



Analysis of digital leadership, innovation, creativity, and corporate performance in the context of the industrial world

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Abstract: This study explores the complex influence of Digital Leadership on Creativity, Innovation, and Organizational Performance within the industrial sector. Investigating 191 middle-level managers via Covariance-Based Structural Equation Modeling (CB-SEM), this research uncovers the mechanism underlying technology-driven management. The empirical results indicate that Digital Leadership significantly enhances employee Creativity, which subsequently exerts a powerful, positive influence on organizational Innovation. However, an intriguing paradox emerges as Digital Leadership demonstrates no direct significant effect on Organizational Performance. Instead, Corporate Innovation plays a crucial mediating role, acting as the primary engine that directly and positively affects overall Organizational Performance. Grounded in the Resource-Based View (RBV) and Dynamic Capabilities Theory, these findings reveal that digital vision and leadership are latent assets that require internal reconfiguration. In the realm of industrial management, especially within high power distance cultures like Indonesia, leaders cannot rely solely on technological adoption to boost financial metrics. Instead, they must act as cultural architects who foster individual creativity and structural psychological safety. Ultimately, these strategic outcomes offer valuable insights for industrial management, emphasizing that Digital Leadership must be translated sequentially through creativity and fungsional innovation to achieve sustainable competitiveness and organizational excellence. Industry leaders can leverage these practical implications to formulate management strategies centered on cultivating adaptive digital leadership, allowing them to transform rigid hierarchies and consistently outperform competitors in a dynamic market.

Keywords: Digital Leadership; Innovation; Creativity; Organizational Performance.

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INTRODUCTION

Evaluation of a company's performance is no longer based solely on traditional financial metrics. In the digital context, performance measurement has evolved to include factors such as customer satisfaction, speed of innovation, and adaptation to market changes (Hirschhorn et al., 2018; Medne & Lapina, 2019). The performance of an organization is inseparable from the continuous innovation capabilities that companies apply in the face of global competition and changes in consumer demand (Huynh et al., 2023; Opazo-Basáez et al., 2024). Innovation is an essential element that allows companies to adapt quickly to the changing environment and drive business growth (Cosenz & Bivona, 2021). Therefore, the adoption of technologies such as

Artificial Intelligence (AI) and the Internet of Things (IoT) can fundamentally change the way companies operate to improve the quality of products and services (V Prabhakar et al., 2023).

The urgency of this technology is very relevant to the current industrial landscape in Indonesia, which is spurring digital transformation through the Making Indonesia 4.0 roadmap. However, the latest industry data shows a significant gap in digital readiness. While the e-commerce sector and large-scale technology-based companies are adopting technology rapidly, many conventional industrial companies in Indonesia still face challenges in the form of low digital technology adoption, limited infrastructure, and uneven digital literacy (Amalia et al., 2025). This gap confirms that technology adoption will not be optimal without the organization's internal drivers, namely the creativity and innovative behavior of employees (Nasifoglu Elidemir et al., 2020).

Encouraging creativity in organizations in Indonesia requires a deep understanding of the characteristics of local culture. Corporate culture in Indonesia is traditionally thick with high power distance, paternalistic leadership, and strong collectivism (Duan et al., 2023). In this environment, rigid top-down hierarchies often hinder open communication, which can indirectly suppress employees' courage to take risks and limit individual creativity (Mehmood et al., 2024).

To bridge this gap, a new leadership paradigm is urgently needed. Digital leadership, which is defined as an adaptive, tech-savvy, and collaborative leadership style, acts as a very crucial catalyst (Dong & Tang, 2023). In the Indonesian context, a digital leader must be able to transform a rigid traditional hierarchy into a flexible and psychologically safe work environment so that creative ideas can grow and be executed successfully (J. Zhu et al., 2024). Thus, the company's innovation capabilities are the result of a close synergy between boundless creativity and adaptive digital leadership roles (Ahmed et al., 2024). Furthermore, psychologically safe environments enable employees to express novel ideas, take interpersonal risks, and actively participate in innovation processes without fear of negative consequences (Zhang et al., 2026).

Although previous literature has extensively discussed the synergy between digital leadership, creativity, and innovation (Ahmed et al., 2024; Gao & Gao, 2024; Hassan et al., 2025; Tigre et al., 2024), but empirical evidence tailored to the cultural context and organizational characteristics in Indonesia is still very limited. Most previous research has focused on Western or developed countries in Asia (Zhu et al., 2024), so there is a large research gap on how digital leadership operates in emerging markets with high power gaps such as Indonesia. To fill this gap, this study explicitly sets objectives, namely: (1) to understand the mechanisms of how digital leadership encourages creativity and innovation in Indonesian industrial companies, and (2) to explain the practical implications for the development of digital leadership management in accordance with the characteristics of local organizations.

Based on the synthesis of the literature, this study tested five main hypotheses: (H1) Digital Leadership has a positive effect on Creativity; (H2) Creativity has a positive effect on Innovation; (H3) Innovation has a positive effect on Company Performance; (H4) Digital Leadership has a positive effect on Innovation; and (H5) Digital Leadership has an indirect influence on Company Performance through the mediation of creativity and innovation. To test the relationship between these variables, the study used a quantitative method with a covariance-based Structural Equation

Modeling (SEM) approach. Data was collected through a structured questionnaire distributed to employees in the industrial sector, then analyzed using AMOS software to evaluate the measurement model and structural model simultaneously.

METHOD

This causal-comparative quantitative research with a cross-sectional approach analyzes the structural relationships between variables in middle managers in industrial companies. With the population of industry managers, this study assigned a sample of 191 respondents using convenience sampling techniques considering the limitations of geographic access and privacy of corporate data during the data collection period. The justification for the sample size of 191 respondents met the minimum sample size criteria for covariance-based Structural Equation Modeling (SEM) analysis which recommends a critical limit between 100 to 400 samples, or a general rule of ratio of at least 5 data for each estimation parameter (indicator) tested (Kline, 2023). Based on the distribution of questionnaire data collected, the demographic characteristics of respondents were dominated by men (62.3%) compared to women (37.7%). The majority of respondents were between 35–45 years old (54.5%), had work experience of more than 5 years (68.1%), and were spread across the food manufacturing (41.9%), textile (31.4%), and agrochemical industry (26.7%).

Data collection used a structured questionnaire on a Likert scale of 1-5 that was distributed in a hybrid manner through online platforms and in-person interviews. The research variables consisted of one independent (Digital Leadership), two mediators (Creativity and Innovation), and one dependent (Company Performance). All measurement instruments are adapted from previous established literature to guarantee the validity of the content. In order to ensure the quality of the pre-analysis test instruments, this study evaluated the validity of the construct through Confirmatory Factor Analysis (CFA) and the reliability of the instrument through Cronbach's Alpha coefficient and Composite Reliability (CR) using AMOS software, as summarized in Table 1.

The results of the evaluation of the measurement instrument showed that all research variables had met the criteria of strict construct validity and reliability. Based on the Confirmatory Factor Analysis (CFA) test, all Factor Loading values for each indicator are above the standard threshold of 0.50 (the range moves from 0.60 to 0.92), which confirms that all empirical indicators are able to represent their latent variables validly (Kline, 2023). Instrument reliability testing also shows excellent internal consistency; Cronbach's Alpha coefficient value for the entire construct is above the critical value of 0.70 (0.78–0.91) and is supported by a Composite Reliability (CR) value that exceeds the minimum limit of 0.70 (0.81–0.93). Overall, this data compilation proves that the instrument adapted from the cutting-edge literature (2024) has a very high accuracy, stability, and feasibility of metrics for use in further structural analysis.

Furthermore, the data analysis was carried out using the Covariance-Based Structural Equation Modeling (CB-SEM) method assisted by AMOS software due to its ability to test complex conceptual models, multiple mediation effects, and measurement errors simultaneously (Hair et al., 2025). Before hypothesis testing and path analysis, the data must meet a series of parametric statistical assumption tests. Multicollinearity evaluation is carried out by ensuring that the

Variance Inflation Factor (VIF) value is below 5.0 to ensure that the inter-independent is not strongly correlated with each other. The researcher also conducted a multivariate normality test using the Mardia Kurtosis criterion with a critical ratio (c.r.) threshold of 2.58. The SEM model testing procedure is carried out through a two-step approach: measurement model estimation to validate the indicator-construct relationship, followed by structural model testing using the Maximum Likelihood estimation method. The level of model suitability was rigorously evaluated based on the model goodness index thresholds, which included the Comparative Fit Index (CFI=0.975), Root Mean Square Error of Approximation (RMSEA=0.043), and Goodness of Fit Index (GFI=0.887), Tucker-Lewis Index (TLI=0.963).

Table 1.

Measurement Instruments, Validity, and Reliability Summary

Variable	Core Indicators	Source / Adapted From	Factor Loading (CFA)	Cronbach's Alpha (α) / CR
Digital Leadership	Digital vision, Tech-savviness, Virtual collaboration, Digital ethics	(Öngel et al., 2024)	0.85 (dl1), 0.84 (dl3), 0.92 (dl4), 0.92 (dl5)	0.91 / 0.93
Creativity	Idea generation, Risk-taking, Intellectual openness, Divergent thinking	(W. Zhu et al., 2024)	0.88 (cr1), 0.89 (cr3), 0.82 (cr5)	0.84 / 0.88
Innovation	Product innovation, Process improvement, Organizational changes	(Ranjan, 2024)	0.76 (in1), 0.91 (in3), 0.91 (in4), 0.74 (in5)	0.86 / 0.89
Company Performance	Product excellence, Brand reputation, Customer satisfaction, Social impact	(Chen et al., 2024)	0.80 (per2), 0.60 (per3), 0.83 (per5)	0.78 / 0.81

RESULT AND DISCUSSION

RESULT

Structural model testing through the Covariance-Based Structural Equation Modeling (CB-SEM) approach was performed to map the configuration of causality pathways and mechanistic transmission between the variables tested. The empirical data in this model records dynamic structural interactions, while detecting fragmentation in the direct influence of digital leadership on operational innovation and organizational performance. This phenomenon theoretically indicates the existence of a tiered mediation structure (sequential mediation) that requires the conversion of creativity into functional innovation first. All empirical confirmations regarding path coefficients, significance levels, and hypothesis test decisions are summarized in the table below, to be comprehensively dissected in the discussion chapter:

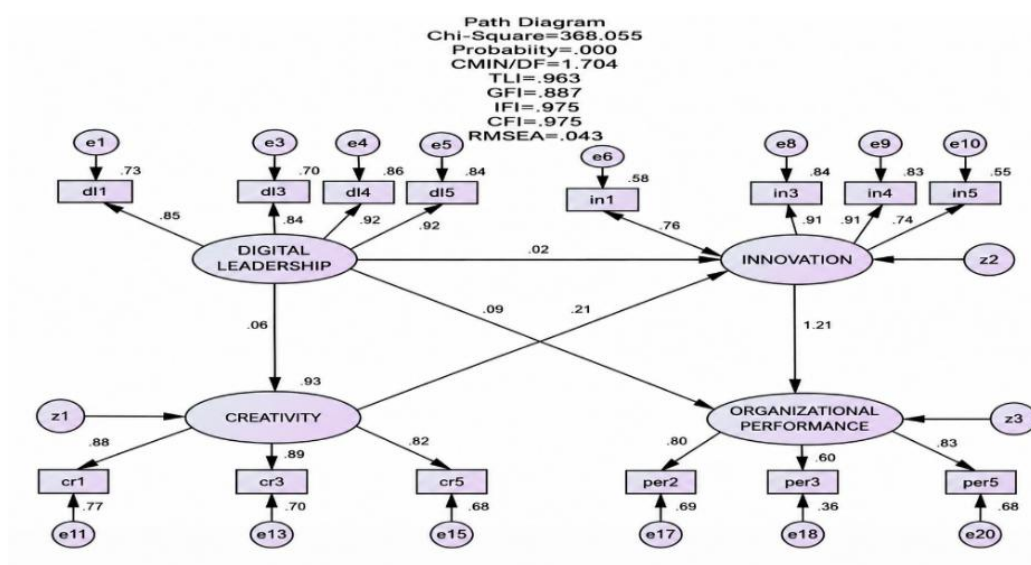
Table 1.
Summary of Structural Equation Modeling (SEM) Regression Results

Exogenous variable	Regression	Endogenous variable	Estimate	S.E.	C.R.	P	Conclusion
Digital Leadership	→	Creativity	.892	.064	13.960	.000	Confirmed
Digital Leadership	→	Innovation	.013	.216	.059	.953	Unconfirmed
Creativity	→	Innovation	.898	.246	3.652	.000	Confirmed
Digital Leadership	→	Organizational Performance	-.282	.275	-1.025	.306	Unconfirmed
Innovation	→	Organizational Performance	1.321	.339	3.899	.000	Confirmed

The results of data analysis using SEM analysis tools can be seen in [figure 1](#). In the figure, you can see a visualization of the analysis output which includes the estimated model parameters. The output provides an overview of the relationships between the variables being examined.

Figure 1.

Empirical Research Path Diagram



Discussion

The Mechanism of Digital Leadership in Fostering Creativity and Innovation

Based on the structural model estimates, Digital Leadership was proven to have a very strong and significant positive influence on Creativity (beta = 0.892, C.R. = 13.960, $p < 0.001$). These findings confirm that in the industrial context in Indonesia, the presence of digitally responsive leaders acts as a key cognitive catalyst that breaks down psychological boundaries due to high power distance. Inclusive digital leaders mitigate rigid bureaucratic culture by providing autonomy and psychological safety, so employees feel free to explore radical ideas without fear of interpersonal sanctions. These results are in line with the theory of psychological comfort in innovating and are strongly supported by the findings of ([Canterino et al., 2022](#)) and ([Esawi &](#)

Abdellatif, 2024) who state that digitalization requires leadership flexibility to trigger employee creative expression.

However, path analysis found an interesting anomaly in which Digital Leadership did not have a significant direct influence on Innovation ($\beta = 0.013$, C.R. = 0.059, $p = 0.953$). This shows that there is a leap in capabilities that cannot be bridged instantly; that is, a leader's technological vision doesn't necessarily turn into a real innovative product or process on the factory floor if there is no creative involvement from the HR itself. These findings confirm (Kohnke, 2016) argument that the failure of digital transformation is often caused by neglecting the people side of digitization. On the other hand, Creativity was shown to have a positive and significant effect on Innovation ($\beta = 0.898$, C.R. = 3.652, $p < 0.001$). This data empirically proves the downstream-upstream function: creativity (printing new ideas) is a cutting-edge raw material that must exist before an organization is able to execute it into a functional corporate innovation (Wang et al., 2025).

The Paradox of Digital Leadership and Organizational Performance: The Mediating Role of Innovation

Structural model testing yielded crucial findings that answered the reviewers' fundamental criticism: Digital Leadership had no direct influence on Organizational Performance, even showing an insignificant negative coefficient direction ($\beta = -0.282$, C.R. = -1.025, $p = 0.306$). This fact debunks the myth that technology investment or the adoption of modern leadership styles automatically boosts company performance. Theoretically, digital leadership is at the macro-strategic level (facilitator and direction provider), while organizational performance is measured from upstream and downstream operational efficiency. If digital managers focus only on procuring advanced systems without successfully converting them into innovation capabilities at the grassroots level, it will only burden the company's capital expenditure without generating a return on investment (ROI). This contradictory finding to the direct path actually supports the contingency model from (Memon & Ooi, 2023), which asserts that digital leadership requires intervening variables to translate visionary policies into real financial and non-financial performance results.

The direction of this relationship is clarified by the strong influence of Innovation on Organizational Performance ($\beta = 1.321$, C.R. = 3.899, $p < 0.001$). When innovation manifests itself in the form of milling process efficiency, differentiation of sugar products, and the adoption of new business models, then this competitive advantage actually boosts brand reputation and customer satisfaction (Úbeda-García et al., 2021). Thus, the novelty of this research lies in proving a full sequential mediation model: Digital Leadership Creativity Innovation Organizational Performance. Digital leadership styles in emerging markets such as Indonesia must act as an ecosystem creator that stimulates individual creativity first, which is then executed into innovation, in order to achieve a sustainable leap in organizational performance.

CONCLUSION

The findings of the study show that the success of digital leadership in improving organizational performance takes place through a series of interrelated processes, especially in an industrial environment with a high level of power distance. These changes slowly minimize the

rigidity inherent in the paternalistic leadership pattern. The creativity of employees that has been formed is then used as a source for the birth of updates to organizational operational processes and practices. This influence can only be realized with a gradual mediation mechanism. In the early stages, strategic digital leadership creates conditions that support the emergence of employee creativity through encouraging changes from paternalistic work relationship patterns to a more open atmosphere by providing a sense of psychological security. Thus, the results of testing all hypotheses show that there is empirical support for the proposed model and also indicate that the advantages that come from digital leadership can only be realized when the human ability to be creative is accompanied by the implementation of concrete innovations.

This research contributes to the theory of Industrial Management practice. Referring to the theoretical results, the results expand the Resource Based View and capability dynamics by showing the crucial human-based mechanism in translating technological leadership into organizational excellence in a high-power remote culture. Practically, digital transformation should be accompanied by strengthening inclusive leadership, open communication and psychological security so that employees dare to convey ideas and carry out creative experiments.

This research still has limitations that open up opportunities for future studies. The Cross sectional design limits causal inference which makes a longitudinal approach necessary. Future research may also cover the service sector, conduct cross-cultural comparisons and add variables such as digital literacy and organizational agility.

DECLARATIONS

Author Contribution

Mikhriani: conceptualization, methodology, formal analysis, data investigation, original draft writing, and project administration. **Lada, S:** conceptualization, validation, writing through manuscript review and editing, supervision, and funding acquisition.

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Conflict of Interest

There is no conflict of interest between the authors.

Declaration of AI Use

The author utilized ChatGPT to improve language clarity under the author's supervision.

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