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AI Readiness and Procurement Performance: The Mediating Role of E-Catalogue from Human Resource Capability Perspective in the Public Sector

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Abstract

This study examines the effect of AI readiness conceptualized as a human resource driven organizational capability on procurement performance, with the mediating role of E-Catalogue Version 6.0 in the public sector. Data were collected from 63 procurement practitioners using a structured questionnaire with a five-point Likert scale and analyzed using PLS-SEM. The results show that AI readiness significantly affects procurement performance ($\beta = 0.375$, $p = 0.002$) and E-Catalogue implementation ($\beta = 0.608$, $p < 0.001$). In turn, E-Catalogue implementation significantly influences procurement performance ($\beta = 0.425$, $p < 0.001$). The indirect effect of AI readiness on procurement performance through E-Catalogue is also significant ($\beta = 0.258$, $p = 0.002$), indicating partial mediation. This study addresses the limited attention to human resource capability in prior e-procurement and digital transformation research. These findings highlight that procurement performance is not solely determined by digital systems but by the organization's capability to develop and utilize human resources in AI-driven environments. This study contributes to the HRM literature by positioning AI readiness as an organizational capability rooted in human capital and digital competencies, extending its role in public sector digital transformation.

Keyword: *AI Readiness; E-Catalogue; Procurement Performance; HR Capability; Public Sector.*

INTRODUCTION

Digital transformation in the public sector has accelerated significantly in recent years, driven by rapid advancements in information technology, automation, and Artificial Intelligence (AI). In the context of government procurement, digitalization has become a key mechanism for enhancing transparency, accountability, and efficiency in public spending. Recent studies indicate that digital procurement systems can reduce transaction costs, improve process speed, and mitigate fraud risks (Acosta-Enriquez et al., 2025; Barrios-Ulloa et al., 2025; Demaidi, 2025). Moreover, e-procurement platforms contribute to improved operational performance and organizational effectiveness, particularly within public sector institutions that operate under strict governance and compliance requirements (Hržica et al., 2025; Kumar et al., 2025; OECD, 2023).

In Indonesia, the government has demonstrated a strong commitment to procurement digitalization through the issuance of Presidential Regulation Number 46 of 2025, which mandates the use of electronic procurement systems across public institutions. This regulation builds upon earlier policies, including Presidential Regulation Number 16 of 2018 and its amendment through Presidential Regulation Number 12 of 2021. To support this transformation, the National Public Procurement Agency (LKPP) introduced E-Catalogue Version 6.0 as an advanced digital platform aimed at improving system integration, streamlining procurement processes, and strengthening compliance and transparency. Its implementation has been reinforced through LKPP Head Regulation Number 294 of 2024 and Circular Letter Number 9 of 2024, requiring all government institutions to adopt the system starting January 1, 2025.

Despite these technological advancements, the effectiveness of digital procurement systems is not determined solely by system features or regulatory mandates. From a human resource management perspective, digital transformation is fundamentally dependent on the capability and readiness of the workforce. Prior studies highlight that employees' digital competencies, learning capacity, and

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adaptability to technological change are critical determinants of successful transformation outcomes (Margherita & Heikkilä, 2021; OECD, 2023; Wang et al., 2025).

Building on this view, recent human resource management literature further specifies that such capability extends beyond basic digital skills to include learning agility and the ability to operate in AI-driven environments. These higher-order competencies enable organizations to effectively integrate and utilize advanced digital systems, thereby shaping the overall success of digital transformation initiatives (Minbaeva, 2021; Budhwar et al., 2022; Verhoef et al., 2021).

In this context, human capital functions as a critical enabling mechanism that allows organizations to translate workforce competencies into tangible performance outcomes. Rather than operating at the individual level alone, digital competencies, learning agility, and adaptability are progressively institutionalized into organizational capabilities embedded within structures, processes, and strategic practices. This transformation is particularly important in digital environments, where the effective utilization of systems such as e-procurement platforms depends not only on technological availability but also on how well these human capabilities are integrated into day-to-day operational workflows. Consequently, human capital becomes a key driver in converting technological investments into meaningful digital transformation outcomes.

Accordingly, AI readiness should be understood not only as a technological or organizational construct but also as a human resource driven organizational capability. In this study, AI readiness reflects the extent to which organizations are able to develop, aggregate, and institutionalize employee competencies such as digital literacy, data interpretation skills, analytical thinking, and adaptability to AI-driven systems into their structures, processes, and strategic practices.

Rather than viewing these competencies as isolated individual attributes, this study conceptualizes AI readiness as the organization's ability to ensure that such capabilities are consistently available and effectively utilized in procurement activities. Organizations with higher levels of AI readiness are better positioned to leverage digital procurement platforms, generate data-driven insights, and maintain compliance with increasingly complex procedures. Empirical evidence suggests that workforce readiness and digital capability, when embedded at the organizational level, significantly influence technology adoption and organizational performance in public sector settings (Hržica et al., 2025; Tariq et al., 2025; Wang et al., 2025).

However, existing studies on e-procurement and public sector digital transformation have predominantly focused on technological infrastructure, system implementation, and regulatory frameworks, with relatively limited attention given to the role of human resource capabilities. While prior research acknowledges the importance of organizational readiness, empirical studies that explicitly conceptualize AI readiness from a human capability perspective and examine its relationship with procurement performance remain scarce. Furthermore, research investigating the mediating role of specific digital platforms such as E-Catalogue Version 6.0 in translating human resource readiness into performance outcomes is still limited, particularly in the Indonesian public sector context.

Despite extensive research on e-procurement and public sector digital transformation, prior studies have predominantly emphasized technological infrastructure and regulatory frameworks, with limited attention to human resource capability as a central determinant of system effectiveness. Furthermore, empirical research that explicitly conceptualizes AI readiness from a human capability perspective and examines its mediating mechanism through specific digital platforms such as E-Catalogue Version 6.0 remains scarce, particularly in the public sector context. This gap is critical, as the effectiveness of digital systems ultimately depends on the organization's ability to develop and mobilize human capabilities.

This gap is critical, as the implementation of advanced digital systems without adequate human capability may result in suboptimal utilization, inefficiencies, or resistance to change. Therefore, a deeper understanding is needed regarding how AI readiness viewed from a human resource capability perspective affects procurement performance, both directly and indirectly through the effective use of digital procurement platforms.

Therefore, this study aims to examine the effect of AI readiness viewed from a human resource capability perspective on procurement performance, as well as to analyze the mediating role of E-Catalogue Version 6.0 in this relationship. This study contributes to the literature by integrating digital transformation and human resource management perspectives, emphasizing that the effectiveness of AI-enabled procurement systems is not solely determined by technological factors but also by workforce

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capabilities. From a practical standpoint, the findings are expected to provide insights for policymakers and public organizations in designing capacity-building strategies, particularly in strengthening digital competencies, enhancing AI readiness, and optimizing the use of E-Catalogue Version 6.0 to improve procurement performance. Ultimately, this research aims to support the development of more effective, efficient, and accountable public procurement systems in Indonesia.

Literature Review

Human Capital Theory

Human Capital Theory posits that the knowledge, skills, and abilities embedded in individuals constitute strategic assets that enhance organizational productivity and performance (Becker, 1993; OECD, 2023). In public sector organizations, human capital extends beyond formal education to include technical competencies, experiential knowledge, and the ability to adapt to technological change. These individual-level competencies, when systematically developed and integrated, form organizational human capital, which serves as a strategic capability influencing organizational outcomes.

In increasingly digitalized environments, the value of human capital is shifting significantly. Margherita and Heikkilä (2021) emphasize that digital transformation increases organizational dependence on employees' competencies in operating data-driven and artificial intelligence-based systems. Consequently, organizational performance is no longer determined solely by technological infrastructure, but also by the quality of human capital operating such systems.

Recent human resource management literature further extends Human Capital Theory by emphasizing that human capital in the digital era is not only about knowledge accumulation but also about continuous reskilling and capability renewal in response to rapid technological change (Minbaeva, 2021; Sousa & Rocha, 2023). This perspective highlights that sustaining organizational performance requires ongoing investment in developing adaptive, future-oriented competencies that enable employees to remain effective in dynamic, technology-driven environments.

Within public procurement contexts, Human Capital Theory explains that the ability of procurement personnel to understand and operate digital procurement systems including e-procurement platforms and AI-enabled tools is a critical determinant of procurement effectiveness, particularly in terms of efficiency, compliance, and transparency.

Digital Competency Framework

Complementing the broader concept of human capital, digital transformation in the public sector can be explained through the Digital Competency Framework, which emphasizes digital competence as a prerequisite for successful technology adoption.

This framework refers to an individual's ability to access, understand, evaluate, and effectively use digital technologies in work-related contexts (Ferrari, 2013; European Commission, 2022). It includes digital literacy, data literacy, digital communication skills, and technology-based problem-solving capabilities.

Building on this foundation, digital competencies are increasingly conceptualized as strategic HR assets that enable organizations to leverage AI and data-driven systems effectively (Jaiswal et al., 2022; Chowdhury et al., 2023). This perspective shifts the role of digital competence from a purely individual capability to a source of organizational value creation.

Recent developments indicate that digital competency has evolved beyond basic skills toward advanced digital capabilities, including data analytics, information interpretation, and interaction with artificial intelligence systems (Wang et al., 2025). This evolution highlights that organizational readiness for AI adoption is strongly dependent on the digital competence of its human resources.

In this study, the Digital Competency Framework is extended to the organizational level, where individual digital competencies are viewed as collective capabilities that are developed, supported, and institutionalized within the organization. Thus, AI readiness reflects not only individual skills but also the organization's ability to ensure that such competencies are consistently available and effectively utilized in procurement processes.

Socio-Technical System Theory

In addition, this study draws on the Socio-Technical Systems Theory, which emphasizes that organizational performance results from the interaction between social systems (people, structures, and

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organizational culture) and technical systems (technology, processes, and infrastructure) (Bostrom & Heinen, 1977).

In the context of digital procurement systems such as E-Catalogue Version 6.0, success depends not only on technological sophistication but also on the alignment between system design and user capability. Imbalances between social and technical components may lead to system underutilization, user resistance, and suboptimal performance outcomes (Trist & Bamforth, 1951; Barrios-Ulloa et al., 2025).

Therefore, this theory provides a conceptual foundation for understanding that AI readiness (human aspect) and E-Catalogue implementation (technical system) must operate in synergy to achieve optimal procurement performance. This perspective reinforces the view that AI readiness should be understood as an organizational capability that bridges human resources and technological systems.

Procurement Performance

Procurement performance refers to the extent to which procurement processes achieve organizational objectives in terms of efficiency, quality, timeliness, transparency, and regulatory compliance. In the public sector, procurement performance is not only an operational outcome but also a reflection of governance quality and accountability in public spending. According to Raman et al. (2025), procurement performance encompasses the ability of procurement units to manage processes efficiently, reduce transaction costs, and ensure optimal supplier selection. Similarly, Acosta-Enriquez et al. (2025) emphasize that effective procurement performance reflects an organization's capability to manage risks, optimize budget utilization, and enhance public accountability.

Common indicators used to measure procurement performance include process efficiency, processing speed, procurement quality, regulatory compliance, and transparency (Kumar et al., 2025; Barodi & Lalaoui, 2025; OECD, 2023). In public sector contexts, these indicators are particularly critical, as government procurement accounts for a significant proportion of national expenditure and is closely linked to institutional credibility and service delivery outcomes.

Recent studies highlight that digital transformation plays a significant role in improving procurement performance. Digital procurement systems reduce administrative redundancies, accelerate approval workflows, and enhance data accuracy (Barrios-Ulloa et al., 2025). Additionally, e-catalogue systems contribute to faster processing times and cost efficiency through product standardization and automation (Lloret et al., 2025).

However, from a human resource management perspective, procurement performance is not solely determined by systems and procedures, but also by the capability of employees who operate these systems. The ability of procurement personnel to understand digital tools, interpret data, and adapt to technological changes becomes a critical determinant of performance outcomes. This perspective aligns with the human capital view, which emphasizes that employee competencies and skills are key drivers of organizational performance, particularly in technology-intensive environments (Margherita & Heikkilä, 2021; OECD, 2023).

AI Readiness as Human Resource Capability

AI readiness refers to an organization's ability to adopt, implement, and effectively utilize artificial intelligence technologies. While prior studies conceptualize AI readiness as a combination of technological, organizational, and process factors (Tariq et al., 2025; Wang et al., 2025), this study emphasizes AI readiness from a human resource capability perspective at the organizational level.

From this perspective, AI readiness does not merely reflect individual competencies, but rather the extent to which employee capabilities are developed, aggregated, and institutionalized within the organization. From an HRM perspective, AI readiness reflects not only technological preparedness but also workforce readiness, including skills development, training systems, and employee engagement in digital transformation initiatives (Budhwar et al., 2022; Raisch & Krakowski, 2021). This includes the organization's capacity to ensure digital literacy, analytical skills, data interpretation ability, and adaptability to technological change across its workforce. In line with recent studies, workforce readiness and digital capability represent critical organizational assets that determine the success of technology adoption and performance improvement in public sector institutions (Hržica et al., 2025; Wang et al., 2025).

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This conceptualization is grounded in human capital theory, which posits that knowledge, skills, and abilities embedded in employees become strategic resources when they are effectively managed and integrated into organizational processes. In digital environments, the value of human capital is increasingly linked not only to individual competence but also to the organization's ability to mobilize and align these competencies with technological systems and strategic objectives.

Empirical evidence suggests that organizations with higher levels of AI readiness demonstrate better system utilization, stronger user acceptance, and improved operational outcomes (Tariq et al., 2025; Barrios-Ulloa et al., 2025). Conversely, insufficient readiness particularly when human capabilities are not adequately supported at the organizational level can lead to resistance, underutilization of system features, and suboptimal performance.

In the context of public procurement, AI readiness is particularly critical, as modern procurement systems increasingly rely on advanced functionalities such as price analytics, anomaly detection, and automated evaluation. The effectiveness of these features depends not only on system availability but also on the organization's ability to ensure that its human resources are prepared, supported, and aligned to utilize them effectively.

Implementation of E-Catalogue Version 6.0

E-Catalogue is an electronic platform that provides standardized information on products, prices, suppliers, and specifications to facilitate procurement processes. In Indonesia, the system is managed by LKPP and forms a core component of the national e-procurement ecosystem.

E-Catalogue Version 6.0 represents a significant advancement in the digital procurement system, introducing enhanced features such as improved user interface, automated verification processes, integrated data systems, and stronger compliance mechanisms. These improvements are intended to increase efficiency, transparency, and accountability in procurement activities.

The effectiveness of e-catalogue implementation can be evaluated through several dimensions, including functional adoption, system integration, process efficiency, user compliance, and user capability (Lloret et al., 2025; Mavidis & Folinas, 2022). Among these, user capability is particularly important, as the successful utilization of system features depends on the skills and competencies of procurement personnel.

Empirical findings indicate that effective implementation of e-catalogue systems can significantly improve procurement outcomes by reducing processing time, increasing transparency, and minimizing fraud risks (Barodi & Lalaoui, 2025; Barrios-Ulloa et al., 2025). However, the success of such systems is highly contingent upon the readiness of users and the organizational environment in which the system operates.

Despite its importance, empirical research on E-Catalogue Version 6.0 remains limited, particularly in relation to how human resource capability influences its implementation and effectiveness. This gap is especially relevant given the increasing complexity of digital procurement systems and the growing reliance on user competencies.

AI Readiness and Procurement Performance

From a human capital perspective, employee competencies are fundamental drivers of organizational performance, particularly in technology-intensive environments. However, in this study, AI readiness is conceptualized as an organizational capability, where individual competencies are aggregated, supported, and institutionalized through organizational systems, training, and strategic alignment.

At the organizational level, AI readiness reflects the extent to which institutions are able to mobilize human resources, technological infrastructure, and managerial support to enable effective use of AI-enabled procurement systems. Such readiness enhances the organization's capacity to utilize digital tools, interpret procurement data, and support data-driven decision-making processes.

Empirical studies support this relationship. Wang et al. (2025) find that organizations with higher levels of technological and workforce readiness are better able to leverage automation, resulting in improved efficiency and reduced errors. Similarly, Raman et al. (2025) show that organizational readiness contributes to improved operational performance and service quality in public sector institutions.

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In the context of public procurement, organizational AI readiness facilitates faster decision-making, strengthens compliance with regulations, and enhances transparency. Therefore, higher levels of AI readiness are expected to contribute directly to improved procurement performance.
H1: AI readiness has a significant effect on procurement performance.

AI Readiness and E-Catalogue Implementation

The implementation of advanced digital systems such as E-Catalogue Version 6.0 requires not only technological infrastructure but also organizationally embedded human capability. Systems characterized by higher levels of integration and automation demand that organizations ensure adequate workforce readiness through training, support mechanisms, and adaptive work processes.

From an organizational perspective, AI readiness reflects the institution's ability to align human resources, technology, and processes to support system adoption. This includes not only the presence of digitally competent employees but also the existence of organizational structures and policies that facilitate system utilization.

Previous studies indicate that organizational and workforce readiness significantly influence the adoption and effective use of digital systems (Tariq et al., 2025; Barrios-Ulloa et al., 2025). Organizations with higher AI readiness are better positioned to ensure that users understand system functionalities, adapt to new workflows, and utilize system features effectively.

Therefore, AI readiness is expected to have a direct impact on the effectiveness of E-Catalogue implementation.
H2: AI readiness has a significant effect on the implementation of E-Catalogue Version 6.0.

E-Catalogue Implementation and Procurement Performance

The implementation of e-catalogue systems plays a critical role in improving procurement performance by simplifying processes, reducing transaction costs, and enhancing transparency. Studies show that higher levels of system adoption are associated with improved efficiency and better procurement outcomes (Lloret et al., 2025; Kumar et al., 2025).

In the case of E-Catalogue Version 6.0, enhanced system features such as automation, integration, and improved user experience are expected to further strengthen procurement performance.

H3: The implementation of E-Catalogue Version 6.0 has a significant effect on procurement performance.

The Mediating Role of E-Catalogue

Although AI readiness enhances organizational capability, its impact on performance is often realized through the effective use of digital systems. In this context, E-Catalogue Version 6.0 acts as an operational mechanism that translates human capability into measurable performance outcomes.

Empirical evidence suggests that readiness influences system adoption, which in turn affects performance (Tariq et al., 2025; Barrios-Ulloa et al., 2025). This indicates a mediating relationship, where digital platforms serve as a bridge between capability and performance.

Therefore, the implementation of E-Catalogue Version 6.0 is expected to mediate the relationship between AI readiness and procurement performance.
H4: The implementation of E-Catalogue Version 6.0 mediates the relationship between AI readiness and procurement performance.

METHOD

Research Design and Data Collection

This study adopts a quantitative research design using a survey approach to examine the effect of AI readiness on the implementation of E-Catalogue version 6.0 and its subsequent impact on procurement performance in the public sector. Data were collected through a structured online questionnaire administered via Google Forms and distributed to procurement practitioners, including Commitment Making Officers (PPK), Procurement Working Groups (Pokja), Procurement Officers (PP), and supporting staff directly involved in government procurement processes.

The questionnaire consisted of two main sections. The first section captured respondents' demographic characteristics, including age, gender, position, organizational unit, and years of

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experience in procurement. The second section measured the research constructs using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

A total of 63 valid responses were obtained from procurement personnel within the Ministry of Immigration and Corrections and the Ministry of Law of the Republic of Indonesia. The study employed a purposive sampling technique, targeting respondents with direct involvement in procurement processes.

Measurement of Variables

This study involves three main constructs with distinct levels of analysis: AI readiness (organizational level), implementation of E-Catalogue version 6.0 (process level), and procurement performance (organizational outcome).

AI readiness refers to the extent to which an organization possesses the technological infrastructure, human competencies, and strategic alignment necessary to adopt AI-enabled systems in procurement processes. This construct was adapted from digital readiness and AI capability frameworks (e.g., Bialas et al., 2023; Alsheibani et al., 2020) and comprises three dimensions: technological readiness, organizational readiness, and strategic readiness. This approach aligns with recent HRM studies that conceptualize digital readiness as a multi-dimensional construct integrating skills, organizational support, and strategic alignment (Chowdhury et al., 2023).

Although AI readiness in this study includes technological, organizational, and strategic dimensions, the primary emphasis is placed on its human resource component. Specifically, this study conceptualizes AI readiness as an organizational capability rooted in workforce competencies, including digital literacy, analytical skills, and adaptability, which are institutionalized and supported through organizational systems and practices.

The implementation of E-Catalogue version 6.0 is defined as the extent to which the system is effectively utilized in procurement activities, capturing how digital procurement tools are embedded within operational workflows. It was measured using indicators reflecting system utilization, process integration, efficiency, and user compliance with procedures (Mavidis & Folinas, 2022; Hashim et al., 2022; Guida et al., 2023).

Procurement performance refers to the extent to which procurement activities achieve efficiency, compliance, and strategic value in public spending. This construct was measured using indicators adapted from the OECD Public Governance framework (2023), including efficiency (cost savings and timeliness), compliance (adherence to regulations), and strategic value (value for money and contribution to organizational objectives).

Data Analysis Technique

Data analysis was conducted using Partial Least Squares–Structural Equation Modeling (PLS-SEM) with SmartPLS version 4, while descriptive statistics were processed using Microsoft Excel. PLS-SEM was selected due to its suitability for small sample sizes, complex models involving mediating variables, and prediction-oriented research with potentially non-normal data distributions.

The measurement (outer) model was evaluated to ensure reliability and validity following Hair et al. (2021). Indicator reliability was assessed using outer loadings (≥ 0.70), while internal consistency reliability was evaluated using Cronbach's Alpha and Composite Reliability (≥ 0.70). Convergent validity was assessed using Average Variance Extracted (AVE ≥ 0.50), and discriminant validity was examined using the Fornell–Larcker criterion and the HTMT ratio.

The structural (inner) model was evaluated by examining collinearity using the Variance Inflation Factor (VIF < 5), path coefficients and their significance, coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2). The mediating role of E-Catalogue implementation was tested using a bootstrapping procedure with 5,000 resamples to assess indirect effects. Mediation is established when the indirect effect ($X \rightarrow M \rightarrow Y$) is statistically significant ($p < 0.05$) and consistent with the hypothesized direction. The type of mediation (partial or full) was determined by comparing the significance of direct and indirect effects.

RESULT and DISCUSSION

Result

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This study employs Partial Least Squares–Structural Equation Modeling (PLS-SEM) using SmartPLS 4 to evaluate both the measurement model and the structural model. The analysis is conducted in two stages. First, the measurement model (outer model) is assessed to examine the reliability and validity of the constructs. Second, the structural model (inner model) is evaluated to test the hypothesized relationships among variables.

The results are presented systematically, starting with the assessment of convergent validity, followed by reliability and discriminant validity, and concluding with the evaluation of the structural model.

Table 1. Convergent Validity (Outer Loading)

	E-Catalogue Version 6.0	AI Readiness	Procurement Performance
AI_01		0.743	
AI_02		0.763	
AI_03		0.758	
AI_04		0.565	
AI_05		0.720	
AI_06		0.698	
AI_07		0.744	
AI_08		0.785	
AI_09		0.660	
AI_10		0.767	
AI_11		0.811	
AI_12		0.791	
ECAT_01	0.670		
ECAT_02	0.818		
ECAT_03	0.732		
ECAT_04	0.544		
ECAT_05	0.594		
ECAT_06	0.842		
ECAT_07	0.751		
ECAT_08	0.737		
ECAT_09	0.741		
ECAT_10	0.689		
ECAT_11	0.692		
ECAT_12	0.834		
PP_01			0.798
PP_02			0.497
PP_03			0.798
PP_04			0.854
PP_05			0.702
PP_06			0.804
PP_07			0.832
PP_08			0.825
PP_09			0.866

Source: The data were analyzed using SmartPLS 4.0.

Convergent validity is assessed using outer loading values, with a recommended threshold of 0.70. The results indicate that the majority of indicators across all constructs meet this criterion.

For the AI Readiness construct, most indicators demonstrate acceptable loadings, with several exceeding 0.70, while a few indicators fall within the range of 0.50–0.70. Similarly, the E-Catalogue Version 6.0 construct shows predominantly strong loadings, although several indicators are within the moderate range. The Procurement Performance construct also demonstrates generally high loadings, with one indicator below the preferred threshold.

Following PLS-SEM guidelines (Hair et al., 2021), indicators with loadings between 0.40 and 0.70 are retained when they contribute to construct validity and are theoretically justified. Overall, the results confirm that all constructs achieve acceptable levels of convergent validity.

Table 2. Reliability and Validity

	Cronbach's alpha	rho_a	rho_c	AVE
ECAT	0.916	0.923	0.929	0.526

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AI	0.922	0.926	0.934	0.543
PP	0.917	0.925	0.933	0.612

Source: The data were analyzed using SmartPLS 4.0.

Construct reliability and convergent validity are assessed using Cronbach's Alpha, rho_A, Composite Reliability (CR), and Average Variance Extracted (AVE). All constructs exceed the recommended thresholds (CR and rho_A > 0.70; AVE > 0.50), indicating satisfactory internal consistency and convergent validity. Overall, the measurement model demonstrates adequate reliability.

Table 3. Discriminant Validity_ Fornell–Larcker

	ECAT	AI	PP
ECAT	0.726		
AI	0.608	0.737	
PP	0.653	0.634	0.782

Source: The data were analyzed using SmartPLS 4.0.

Discriminant validity is evaluated using the Fornell Larcker criterion. The square root of AVE for each construct is higher than its correlations with other constructs, confirming that each construct is empirically distinct. Therefore, discriminant validity is established.

Table 4. Discriminant Validity_ HTMT<0.90

	ECAT	AI	PP
ECAT			
AI	0.646		
PP	0.693	0.678	

Source: The data were analyzed using SmartPLS 4.0.

The HTMT ratios for all construct pairs are below the threshold of 0.90, indicating no issues with discriminant validity. These results further confirm that the constructs are conceptually and empirically distinct.

Table 5. Collinearity statistics VIF (no multicollinearity)

	VIF
ECAT => PP	1.586
AI => ECAT	1.000
AI => PP	1.586

Source: The data were analyzed using SmartPLS 4.0.

Collinearity is assessed using Variance Inflation Factor (VIF) values. All VIF values are well below the threshold of 5, indicating the absence of multicollinearity issues in the structural model. This suggests that each predictor contributes independently to the model.

Table 6. R-Square

	R-square	R-square adjusted
ECAT	0.369	0.359
PP	0.516	0.500

Source: The data were analyzed using SmartPLS 4.0.

The coefficient of determination (R^2) indicates that AI Readiness explains 36.9% of the variance in E-Catalogue Version 6.0, while AI Readiness and E-Catalogue jointly explain 51.6% of the variance in Procurement Performance. These values indicate moderate to substantial explanatory power.

Table 7. F-Square (Effect Size)

	Original sample	Sample mean	Standard deviation	T statistics	P values
ECAT => PP	0.236	0.272	0.175	1.343	0.179
AI => ECAT	0.586	0.714	0.260	2.253	0.024
AI => PP	0.184	0.215	0.141	1.302	0.193

Source: The data were analyzed using SmartPLS 4.0.

Effect size analysis shows that AI Readiness has a large effect on E-Catalogue Version 6.0, while its effect on Procurement Performance and the effect of E-Catalogue on Procurement Performance are in the moderate range. These results indicate that AI Readiness plays a dominant role in influencing system implementation. Although the f^2 values indicate moderate effect sizes for several relationships,

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statistical significance is confirmed through path coefficients and bootstrapping results. This suggests that the relationships are meaningful in explaining the model despite variations in effect size magnitude.

Table 8. Path Coefficient

	Original sample	Sample mean	Standard deviation	T statistics	P values
ECAT => PP	0.425	0.426	0.121	3.501	0.000
AI => ECAT	0.608	0.632	0.067	9.059	0.000
AI => PP	0.375	0.380	0.118	3.176	0.002

Source: The data were analyzed using SmartPLS 4.0.

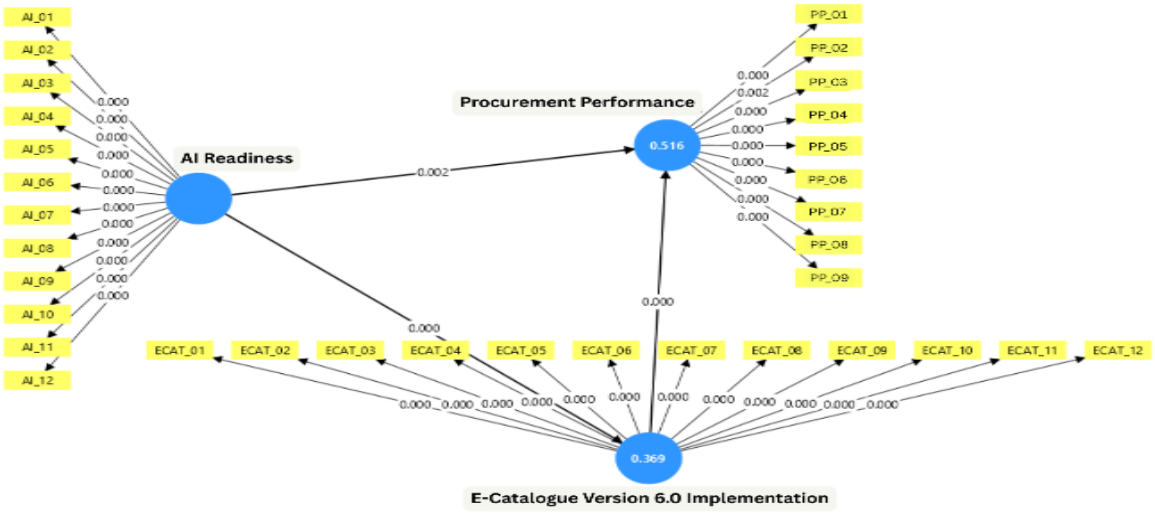
The structural model results show that all hypothesized relationships are positive and statistically significant. AI Readiness significantly affects E-Catalogue Version 6.0 and Procurement Performance, while E-Catalogue Version 6.0 also significantly affects Procurement Performance. These findings support all proposed hypotheses.

Table 9. Indirect Effect

	Original sample	Sample mean	Standard deviation	T statistics	P values
AI => PP	0.258	0.269	0.082	3.143	0.002

Source: The data were analyzed using SmartPLS 4.0.

The indirect effect analysis shows that AI Readiness has a significant effect on Procurement Performance through E-Catalogue Version 6.0. This indicates the presence of a mediating effect, which is further examined in the discussion section.



Picture 1. Structural Model
Source: The data were analyzed using SmartPLS 4.0.

The structural model illustrates the relationships among AI Readiness, E-Catalogue Version 6.0, and Procurement Performance. The model confirms that AI Readiness exerts both a direct effect on Procurement Performance and an indirect effect through E-Catalogue Version 6.0.

The R^2 values indicate that AI Readiness explains a moderate proportion of variance in E-Catalogue Version 6.0, while AI Readiness and E-Catalogue jointly explain a substantial proportion of variance in Procurement Performance. These results suggest that the model has adequate predictive power.

Overall, the figure supports the proposed research framework, highlighting the dual role of AI Readiness as both a direct driver of procurement performance and an enabler of effective system implementation through E-Catalogue Version 6.0.

Discussion

AI Readiness and Procurement Performance: A Capability-Based Perspective

The findings confirm that AI readiness has a positive and significant effect on procurement performance ($\beta = 0.375$; $p = 0.002$). However, this relationship should not be interpreted as a purely

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technological effect, but rather as a capability-based mechanism grounded in Human Capital Theory (Becker, 1993).

From this perspective, AI readiness represents an organizational capability derived from the accumulation of employee competencies, including digital literacy, analytical thinking, and adaptability. This study extends the traditional view of human capital by demonstrating that these competencies are not merely individual attributes, but are institutionalized into organizational practices that directly influence procurement outcomes. In practice, AI readiness enhances procurement performance by strengthening employees' analytical capacity in evaluating suppliers and managing risks, reducing procedural friction through improved familiarity with digital tools, and improving the accuracy and consistency of procurement decisions through the use of AI-supported insights.

These findings are consistent with recent studies emphasizing that AI contributes to organizational performance primarily through human technology interaction capabilities rather than through technology alone (Hržica et al., 2025; Wang et al., 2025). The findings reinforce recent HRM perspectives which argue that organizational performance in the digital era is primarily driven by the ability to develop and mobilize human capital rather than technology alone (Minbaeva, 2021; Budhwar et al., 2022). Therefore, AI readiness should be conceptualized as a dynamic organizational capability that enables the transformation of human expertise into measurable performance outcomes.

AI Readiness and E-Catalogue Implementation: From Capability to System Utilization

The strong effect of AI readiness on E-Catalogue implementation ($\beta = 0.608$; $p < 0.001$; $f^2 = 0.586$) indicates that system effectiveness is fundamentally dependent on human capability. From the perspective of the Digital Competency Framework (Ferrari, 2013; European Commission, 2022), digital competence functions as a critical mechanism that links human capital to technology utilization.

The findings suggest that organizations with higher levels of AI readiness are more capable of internalizing system logic, adapting to integrated procurement workflows, and utilizing advanced features such as automation and data analytics. This shifts the interpretation of E-Catalogue adoption from a compliance-driven process to a capability-driven one. In other words, the effectiveness of E-Catalogue Version 6.0 is not determined solely by its availability or regulatory enforcement, but by the extent to which users possess the competencies required to operate it effectively.

This result also supports the socio-technical perspective that system performance emerges from the alignment between user capability and system complexity (Mavidis & Folinas, 2022; Barrios-Ulloa et al., 2025). Given that E-Catalogue Version 6.0 represents a relatively complex digital platform, its successful implementation is highly sensitive to the level of AI readiness within the organization.

E-Catalogue Implementation and Procurement Performance: An Operational Enabler

The significant effect of E-Catalogue implementation on procurement performance ($\beta = 0.425$; $p < 0.001$) confirms that digital platforms function as operational enablers rather than independent drivers of performance. From the perspective of Socio-Technical Systems Theory (Bostrom & Heinen, 1977; Trist & Bamforth, 1951), E-Catalogue can be understood as the technical subsystem that interacts with the social subsystem represented by AI readiness.

The findings indicate that procurement performance improves when these two subsystems are aligned. The implementation of E-Catalogue contributes to greater standardization, which reduces variability and procedural errors, enhances transparency and accountability in procurement processes, and increases efficiency by minimizing manual intervention and processing delays. However, these benefits are realized only when the system is effectively embedded within organizational workflows and supported by users who possess sufficient capability.

This confirms that digital systems do not independently generate value, but instead operationalize and amplify existing organizational capabilities (Lloret et al., 2025).

The Mediating Role of E-Catalogue: Evidence of Partial Mediation

The mediation analysis demonstrates that both the direct effect of AI readiness on procurement performance ($\beta = 0.375$; $p = 0.002$) and the indirect effect through E-Catalogue implementation ($\beta = 0.258$; $p = 0.002$) are statistically significant, indicating the presence of partial mediation.

This finding provides important insight into the mechanism through which AI readiness influences procurement performance. AI readiness directly enhances procurement outcomes by

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improving employees' ability to make informed decisions, solve problems, and adapt to changing procurement conditions. At the same time, AI readiness improves performance indirectly by enabling more effective utilization of the E-Catalogue system.

The presence of partial rather than full mediation suggests that procurement performance cannot be explained solely by system utilization. Human factors, such as experience, professional judgment, and the ability to interpret regulatory requirements, continue to play a critical role. This is particularly relevant in public sector procurement, where decision-making often involves contextual considerations that are not fully captured within digital systems.

Therefore, E-Catalogue Version 6.0 should be understood as a complementary instrument that enhances, rather than replaces, human capability. This interpretation is consistent with recent studies indicating that digital technologies often function as partial mediators (Guida et al., 2023; Hržica et al., 2025). This result also supports the augmentation perspective in HRM, where digital technologies enhance rather than replace human capability (Raisch & Krakowski, 2021).

Integrative Discussion

Overall, the findings of this study provide important theoretical and practical insights into the relationship between AI readiness, digital systems, and procurement performance. The results highlight that AI readiness functions as a dynamic organizational capability that influences procurement outcomes both directly and indirectly through system utilization. This study also clarifies the role of E-Catalogue as a partial mediator, demonstrating that digital platforms act as enabling mechanisms rather than substitutes for human capability. These findings contribute to the literature by offering a more nuanced understanding of how human and technological factors interact in shaping procurement performance, particularly in public sector contexts.

Theoretical and Practical Implications

The findings of this study offer important theoretical implications for the literature on digital transformation in public procurement. Rather than viewing AI readiness solely as a precursor to technology adoption, this study positions it as a dynamic organizational capability that simultaneously influences system utilization and performance outcomes. This perspective extends existing research by demonstrating that digital transformation in the public sector is not a linear process driven by technology, but a multi-layered interaction between human capability and digital systems. In addition, the identification of partial mediation provides a more nuanced understanding of the role of e-procurement platforms, showing that such systems function as enabling mechanisms rather than sole determinants of performance. This contributes to the growing body of literature that emphasizes the continued relevance of human agency in technology-driven environments.

From a practical perspective, the findings highlight the need for a balanced approach to digital procurement reform. Investments in advanced systems such as E-Catalogue Version 6.0 should be accompanied by systematic efforts to strengthen human resource capabilities. This includes structured training programs focused not only on technical system usage but also on analytical skills, data interpretation, and decision-making. Furthermore, public sector organizations need to foster a data-driven culture and ensure alignment between digital systems and existing work processes.

The results also underline the strategic role of Lembaga Kebijakan Pengadaan Barang/Jasa Pemerintah (LKPP) in facilitating this transformation. Continuous capacity-building initiatives, user support systems, and iterative system improvements are essential to ensure that the E-Catalogue platform can be effectively utilized across different levels of government. Ultimately, improving procurement performance requires an integrated approach that combines technological advancement with sustained investment in human capital and organizational readiness.

CONCLUSSION

This study advances the understanding of digital procurement by demonstrating that AI readiness should be conceptualized as a human resource driven organizational capability rather than a purely technological condition. This study repositions AI readiness from a predominantly technological construct into a human capability driven organizational mechanism that underpins successful digital transformation in the public sector. The findings show that procurement performance is not directly determined by digital systems alone, but by the organization's ability to embed and mobilize workforce

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competencies—such as digital literacy, analytical capability, and adaptability into procurement processes.

The evidence of partial mediation further clarifies that E-Catalogue Version 6.0 functions as an enabling mechanism through which human capability is operationalized, rather than as an independent driver of performance. This challenges technology-centric perspectives in e-procurement research and reinforces a socio-technical interpretation in which performance emerges from the alignment between human and system capabilities.

From a theoretical standpoint, this study contributes to the human resource management literature by extending Human Capital Theory and the Digital Competency Framework into the domain of public sector digital transformation. Specifically, it positions AI readiness as a collective, institutionalized capability that links individual competencies to organizational performance outcomes. This shifts the discourse from "technology adoption" toward "capability development" as the primary determinant of digital transformation success. This study also aligns with emerging HRM literature that positions workforce capability development as the central mechanism driving successful digital transformation (Chowdhury et al., 2023).

However, several limitations should be acknowledged. The study is constrained by a relatively small and institution-specific sample, limiting external validity. The cross-sectional design also restricts the ability to capture the dynamic and evolutionary nature of capability development. In addition, the use of self-reported measures introduces potential bias. Importantly, although this study adopts an HR perspective, it does not explicitly model key HR mechanisms such as training systems, leadership support, or learning processes within the empirical framework.

Future research should therefore move beyond general readiness constructs and explicitly integrate HR-related variables into digital transformation models. Longitudinal and multi-level approaches are particularly needed to capture how human capabilities are developed, institutionalized, and sustained over time. Furthermore, combining quantitative and qualitative methods would enable a more nuanced understanding of the interaction between human agency and digital systems in public procurement contexts.

In conclusion, this study underscores that the effectiveness of digital procurement reforms ultimately depends on the strategic development of human resource capability, positioning HR as a central actor in the realization of AI-enabled public sector performance.

REFERENCES

[1.] Acosta-Enriquez, B. G., Guzmán Valle, M. de los Á., Arbulú Ballesteros, M., Arbulú Castillo, J. C., Arbulu Perez Vargas, C. G., Torres, I. S., Silva León, P. M., & Saavedra Tirado, K. (2025). What is the influence of psychosocial factors on artificial intelligence appropriation in college students? *BMC Psychology*, *13*(1), 7. https://doi.org/10.1186/s40359-024-02328-x

[2.] Barodi, M., & Lalaoui, S. (2025). Civil servants' readiness for AI adoption: The role of change management in Morocco's public sector. *Problems and Perspectives in Management*, *23*(1), 63–75. https://doi.org/10.21511/ppm.23(1).2025.05

[3.] Barrios-Ulloa, A., Solano-Barliza, A., Arrubla-Hoyos, W., Ojeda-Beltrán, A., Cama-Pinto, D., Arrabal-Campos, F. M., & Cama-Pinto, A. (2025). Agriculture 5.0 in Colombia: Opportunities Through the Emerging 6G Network. *Sustainability*, *17*(15), 6664. https://doi.org/10.3390/su17156664

[4.] Becker, G. S. (1993). *Human capital: A theoretical and empirical analysis, with special reference to education* (3rd ed.). University of Chicago Press.

[5.] Bialas, C., Bechtsis, D., Aivazidou, E., Achillas, C., & Aidonis, D. (2023). A Holistic View on the Adoption and Cost-Effectiveness of Technology-Driven Supply Chain Management Practices in Healthcare. *Sustainability*, *15*(6), 5541. https://doi.org/10.3390/su15065541

[6.] Bostrom, R. P., & Heinen, J. S. (1977). MIS problems and failures: A socio-technical perspective. *MIS Quarterly*, *1*(3), 17–32. https://doi.org/10.2307/248710

[7.] Budhwar, P., Malik, A., De Silva, M. T., & Nyfoudi, M. (2022). Artificial intelligence and human resource management: Challenges and a research agenda. *British Journal of Management*, *33*(2), 606–622. https://doi.org/10.1111/1467-8551.12560

[8.] Chowdhury, S., Dey, P., Joel-Edgar, S., Bhattacharya, S., Rodriguez-Espindola, O., Abadie, A., & Truong, L. (2023). Unlocking the value of artificial intelligence in human resource

Copyright © the Author

p-ISSN: 2581-2769; e-ISSN: 2598-9502
DOI: http://dx.doi.org/ 10.32493/JJDP.v9i3.59353

management. *Human Resource Management Review*, *33*(1), 100899. https://doi.org/10.1016/j.hrmr.2022.100899

[9.] Demaidi, M. N. (2025). Artificial intelligence national strategy in a developing country. *AI & SOCIETY*, *40*(2), 423–435. https://doi.org/10.1007/s00146-023-01779-x

[10.] European Commission. (2022). *The Digital Competence Framework for Citizens (DigComp 2.2)*. Publications Office of the European Union. https://doi.org/10.2760/115376

[11.] Ferrari, A. (2013). *DIGCOMP: A framework for developing and understanding digital competence in Europe*. Publications Office of the European Union. https://doi.org/10.2788/52966

[12.] Guida, M., Caniato, F., Moretto, A., & Ronchi, S. (2023). The role of artificial intelligence in the procurement process: State of the art and research agenda. *Journal of Purchasing and Supply Management*, *29*(2), 100823. https://doi.org/10.1016/j.pursup.2023.100823

[13.] Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). *A primer on partial least squares structural equation modeling (PLS-SEM) (3rd ed.)*. SAGE Publications.

[14.] Hashim, N. L., Yusof, N., Hussain, A., & Ibrahim, M. (2022). User Experience Dimensions for E-procurement. *Journal of Information and Communication Technology*, *21*. https://doi.org/10.32890/jict2022.21.4.1

[15.] Hržica, R., Debelak, K., & Pevcin, P. (2025). A Dual-Level Model of AI Readiness in the Public Sector: Merging Organizational and Individual Factors Using TOE and UTAUT. *Systems*, *13*(8), 705. https://doi.org/10.3390/systems13080705

[16.] Jaiswal, A., Arun, C. J., & Varma, A. (2022). Rebooting employees: Upskilling for artificial intelligence in multinational corporations. *International Journal of Human Resource Management*, *33*(6), 1179–1208. https://doi.org/10.1080/09585192.2021.1891114

[17.] Kumar, R., Singh, A., Ahmed Kassar, A. S., Ismail Humaida, M., Joshi, S., & Sharma, M. (2025). Unlocking the Power of AI: Healthcare Workforce Perception and Its Impact on their Work Performance in Saudi Arabia. *Pakistan Journal of Medical Sciences*, *41*(3), 682–686. https://doi.org/10.12669/pjms.41.3.11014

[18.] Lembaga Kebijakan Pengadaan Barang/Jasa Pemerintah. (2024). *Keputusan Kepala Lembaga Kebijakan Pengadaan Barang/Jasa Pemerintah Republik Indonesia Nomor 294 Tahun 2024 Tentang Implementasi Katalog Elektronik Versi 6 Di Seluruh Kementerian/Lembaga/Pemerintah Daerah*.

[19.] Lembaga Kebijakan Pengadaan Barang/Jasa Pemerintah. (2024). *Surat Edaran Kepala LKPP Nomor 9 Tahun 2024 Tentang Implementasi Katalog Elektronik Versi 6*.

[20.] Lloret, Á., Peral, J., Ferrández, A., Auladell, M., & Muñoz, R. (2025). A Data-Driven Framework for Digital Transformation in Smart Cities: Integrating AI, Dashboards, and IoT Readiness. *Sensors*, *25*(16), 5179. https://doi.org/10.3390/s25165179

[21.] Margherita, A., & Heikkilä, M. (2021). Business continuity in the COVID-19 emergency: A framework of actions undertaken by world-leading companies. *Business Horizons*, *64*(5), 683–695. https://doi.org/10.1016/j.bushor.2021.02.020

[22.] Mavidis, A., & Folinas, D. (2022). From Public E-Procurement 3.0 to E-Procurement 4.0; A Critical Literature Review. *Sustainability*, *14*(18), 11252. https://doi.org/10.3390/su141811252

[23.] Minbaeva, D. (2021). Disrupted HR? Human resource management in the digital age. *Human Resource Management Review*, *31*(1), 100820. https://doi.org/10.1016/j.hrmr.2020.100820

[24.] OECD. (2023). *Public procurement performance A framework for measuring efficiency, compliance and strategic goals*.

[25.] Raisch, S., & Krakowski, S. (2021). Artificial intelligence and management: The automation–augmentation paradox. *Academy of Management Review*, *46*(1), 192–210. https://doi.org/10.5465/amr.2018.0072

[26.] Raman, R., Iyer, A., & Nedungadi, P. (2025). Forecasting Artificial General Intelligence for Sustainable Development Goals: A Data-Driven Analysis of Research Trends. *Sustainability*, *17*(16), 7347. https://doi.org/10.3390/su17167347

[27.] Raman, R., Nair, V. K., Dinesh, S., & Acharyulu, R. (2025). Comparative Analysis of ChatGPT and Bard in Digital Governance: Accuracy, Adaptability, and Readability Insights. *Digital Government: Research and Practice*, *6*(2), 1–22. https://doi.org/10.1145/3674846

Copyright © the Author

p-ISSN: 2581-2769; e-ISSN: 2598-9502
DOI: http://dx.doi.org/ 10.32493/JJDP.v9i3.59353

[28.] Republik Indonesia. (2018). *Peraturan Presiden (Perpres) Nomor 16 Tahun 2018 tentang Pengadaan Barang/Jasa Pemerintah*.
[29.] Republik Indonesia. (2021). *Peraturan Presiden (Perpres) Nomor 12 Tahun 2021 tentang Perubahan atas Peraturan Presiden Nomor 16 Tahun 2018 tentang Pengadaan Barang/Jasa Pemerintah*.
[30.] Republik Indonesia. (2025). *Peraturan Presiden (Perpres) Nomor 46 Tahun 2025 tentang Perubahan Kedua atas Peraturan Presiden Nomor 16 Tahun 2018 tentang Pengadaan Barang/Jasa Pemerintah*.
[31.] Sousa, M. J., & Rocha, Á. (2023). Digital skills, training and performance. *Technological Forecasting and Social Change, 189*, 122306. https://doi.org/10.1016/j.techfore.2023.122306
[32.] Tariq, K., Tahir, H., Malik, U., Iqbal, K., Shabbir, A., & Hassan, A. U. (2025). Attitudes and readiness to adopt artificial intelligence among healthcare practitioners in Pakistan's resource-limited settings. *BMC Health Services Research*, *25*(1), 1031. https://doi.org/10.1186/s12913-025-13207-5
[33.] Trist, E. L., & Bamforth, K. W. (1951). Some social and psychological consequences of the longwall method of coal-getting. *Human Relations, 4*(1), 3–38. https://doi.org/10.1177/001872675100400101
[34.] Verhoef, P. C., et al. (2021). Digital transformation: A multidisciplinary reflection. *Journal of Business Research, 122*, 889–901. https://doi.org/10.1016/j.jbusres.2019.10.017
[35.] Wang, X., Iftikhar, H., Hali, S. M., Shah, U., & Iqbal, M. S. (2025). Impact of health policy reforms on telemedicine and AI integration for early cancer detection among low-income populations in South Asia: A comparative policy analysis. *African Journal of Reproductive Health, 29*(8s), 43–53. https://doi.org/10.29063/ajrh2025/v29i8s.5

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