of unequal opportunities for recognition and career development; in distributed teams – differences in management practices
Technological	Technical failures, insufficient digital competence, information overload, cybersecurity risks	Across all team formats – dependence on the reliability of digital infrastructure; in distributed teams – potential differences in technological resources across locations
Cultural and time-related	Cross-cultural misunderstandings, differences in communication norms, time differences, difficulties in synchronous interaction	Most characteristic of international distributed and virtual teams whose members work across different time zones and cultural environments

Source: summarized by the author based on [1, 2, 11, 12, 13, 14, 15, 16].

The systematisation presented above indicates that the management challenges faced by contemporary teams are interconnected. In particular, communication barriers may complicate the coordination of activities and the development of trust, while technological limitations may exacerbate information inequalities and reduce employee engagement. At the same time, the specific manifestations of these challenges are determined less by a team's formal classification as a particular type than by the specific conditions under which it operates

Under these circumstances, digital leadership becomes particularly important, focusing on establishing an effective communication system, ensuring transparency in management processes, maintaining trust and developing team interaction. Accordingly, further investigation requires the identification of factors influencing team effectiveness that may be affected by the relevant management mechanisms [17].

Thus, overcoming management challenges is an important but insufficient condition for ensuring team effectiveness. The effectiveness of remote, hybrid, distributed and virtual teams is determined by a combination of organisational, technological and socio-psychological factors that influence the nature of employee interaction and the team's ability to achieve its objectives. Unlike traditional working arrangements, the digital environment places particular emphasis on communication quality, mutual trust, coordination of joint activities, employee engagement and access to digital tools. At the same time, team effectiveness should be assessed not only in terms of productivity but also in terms of task quality, timely achievement of results, team member satisfaction and the team's ability to adapt to change.

A systematisation of the main factors influencing team effectiveness and the corresponding performance characteristics is presented in table 3.

The factors outlined above form an interconnected system of prerequisites for effective teamwork. In particular, effective communication contributes to building trust and coordinating joint activities, while employee engagement and support for organisational culture create favourable conditions for collaboration. Technological support and competency development enhance the team's ability to perform tasks and adapt to changes.

Table 3

Factors and outcomes of team effectiveness in a digital environment

Factors influencing effectiveness	Characteristics	Expected outcomes
Effective communication	Timely exchange of information, availability of feedback, agreed rules for digital interaction	Reduction in communication errors, improved quality of joint decision-making
Mutual trust	Confidence in the reliability, competence and responsibility of team members	Enhanced collaboration, reduced need for excessive monitoring
Employee engagement	Commitment to shared goals, willingness to take responsibility and actively participate in teamwork	Increased motivation, job satisfaction and team cohesion
Coordination of activities	Clear allocation of tasks, coordination of deadlines, responsibilities and interdependent processes	Timely completion of tasks, reduction in organisational delays
Organisational culture and cross-cultural interaction	Shared values, cross-cultural sensitivity, respect for cultural differences, inclusive norms of interaction and support for team identity	Stronger team cohesion, improved cross-cultural understanding, enhanced collaboration and creation of conditions conducive to innovative solutions
Technological support	Availability, reliability and ease of use of digital platforms and collaboration tools	Improved continuity of work and efficiency of information exchange
Learning and development	Enhancement of team members' digital, professional and communication competencies	Improved quality of work, development of innovation potential
Adaptability of team processes	Ability to modify interaction methods, role allocation and working procedures in response to changing conditions	Increased flexibility and resilience of team activities

Source: systematized by the authors based on [11, 14, 17]

At the same time, the relative importance of individual factors may vary depending on the conditions under which a team operates. For remote and virtual teams, digital communication and maintaining trust are particularly important; for hybrid teams, ensuring equal participation of employees regardless of their work location is essential; and for geographically distributed teams, coordinating activities across locations is especially significant. Particular attention should be paid to distributed cross-cultural teams, whose effectiveness largely depends on the ability of their members to overcome linguistic and cultural barriers, reconcile different communication practices and utilise cultural diversity as a potential source of new knowledge and innovative solutions.

Therefore, ensuring the effectiveness of contemporary teams requires a comprehensive managerial influence on the organisational, technological and socio-psychological factors shaping team interaction. Digital leadership plays an important role in establishing the necessary conditions by combining technological capabilities with managerial competencies and directing them towards the achievement of shared outcomes.

The identified factors influencing team effectiveness provide a basis for substantiating the role of digital leadership in managing remote, hybrid, distributed and virtual teams. In this context, the influence of digital leadership should not be viewed as a direct relationship between leader competencies and team performance outcomes, but rather as operating through a set of management mechanisms that facilitate the organisation of joint activities, the coordination of individual efforts and the maintenance of productive interaction in a digital environment [9].

One of the key mechanisms through which digital leadership influences team effectiveness is the organisation of digital communication, which involves establishing agreed rules for information exchange, combining synchronous and asynchronous forms of interaction, ensuring transparency in managerial decisions and providing timely feedback [16]. The implementation of this mechanism creates the conditions for reducing information asymmetry, overcoming communication barriers and improving the coordination of teamwork. At the same time, mechanisms for building trust and maintaining employee engagement are particularly important. These are implemented through consistency in managerial actions, delegation of authority, provision of autonomy, recognition of individual contributions and involvement of team members in decision-making. Collectively, these mechanisms contribute to creating a favourable socio-psychological environment, strengthening team interaction and sustaining employee motivation.

The coordination mechanism of digital leadership plays an important role in ensuring team effectiveness. It is implemented through the alignment of shared goals, clear allocation of roles and responsibilities, establishment of priorities, and use of digital platforms for planning and monitoring task completion [17]. Its application contributes to aligning individual and collective efforts, increasing the transparency of work processes and reducing organisational barriers. Equally important is the organisational learning mechanism, which involves systematic knowledge sharing, dissemination of successful practices, development of digital and professional competencies, and joint analysis of performance outcomes. The implementation of this mechanism creates the conditions for accumulating collective knowledge, improving team processes, adapting to change and developing the team's innovation potential.

These mechanisms are particularly important in geographically distributed cross-cultural teams, where cultural and linguistic differences, diverse communication practices and time differences may complicate mutual understanding, coordination of activities and trust-building. Under such conditions, cross-cultural integration becomes an important mechanism of digital leadership, involving the development of cross-cultural competencies, the creation of an inclusive environment, the establishment of shared communication norms and the adaptation of interaction methods to the cultural characteristics of team members. The use of asynchronous collaboration tools, ensuring equal participation of employees and creating opportunities for knowledge sharing contribute to overcoming cross-cultural barriers [12]. At the same time, effective management of cultural diversity makes it possible to regard it not only as a

source of potential difficulties but also as a resource for developing creative potential, generating new ideas and producing innovative solutions.

Thus, the mechanisms of digital leadership are complementary and provide a comprehensive managerial influence on the organisational, technological and socio-psychological factors affecting team effectiveness. Their effectiveness depends on the digital leader's ability to adapt management practices to the specific characteristics of remote, hybrid, distributed and virtual teams, combining technological capabilities with the development of human potential. This provides a theoretical foundation for substantiating the relationships between digital leader competencies, mechanisms of managerial influence, factors influencing effectiveness and team performance outcomes within the authors' conceptual model.

At the same time, the effectiveness of managerial influence depends on the digital leader's ability to adapt the relevant mechanisms to the specific characteristics of teamwork, facilitate organisational learning and maintain employees' readiness for change. Thus, digital leadership can be regarded as an integrating factor that brings together the technological, organisational and socio-psychological prerequisites for team effectiveness. This provides a basis for developing a conceptual model that reflects the relationships between digital leader competencies, mechanisms of managerial influence, factors influencing effectiveness and team performance outcomes, taking into account the contextual characteristics of different team working arrangements.

Based on a synthesis of the research findings, a conceptual model of the influence of digital leadership on the effectiveness of remote, hybrid, distributed and virtual teams is proposed (fig. 1). The model reflects the relationships between digital leader competencies, mechanisms of managerial influence, factors influencing effectiveness and team performance outcomes. Its distinctive feature is the consideration of contextual team characteristics, including geographical dispersion, degree of virtuality, working arrangements, time differences, and cultural and linguistic diversity, which may shape the implementation of management mechanisms.

The proposed conceptual model is based on a systemic understanding of digital leadership as an integrative managerial phenomenon whose influence on team effectiveness is realised through the interaction of technological, organisational and socio-psychological components. Unlike approaches that focus primarily on individual characteristics of digital leadership or the specific features of remote interaction, the model provides for a sequential examination of the relationships between digital leader competencies, mechanisms of managerial influence, factors influencing effectiveness and team performance outcomes. This approach makes it possible to consider digital leadership not only as a set of individual characteristics of a leader but also as a managerial resource realised through specific organisational processes and practices of team interaction.

The first block of the model encompasses the technological, strategic, innovation, communication, socio-psychological, and learning and development competencies of a digital leader, which form the basis of their managerial potential. However, the possession of these competencies does not in itself guarantee team effectiveness, as their practical application through appropriate mechanisms of managerial influence is of decisive importance. In particular, technological and communication competencies enable the organisation of digital interaction; strategic competencies facilitate the alignment of team goals and priorities; socio-psychological competencies contribute to building trust and maintaining employee engagement; while innovation and learning and development competencies stimulate organisational learning and adaptation to change. At the same time, the relationships between competencies and mechanisms are not unambiguous, as the implementation of each management mechanism may require the simultaneous application of several groups of competencies.

The second block of the model represents the mechanisms of managerial influence through which digital leader competencies are translated into specific managerial actions. These include the organisation of digital communication, trust-building, maintaining employee motivation and engagement, coordination of activities, cross-cultural integration, organisational learning and change management. These mechanisms contribute to creating favourable conditions for team interaction, reducing organisational and communication barriers, and aligning the individual efforts of team members. Their implementation involves not only the use of digital tools but also the introduction of transparent rules for collaboration, ensuring access to information, supporting employee autonomy and establishing shared responsibility for performance outcomes. Thus, management mechanisms serve as a conceptual link connecting the competency potential of a digital leader with the characteristics of the team environment.

The third block of the model characterises the factors influencing team effectiveness that are shaped and modified by management practices. These include communication quality, mutual trust, employee engagement, coordination of work processes, organisational culture and cross-cultural interaction, as well as technological support and adaptability. It is important to distinguish between management mechanisms and the corresponding factors influencing effectiveness: while the former reflect the purposeful actions of a digital leader, the latter characterise the state and quality of team interaction that may develop as a result of such actions. For example, the introduction of transparent communication rules constitutes a management mechanism, whereas the timeliness, accessibility and meaningfulness of information exchange characterise communication quality as a factor influencing team effectiveness. Similarly, practices involving delegation of authority, support and feedback may create the conditions for strengthening mutual trust and engagement among team members.

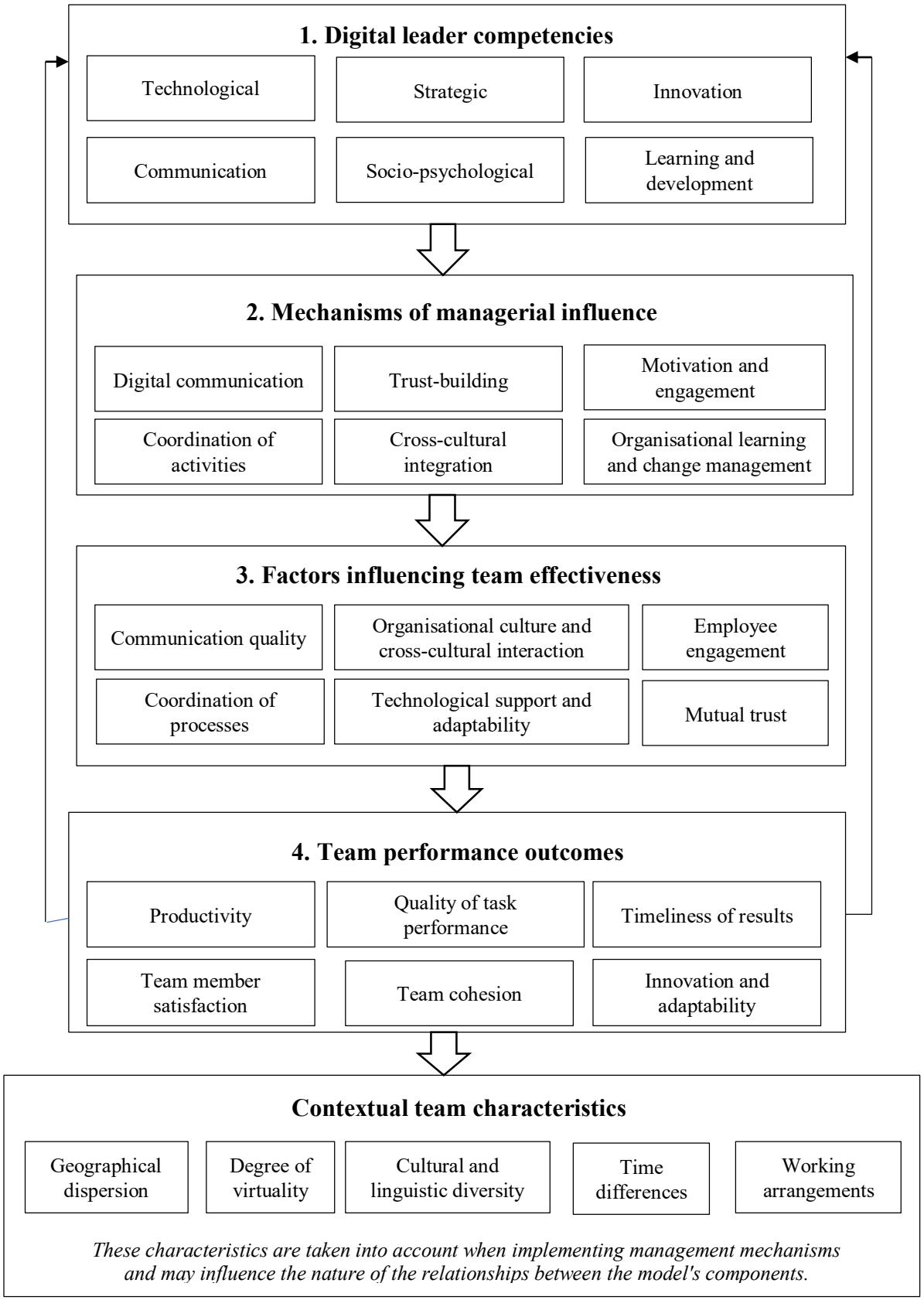


Fig. 1. Conceptual model of the influence of digital leadership on the effectiveness of remote, hybrid, distributed and virtual teams
Source: proposed by the authors

The fourth block of the model represents team performance outcomes, which are proposed to be considered as a multidimensional characteristic of effectiveness. This encompasses productivity, quality and timeliness of task completion, team member satisfaction, team cohesion, innovation and adaptability. Such an approach makes it possible to avoid equating effectiveness exclusively with quantitative indicators of completed work and to consider

both operational outcomes and the socio-psychological characteristics of team functioning. Individual outcomes may also be interconnected: for example, increased cohesion may create favourable conditions for coordinating joint activities, while the development of adaptability may help sustain team performance during organisational change. At the same time, the nature and strength of these relationships require further empirical validation.

A distinctive feature of the proposed model is its consideration of contextual team characteristics that may influence the implementation of management mechanisms and their relationship with performance outcomes. These characteristics include the geographical dispersion of team members, the degree of virtuality of interaction, working arrangements, time differences, and cultural and linguistic diversity. The latter are particularly important in geographically distributed cross-cultural teams, where differences in values, communication norms and professional practices may simultaneously create barriers to mutual understanding and provide opportunities for knowledge sharing and the development of innovative solutions. Under such conditions, digital leadership involves adapting communication and coordination mechanisms, establishing inclusive rules of interaction and maintaining a shared team identity. Accordingly, contextual characteristics should be regarded as potential moderators of the relationships between management mechanisms, factors influencing effectiveness and team performance outcomes.

Thus, the proposed conceptual model makes it possible to integrate the competency-based, process-oriented and performance-related aspects of digital leadership into a unified system of relationships. Its scientific value lies in substantiating the indirect nature of the influence of digital leadership on team effectiveness and taking into account the contextual characteristics of different team working arrangements. The model provides a theoretical and methodological foundation for developing differentiated management recommendations and conducting further empirical research into the identified relationships.

The practical implementation of the proposed conceptual model involves adapting digital leadership mechanisms to the organisational, technological and socio-psychological characteristics of team activities. In this context, priority should be given to establishing a management environment focused on transparency of communication, mutual trust, employee autonomy and coordination of joint activities. The selection of specific management tools should be determined not only by working arrangements but also by the degree of geographical dispersion, the nature of tasks, the level of digital interaction and the cultural diversity of team members.

In managing remote teams, attention should be focused on establishing clear rules for digital communication, defining expected performance outcomes and ensuring regular feedback. Practical tools for implementing digital leadership may include agreed communication protocols, digital task management platforms, individual meetings between leaders and employees, and performance assessment based on defined criteria. It is important to maintain a balance between employee autonomy and the necessary managerial support, thereby reducing the risks of excessive monitoring, professional isolation and declining engagement.

For hybrid teams, a key priority for improving management is ensuring equal participation of employees regardless of their location. This involves introducing common digital channels for information exchange, documenting managerial decisions, organising meetings that enable full remote participation and applying transparent performance assessment criteria. Particular attention should be paid to preventing information inequalities and creating conditions in which physical presence in the office does not determine employees' access to professional opportunities, participation in decision-making or career development.

In managing geographically distributed teams, the digital leader's priority tasks include coordinating activities across different locations, aligning work processes and ensuring access to information. It is advisable to use shared digital environments for task management and knowledge exchange, clearly define areas of responsibility and combine synchronous and asynchronous forms of interaction. These mechanisms are particularly important in cross-cultural teams, where the effectiveness of collaboration may depend on linguistic differences, cultural norms, specific features of professional communication and time zones. Under such conditions, it is recommended to establish shared rules for cross-cultural interaction, ensure clarity of communication, maintain an inclusive environment and develop the cross-cultural competencies of leaders and employees. It is also important to create opportunities for exchanging experience and knowledge among representatives of different cultures, thereby facilitating the use of cultural diversity as a potential resource for team development and innovation.

For virtual teams, whose activities are largely based on digital interaction, it is important to ensure technological accessibility, maintain social presence and develop a shared team identity. The practical implementation of digital leadership may involve regular team discussions, the use of interactive digital collaboration tools, the development of peer learning practices and the creation of opportunities for informal interaction. At the same time, excessive digital communication should be avoided by ensuring an appropriate balance between synchronous meetings, asynchronous information exchange and independent work by team members.

Thus, the practical implementation of digital leadership requires a differentiated approach to selecting management mechanisms, taking into account the specific characteristics of team activities. At the same time, the proposed recommendations are complementary, as a single team may simultaneously be characterised by remote working arrangements, geographical dispersion, a high degree of virtuality and cultural diversity. The comprehensive application of appropriate management practices creates the conditions for improving the quality of team interaction, maintaining employee engagement and achieving organisational objectives.

CONCLUSIONS OF THE STUDY AND PROSPECTS FOR FURTHER RESEARCH IN THIS AREA

The study has systematised the operational characteristics of remote, hybrid, distributed and virtual teams and identified the main management challenges and factors influencing their effectiveness in the context of digital transformation. It has been substantiated that digital leadership plays an important role in ensuring effective team interaction through mechanisms of digital communication, trust-building, maintaining employee engagement, coordination of activities, cross-cultural integration and organisational learning. It has been established that the specific ways in which these mechanisms are implemented are determined not only by working arrangements but also by the degree of virtuality of interaction, the geographical dispersion of team members, time differences, and the team's cultural and linguistic diversity.

The scientific novelty of the study lies in the development of the authors' conceptual model of the influence of digital leadership on the effectiveness of remote, hybrid, distributed and virtual teams. The model integrates digital leader competencies, mechanisms of managerial influence, factors influencing effectiveness and team performance outcomes, taking into account the contextual characteristics of teamwork. Unlike approaches that primarily consider individual digital leader competencies or the specific characteristics of digital interaction, the proposed model emphasises the indirect nature of managerial influence and the potential moderating role of the organisational and sociocultural context. The practical significance of the findings lies in the substantiation of differentiated recommendations for implementing digital leadership across different team working arrangements, particularly with regard to ensuring effective communication, coordinating activities, maintaining employee engagement and managing cross-cultural interaction.

Prospects for further research are associated with the empirical validation of the proposed conceptual model and the assessment of relationships between digital leader competencies, mechanisms of managerial influence and indicators of team effectiveness. Particular attention should be paid to investigating geographically distributed cross-cultural teams, determining the influence of cultural and linguistic diversity and time differences on the effectiveness of management practices, and conducting a comparative analysis of the effectiveness of digital leadership mechanisms across different team working arrangements. This will make it possible to refine the propositions of the proposed model and develop empirically grounded approaches to digital leadership development in contemporary organisations.

References

1. Contreras, F., Baykal, E. & Abid, G. (2020). E-leadership and teleworking in times of COVID-19 and beyond: what we know and where do we go. *Frontiers in Psychology,* 11. article 590271. https://doi.org/10.3389/fpsyg.2020.590271
2. Gilson, L. L., Maynard, M. T., Jones Young, N. C., Vartiainen, M. & Hakonen, M. (2015). Virtual teams research: 10 years, 10 themes, and 10 opportunities. *Journal of Management,* 41, 5. 1313–1337. https://doi.org/10.1177/0149206314559946
3. Larson, L. & DeChurch, L. A. (2020). Leading teams in the digital age: Four perspectives on technology and what they mean for leading teams. *The Leadership Quarterly*, 31(1), article 101377. https://doi.org/10.1016/j.leaqua.2019.101377
4. Greimel, N. S., Kanbach, D. K. & Chelaru, M. (2023). Virtual teams and transformational leadership: An integrative literature review and avenues for further research. *Journal of Innovation & Knowledge,* 8(2), article 100351. https://doi.org/10.1016/j.jik.2023.100351
5. Mazur, H., Gudz, O. & Zalizniak, O. (2024). DEVELOPMENT OF A DIGITAL PROFILE TO ENSURE DIGITAL LEADERSHIP OF THE ENTERPRISE. *«Economics. Management. Business»,* 1(44), 51-57. https://doi.org/10.31673/2415-8089.2024.010007. Retrieved from https://journals.dut.edu.ua/index.php/emb/article/view/2927/2823
6. Ilich, L., & Akilina, O. (2025). Emotional intelligence in remote teams: building trust and productive interaction. *European Scientific Journal of Economic and Financial Innovation,* 1(15), 350-361. https://doi.org/10.32750/2025-0131
7. Shevel, Y., Garafonova, O., & Dvornyk, I. (2025). USE OF DIGITAL COMMUNICATION TOOLS IN THE MANAGEMENT OF REMOTE PROJECT TEAMS. *Development Service Industry Management*, *3*, 147-151. https://doi.org/10.31891/dsim-2025-11(22)
8. Dehtiar, D. (2026). Mechanism for managing remote teams in the IT industry. *Economy and Society*, (86). https://doi.org/10.32782/2524-0072/2026-86-52
9. Pererva, I., & Gruzina, I. (2026). Digital leadership in the context of digital transformation: an integrated theoretical and competency-based framework for remote, hybrid, distributed and virtual teams. *European Scientific Journal of Economic and Financial Innovation*, *3*(21), 441-455. https://doi.org/10.32750/2026-0335
10. Oliinyk, I. (2023). OPTIMIZING THE MANAGEMENT OF REMOTE TEAMS IN THE MODERN DIGITAL ECONOMY. *Taurida Scientific Herald. Series: Economics*, (18), 293-299. https://doi.org/10.32782/2708-0366/2023.18.34
11. Bravo-Duarte, F., Tordera, N., Rodríguez, I. (2025). Overcoming virtual distance: a systematic review of leadership competencies for managing performance in telework. *Frontiers in Organizational Psychology,* 2:1499248. https://doi.org/10.3389/forgp.2024.1499248
12. Povna, S. (2026). FACTORS IN THE FORMATION OF PRODUCTIVE DISTRIBUTED TEAMS IN THE CONTEXT OF GLOBAL DIGITAL TRANSFORMATIONS. *Problems and Prospects of Economics and Management*, (1(45), 457–467. https://doi.org/10.25140/2411-5215-2026-1(45)-457-467
13. Mahadevan, J., & Steinmann, J. (2023). Cultural intelligence and COVID-induced virtual teams: Towards a conceptual framework for cross-cultural management studies. *International Journal of Cross Cultural Management*, *23*(2), 317-337. https://doi.org/10.1177/14705958231188621
14. Kloepfer, S., & Carbon, C.-C. (2025). Leadership and trust in virtual teams. *Human Systems Management*, *44*(5), 890-900. https://doi.org/10.1177/01672533251331488
15. Torre, T. & Sarti D. (2020). The "Way" toward e-leadership: some evidence from the field. *Frontiers in Psychology*, 11, article 554253. https://doi.org/10.3389/fpsyg.2020.554253
16. Nguyen, P. M. B., Vo, X. V., Truong, G. N. T. & Truong, G. L. N. (2025). Digital leadership: a systematic literature review and research direction. *The Service Industries Journal.* https://doi.org/10.1080/02642069.2025.2512779
17. Karpilyanskyi, D., & Karpilyanska, M. (2025). ELECTRONIC LEADERSHIP AND ITS MAIN TASKS IN COMMERCIAL ORGANIZATIONS. *Organizational psychology. Economic psychology*, *37*(4), 86-97. https://doi.org/10.31108/2.2025.4.37.7