

Digital Leadership and Virtual Team Performance: A Study of Remote Work-Based Organizations

Djunaedi

IISIP YAPIS Biak

Email: djunaedi@iyb.ac.id

Input : January 17, 2025
Accepted: February 20, 2026

Revised : January 27, 2026
Published : February 27, 2026

ABSTRACT

The rapid growth of remote work and digital collaboration has transformed organizational structures and leadership practices across industries. As organizations increasingly rely on virtual teams, digital leadership has emerged as a critical capability for managing distributed employees and ensuring team effectiveness. This study aims to analyze the influence of digital leadership on virtual team performance within remote work-based organizations. This research employs a quantitative approach using primary data collected through an online survey distributed to employees working in virtual teams across remote or hybrid work environments. The sampling technique applied is purposive sampling, targeting respondents who actively participate in virtual collaboration using digital platforms. The collected data were analyzed using descriptive statistics, validity and reliability tests, and multiple regression analysis to examine the relationship between digital leadership and virtual team performance. The results indicate that digital leadership has a positive and statistically significant effect on virtual team performance. Effective digital communication, trust-building, and the strategic use of digital collaboration tools contribute to improving team productivity, coordination, and engagement in remote work environments. These findings suggest that leadership capabilities adapted to digital environments play an essential role in supporting effective teamwork in geographically dispersed teams. In conclusion, digital leadership is a crucial determinant of virtual team performance in remote work-based organizations. Strengthening digital leadership competencies can enhance collaboration, productivity, and overall team effectiveness in digital workplaces.

Keywords : Digital Leadership, Remote Work, Team Collaboration, Virtual Team Performance, Workplace Technology

INTRODUCTION

The rapid advancement of digital technologies, globalization, and the unprecedented disruption caused by the COVID-19 pandemic have significantly transformed the nature of work across industries worldwide. Organizations are increasingly adopting remote work arrangements and relying on virtual teams to maintain operational continuity and competitiveness in the digital economy. Remote work allows employees to collaborate from different geographical locations while utilizing digital communication platforms and collaborative technologies. This transformation has reshaped organizational structures and managerial practices, requiring leaders to adapt their leadership approaches to digital and technology-mediated environments. In this context, digital leadership has emerged as a crucial capability for managing distributed teams, facilitating virtual collaboration, and ensuring organizational effectiveness in remote work settings. Digital leadership refers to a leadership style that leverages digital technologies, information and communication technology (ICT), and collaborative platforms to guide, coordinate, and motivate team members working remotely. As organizations increasingly depend on virtual teams, the



role of digital leadership becomes essential for maintaining productivity, trust, and engagement among employees who rarely interact face-to-face (Hoque et al., 2025).

Remote work has become a dominant organizational model in many sectors, particularly in knowledge-intensive industries such as information technology, digital services, and software development. Virtual teams provide several strategic advantages, including greater workforce flexibility, access to global talent pools, and reduced operational costs related to physical infrastructure. These advantages make remote work an attractive model for organizations seeking to enhance efficiency and adaptability in highly competitive markets. However, despite its benefits, remote work also introduces new managerial challenges related to communication, coordination, and team cohesion. Unlike traditional work environments where employees interact directly, virtual teams rely heavily on digital platforms for communication and collaboration. Consequently, leaders must possess digital competencies and strategic communication skills to ensure that remote teams function effectively and remain aligned with organizational goals (Wulandari et al., 2025).

Previous studies emphasize that the effectiveness of virtual teams largely depends on the ability of leaders to manage digital collaboration, foster trust, and maintain team cohesion despite physical distance. Digital leaders are expected to facilitate clear communication, establish shared goals, and support team members through technology-mediated interactions. In remote work environments, leaders must also create a sense of belonging and engagement among employees who may experience feelings of isolation due to limited social interaction. Effective digital leadership therefore involves not only technological proficiency but also interpersonal capabilities that enable leaders to build trust, encourage knowledge sharing, and maintain collaborative relationships within distributed teams. When these leadership competencies are successfully implemented, virtual teams can achieve performance levels comparable to or even higher than traditional teams (Garro-Abarca et al., 2021).

Nevertheless, managing virtual team performance remains a complex challenge for many organizations. One of the most frequently cited issues in remote work environments is communication barriers caused by the absence of face-to-face interaction. Miscommunication, delayed responses, and differences in digital literacy among team members can hinder collaboration and reduce overall team effectiveness. In addition, virtual communication tools may sometimes limit the richness of interpersonal interaction, making it difficult for leaders to interpret emotional cues, resolve conflicts, or ensure clarity in task delegation. These communication challenges can negatively influence team coordination and productivity if not addressed through effective digital leadership practices (Elyousfi et al., 2021).

Another significant challenge in virtual team management relates to cultural diversity and time zone differences among team members. Virtual teams often consist of individuals from diverse cultural backgrounds who work in different geographic locations. While such diversity can enhance creativity and innovation, it may also create difficulties in communication, coordination, and decision-making processes. Differences in time zones can delay responses and complicate synchronous collaboration, which may slow down project progress and reduce efficiency. In addition, cultural differences in communication styles and work expectations can lead to misunderstandings that affect team cohesion and performance. Leaders must therefore adopt inclusive and adaptive leadership strategies to effectively manage these complexities in global virtual teams (Tadesse & Ayenew, 2023).

Trust and team cohesion are also critical factors influencing the performance of virtual teams. In traditional work environments, trust among team members is often built

through frequent interpersonal interaction and informal communication. However, in remote work settings where employees rarely meet physically, establishing trust becomes more challenging. Lack of trust may lead to reduced collaboration, lower engagement, and increased conflict among team members. Similarly, unclear roles and responsibilities can create confusion and reduce accountability within virtual teams. Research indicates that digital leaders play a vital role in fostering trust and cohesion by encouraging transparent communication, providing regular feedback, and creating a supportive virtual work environment (Kashive et al., 2022).

Another emerging challenge in remote work environments concerns the measurement and monitoring of employee performance. In traditional office settings, supervisors can directly observe employee behavior and progress. However, in virtual environments, leaders must rely on digital tools and performance metrics to evaluate productivity and work outcomes. This shift requires new approaches to performance management, including the use of digital monitoring systems, collaborative platforms, and data-driven performance indicators. Moreover, onboarding new employees in remote work environments can be particularly challenging because new team members may struggle to adapt to virtual communication patterns and organizational culture. These challenges highlight the need for leadership approaches that are specifically designed to support remote work and virtual collaboration (Qiu et al., 2025).

Given these challenges, digital leadership is increasingly recognized as a critical factor influencing the effectiveness and performance of virtual teams. Digital leaders are responsible for facilitating communication, coordinating team activities, and ensuring that team members remain motivated and engaged despite physical distance. One of the key roles of digital leadership is establishing structured and transparent communication processes within virtual teams. Clear communication helps reduce misunderstandings, clarify task expectations, and minimize conflicts among team members. When leaders provide consistent and well-organized communication channels, virtual teams can collaborate more effectively and achieve higher performance outcomes (Topaloglu & Anac, 2021).

In addition to communication, the ability of leaders to build trust and provide emotional support is essential for maintaining the effectiveness of virtual teams. Digital leaders must actively promote psychological safety and encourage open dialogue among team members. When employees feel supported and valued by their leaders, they are more likely to engage in collaborative activities and contribute innovative ideas to the team. Studies have shown that leadership behaviors that emphasize trust-building and empowerment can significantly enhance team cohesion, creativity, and overall performance in virtual work environments (Rizvi & Ilyaz, 2025).

Another important dimension of digital leadership involves the strategic use of digital collaboration tools. Leaders must be able to select and implement appropriate technological platforms that facilitate efficient communication, knowledge sharing, and task coordination among team members. Digital tools such as project management software, video conferencing platforms, and collaborative workspaces play a crucial role in supporting remote teamwork. When these tools are used strategically, they can enhance productivity, streamline workflows, and improve decision-making processes within virtual teams. Effective digital leaders therefore combine technological competence with managerial skills to optimize team performance in remote work contexts (Swart et al., 2022).

Despite the growing body of literature examining digital leadership and virtual team management, several research gaps remain. First, many existing studies focus primarily on the technological aspects of remote work without sufficiently exploring how

leadership behaviors influence team dynamics and performance in digital environments. Second, although prior research has identified the importance of communication, trust, and collaboration in virtual teams, the mechanisms through which digital leadership shapes these factors are not yet fully understood. Third, empirical studies that examine the direct relationship between digital leadership and virtual team performance remain relatively limited, particularly in organizations that rely extensively on remote work systems. These limitations highlight the need for further research that integrates leadership perspectives with the dynamics of virtual teamwork in digital workplaces (He et al., 2025).

Furthermore, previous studies often examine digital leadership within specific organizational contexts or industries, which may limit the generalizability of their findings. As remote work continues to expand across various sectors, it becomes increasingly important to investigate how digital leadership influences team performance in diverse organizational settings. Understanding these relationships can provide valuable insights for organizations seeking to improve the effectiveness of remote work arrangements and optimize the performance of virtual teams. Consequently, examining the interaction between digital leadership and virtual team performance represents a relevant and timely research topic in the evolving landscape of digital work environments (Hoque et al., 2025).

Based on these considerations, the novelty of this study lies in its attempt to provide a comprehensive analysis of how digital leadership influences virtual team performance within remote work-based organizations. Unlike previous studies that focus mainly on technological tools or remote work structures, this research emphasizes the leadership dimension as a key determinant of virtual team effectiveness. By integrating insights from digital leadership theory and virtual team management, this study contributes to the growing literature on leadership in digital workplaces and provides empirical evidence regarding the strategic role of leadership in managing remote teams.

Therefore, the objective of this study is to analyze the influence of digital leadership on virtual team performance in remote work-based organizations. Specifically, the study aims to examine how leadership practices in digital environments contribute to effective communication, trust-building, and collaboration within virtual teams, thereby enhancing overall team performance. Through this analysis, the research seeks to provide insights that can help organizations develop leadership strategies capable of supporting sustainable performance in increasingly digital and remote work environments.

METHOD

The study employs a quantitative research approach to examine the influence of digital leadership on virtual team performance within remote work-based organizations. The research focuses on employees who work in virtual teams and regularly perform their tasks through digital collaboration platforms. The population of this study consists of employees working in organizations that have adopted remote or hybrid work systems, particularly in sectors such as information technology, digital services, and knowledge-based industries where virtual teamwork is commonly implemented. The sampling technique used is purposive sampling, with respondents selected based on specific criteria, namely employees who have experience working in virtual teams and interacting with digital leadership practices within their organizations. Primary data are collected through a structured questionnaire distributed online using digital survey platforms. The questionnaire is designed using a Likert scale to measure respondents' perceptions of digital leadership practices and virtual team performance. The digital

leadership variable is measured through indicators such as digital communication effectiveness, technology utilization, trust-building capability, and leadership support in virtual environments. Meanwhile, virtual team performance is measured through indicators including team productivity, collaboration effectiveness, task completion, and overall team effectiveness in remote work settings.

The collected data are analyzed using statistical techniques to identify the relationship between digital leadership and virtual team performance. The analysis begins with descriptive statistics to provide an overview of respondent characteristics and the distribution of research variables. Subsequently, validity and reliability tests are conducted to ensure that the measurement instruments accurately capture the constructs being studied. After confirming the quality of the measurement model, inferential statistical analysis is performed using multiple regression analysis to examine the effect of digital leadership on virtual team performance. Prior to regression testing, classical assumption tests such as normality, multicollinearity, and heteroscedasticity tests are conducted to ensure the robustness of the model. The regression analysis allows the study to determine whether digital leadership significantly influences the performance of virtual teams in remote work environments. Through this analytical procedure, the research aims to provide empirical evidence regarding the role of digital leadership in enhancing collaboration, communication effectiveness, and productivity within virtual teams.

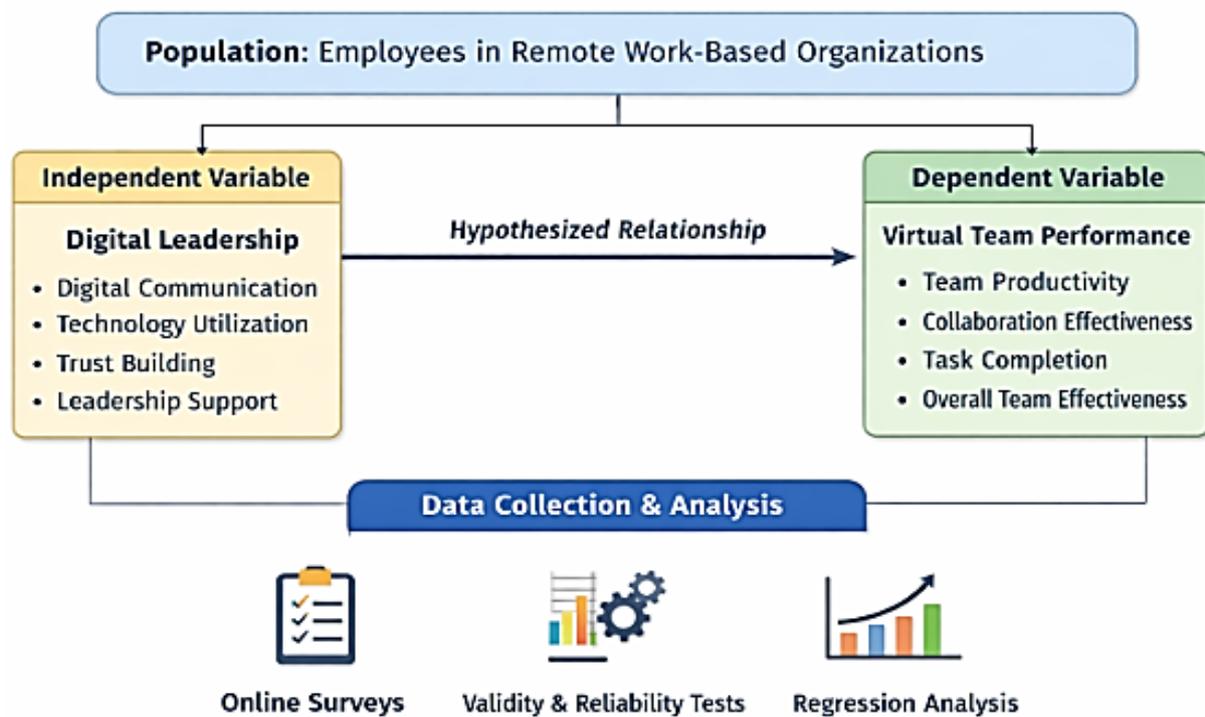


Figure 1. Diagram Conceptual Research

RESULT AND DISCUSSION

To examine the empirical relationship between digital leadership and virtual team performance in remote work-based organizations, the analysis begins with descriptive statistics of the research variables. Descriptive statistics are used to provide an overview of the characteristics of the data collected from respondents who work in virtual teams. The variables analyzed in this study include Digital Leadership as the independent variable and Virtual Team Performance as the dependent variable. In addition, demographic characteristics such as years of remote work experience and frequency of

digital collaboration are also considered to better understand the context of the respondents. The results of the descriptive statistical analysis are presented in Table 1.

Table 1. Descriptive Statistics of Research Variables

Variable	N	Mean	Std. Deviation	Minimum	Maximum
Digital Leadership	150	3.86	0.61	2.40	4.90
Virtual Team Performance	150	3.78	0.57	2.35	4.85
Communication Effectiveness	150	3.92	0.59	2.60	4.95
Trust and Team Cohesion	150	3.74	0.63	2.30	4.80
Technology Utilization	150	4.01	0.54	2.70	4.95

Based on Table 1, the descriptive statistics indicate that the average score for Digital Leadership is 3.86, suggesting that respondents generally perceive leadership practices in their organizations as moderately strong in supporting remote work environments. The mean score for Virtual Team Performance is 3.78, indicating that most virtual teams demonstrate relatively good performance levels in completing tasks and collaborating through digital platforms. Communication effectiveness shows a slightly higher mean value of 3.92, reflecting the importance of clear and structured communication in virtual teams. Technology utilization records the highest average score of 4.01, suggesting that digital tools and collaborative platforms are widely used to facilitate teamwork in remote work environments. Meanwhile, trust and team cohesion show a mean value of 3.74, indicating that although virtual teams perform effectively, maintaining strong interpersonal relationships remains a challenge in remote settings. Overall, these results provide an initial indication that digital leadership practices are associated with positive perceptions of virtual team performance.

Following the descriptive analysis, regression analysis was conducted to examine the influence of Digital Leadership on Virtual Team Performance. Multiple regression analysis was applied to determine whether digital leadership significantly predicts the effectiveness of virtual teams in remote work environments. The results of the regression analysis are presented in Table 2.

Table 2. Regression Analysis Results: Effect of Digital Leadership on Virtual Team Performance

Variable	Coefficient	Std. Error	t-Statistic	Probability
Constant	0.842	0.315	2.67	0.008
Digital Leadership	0.674	0.089	7.57	0.000
Communication Effectiveness	0.221	0.071	3.11	0.002
Trust and Team Cohesion	0.187	0.065	2.87	0.005
Technology Utilization	0.154	0.068	2.26	0.025
R²	0.53			
Adjusted R²	0.51			
F-statistic	41.28			0.000

The regression results presented in Table 2 demonstrate that Digital Leadership has a positive and statistically significant effect on Virtual Team Performance. The coefficient value of 0.674 with a significance level of 0.000 indicates that stronger digital leadership practices are associated with higher levels of virtual team performance. This finding suggests that leaders who effectively utilize digital communication, technology, and supportive leadership behaviors are better able to enhance team productivity and collaboration in remote work environments. In addition, communication effectiveness, trust and team cohesion, and technology utilization also show significant positive effects on virtual team performance. These results imply that effective leadership in remote work settings requires not only digital competence but also the ability to foster trust, facilitate communication, and strategically utilize digital collaboration tools. The model explains approximately 53 percent of the variation in virtual team performance, indicating that digital leadership and related factors play a substantial role in determining the effectiveness of virtual teams in remote work-based organizations.

Discussion

The results of this study provide empirical evidence regarding the influence of digital leadership on virtual team performance in remote work-based organizations. Based on the regression analysis presented in Table 2, digital leadership demonstrates a positive and statistically significant effect on virtual team performance. This finding indicates that leadership practices adapted to digital environments play a crucial role in enhancing the effectiveness, productivity, and collaboration of virtual teams. In remote work contexts where employees rely heavily on digital communication platforms and collaborative technologies, leadership behavior becomes a central determinant of team performance. Leaders who are able to utilize digital tools effectively, communicate clearly, and support team members remotely are more likely to foster productive and cohesive virtual teams. These results support the growing body of research that identifies digital leadership as a key factor influencing organizational success in remote work environments (Hoque et al., 2025).

One of the most important dimensions of digital leadership identified in this study is effective communication. The regression results indicate that communication effectiveness has a significant positive influence on virtual team performance. In remote work environments, communication often occurs through digital platforms such as video conferencing, messaging applications, and collaborative project management tools. These communication channels require leaders to adopt clear, structured, and empathetic communication styles to ensure that team members fully understand their tasks and responsibilities. Clear communication reduces ambiguity, prevents misunderstandings, and strengthens coordination among team members working across different locations. Previous studies emphasize that digital leaders who communicate effectively are able to enhance productivity and reduce potential conflicts within virtual teams. When leaders establish transparent communication processes, team members are more likely to collaborate efficiently and achieve higher performance outcomes (Wulandari et al., 2025).

In addition to clarity, empathetic communication also plays a crucial role in supporting virtual team performance. Remote work environments often limit informal interactions that typically occur in traditional office settings. As a result, employees may experience feelings of isolation or reduced engagement if leaders fail to maintain supportive communication. Leaders who demonstrate empathy and emotional support through digital communication can help strengthen team morale and maintain employee motivation. Empirical research indicates that communication that combines clarity,

empathy, and consistency significantly contributes to improving team productivity and task completion in virtual work environments. This reinforces the argument that communication competence is one of the most essential skills required for effective digital leadership (Gosav & David, 2025).

Another critical factor influencing virtual team performance is the ability of digital leaders to build trust among team members. Trust is a fundamental element of successful teamwork, particularly in remote environments where face-to-face interaction is limited. The findings of this study demonstrate that trust and team cohesion significantly contribute to virtual team performance. When team members trust their leaders and colleagues, they are more willing to share knowledge, collaborate on complex tasks, and support each other in achieving organizational goals. In virtual teams, trust must often be developed through transparent communication, consistent leadership behavior, and reliable coordination mechanisms. Leaders who actively encourage open dialogue and provide constructive feedback can help establish a strong foundation of trust within remote teams (Garro-Abarca et al., 2021).

Building trust in remote work environments also involves reducing psychological distance between team members and leaders. Digital leaders must ensure that employees feel connected to the organization despite geographical separation. Regular virtual meetings, feedback sessions, and collaborative problem-solving activities can help strengthen interpersonal relationships within the team. When employees perceive that their leaders are accessible, supportive, and responsive, they are more likely to remain engaged and committed to their work. Studies have shown that leadership behaviors that emphasize trust-building and team support significantly improve team cohesion and reduce potential conflicts in virtual work environments (Maalouf & Sarkis, 2025).

The strategic use of digital collaboration tools also plays a significant role in determining virtual team performance. The results of this study indicate that technology utilization has a positive and significant effect on team performance. Digital collaboration platforms enable team members to share information, coordinate tasks, and monitor project progress in real time. When leaders effectively integrate these tools into organizational workflows, they can enhance efficiency and reduce communication barriers within virtual teams. Digital technologies such as cloud-based platforms, task management systems, and video conferencing applications provide essential infrastructure for remote collaboration. However, the effectiveness of these tools largely depends on how they are managed and utilized by organizational leaders (Kang, 2025).

Effective digital leadership involves not only adopting technological tools but also ensuring that team members are capable of using them effectively. Leaders must provide guidance, training, and support to help employees adapt to digital work environments. Without proper support, technological complexity may hinder productivity and create frustration among team members. Research indicates that leaders who strategically integrate digital collaboration tools into team processes can significantly improve coordination and task completion in virtual teams. These findings highlight the importance of technological competence as a core component of digital leadership in remote work-based organizations (Tran, 2025).

Another dimension of digital leadership highlighted in previous studies is the adoption of transformational or enabling leadership styles. Transformational leadership behaviors encourage innovation, creativity, and collaboration among team members. In remote work environments, transformational leaders motivate employees by articulating a clear vision, providing inspiration, and empowering team members to contribute ideas and solutions. The ability of leaders to create a shared sense of purpose is particularly

important in virtual teams where employees may feel disconnected from organizational goals. Research suggests that transformational leadership behaviors significantly enhance engagement and performance in digital work environments by fostering a culture of collaboration and continuous learning (Wahab et al., 2023).

The positive relationship between digital leadership and virtual team performance identified in this study is also consistent with previous empirical research conducted in various organizational contexts. For example, studies conducted in multinational corporations and public sector organizations demonstrate that digital leadership significantly influences the effectiveness of virtual teams. Although the magnitude of the relationship may vary across industries, the overall evidence consistently suggests that leadership plays a central role in shaping team dynamics and productivity in remote work environments. Research conducted in the Canadian public sector found that e-leadership has a statistically significant effect on virtual team performance, although team dynamics such as collaboration and mutual support also play an important role in determining team outcomes (Elyousfi et al., 2021).

Similarly, several studies conducted in private sector organizations report strong positive relationships between digital leadership practices and team performance. Leaders who are skilled in managing digital communication platforms, facilitating collaboration, and addressing challenges related to remote work tend to achieve higher levels of team effectiveness. These findings highlight the importance of leadership competencies that combine technological knowledge with interpersonal skills. Digital leaders must be capable of balancing task-oriented management with relationship-oriented support in order to maintain team cohesion and productivity in virtual environments (Sharma et al., 2025).

Another important insight from previous research is that employee engagement often acts as a mediating factor between digital leadership and team performance. When leaders provide clear direction, constructive feedback, and emotional support, employees are more likely to feel engaged with their work. High levels of engagement encourage employees to invest greater effort in completing tasks and collaborating with colleagues. Studies on remote work management demonstrate that effective leadership practices significantly increase employee engagement, which in turn enhances virtual team performance. This indicates that digital leadership not only influences team outcomes directly but also shapes the motivational dynamics within remote teams (Wagan & Sidra, 2025).

In the broader context of remote work-based organizations, digital leaders are increasingly expected to act as facilitators and coordinators rather than traditional command-and-control managers. Remote work environments require leaders to adopt flexible management approaches that emphasize collaboration, autonomy, and shared responsibility. Instead of closely supervising employees, digital leaders focus on setting clear goals, providing guidance, and ensuring that team members have the resources needed to perform their tasks effectively. This leadership approach is particularly important in global virtual teams where employees operate across multiple time zones and cultural contexts (Wulandari et al., 2025).

The findings of this study also highlight the importance of managing psychological and organizational challenges associated with remote work. Virtual teams often experience difficulties related to time zone differences, cultural diversity, and limited social interaction. Digital leaders must therefore develop strategies that support collaboration and reduce the negative effects of geographical distance. For example, leaders may implement flexible communication schedules, encourage knowledge sharing through digital platforms, and promote inclusive decision-making processes. These

practices help ensure that team members remain connected and motivated despite the physical separation inherent in remote work environments (Garro-Abarca et al., 2021).

In addition, effective digital leadership requires the ability to balance technological efficiency with human-centered leadership practices. While digital tools enable efficient coordination and communication, successful leadership ultimately depends on the ability to understand and support the needs of team members. Leaders must remain attentive to issues such as workload management, employee well-being, and work-life balance, which are particularly relevant in remote work contexts. Studies indicate that leaders who prioritize employee well-being and provide emotional support are more likely to maintain stable and productive virtual teams (Tatarinov et al., 2024).

Overall, the findings of this study confirm that digital leadership plays a fundamental role in determining the performance of virtual teams in remote work-based organizations. The results demonstrate that effective communication, trust-building, strategic technology utilization, and supportive leadership behaviors collectively contribute to improved team productivity and collaboration. These findings are consistent with previous research emphasizing that leadership remains a central determinant of organizational performance even in highly digitalized work environments. By combining technological competence with interpersonal leadership skills, digital leaders can create collaborative, resilient, and high-performing virtual teams capable of adapting to the evolving demands of the digital workplace (Hoque et al., 2025).

In conclusion, this study highlights the strategic importance of digital leadership in shaping the effectiveness of remote work-based organizations. As remote work continues to expand across industries, organizations must invest in leadership development programs that enhance digital leadership competencies. Leaders who are capable of managing communication, fostering trust, and utilizing digital collaboration tools effectively will be better positioned to support the performance of virtual teams. Consequently, digital leadership should be recognized as a key organizational capability that enables companies to achieve sustainable performance in the increasingly digital and distributed world of work.

CONCLUSION

The findings of this study demonstrate that digital leadership plays a significant role in improving the performance of virtual teams within remote work-based organizations. The empirical results indicate that digital leadership positively influences virtual team performance through several key mechanisms, including effective digital communication, trust building among team members, and the strategic use of digital collaboration tools. Leaders who are able to communicate clearly, provide support, and manage virtual collaboration platforms effectively can reduce coordination barriers and enhance productivity in remote work environments. In addition, leadership behaviors that foster trust and team cohesion contribute to stronger collaboration and engagement among virtual team members. These findings confirm that digital leadership is a critical organizational capability for managing distributed teams and sustaining high performance in remote work settings. Therefore, the study concludes that organizations adopting remote work systems must strengthen digital leadership competencies to ensure effective communication, collaborative teamwork, and sustainable performance of virtual teams.

IMPLICATIONS

The findings of this study provide several important implications for organizations that increasingly rely on remote work and virtual teams. First, organizations need to recognize digital leadership as a critical capability that supports effective coordination, communication, and collaboration in technology-mediated work environments. Leaders must be equipped with both technological competencies and interpersonal skills to manage distributed teams effectively. Training programs focusing on digital communication, virtual collaboration management, and trust-building strategies can help leaders adapt to the challenges of remote work environments. In addition, organizations should invest in reliable digital collaboration tools and establish clear communication structures that facilitate transparency and coordination among team members. By strengthening digital leadership capabilities and supporting technological infrastructure, organizations can improve virtual team performance, maintain employee engagement, and enhance overall organizational productivity in the era of remote work.

REFERENCES

- Allababidi, D., & Erdoğan, A. (2025). Evaluating the effects of remote leadership approaches on individual outcomes in Türkiye's digital creative workplaces. *Journal of Original Studies*. <https://doi.org/10.47243/jos.2825>
- Elyousfi, F., Anand, A., & Dalmasso, A. (2021). Impact of e-leadership and team dynamics on virtual team performance in a public organization. *International Journal of Public Sector Management*. <https://doi.org/10.1108/ijpsm-08-2020-0218>
- Garro-Abarca, V., Palos-Sánchez, P., & Aguayo-Camacho, M. (2021). Virtual teams in times of pandemic: Factors that influence performance. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.624637>
- Gosav, R., & David, S. (2025). Exploring the influence of leadership communication on the performance of virtual teams in the digital era. *Annals of Dunarea de Jos University of Galati. Fascicle I. Economics and Applied Informatics*. <https://doi.org/10.35219/eai15840409522>
- He, Y., Cheng, C., & Wang, L. (2025). Unmasking the effects of e-leadership on virtual team effectiveness by an integrated fsQCA and NCA method. *PLOS One*, 20. <https://doi.org/10.1371/journal.pone.0331500>
- Hoque, M., Zhang, X., Rahman, M., Zahra, B., & Hasnat, M. (2025). A comprehensive review of enhancing collaboration and performance in virtual teams. *Review of Business and Economics Studies*. <https://doi.org/10.26794/2308-944x-2025-13-1-93-108>
- Kang, T. (2025). Effects of remote-work capabilities of virtual team on task performance of multinational enterprises. *The EURASEANs: Journal on Global Socio-Economic Dynamics*. [https://doi.org/10.35678/2539-5645.4\(53\).2025.124-135](https://doi.org/10.35678/2539-5645.4(53).2025.124-135)
- Karakose, T., Kocabas, I., Yirci, R., Papadakis, S., Ozdemir, T., & Demirkol, M. (2022). The development and evolution of digital leadership: A bibliometric mapping approach-based study. *Sustainability*. <https://doi.org/10.3390/su142316171>

- Kashive, N., Khanna, V., & Powale, L. (2022). Virtual team performance: E-leadership roles in the era of COVID-19. *Journal of Management Development*. <https://doi.org/10.1108/jmd-05-2021-0151>
- Maalouf, N., & Sarkis, N. (2025). The influence of virtual team-specific factors and communication factors on team performance. *The Learning Organization*. <https://doi.org/10.1108/tlo-05-2024-0153>
- Qiu, K., Raylos, C., & Penetrante, M. (2025). Virtual team management in the IT sector: State, challenges, and opportunities toward a strategic framework. *Psychology and Education: A Multidisciplinary Journal*. <https://doi.org/10.70838/pemj.381004>
- Rizvi, Y., & Ilyaz, A. (2025). Relational digital leadership for creative performance: Does remote work intensity matter? *Personnel Review*. <https://doi.org/10.1108/pr-05-2024-0512>
- Sharma, R., Choudhary, A., & Singh, P. (2025). Leading hybrid and remote teams: Challenges, strategies, and performance outcomes. *International Journal for Multidisciplinary Research*. <https://doi.org/10.36948/ijfmr.2025.v07i04.50054>
- Swart, K., Bond-Barnard, T., & Chugh, R. (2022). Challenges and critical success factors of digital communication, collaboration and knowledge sharing in project management virtual teams: A review. *International Journal of Information Systems and Project Management*. <https://doi.org/10.12821/ijispm100404>
- Tadesse, A., & Ayenew, Z. (2023). Managing virtual teams and system thinking: A systematic review. *Journal of Intelligent Management Decision*. <https://doi.org/10.56578/jimd020305>
- Tatarinov, K., Muzyka, S., Anikienko, N., & Savchenko, I. (2024). Leadership in virtual teams. *Vestnik Altaiskoi Akademii Ekonomiki i Prava*. <https://doi.org/10.17513/vaael.3228>
- Topaloglu, M., & Anac, A. (2021). Exploring major factors affecting virtual team performance. *European Journal of Business and Management Research*. <https://doi.org/10.24018/ejbmr.2021.6.5.1071>
- Tran, A. (2025). Digital collaboration in remote-first HR firms: Key drivers of global team effectiveness. *EuroMid Journal of Business and Tech-Innovation (EJBTI)*. <https://doi.org/10.51325/ejbti.v4i2.214>
- Wagan, S., & Sidra, S. (2025). Remote work management. *Brazilian Journal of Operations & Production Management*. <https://doi.org/10.14488/bjopm.2526.2025>
- Wahab, N., Abdullah, N., Rodzalan, S., & Rahman, Z. (2023). The linkage between virtual team leadership towards team performance: A study at selected companies. *Journal of Techno-Social*. <https://doi.org/10.30880/jts.2023.15.01.003>
- Wulandari, A., Han, Y., & Sugiono, E. (2025). The role of virtual leadership and collaboration tools in enhancing remote team productivity in software house industry. *Multidisciplinary Indonesian Center Journal (MICJO)*. <https://doi.org/10.62567/micjo.v2i2.517>
- Калінін, О., & Дубенський, П. (2025). Conceptual foundations for the formation of a virtual team management system in the digital economy. *Scientific Notes of the University "KROK"*. <https://doi.org/10.31732/2663-2209-2025-77-236-245>