

# Digital Leadership: Predicting Team Dynamics, Communication Effectiveness, and Team Performance

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**Received:** 30<sup>th</sup> May 2024/ **Revised:** 8<sup>th</sup> July 2024  
**Accepted:** 10<sup>th</sup> July 2024/ **Published Online:** 23<sup>rd</sup> July 2024

**Abstract** - Digitalization is essential in modern business organizations, where it transforms the operational framework and increases competitive advantage through the integration of advanced technologies. This transformation enables real-time data analysis, improves communication channels, and automates routine tasks, thereby driving innovation and efficiency that ultimately drives sustainable growth and success in a highly competitive market environment. The research observed the effect of digital leadership on team dynamics, communication effectiveness, and team performance. Data were collected by using a Likert scale questionnaire with 117 individual respondents across various business organizations in Yogyakarta and Banten, Indonesia. Then, the data obtained were analyzed using Structural Equation Modeling (SEM) in AMOS software. The results show that digital leadership has a significant effect on team dynamics and communication effectiveness. In addition, communication effectiveness has been proven to have a significantly positive effect on team performance. However, there is no direct relationship between team dynamics and performance. The results underscore the importance of strengthening digital leadership and communication effectiveness to improve team performance. Organizations should prioritize fostering a collaborative culture through digital platforms, effectively managing conflicts, and ensuring timely communication. Digital leadership should promote a participatory culture, handle conflicts

adeptly, and maintain teams motivated through an effective digital approach. Lastly, organizations must provide effective digital communication tools and ensure team members understand how to use them.

**Keywords:** digital leadership, team dynamics, communication effectiveness, team performance

## I. INTRODUCTION

The swift advancement of the digital era has altered the business landscape, presenting organizations with new and complex challenges in the management of their workforce (Ciriello et al., 2024). This digital revolution demands updated human resource management to align teams with the latest technologies and to stay competitive in an ever-changing market (Fan & Xu, 2024). Organizations should recognize that digital transformation not only involves the application of technology but also cultural changes (Gatell & Avella, 2024), work processes (Bansal et al., 2023), and leadership paradigms (Memon & Ooi, 2023) to achieve full effectiveness.

Team management in the digital age extends beyond routine tasks and responsibilities. It involves understanding how technology can be applied to improve collaboration (Freeman & McNeese, 2019), efficiency (Saeed et al., 2013), and innovation (Mbama & Ezepue, 2018; Freeman & McNeese, 2019). The main challenge for organizations is to create an adaptive environment in which leaders and team members can respond quickly to technological

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doi: <https://doi.org/10.21512/tw.v25i1.11678>

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How to Cite: Subiyanto, D., Wahidah, U., Septyarini, E., & Arjuna, A. B. (2024). Digital leadership: Predicting team dynamics, communication effectiveness, and team performance. *Journal The Winners*, 25(1), 35-47.

advancements and emerging market trends (Zeng et al., 2023). In an evolving work environment, updated human resource management policies are crucial for effectively applying technical expertise and soft skills (Jannah et al., 2018; Richard & Johnson, 2001).

Effective leadership is a key to team performance, especially amid digital transformation involving the use of increasingly sophisticated information and communication technology (Xia et al., 2023). One form of leadership that emerges in response to this dynamic is digital leadership. Digital leadership offers an innovative approach to team management, with a focus on applying technology and adapting to rapid changes (AlAjmi, 2022; Ardi et al., 2020; Memon & Ooi, 2023).

However, it is necessary to consider the mediating factors that can moderate the relationship between leaders and team members to understand how digital leadership affects team performance more deeply. Team dynamics and communication effectiveness are identified as mediation variables that have not been widely explored in previous studies. Team dynamics includes interpersonal interactions, collaboration, and sense of belonging in a team (Watkins & Hensley, 2023). Communication effectiveness involves the leader's ability to convey vision and instructions clearly, as well as the team members' ability to communicate effectively with each other (Burns & Patel, 2019; Manata et al., 2021; Schei et al., 2023). Team dynamics and communication effectiveness are considered to be mediating factors that bridge the effect of digital leadership on overall team performance.

Digital leadership centers on the use of information and communication technology as a tool to lead, manage, and motivate team members to achieve common goals (Mishra et al., 2023). It may include using digital communication tools, online collaboration platforms, and other technologies to facilitate teamwork (Memon & Ooi, 2023). It implies that leaders who can integrate digital technologies effectively drive positive changes in the way teams operate and interact (Müller et al., 2024). Digital leadership in an organization has a significant impact on team dynamics (Xia et al., 2023). The way a leader adopts and implements digital technologies can shape, modify, or even change the way teams interact, collaborate, and feel membership in those teams (Chatterjee et al., 2023; Memon & Ooi, 2023).

Meanwhile, team dynamics encompass complex interactions between team members that are influenced by factors such as technological expertise, virtual communication, adaptation to change, and collaboration across time and space boundaries (Dempster et al., 2023). In the digital age, effective leadership will constantly change team dynamics as well as the ability to integrate technological innovation into leadership strategies to improve overall team performance and success (Baird et al., 2020).

Careful scientific research is required to understand how digital technology introduced by

leaders can improve team dynamics. Therefore, the research attempts to identify how elements of digital leadership can create a positive impact on interactions and relationships within teams, forming the foundation for a more holistic understanding of team dynamics in the digital age.

H1: Digital leadership positively contributes to team dynamics

The effect of digital leadership on communication effectiveness can be explained through several concepts and theories in the literature on management and organizational communication. Digital leadership can be attributed to the transformational theory of leadership, where the leader not only focuses on achieving organizational goals but also motivates and inspires team members to reach their best potential (Ardi et al., 2020). Digital leadership that leverages technology to empower team members can improve the quality of interpersonal interactions and communication by developing strong relationships between leaders and team members.

Digital leadership includes the use of online communication platforms, digital collaboration tools, or technology-focused communication strategies (Adegoke, 2023). In addition, it can be interpreted as the assumption that leaders who use digital technology effectively will create conditions that support more efficient and effective communication among team members or within the entire organization (Corbett & Spinello, 2020). How exactly digital leadership contributes to communication effectiveness can be reviewed through ease of access to information, increased speed and responsiveness in communication, or more open and transparent communication channels (Hung et al., 2023).

Leaders who adopt digital leadership can improve team communication skills and ensure that information is conveyed clearly and precisely. It increases the effectiveness of communication (Aggar et al., 2021; Nieken, 2023). Therefore, the research seeks to identify and understand the elements of digital leadership that can contribute significantly to improving communication effectiveness in modern organizations. Thus, through the adoption of digital leadership, organizations can achieve significant improvements in communication effectiveness, creating adaptive, collaborative, and responsive work environments.

H2: Digital leadership positively contributes to communication effectiveness

Employee engagement is a key factor in achieving optimal team performance (Buil et al., 2019; Prentice et al., 2023). Digital leadership can increase employee engagement by providing access to digital tools and platforms to increase team members' engagement, collaboration, and active participation (Bagga et al., 2023; Corbett & Spinello, 2020).

Therefore, leaders should adjust their leadership style according to the situation at hand. In the context of digital leadership, leaders must be able to assess team needs and select appropriate digital tools or strategies to support team performance (AlNuaimi et al., 2022).

Effective digital leadership can shape positive team dynamics and improve collaboration, coordination, and motivation (Xia et al., 2023). Digital leadership is often associated with improving operational efficiency through the application of technology and innovation (Purwoko & Bin Hassan, 2023). By leveraging digital technology, leaders can create more efficient work processes, allowing teams to work more productively and achieve goals faster (Dabić et al., 2023). Digital leadership involves using digital technology in managing and leading teams, which can improve operational efficiency, facilitate collaboration, and improve information accessibility for team members. By empowering team members through access to digital tools and resources, digitally leading leaders increase their potential, motivate them to take the initiative, and increase positive contributions to overall team performance (Baird et al., 2020).

Digital leadership guides teams through technological and business changes, creating responsive and adaptive teams (Monea et al., 2022). Through operational efficiency, increased team members' engagement, and the application of innovation, digital leadership contributes significantly to improving the quality of team performance, reflected in target achievement, better work outcomes, and improved overall team performance (Bagga et al., 2023; Sari et al., 2021). Thus, digital leadership not only impacts operational efficiency but also shapes work culture and team dynamics that support optimal team performance.

H3: Digital leadership positively contributes to team performance

Theoretically, the relationship between team dynamics and performance can be approached through concepts and theories in management and organizational psychology (Bruce & Nyland, 2011). Team dynamics theory highlights how interpersonal interactions, collaboration, and feelings of membership affect team performance by considering elements such as communication, conflict, and coordination among team members (Ivan, 2010). The social dependency theory posits that the degree of social dependence among team members can affect team dynamics (Horn & Carter, 2021). High dependency triggers more intensive cooperation and interaction, forming team dynamics patterns that affect performance (Licorish et al., 2024; Watkins & Hensley, 2023).

According to Jones (2019), there are four phases of development: forming, storming, norming, and performing. Changes in team dynamics during these stages play an important role in achieving optimal team performance, especially in the performing stage

when collaboration and coordination reach optimal levels (Wilson, 2017).

The improved quality of interaction and communication can create an environment where ideas can be exchanged smoothly, support shared problem-solving, and enhance collective understanding (Tang et al., 2020). Healthy team dynamics can help manage conflict constructively (Goltz et al., 2008), encourage creativity (Mannucci & Shalley, 2022), and increase trust (Tyagi et al., 2022), all of which have a positive impact on team performance (Licorish et al., 2024; Watkins & Hensley, 2023).

The psychological support of positive team dynamics can include a sense of support, motivation, and job satisfaction, contributing to better overall team performance. The clarity of roles and responsibilities in good team dynamics supports efficiency in the implementation of duties and responsibilities of each team member (Orgambidez & Almeida, 2020), a vital contribution to the team's overall performance. Positive team dynamics can build trust among team members (Tyagi et al., 2022), encourage active engagement (Lee et al., 2024), and lead to higher productivity (Ehmann et al., 2023; Lee et al., 2024). Therefore, positive team dynamics is not only a catalyst but also a foundation that forms a work environment that supports workforce sustainability (Dempster et al., 2023).

H4: Team dynamics positively contributes to team performance

The effectiveness of communication is the driving force connecting individual dynamics to group synergy (Barker & Camarata, 1998). A team of members who can understand and appreciate communication differences tends to have a significant competitive advantage (Tseng et al., 2024). The psychological aspect of an individual plays an important role in team dynamics (DeCaporale-Ryan et al., 2022). Team dynamics is a complex terrain in which interactions between individuals result in a unique set of behaviors, habits, and communication patterns (Dempster et al., 2023). Differences in communication style, preferences in expressing ideas, and levels of openness directly affect how effectively messages are conveyed and received within teams. For example, more extroverted individuals tend to actively participate in team discussions, while more introverted individuals may prefer to think longer before speaking (Raja et al., 2020).

Furthermore, power dynamics and hierarchies within teams can affect communication effectiveness (Krausz, 1986). When there is a gap in power distribution, messages from members with positions of authority are more likely to be perceived as valuable, even if the idea has lower quality (Mohammed Ameen, 2018). In addition, physical environmental factors can have a significant impact. Open and collaborative workspaces encourage more organic interaction and exchange of ideas, while closed or fragmented spaces can hinder the effective flow of communication (Hanif

& Saleem, 2020).

Moreover, the importance of cultural diversity awareness and expertise in teams cannot be ignored. Differences in backgrounds, values, and experiences enrich the spectrum of thoughts and perspectives but can also be a source of conflict if not managed wisely (Shah et al., 2020). Understanding and respecting these differences is key to ensuring that every team member feels heard and valued, enhancing their ability to achieve common goals.

H5: Team dynamics positively contributes to communication effectiveness

The relationship between communication effectiveness and team performance can be analyzed through concepts and theories in management literature and organizational communication. Organizational communication theory highlights the importance of a good communication structure in achieving organizational goals (Morreale & Shockley-Zalabak, 2015). Communication effectiveness within a team includes aspects such as openness, clarity, and responsiveness, all of which can affect how information flows among team members (Gibbs, 2010). An open and responsive exchange of information facilitates task coordination and better decision-making, which can improve teamwork outcomes (Dennis, 1996). In addition, effective communication supports optimal collaboration among team members (Assbeihat, 2016). Team members who feel heard, engaged, and have adequate access to information tend to contribute positively to team performance (Eman et al., 2023).

The interpersonal communication theory states that quality interactions and information exchange between team members can form strong interpersonal relationships (Oh, 2023). Effective interpersonal communication creates an environment where ideas can be exchanged smoothly and disagreements can be resolved constructively (Bucăța & Rizescu, 2017). Good quality communication within a team creates clarity in direction and purpose (Zawawi et al., 2023). When each team member understands his/her roles and responsibilities well, efficiency in task execution and overall team performance can be increased (Kozlowski & Ilgen, 2006).

Effective communication can serve as a tool to resolve disagreements in a constructive manner during conflict (Nordin et al., 2014; Salvation, 2019). Good conflict handling through effective communication can encourage joint problem-solving, avoid tension, and maintain team productivity (Dong & Fu, 2011). Communication effectiveness also provides psychological support to team members (Khan et al., 2022). A sense of being cared for, heard, and understood through good communication can increase motivation and job satisfaction, which in turn can have a positive impact on overall team performance (Lee et al., 2024). Thus, effective communication within the team is not only a tool for transferring information but also a catalyst that establishes a supportive communication

culture, which can improve engagement, collaboration, and overall team performance.

H6: Communication effectiveness positively contributes to team performance

The mediating role of team dynamics and communication effectiveness in the relationship between digital leadership and team performance can be explained from several theoretical perspectives. Digital leadership, which relies on technology to direct, inspire, and facilitate teamwork, influences team dynamics by creating an environment that supports collaboration, cohesion, and coordination (Kwon, 2024). According to transformational leadership theory, digital leaders can build a shared vision, increase motivation (Rivaldo, 2021), and encourage innovation in teams (Lin, 2023). It strengthens team dynamics, including interpersonal relationships, cooperation, and conflict resolution (Ballard et al., 2021). This positive team dynamics, in turn, affects the effectiveness of communication, which is a team's ability to exchange information clearly, efficiently, and in a timely manner (He & Hu, 2021).

Organizational communication theory states that effective digital leadership improves information flow, strengthens trust, and reduces team misunderstandings (Soon & Salamzadeh, 2021). High communication effectiveness allows team members to work more harmoniously and productively, which directly contributes to improving team performance. Thus, team dynamics and communication effectiveness act as mediators to strengthen the relationship between digital leadership and team performance. Effective digital leaders not only shape positive team dynamics but also ensure that communication runs smoothly, which increases the team's efficiency, productivity, and success in achieving their goals.

H7a: Team dynamics mediate the influence of digital leadership on team performance

H7b: Communication effectiveness mediates the influence of digital leadership on team performance

By gaining a deeper understanding of the mediating role, the research aims to provide deeper insights into the impact of digital leadership on team performance. By understanding team dynamics and communication effectiveness as intermediaries, organizations can develop more effective leadership strategies to tackle the challenges of the digital age and optimize their teams' potential. The research is not only relevant to understanding the internal dynamics of a team but also to responding to increasingly complex and dynamic market demands. It offers a new perspective on how digital leadership can be a key predictor of team effectiveness. It is necessary to present the conceptual framework of research to clarify the understanding of the proposed hypothesis.

Figure 1 shows a conceptual model that connects six hypotheses among four main variables.

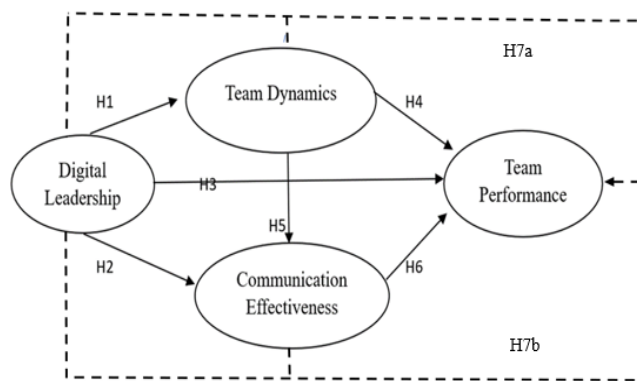


Figure 1 Conceptual Research Framework

## II. METHODS

The research involves 117 employees at the individual level from various organizations in the Special Region of Yogyakarta and Banten, Indonesia. Purposive sampling is used to select participants, ensuring a representation of diverse organizational backgrounds that are relevant to the research objectives. Then, a questionnaire is used to collect the data. The questionnaire includes the employees' perceptions of digital leadership, team dynamics, communication effectiveness, and team performance. The questionnaire uses Likert-scale measurements, ranging from 1 (strongly disagree) to 5 (strongly agree).

Indicators to measure team dynamics include the level of cohesion between team members, the ability to manage conflicts constructively, the level of collaboration and support between members, and the team's flexibility in adapting to change. In addition, positive interpersonal interaction and the ability to reach consensus are important components of effective team dynamics (Dempster et al., 2023; Watkins & Hensley, 2023).

Next, communication effectiveness is measured through the clarity and accuracy of the information conveyed, the frequency and quality of communication between team members, openness in sharing information, and the ability to actively listen. In addition, the ability to provide constructive feedback and effectiveness in using digital communication tools are also important indicators (Gibbs, 2010; Meng et al., 2022).

The indicators of team performance include the achievement of goals and targets that have been set, quality of work produced, efficiency in the use of resources, and the level of team productivity. Team members' satisfaction with work results and ability to complete work on time is also a measure of team performance (Eman et al., 2023; Ivan, 2010).

The measurement of digital leadership includes leaders' ability to leverage digital technologies to

support communication and collaboration, proficiency in using digital project management tools, and ability to lead virtual teams effectively. In addition, good digital leaders demonstrate the ability to adapt to technological changes and innovation, as well as the ability to guide teams in using new technologies efficiently (Jameson et al., 2022; Mishra et al., 2023).

The data are analyzed using the Structural Equation Modeling (SEM) technique with AMOS software, it is a statistical analysis method that allows researchers to test and estimate complex relationships between variables. This analysis begins by building a hypothetical model that describes the effect of digital leadership on team dynamics and communication effectiveness, as well as how the two mediation variables affect team performance. SEM is used to confirm the direct relationship between these variables and evaluate the effects of mediation and possible interactions between them.

## III. RESULTS AND DISCUSSIONS

Providing a detailed description of respondents' characteristics is essential for gaining a comprehensive understanding of the studied population. Through detailed exposure, the research can identify specific traits, preferences, and backgrounds that may influence data responses and interpretations, enabling the development of more accurate and applicable conclusions. Therefore, a thorough explanatory effort to explore the characteristics of respondents is essential to ensure the quality and validity of the research.

Table 1 indicates that out of 117 respondents, the majority are men, reaching 63.2%, while women account for 36.8%. The age is evenly distributed in the categories of 20–30 and 31–40 years, each accounting for approximately a quarter of the total sample. Meanwhile, respondents aged 41–50 and 51 years and above account for 20.5% and 23.9%, respectively. Considering education level, the majority of respondents have a bachelor's degree, accounting for almost half of the total sample, followed by respondents with a master's degree. Although the number of respondents with high school/equivalent and doctoral education levels is relatively low, both groups still made important contributions to this analysis.

Thus, the analysis provides a deep understanding of the demographic profile of the segments studied, highlighting differences and similarities in respondent characteristics by gender, age, and education level. Furthermore, an in-depth analysis of the interaction between these factors not only reveals decisive patterns in team performance but also illustrates a new perspective on the evolution of modern leadership.

Table 2 details loading factor values, showing the contribution of each indicator to the relevant variables. For example, the dl2, dl3, dl4, and dl5 indicators show significant estimates for the team dynamics, with estimates of 0.858, 0.856, 0.838,

and 0.874, respectively. Similarly, the ek4, ek5, and ek6 indicators reveal a strong relationship with communication effectiveness, with estimates of 0.984, 0.978, and 0.966, respectively. Meanwhile, the dt3, dt4, dt5, and dt6 indicators show an important contribution to the team dynamics, with estimates of 0.901, 0.901, 0.903, and 0.840, respectively. Similar results are also seen in the kin1, kin2, kin3, and kin5 indicators, which show a strong correlation with the team performance, with estimates of 0.885, 0.825, 0.881, and 0.902, respectively. Thus, these outputs provide the relative contribution of each indicator to the constructs studied in the context of the structural analysis.

These results show that effective digital leadership, such as the ability to integrate technological innovation (dl2) and the drive for new technology adoption (dl5), is positively correlated with communication effectiveness and team dynamics. High communication effectiveness, characterized by the convenience of providing

feedback (ek4) and constructive conflict resolution (ek6), is also strongly correlated with high team performance. In addition, positive team dynamics, shown by effective collaboration (dt4) and flexibility in dealing with change (dt6), are also closely related to high team performance. Overall, this relationship shows that effective digital leadership can improve communication and team dynamics, ultimately improving team performance.

Exploration with SEM analysis with the help of AMOS software shows interesting and scientific discoveries on the critical role of digital leadership in influencing team dynamics, communication effectiveness, and, ultimately, collective performance. Using SEM, the results of data analysis reveal satisfactory results, characterized by the achievement of several important criteria such as goodness of fit and significant loading factor. Through the outputs, the suitability of the model to the data and the reliability of the load factor are identified.

Table 1 Respondents' Demographics

No	Demographics	Sub Demographics	Sum	Percentage (%)
1	Gender	Man	74	63.2
		Woman	43	36.8
		Total	117	100.0
2	Age	20–30	32	27.4
		31–40	33	28.2
		41–50	24	20.5
		> 51	28	23.9
		Total	117	100.0
3	Education Level	High School/Equivalent	4	3.4
		Bachelor's Degree	58	49.6
		Master's Degree	51	43.6
		Doctoral Degree	4	3.4
		Total	117	100.0

Table 2 Standardized Regression Weights

Indicator	Variable	Estimate
Integration of Technological Innovation (dl2)	← Digital Leadership	0.858
Digital Platform Communication (dl3)	← Digital Leadership	0.856
Understanding Technology (dl4)	← Digital Leadership	0.838
Adopting New Technology (dl5)	← Digital Leadership	0.874
Feedback Effectiveness (ek4)	← Communication Effectiveness	0.984
Effectiveness of Communication with Superiors (ek5)	← Communication Effectiveness	0.978
Adaptability (dt6)	← Team Dynamics	0.840
Discussion (dt5)	← Team Dynamics	0.903
Collaboration (dt4)	← Team Dynamics	0.901
Team Communication (dt3)	← Team Dynamics	0.901
Efficiency (kin3)	← Team Performance	0.881
Standards Quality (kin2)	← Team Performance	0.825
Adopting New Technology (dl6)	← Digital Leadership	0.882
Openness in Communication (ek6)	← Communication Effectiveness	0.966
Team Member Satisfaction (kin5)	← Team Performance	0.902
Time Target Achievement (kin1)	← Team Performance	0.885

PATH DIAGRAM

Path Diagram  
 Chi-Square=109.270  
 Probability=.186  
 CMIN/DF=1.126  
 TLI=.993  
 GFI=.897  
 IFI=.994  
 CFI=.994  
 RMSEA=.033

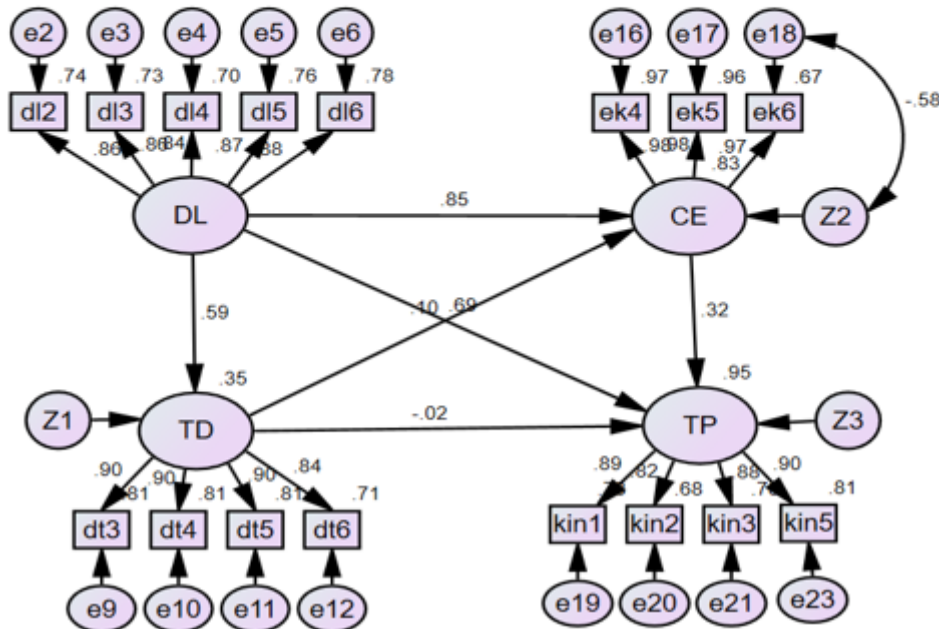


Figure 2 Empirical Research Model

Figure 2 illustrates a complex causal relationship, where digital leadership acts as an independent variable that affects team performance indirectly through two mediating variables, namely team dynamics and communication effectiveness. As a dependent variable, Team Performance is influenced by digital leadership that is optimized by communication effectiveness and team dynamics, creating a comprehensive and holistic model for measuring team performance in the context of modern business.

Figure 2 also explains the satisfactory fit criteria. Although the Chi-Square value is recorded at 109.270 with a probability of 0.186, the comparison of Chi-Square with the Degree of Freedom (CMIN/DF) shows a low figure of 1.126. In addition, the Tucker-Lewis Index (TLI) reaches a high level of 0.993, and the Goodness of Fit Index (GFI), Incremental Fit Index (IFI), and Comparative Fit Index (CFI) are close to perfect scores of 0.897, 0.994, and 0.994, respectively. The final assessment of the Root Mean Square Error of Approximation (RMSEA), which reaches 0.033, also confirms the model's compatibility with the data, indicating the model's compatibility with the observed phenomenon.

With a significant loading factor value and satisfactory goodness of fit criteria, the analysis results show that the causality relationship has been

scientifically tested. Thus, answers to proposed hypotheses can be accepted as valid and trustworthy outcomes, making an important contribution to understanding team dynamics, communication effectiveness, and team performance in the context of digital leadership.

Table 3 presents an interesting overview of the dynamics of the interaction between the variables studied. H1 is empirically supported that digital leadership greatly influences team dynamics, with an estimate of 0.587, and a probability below 0.001, which means digital leadership makes an important contribution to internal team dynamics. The results of the research support previous research that shows that digital leadership significantly affects team dynamics. For example, Leso et al. (2023) highlighted the role of digital leadership in promoting a culture of innovation and agile organizational structures, both of which were critical for effective team dynamics and overall performance. The results of the research confirm that the use of technology and adaptive leadership strategies significantly strengthens internal team dynamics, marking a new era in the organizational leadership paradigm.

H2 is supported in which communication effectiveness is proven to be strongly influenced by digital leadership, with an estimated value of 0.924,

pointing to the key role of technology in improving organizational communication. These findings are in line with Li et al. (2024) that digital leadership by middle managers contributes positively to employee work engagement, which is a key indicator of effective communication in organizations. These results demonstrate the importance of technology integration in improving the flow of information and communication within organizations, providing strong evidence of the key role of technology in the context of organizational communication management.

Meanwhile, direct digital leadership also contributed greatly to the team's performance with an estimated 0.747. This result is in accordance with H3 that has been proposed. However, interesting findings emerges when the direct relationship between team dynamics and team performance does not prove significant. These results suggest that H4 is rejected. In addition, the relationship between team dynamics and communication effectiveness is empirically evident, these results confirm (H5), albeit with a smaller impact, provides insight into the complex interactions between these aspects. On the other hand as a direct predictor, communication effectiveness is shown to have a significant positive influence on team performance, with an estimate of 0.317. This result confirms the H6 that has been proposed. Marlow et al. (2018) empirically proved that communication quality had a much stronger relationship with team performance compared to communication frequency.

Digital leadership has a significant influence on team dynamics, with a regression coefficient of 0.587. This shows that effective digital leadership can improve the way teams interact and work together. Although team dynamics do not directly affect team performance (estimate = -0.019, not significant), team dynamics have a mediating role through communication

effectiveness. Team dynamics slightly improve communication effectiveness (estimate = 0.106), which suggests that team dynamics can serve as the first step to improving more effective communication within teams, although this effect is relatively small. These results show that H7a which states that team dynamics mediate the influence of digital leadership on team performance is not empirically supported.

Last, digital leadership also has a significant direct influence on communication effectiveness, with a regression coefficient of 0.924. This result emphasizes that leaders who make effective use of digital technologies can improve the way information is delivered and understood within the team. The effectiveness of this communication, in turn, has a significant influence on team performance, with a regression coefficient of 0.317. Therefore, strong digital leadership not only improves communication within a team but also substantially improves the overall performance of the team. Therefore, H7b which states that communication effectiveness mediates the influence of digital leadership on team performance is empirically supported.

Table 4 presents information on H7a which proposes that team dynamics act as a mediator in the relationship between digital leadership and team performance, as well as H7b which proposes that communication effectiveness plays a mediator in the relationship between digital leadership and team performance. Table 4 is designed to make it easier to understand the contribution of these mediators to the team's performance. In summary, Table 4 indicates that communication effectiveness is proven to be a significant mediator, whereas team dynamics do not show a significant mediating role in the context of the relationships studied.

Table 3 Regression Weights

H	Predictors	Regression	Consequences	Estimate	S.E.	C.R.	P	Label
H1	Digital Leadership	→	Team Dynamics	0.587	0.093	6.299	***	Confirmed
H2	Digital Leadership	→	Communication Effectiveness	0.924	0.080	11.533	***	Confirmed
H3	Digital Leadership	→	Team Performance	0.747	0.128	5.849	***	Confirmed
H4	Team Dynamics	→	Team Performance	-0.019	0.054	-0.361	0.718	Not Confirmed
H5	Team Dynamics	→	Communication Effectiveness	0.106	0.056	1.898	0.058	Confirmed
H6	Communication Effectiveness	→	Team Performance	0.317	0.108	2.936	0.003	Confirmed

Note: \*\*\* <0.001, Standard Error (S.E.), Critical Ratio (C.R.), Probability (P), Hypothesis (H)

Table 4 Team Dynamics and Communication Effectiveness mediation roles

Hypothesis	Independent Variables	Mediation Variables	Dependent Variables	Information
H7a	Digital Leadership	Team Dynamics	Team Performance	Not Confirmed
H7b	Digital Leadership	Communication Effectiveness	Team Performance	Confirmed



#### IV. CONCLUSIONS

The results reveal the complexity of interactions between the studied variables. The findings highlight the crucial role of digital leadership in shaping and influencing team dynamics. It affirms that the integration of technology and adaptive leadership strategies significantly strengthens internal team dynamics and illustrates a paradigm shift in organizational leadership. Digital leadership also significantly influences communication effectiveness, confirming the importance of technology in improving the flow of information and communication in organizations. These findings provide compelling evidence of the central role of technology in the context of organizational communication management. Additionally, the relationship between team dynamics and communication effectiveness remains significant, offering insights into the interaction between these two aspects, although the impact is relatively small. Furthermore, communication effectiveness has been shown a significant positive effect on team performance, emphasizing the importance of effective communication in achieving common goals.

Nonetheless, notable discoveries surface when the direct link between team dynamics and performance fails to show significance. It highlights the complexities in team dynamics and performance. It emphasizes the need for a deeper understanding of the factors that influence team performance in this digital age, challenging researchers further to explore the role of interactions between these variables.

Organizations should prioritize developing digital leadership that excels in technology to improve team performance while possessing adaptive skills to manage teams effectively. It is important for organizations to provide effective digital communication tools and ensure team members understand how to use them optimally, which will improve the flow of information and communication within the organization. Leaders must also foster a collaborative and participatory culture within the team through digital collaboration platforms, assisting in managing conflict and maintaining the team's motivation to use a digital approach.

Future research should include further exploration of the interaction between team dynamics, communication effectiveness, and team performance in a digital context to understand better how these variables affect each other. Longitudinal research can provide insights into how digital leadership affects team performance over the long term. Research conducted in various cultural and industrial contexts can help to determine whether these findings are universal or limited to specific contexts. Developing and testing new tools or platforms that can improve the effectiveness of digital leadership and communication in organizations is also an important direction.

**Author Contributions:** Conceptualization, D. S.; Writing-original draft, D. S., and A. B. A.; Methods-

data collection, D. S., U. W., E. S., and A. B. A.; Data processing, E. S.; Data Analysis, U. W.; Visualization, E. S.; Review & Editing, D. S., and U. W.

**Data Availability Statement:** Data are available from the corresponding author, D. S., upon reasonable request.

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