

The Influence of Dynamic Innovation Capabilities, Information Technology, and Digital Leadership on Employee Performance with Digital Workplace Dynamics as a Mediating Variable and Digital Leadership as a Moderating Variable

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Abstract. This study aims to analyze the effect of dynamic innovation capabilities, information technology, and digital leadership on employee performance, by considering digital workplace dynamics as a mediating variable and digital leadership as a moderating variable. A quantitative approach is used with the Structural Equation Modeling–Partial Least Square (SEM-PLS) analysis technique. The results of this study indicate that dynamic innovation capabilities, information technology, and digital leadership have a significant effect on employee performance, both directly and indirectly through digital workplace dynamics. Dynamic innovation capabilities and digital leadership are proven to be the most dominant factors in improving performance, while information technology capabilities play an important role in forming an efficient and collaborative work ecosystem. Digital workplace dynamics function as a mediator that connects innovation and technology with improved performance, although its influence is smaller than the direct effect. In addition, the role of digital leadership as a moderating variable strengthens the relationship between innovation and technology on employee performance. This means that leaders who are adaptive to technology and able to facilitate organizational change strategically contribute significantly to driving the achievement of organizational goals in the digital era. This finding emphasizes the importance of synergy between innovation, technology, and leadership in supporting performance in the digital era. The theoretical and practical implications of this study contribute to the development of digital-based human resource management strategies.

Keywords: *Dynamic Innovation Capabilities, Information Technology, Digital Leadership, Digital Workplace Dynamics, Employee Performance, SEM-PLS*

INTRODUCTION

Digital transformation has become a major force that changes the structure and dynamics of various sectors, including the economic sector. The digital economy is now the epicenter of global attention because of its ability to transform the traditional economic system into an integrated, technology-based, and efficiency-oriented system. Developed countries emphasize this transformation on technological development, while developing countries focus more on forming adaptive organizational structures to support the success of digitalization (Yang et al., 2023).

In the context of an organization, human resources (HR) are a strategic element that determines the sustainability and success of a company. The organization's ability to manage and

mobilize HR optimally plays an important role in achieving long-term goals (Rukani & Ratnasari, 2024). Employee performance, as one of the main indicators of organizational success, is influenced by the quality of leadership, organizational structure, and work environment conditions (Suharnomo et al., 2020; Handayani et al., 2024).

Companies that want to remain competitive amidst the complexity of global competition must have dynamic innovation capabilities. Dynamic innovation does not only depend on internal assets or resource management, but also on the organization's ability to adapt to changing external dynamics (Guifang et al., 2024). In the context of the digital economy, innovation capabilities have become a strategic foundation, both at the

micro and macro levels of the organization (Măriuca et al., 2022).

Along with that, the role of information technology (IT) is increasingly prominent as a major driver of organizational efficiency, productivity, and competitiveness. IT enables organizations to integrate business processes in real-time, improve decision-making accuracy, and support cross-functional and cross-location collaboration. The implementation of IT not only impacts operational systems but also forms an organizational culture that is more open to change and learning (Jemala, 2022; Suharnomo et al., 2020).

Amidst the rapid digital transformation, the role of leaders has also shifted. Digital leadership now demands a leader figure who is not only tech-savvy, but also has the ability to build a culture of innovation, empower work teams collaboratively, and make strategic decisions based on data. Effective digital leaders are able to create an adaptive and sustainable work environment through optimal use of technology (Soekiman, 2023; Fu et al., 2023).

One of the consequences of this transformation is the emergence of digital workplace dynamics, namely a work environment designed to support high flexibility, connectedness, and collaboration through the use of digital technology. This dynamic not only affects the work structure, but also employee behavior, motivation, and productivity (Shin et al., 2023; Pan et al., 2022). The combination of dynamic innovation capabilities, use of information technology, and digital leadership is believed to be able to strengthen the dynamics of the digital workplace and ultimately improve employee performance.

Dynamic innovation capability refers to the capacity of organizations and individuals to respond quickly and effectively to environmental changes through the development of new ideas. This concept is closely related to the dynamic capability theory which emphasizes the

importance of continuous adaptation to the external environment (Rukani & Ratnasari, 2024). Dynamic innovation includes the ability to create, absorb, and apply innovations in business processes and strategic decision-making (Măriuca et al., 2022).

The characteristics of dynamic innovation capabilities include responsiveness to social and technological changes, the courage to take risks, and a bias towards creative ideas and innovative solutions. These capabilities are an important foundation in the digital economy that demands flexibility and speed of adaptation to market dynamics.

Rukani and Ratnasari's (2024) research shows that dynamic innovation capabilities significantly mediate the influence of digital transformation on employee performance. Meanwhile, Măriuca et al. (2022) emphasized the importance of innovation as a basis for developing organizational strategy in the context of the digital economy. Information technology (IT) plays a major role as an enabler in an organization's digital transformation. IT includes infrastructure, systems, applications, and devices used to manage information and support business processes (Suharnomo et al., 2020). The strategic use of IT enables organizations to improve operational efficiency, strengthen decision-making, and create added value through effective data management (Jemala, 2022). IT also supports the creation of a connected, collaborative, and flexible work environment. In the context of employee performance, optimal use of IT can increase productivity, accuracy, and timeliness in completing tasks (Kurniawan et al., 2024).

A study by Hidayat et al. (2023) revealed that information technology has a positive and significant effect on employee performance, especially when supported by digital competence. Another study by Tampi et al. (2022) emphasized that the use of IT, employee empowerment, and work culture contribute to improving employee performance. The dynamics of the digital

workplace illustrate changes in the structure, culture, and work patterns of an organization as a result of digitalization. The digital work environment demands virtual collaboration, flexibility of time and place, and the ability to adapt to ever-evolving digital technology (Shin et al., 2023). These dynamics create opportunities as well as challenges for employees and organizations. On the one hand, the digital workplace allows for increased work efficiency and comfort; on the other hand, HR readiness is required in the form of digital competence, technological literacy, and readiness to innovate.

Qamari et al. (2024) stated that the digital work environment has a significant effect on employee performance, especially when supported by work discipline as a mediating variable. A study by Shin et al. (2023) also emphasized that digital culture and employee digital capabilities strengthen the relationship between digital leadership and organizational performance. Digital leadership is a form of leadership that integrates managerial skills with technological skills to drive an organization's digital transformation (Fu et al., 2023). Digital leaders are able to drive an innovative culture, manage change, and facilitate the use of technology in decision-making and implementation of organizational strategies (Turyadi et al., 2023). The characteristics of digital leaders include being adaptive, visionary, collaborative, and proactive in utilizing technology. Effective digital leadership plays an important role in shaping a technology-based work culture and driving optimal performance from each individual in the organization. Hidayat et al. (2023) showed that digital leadership has a positive effect on employee performance, especially when combined with digital competence and job satisfaction. Research by Turyadi et al. (2023) also strengthens that digital leadership is a key factor in supporting business success and organizational performance.

Employee performance is an indicator of an organization's success in managing its human resources. Performance reflects how effectively an employee carries out the tasks and responsibilities assigned to him/her (Soekiman, 2023). Performance indicators usually include the quality of work results, quantity, timeliness, knowledge, and work responsibilities. Some factors that influence performance include motivation, leadership, organizational culture, information technology, and innovation capabilities. In the digital context, employee performance is also greatly influenced by readiness and ability to adapt to technological changes and the dynamics of the digital workplace (Hidayat et al., 2023). Soekiman's (2023) study concluded that individual innovation directly affects employee performance, while knowledge sharing only has an effect if mediated by work motivation. Another study by Handayani et al. (2024) also showed that effective leadership and work motivation have a significant influence on performance.

This study aims to examine how dynamic innovation capabilities, information technology, and digital leadership affect employee performance, considering the dynamics of the digital workplace as a mediating variable. This study also analyzes the role of digital leadership as a moderating variable in strengthening the influence of dynamic innovation capabilities and information technology on employee performance. The purpose of this study is to explore the relationship between these variables in order to gain an understanding of the key factors that can improve employee performance in the context of the digital workplace. Theoretically, this study is expected to enrich studies in the fields of human resource management, organizational innovation, and digital transformation. Meanwhile, practically, the results of this study are expected to be a strategic reference for managers and policy makers in designing organizational

interventions based on strengthening innovation, digitalization, and leadership that is adaptive to changing times.

RESEARCH METHOD

This study contains the title, namely Factors Affecting the Performance of PDAM Tarakan Employees. This study was conducted at PDAM Tarakan which took place in 2025. The study began with an analysis of problems from several previous studies related to the variables used. Research with quantitative methods in the form of primary data collected by filling out questionnaire google *form*. The framework of thought developed to analyze the influence of Dynamic Innovation Capability, Information Technology, Digital Workplace Dynamics, Digital Leadership and Employee Performance. The data processing and analysis techniques used in this study use Structural Equation Modeling (SEM) based on Partial Least Square (PLS), which is chosen because it is able to test the causal relationship between latent constructs simultaneously and is suitable for complex models with a relatively large number of indicators. The research instrument will be tested for validity and reliability first through the outer model test (convergent validity, discriminant validity, and composite reliability), then continued with the inner model test to test the relationship between latent variables, including the R-square, Q-square, and path coefficient tests. The model will also test the mediation effect using the bootstrapping approach, as well as the moderation effect test through the interaction between the moderator variable and the independent variable on the dependent variable.

The hypotheses formulated in this study are as follows: H1: Dynamic innovation capability has a positive effect on employee performance, H2: Information technology has a positive effect on employee performance, H3: Dynamic innovation capability has a positive effect on digital workplace dynamics, H4:

Information technology has a positive effect on digital workplace dynamics, H5: Digital workplace dynamics have a positive effect on employee performance, H6: Digital workplace dynamics mediate the relationship between dynamic innovation capability and employee performance, H7: Digital workplace dynamics mediate the relationship between information technology and employee performance, H8: Digital leadership moderates the relationship between dynamic innovation capability and employee performance, H9: Digital leadership moderates the relationship between information technology and employee performance.

The dependent variable used is Employee performance (Y) which is the work results achieved by an employee in carrying out their duties and responsibilities at work by emphasizing the quality or quality of employees in working, the quantity of employees, the knowledge possessed by employees in their work and the timeliness in completing their duties and responsibilities (Soekiman, 2023: 88). The indicator for measuring dynamic innovation capability (X1) as an independent variable, namely responsive to innovation and new ideas, an optimistic view of innovative opportunities, appreciating creative ideas and innovative steps of each individual, responsive to social changes that occur in the work environment, prioritizing planning and having confidence in what is being done, and fully understanding the consequences of the decisions taken (Rukani & Ratnasari, 2024: 3680).

Information technology (X2) is a set of tools in the form of actual applications that can help describe the features of human resource practices that support improving employee performance by setting financial and non-financial targets and taking continuous corrective actions to achieve company goals (Hidayat et al., 2023: 146). The intervening variable, Digital Workplace Dynamics (I) is digital-based task performance by utilizing next-

generation digital technology to achieve standard performance, and digital-based innovative performance by utilizing the latest digital technology to innovate employee performance (Guifang et al., 2024: 2-4). Digital leadership (M) is a moderating variable of the process of combining transformational leadership and digital leadership by optimizing the

benefits of digital technology that can change company strategy and survive in the new digital era. In addition to being required to understand and be skilled with technological changes in the digital era, a digital leader must also be able to build a culture of innovation for employees or subordinates by translating it into the right framework (Shin et al., 2023: 2).

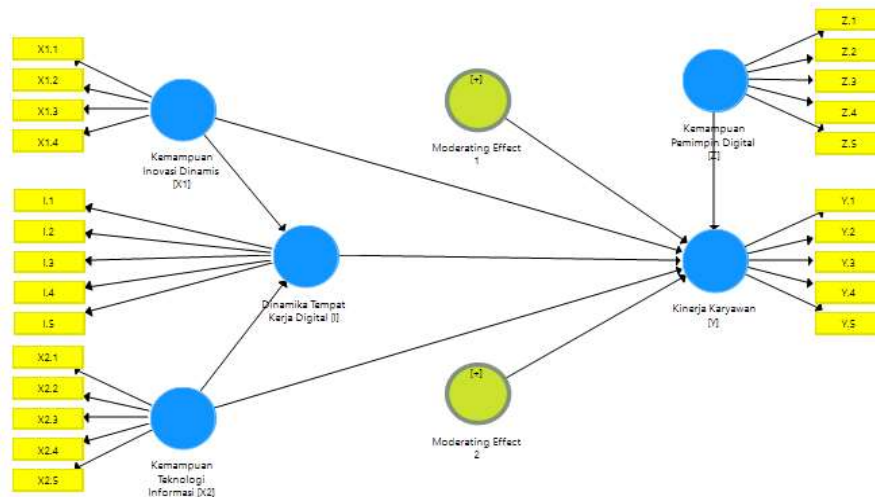
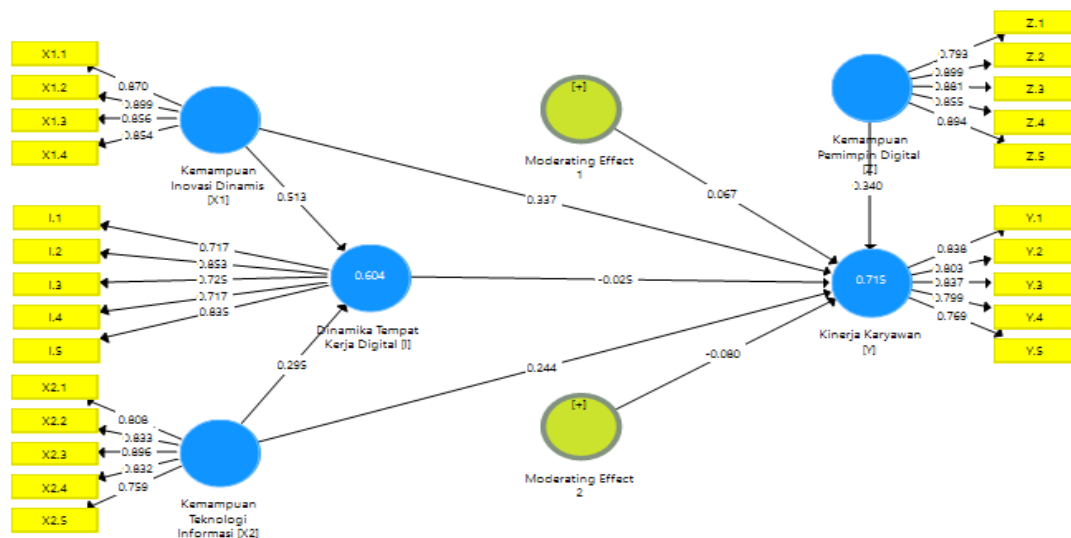


Figure 1. Conceptual framework of the PLS SEM Model

RESULTS AND DISCUSSION

Data processing and analysis carried out using Structural Equation Modeling (SEM) based on Partial Least Square (PLS) 3.0 found that all variable data was valid and can be seen in Figure 2.



Picture 2. Outer Model

Digital Workplace Dynamics (Z): $R^2 = 0.604$ Indicates that 60.4% of the variation in digital workplace dynamics can be explained by Dynamic Innovation Capability (X1) and Information Technology Capability (X2). Employee Performance (Y): $R^2 = 0.715$ This means that 71.5% of the variation in employee performance is explained by the combination of Dynamic Innovation Capability (X1), Information Technology Capability (X2), Digital Workplace Dynamics (Z), and the moderating effect of

Digital Leadership (X3). This model is quite strong structurally with an R^2 value of ≥ 0.60 on both endogenous variables. The influence between the hypothesized variables can be shown in Figure 3; which shows the relationship between exogenous variables (X1 & X2), mediating variables (Z), moderating variables (X3), and endogenous variables (Y) in the context of digital transformation and employee performance. dynamic innovation capability (X1) has a significant direct influence on digital workplace dynamics

(Z) with a value of path *coefficient* of 3,620, and on employee performance (Y) of 3,942. These findings support the theory that adaptive and innovative organizations are better able to create a productive digital work environment and directly improve employee performance (Guifang et al., 2024). Information technology capabilities (X2) have also been shown to have a

significant effect on digital workplace dynamics (2,960) and employee performance (2,154). These results reinforce previous findings (Jemala, 2022) which state that IT infrastructure and capabilities can improve the efficiency and quality of collaboration in the modern workplace.

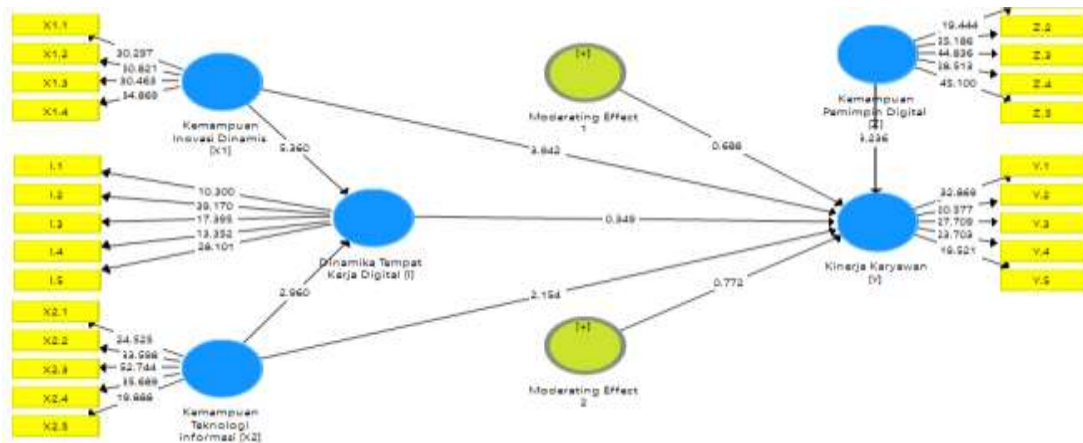


Figure 3. Inner Model

Digital workplace dynamics (Z) are proven to mediate the influence of X1 and X2 on Y, although its direct influence on employee performance is only 0.349. This shows that the creation of a flexible and integrated digital work environment is indeed important, but its impact is more optimal if supported by strong innovative and technological capabilities. One important finding in this study is the moderating role of digital leadership (X3). The interaction effect between X1 and X3 on employee performance shows a moderation coefficient of 0.668, while the interaction between X2 and X3 is 0.772. Both of these values indicate a significant and positive moderation effect. This means that digital leadership functions to strengthen the relationship between innovation and technology on improving performance. Leaders who are able to adopt technology while strategically directing teams have proven to be important catalysts in the digital transformation process (Fu et al., 2023; Hidayat et al., 2023).

Overall, employee performance (Y) is directly influenced by the four main

pathways: dynamic innovation capability (3.942), information technology capability (2.154), digital workplace dynamics (0.349), and digital leadership (3.225). With high indicator loadings on each construct, this model shows good validity and reliability, and supports the hypotheses that have been proposed in the research conceptual framework.

These findings have theoretical and practical implications. Theoretically, the results of this study broaden the understanding of the integration of innovation, technology, and leadership in creating a digital work environment that can drive high performance. Practically, organizations can use these results as a basis for designing HR management strategies that emphasize digital leadership, technology utilization, and the development of an innovative work culture.

CONCLUSIONS AND IMPLICATIONS

This study shows that dynamic innovation capabilities, information technology, and digital leadership have a

significant influence on employee performance, both directly and indirectly through digital workplace dynamics. Dynamic innovation capabilities and digital leadership are proven to be the most dominant factors in improving performance, while information technology capabilities play an important role in forming an efficient and collaborative work ecosystem. Digital workplace dynamics function as a mediator that connects innovation and technology with improved performance, although its influence is smaller than the direct effect.

In addition, the role of digital leadership as a moderating variable strengthens the relationship between innovation and technology on employee performance. This means that leaders who are adaptive to technology and able to facilitate organizational change strategically contribute significantly to driving the achievement of organizational goals in the digital era.

Theoretical Implications

This study enriches the literature related to digital transformation in the context of human resource management. The findings emphasize the importance of integrating dimensions of innovative capabilities, information technology, and digital leadership in building a performance model that is relevant to the digitalization era.

Practical Implications

The results of this study provide guidance for organizations, especially in designing employee performance improvement strategies based on:

1. Strengthening the culture of innovation and organizational flexibility.
2. Comprehensive development of information technology infrastructure and capabilities.
3. Improving the quality of digital leadership through training and development of adaptive leadership competencies.
4. Creating a digital work environment that supports collaboration, efficiency and employee engagement.

In this way, organizations can be better prepared to face the demands of digital change while increasing competitiveness through optimizing human resource performance.

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