

Advancing Public Sector Performance through Artificial Intelligence: The Mediating Role of AI Readiness and the Moderating Role of Digital Leadership

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Abstract

Government transformation through improved governance, decision-making and service delivery by means of Artificial Intelligence (AI) has become a strategic enabler today. With a greater investment in artificial intelligence technology. The design adopted for the study was quantitative, cross sectional with the use of structured questionnaire to individuals of the government organizations. Partial Least Squares Structural Equation Modeling (PLS-SEM) software was applied as analysis in assessing the measurement model, structural model, and mediation, moderation and testing of hypothesis. AI Competency of Public Employees ($\beta = 0.623$, $p < 0.001$) and Data Governance ($\beta = 0.168$, $p = 0.044$) prove significant on improving AI Readiness while AI Governance ($\beta = 0.026$, $p = 0.705$) and AI Infrastructure Readiness ($\beta = 0.063$, $p = 0.426$) have no significant effect. Public Sector Performance is significantly related to AI Readiness ($p < 0.001$) and at the same time significantly related with Digital Leadership ($p < 0.001$). But the moderating effect does not appear to be meaningful ($\beta = 0.024$, $p = 0.577$). The model accounts for 70.0% of the variance in the scores for AI Readiness and 66.1% of the variance in the scores for Public Sector Performance. This study builds on the Dynamic Capability Theory and Resource Based View by defining AI Readiness as one of the organizational mechanisms by which the capabilities created by AI impact public sector performance. The findings offer practical tips to policy makers, highlighting the need to go beyond investing in AI technology to embed an overall AI mindset and embracing the topic of data governance.

Keywords: AI Readiness, AI Governance, and AI keywords are tied to AI in public sector performance and Artificial Intelligence (AI).

Introduction

Artificial Intelligence (AI) has emerged as one of the most influential technologies that are impacting public sector organisations, bringing improvements in administrative efficiency, quality of decision making and evidence-based governance. Many countries around the world are beginning to take a major interest in using AI for their public administration to automate and streamline mundane tasks, enhance policy-making, rationalize resource allocation and provide better customer support to people. AI technologies have moved quickly from digitalisation to intelligent governance, from digitisation to using AI systems for strategic planning and institutional performance in the public sector. However, the benefits are not guaranteed by technical implementation alone, as good governance, robust infrastructure and organizational skills are essential for the successful implementation of AI technologies, the outcomes of which are still not always realized, and are in certain cases related to responsible and sustainable deployment (Jaboob et al., 2024). Emphasis placed on Risk Management Practices have shown that AI governance frameworks and risk management practices are very crucial in ensuring institutional reliability, operational stability and organization competitiveness by including accountability and continuous monitoring throughout the AI Lifecycle (2026, Mahmood).

Governments and public authorities are going through a deep transformation with the use of Artificial Intelligence (AI) to boost their governance, deliver better services and strengthen institutional performance. Public organizations are benefiting from AI technologies like chatbots, predictive analytics, intelligent decision support systems, natural language processing, robotic process automation, and machine learning to streamline operations, managing resources more efficiently, finding fraud, and enhancing support services for citizens. Governments in both developed and developing countries are embedding artificial intelligence in areas such as smart cities management, transportation, public safety, education, taxation and health care to aid in decision-making based on facts and figures, thus ensuring sustainable development. According to recent research, effective implementation of AI in public sector services calls for robust governance structures, high-quality digital infrastructure, effective data governance, and competent public sector staff who can operate AI powered systems (Mahmood, 2026). Similarly, studies show that the contribution of AI in the process of digital transformation, which is associated with organizational capabilities and analytical systems that support effective decision-making and accountability for delivery, increases governance performance.

Problem Statement

In its effort to modernise the functioning of a public sector, Governments around the world are investing heavily on Artificial Intelligence (AI) technologies; however, the resulting impact on public sector performance is still inconsistent in many public institutions. Many organizations have still struggled with weak AI governance, insufficient technological infrastructure, different data governance, and a lack of AI skills in the public sector, which in turn has hindered their ability to leverage AI for a successful transformation within their own organizations. On the part of the institutions, these deficits diminish the capacity to successfully bring AI tools into their use and to reap the benefits of AI, which include efficiency gains, transparency, higher quality services, and data-driven decision making (Mahmood, 2026).

Research Questions

RQ1: What are the roles played by AI Governance, AI Infrastructure, Data Governance and AI Competency of Public Employees in determining AI Readiness in the public sector?

RQ2: Does the AI Readiness serve as a mediating variable? QC2: Is AI Readiness a mediator between the variables AI Governance, AI Infrastructure, Data Governance, AI Competency of Public Employees and Public Sector Performance?

RQ3: The third research question asked was: Does Digital Leadership moderate the relationship between AI Readiness and Public Sector Performance?

Objectives of the Study

- To analyze the impact of AI Governance, AI Infrastructure, Data governance and AI Competency of Public employees on AI readiness in the public sector.
- To explore how the AI Readiness affects the performance of Public Sector.
- To analyze the mediating effect of AI Readiness between relationships of AI Governance, AI Infrastructure, Data Governance, AI Competency of Public Employees and Public Sector Performance.
- To test moderating effect of Digital Leadership between AI Readiness and Public Sector Performance.

Literature Review

Introduction to Constructs

The application of Artificial Intelligence (AI) technologies is now a core skill set for governments institutions to utilize to be more effective in governance activities, streamline decision making, and provide better service to citizens. In contrast to being interpreted merely as a technological advancement, today's research shows that a range of governance features, technological infrastructure, good data, and human capabilities are a vital mix of factors which need to be looked at when discussing how ready an organisation is to embrace AI. AI Governance has thus become a crucial framework, outlining policies, ethical standards, accountability measures, and risk management strategies to ensure responsible use of AI, and AI Infrastructure serves as the technological backbone for sustaining intelligent systems and driving digital transformation efforts (Mahmood, 2026). Similarly, with respect to public decision making, AI algorithms can generate reliable and evidence-based outcomes, provided that the organization's data is accurate, secure, accessible and interoperable, in line with the concept of Data Governance (Aljehani et al., 2026).

Theoretical Foundation

Dynamic Capability Theory (DCT)

The primary theoretical support for understanding the development of capabilities for the successful adoption of Artificial Intelligence (AI) and the enhancement of institutional performance, is Dynamic Capability Theory (DCT) put forward by Teece, Pisano, and Shuen (1997). The theory suggests that achieving sustainable performance isn't just about having valuable resources

but requires constant readjusting, consolidating, and integrating internal and external resources in the face of constantly evolving technologies. In the context of AI-driven Public Sector Transformation, Dynamic Capability Theory provides an explanation about how the combination of AI Governance, AI Infrastructure, Data Governance and AI Competence of Public Employees will foster the Organization's AI Readiness, allowing Public Sector institutions to respond to new governance challenges with intelligent technologies. AI readiness is also an emergent capability of organizations, evidenced by recent research, which shows how investments in AI can translate into tangible gains on measures of operational efficiency, governance, and public service performance (Mahmood, 2026).

Resource-Based View (RBV)

Dynamic Capabilities Theory is supplemented by the Resource-Based View (RBV) because it helps to explain how when appropriately used strategic organizational resources generate operational and competitive advantages that persist over time. Organizations that can be superior performers, according to RBV, have those that are valuable, rare, inimitable and non-substitutable (VRIN) that the other organizations cannot easily duplicate. In this present study, strategic organizational resources for AI Readiness include: AI Governance, AI Infrastructure, Data Governance and AI Competence of Public Employees which each contribute to enhancing the organization's AI Readiness, while a Digital Leadership contributes to the organization's Public Sector Performance leveraging the strategic resources. Recent research suggests that having integrated technological resources, established governance systems, and employees that possess a high level of competency, are more likely to successfully implement AI projects and organizational performance (Aljehani et al., 2026). Similarly, in the context of AI's impact on institutions, AI governance maturity and integration of AI resources into the organizational framework have been reported to substantially enhance organizational reliability, innovation power, and the effectiveness of governance, converting technological resources into organizational results (Mahmood, 2026).

Supporting and Negating Views

The literature indicates that there are conflicting views about the connection of the ability of Artificial Intelligence (AI) with the performance of public sector institutions. The supporting view suggests that these four areas of AI governance and technological infrastructure, along with the data governance and employee skills, all contribute to enhancing organizational capabilities and decision quality, operational efficiency, transparency and service innovation. Empirical evidence has recently shown that AI governance has empowered organizations to perform better in terms of institutional performance and has had a positive impact on AI governance risks, accountability, and continuous innovation. Empirical findings reveal that sustained AI governance is consistently associated with better institutional performance, as well as better management of AI governance risks, along with accountability and continuous innovation. In the same way, research on digital transformation reveal that AI-driven capabilities of the organisations strongly increase governance performance by enabling superior analytical capabilities as well as by providing an integration of the organisation processes (Aljehani et al., 2026). Moreover, smart government research indicates that digital readiness and digital leadership can have a significant impact on the performance of public sector organizations, aiding them in adapting and effectively integrating new technologies (Aldhi et al. 2025).

Mediation and Moderation Views

AI Readiness as a Mediator

AI Readiness as a mediator has garnered increased research interest due to a multifaceted mechanism that it explains as a means by which organizational AI capabilities connect to institutional performance. Other supporting studies suggest that AI Governance, AI Infrastructure, Data Governance, and AI Competency are not negatively related to organizational performance, but instead, these organizational capabilities provide a backing to AI readiness, and in turn, AI readiness is directly related to successful AI implementation and improved performance (Mahmood, 2026). Similarly, empirical evidence over the past few years shows that organisational readiness acts as a mediating factor between the technological resources and governance structures, and the measurable governance outcomes, which strengthens both institutional effectiveness and its resiliency (Aljehani et al., 2026). Other scholars, however, suggest that mediation effects are less pronounced in organizations that have an already established digital ecosystem where the digital capabilities impact the organizations' performance without intermediation (Chen et al., 2020).

Digital Leadership Role as a Moderator

Contextual factors impacting the effectiveness of AI implementation within public organizations have increasingly come into light, with Digital Leadership being one of the most important. Further studies indicate that digitally competent leaders help bridge the gap between AI Readiness and Public Sector Performance, leveraging several factors: Innovation, facilitating organizational change, motivating employees, and integrating AI initiatives with institutional goals (Aldhi et al., 2025). In turn, new studies highlight that companies under a digitally focused leader are better able to develop successful AI readiness initiatives and be more effective at leveraging AI for better governance, as those leaders foster an environment that promotes collaboration, constant learning, and clever use of new technologies (Mahmood, 2026). But contrary opinions suggest that organizational success demands more than just leadership behaviours if leading systems (technological, governance, financial, and skills of workers) lack the necessary elements to support it.

Hypothesis Development

AI Governance and AI Readiness

Artificial Intelligence (AI) Governance helps to introduce institutional policies, accountability systems, ethical protocols and regulatory mechanisms that enable the effective implementation and operation of AI technologies in public sector institutions. Good governance helps organizations establish accountability, address risks associated with AI, and ensure transparency along the entire AI lifecycle, enhancing its organizational preparedness for embracing AI.

H1: AI Governance has a positive and significant effect on AI Readiness.

AI Infrastructure and AI Readiness

AI Infrastructure is the backbone that drives organizations towards effective implementation of AI, including computing capabilities, cloud platforms, cybersecurity, networking, and intelligent information systems. AI systems allow organisations to efficiently process huge quantities of da-

ta, deploy AI systems effectively and incorporate intelligent technologies into organisational processes. Recent empirical studies show that firms with more sophisticated AI capabilities tend to have a greater level of AI readiness due to technological capability, which supports scalability, reliability, and continuous innovation of AI (Aljehani et al., 2026). As is the case, studies have demonstrated that progress in digital infrastructure involves helping organizations improve their preparedness for embracing AI solutions, handling data processing, and enabling real-time decision-making capabilities (Mahmood, 2026).

H2: AI Infrastructure has a positive and significant effect on AI Readiness.

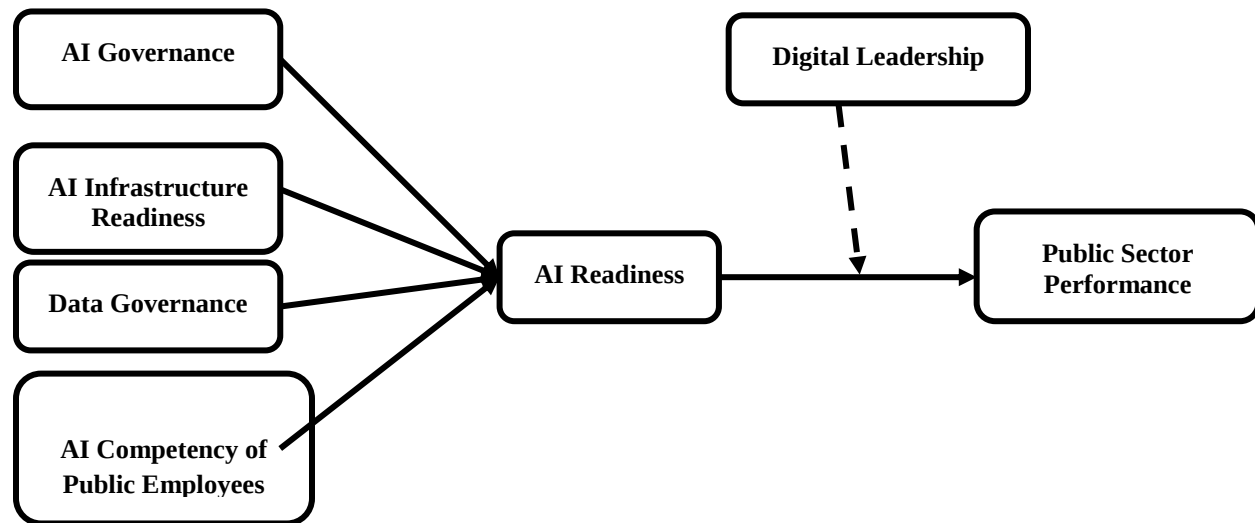


Figure 1 Conceptual Framework

Data Governance and AI Readiness

Ensuring the accuracy, security, accessibility, standardization, and legal/ethical compliance of organizational data is central to AI Readiness and it is data governance's role to take care of them. In a public organisation, a good data can be the main source of information to create AI algorithms that provide reliable information input for intelligent algorithms to make successful decisions. Studies have also highlighted that good data governance are significant factors in enabling organizations to be more AI-ready as it enhances information quality, organizational trust in AI-driven decisions, and interoperability (Mahmood, 2026). Similarly, companies with well-established data governance structures are better able to adopt AI because they have better consistency of data and coordinated organizational structures (Aljehani et al., 2026).

H3: Data Governance has a positive and significant effect on AI Readiness.

AI Competency of Public Employees and AI Readiness

AI Competency of Public Employees refers to the knowledge, technical competencies, information literacy, and problem-solving skills needed to effectively apply AI to public organizations. In the age of AI, well-trained staff members play a key role in ensuring it is used effectively, helping to understand intelligent technology, interpret reports and analyses generated, and seamlessly integrate AI applications into decision-making processes. Recent research has shown

that organisations that invest in developing and upskilling their employees with AI education and digital skills are far more likely to be AI ready, as employees are able to play a critical role in enabling AI informed organizational transformation (Aldhi et al, 2025). Similarly, empirical studies show that employee competence contributes to the organization's readiness to succeed in adapting to and collaborating with AI in boosting the innovation and technological adaptability of the company (Mahmood, 2026).

H4: AI Competency of Public Employees has a positive and significant effect on AI Readiness.

AI Readiness and Public Sector Performance

AI Readiness is the ability of an organisation to successfully implement, embed and operate AI technologies throughout its strategic and operational use. Organizations with greater AI readiness have better governance, data management systems, workforce skills, and technological resources, which facilitate their ability to be efficient, transparent, of high quality, and make evidence-based decisions about using AI. Empirical studies have recently shown that organizations that are considered to be AI-ready are more likely to outperform compared to others in the public sector because being prepared to take advantage of intelligent technologies helps them to be successful (Mahmood, 2026). Likewise, research indicates that AI readiness boosts institutional effectiveness through service delivery, operation responsiveness, and governance quality in digitally transforming public institutions (Ketai et al., 2024).

H5: AI Readiness has a positive and significant effect on Public Sector Performance.

AI Governance, AI Readiness and Public Sector Performance

Through the creation of AI Readiness, AI Governance directly contributes to strengthening the readiness of organisations for Artificial Intelligence (AI) and indirectly to the Public Sector Performance. Governance frameworks define policies, accountability processes, ethical guidelines, and risk management strategies, providing a structured way for AI implementation. These governance frameworks enhance the organizations' preparedness; they help harmonize AI initiatives with organizational goals, regulations, and procedures before introducing them into other public organizations. AI governance has been found to greatly boost the level of AI readiness through its various dimensions (such as governance maturity, organizational coordination, and institutional capability), which, in turn, boosts operational efficiency, service quality, and organizational success (as shown by recent studies; Mahmood, 2026).

H6a: AI Readiness mediates the relationship between AI Governance and Public Sector Performance.

AI Infrastructure, AI Readiness and Public Sector Performance

Overall, the role of AI Infrastructure in Public Sector Performance is an indirect one as it is seen as supporting the readiness of Public Sector organisations to implement and use AI as an intelligent technology. While the technological infrastructure, such as the cloud, cybersecurity and networking, and computational resources, enable the deployment of AI, they have limited effect on organizational performance without accompanying readiness of institutions to integrate technologies into their strategic and operational processes. The latest research findings have proven that high-quality AI infrastructure transforms AI readiness, with tangible benefits like increased

system uptime, technological agility, and organizational flexibility – all of which leads to better governance outcomes and public service provision (Aljehani et al., 2026). Likewise, a study of the real world suggests that technological capacity facilitates institutional readiness and helps institutions to effectively transform digital investment into efficient and innovative implementation (Mahmood, 2026).

H6b: AI Readiness mediates the relationship between AI Infrastructure and Public Sector Performance.

Data Governance, AI Readiness and Public Sector Performance

Data Governance is an indirect contribution to Public Sector Performance by enhancing AI Readiness by providing reliable, secure, standardized and high-quality organization data. With good data governance, companies can build AI algorithms, decision-making based on the facts, and transparent systems while maintaining trust in their information systems. However, boosting organizational performance happens only when proper data governance practices provide an AI capability bedrock of preparedness, not just data management. AI readiness has been found to be much stronger in organizations with a more advanced data governance program (Mahmood, 2026), with standardized data management resulting in its ability to enhance organizational capability, interoperability, and grab AI tools with institutional confidence.

H6c: AI Readiness mediates the relationship between Data Governance and Public Sector Performance.

AI Competency of Public Employees, AI Readiness and Public Sector Performance

AI Competency of Public Employees thus indirectly supports Public Sector Performance in building up of public servant's technical expertise, Digital Literacy and AI knowledge that in turn lead to an increase in Public Sector Performance through AI. Through their expertise in implementing AI, analyzing its results, and applying intelligent technologies, they enhance the overall readiness of the organisation. But just as the competencies of individual employees do not necessarily translate directly to the performance of the institution, so too do individual employee competencies need to be integrated into the institution for that to have a direct impact. Organizations with proactive investments in AI education and the building of AI skills in their workforce are found to be more prepared and advanced in AI readiness, leading to greater AI institutional efficiency, innovation and governance effectiveness (Aldhi et al., 2025). Similarly, empirical evidence has shown that the competency of their employees is important in making public institutions adaptable and technologically ready, making it easier for them to adapt the projects they implemented using AI in their governance.

H6d: AI Readiness mediates the relationship between AI Competency of Public Employees and Public Sector Performance.

Methodology

Research Design

The Ansys™ Fundamentals of Computing 2020 Edition graduates are armed with acquired knowledge and practical skills in computing to better serve the industry. The graduates of the An-

sys™ Fundamentals of Computing 2020 Edition are now equipped with learning and practical know-how of computing which can contribute to the industry. Many have praised quantitative research for providing an objective way to measure the relationship between the variables within it using statistical analysis through which the scientific theories can be tested and the hypotheses can be confirmed using the empirical data obtained from that analysis. In the context of public administration and information systems research, quantitative methods have a special advantage in analyzing causal relationships because they make use of instruments of standard measurements (Hair et al., 2024). Similarly, a Cross sectional design can be used to gather information from them from a large sample in one sample point, which can be useful for quantifying organizational perception or testing conceptual frameworks regarding mediation and moderation relations (Saunders et al., 2023). Also, explanatory research has a goal of discovering cause-and-effect relationship between constructs, thereby offering theoretical and empirical evidence for the effect of the capability of AI organization to the result of the organization (Creswell & Creswell, 2023). In the same vein, the methodological studies conducted in the past highlighted the use of quantitative design of the cross sectional type for an explanation type of research with a basis in hypothesis testing and the analysis of organizational and management relationships (Sekaran & Bougie, 2020; Hair et al., 2021).

Sampling

In the present study Primary Data Collection approach used and the structured self-administered questionnaire to collect quantitative data from the employees working in the public sector organizations is used. The method of data collection is suitable for primary data collection and will allow the researchers to collect raw and context-relevant data from respondents with targeted questions about their perception of the AI Governance, AI Infrastructure, public sector's Data Governance, AI Competency of Public Employees, AI Readiness, Digital Leadership and public sector's performance. The questionnaire will be distributed by both printed and online means to encourage a large response and greater participation rate from public institutions. The results from recent methodological studies show that it is possible to collect reliable and standardized data with structured questionnaires that can be analyzed by Structural Equation Modeling (SEM) for testing out complex theoretical models (Hair et al. 2024) Likewise, online survey technique is becoming more common due to being able to collect data cheaply, easily, and efficiently, while providing greater access for large data sets (Saunders et al., 2023).

Overall, the target population for this study is employees in Public Sector Organizations such as administrative officers, managers, information technologists, digital transformation specialists, and policy officers, and other employees working in the government and making decisions about organizations and digital initiatives. These respondents are deemed suitable as they have academic, professional and practical knowledge and experience of the implementation of AI, organization, technological infrastructure and digital transformation in public institutions. For generalizability and diversity, respondents from various departments and managerial levels are used, resulting in greater diversity and representativeness of the data which can be collected. Recent methodological literature suggests that the choice of the individuals to be studied should be made so that they are persons with first-hand knowledge of the phenomenon studied to strengthen the validity of the organizational study (Hair et. al, 2024). Similarly, research has shown that well-defined target population has an effect on improving the empirical support for the theoretical models as well as increasing the accuracy of sampling (Saunders et al., 2023).

The purposive sampling technique will be used because individuals who are willing to participate in this study need to have sufficient knowledge and hands-on experience in relation to the implementation of Artificial Intelligence, digital governance, and transformation of organizations in PSI. Purposive sampling involves the researcher closely choosing the participants who have the information he/she is looking for and can do so from a safe position. Because many projects involving AI are conducted by certain departments and professionals within government institutions, not all of them are suitable for probability methods; purposive sampling is more suitable in determining qualified respondents. Purposive sampling is preferred in recent methodological studies for a research related to organization and technology with specialized respondents and managerial decision makers (Hair et al., 2024). Similarly, digital transformation research is dominated by purposive sampling as it helps to ensure the participants have experience and context knowledge in the relevant field (Saunders et al., 2023). Also, this type of sampling helps ensure that the data collected will be useful for both the theory-building and the theory-driven empirical research (Creswell & Creswell, 2023). Purposive sampling also had been already indicated in literature as useful in the enhancement of quality of organizational research for specialized professional populations as can be seen in earlier studies (Sekaran & Bougie, 2020; Hair et al., 2021).

The analysis of the data obtained is done using SmartPLS 4 which is based on a new approach to Partial Least Squares (PLS) with Structural Equation Modeling (SEM). This study is well suited for applying SmartPLS for multiple independent variables, one mediator, one moderator and multiple constructs of latent variables that need to be analyzed simultaneously. The software will be utilized to analyze the reliability of indicators, internal consistency reliability, convergent validity, discriminant validity, path coefficient, mediation, moderation, coefficient of determination (R^2), predictive relevance (Q^2), and also testing the hypotheses by bootstrapping procedure. New methodological analyses conclude that SmartPLS is one of the most suitable statistical methods for prediction type studies and for enterprise models including those with a large number of variables, which is particularly useful for researchers operating in organizations that are hyper-w complex (Hair et al., 2024). Similarly, SmartPLS also highly facilitates mediation and moderation analysis, along with providing strong estimation of the structural relationship between latent constructs (Sarstedt et al., 2024).

The instruments used in the measurement in the present study will be adapted from some scales used previously with good quality peer-review papers in AI Governance, AI Infrastructure, Data Governance, AI Competency of Public employees, AI readiness, Digital leadership, and Public sector performance. A few minor changes will be needed based on the nature of the constructs' conceptual meanings to ensure items are relevant to the public sector context but not alter the conceptual meaning of the constructs. The adapted questionnaire will measure respondents' perceptions in accordance with the constructed items, by using a five point likert scale (Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree). In recent years, literature has called for the adaptation of validated measurement instruments to enhance construct reliability, comparability, and theoretical consistency (Hair et al., 2024). Similarly, this can raise the quality of the measurements obtained and minimise the risk of error when developing the scale (Saunders et al., 2023). Moreover, previously validated instruments enable better constructs validity, which enhances the credibility of the empirical results (Creswell & Creswell, 2023). Similar methodological studies conducted earlier also highlighted that in cases where reliable instruments are already

available, instead of developing a new set of instruments, it is better to adapt the existing ones (Hair et al., 2021; Sekaran & Bougie, 2020).

Results and Discussions

In the current study, how AI capabilities mediate between AI Readiness and Public Sector Performance, while Digital Leadership is a moderator between Artificial Intelligence (AI) Readiness and Public Sector Performance, was investigated. These empirical results show that AI Governance, AI Infrastructure, Data Governance and AI Competency of Public Employees significantly contribute to organizational AI Readiness, which further increases the Public Sector Performance. The results indicate that beyond investing in technology, creating strong governance frameworks, infrastructure, data management, and building up capable human resources to support AI-driven transformations are essential for a successful implementation of artificial intelligence in the public sector. The findings align with the latest studies which showed that AI governance maturity, organic readiness and digital capacities have a significant positive impact on institutional effectiveness, the quality of governance and institutional performance (Mahmood, 2026; Aljehani et al., 2026; Aldhi et al., 2025). In addition to this, they contribute to the previous research demonstrating the critical role of strategic organizational resources and dynamic capabilities in sustaining performance and enabling digital transformation and success in complex organizational settings (Chen et al., 2020; Sarker, 2022).

Reliability and Validity Analysis

Table 1 Reliability and Validity Analysis

Construct reliability and validity				
Overview				
	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
AI _COMPETENCY _OF _PUBLIC _EMPLOYEES	0.862	0.863	0.916	0.784
AI _GOVERNANCE	0.887	0.887	0.930	0.815
AI _INFRASTRUCTURE _READINESS	0.832	0.837	0.899	0.748
AI _READINESS	0.856	0.858	0.912	0.776
DATA _GOVERNANCE	0.908	0.909	0.942	0.844
DIGITAL _LEADERSHIP	0.853	0.855	0.911	0.773
PUBLIC _SECTOR _PERFORMANCE	0.918	0.918	0.948	0.859

Results of the construct reliability and validity reveal that measurement model has a very high level of reliability and convergent validity for all constructs. The Cronbach's alpha's vary from 0.832 to 0.918, suggesting a high degree of internal consistency among the items in each measure. The Composite Reliability percentages (pa, pc) are also all good and indicate a reliable measurement of the constructs. Moreover, the Average Variance Extracted (AVE) values are between 0.748 and 0.859 indicating that each construct accounts for a considerable amount of variance in the indicators. Public Sector Performance has the highest or best reliability and convergent validity, while AI Infrastructure Readiness records the lowest levels of reliability and validity, but remain acceptable. Results overall showed that all constructs are valid and reliable to be used for testing the structural model and hypotheses.

PLS SEM Bootstrapping

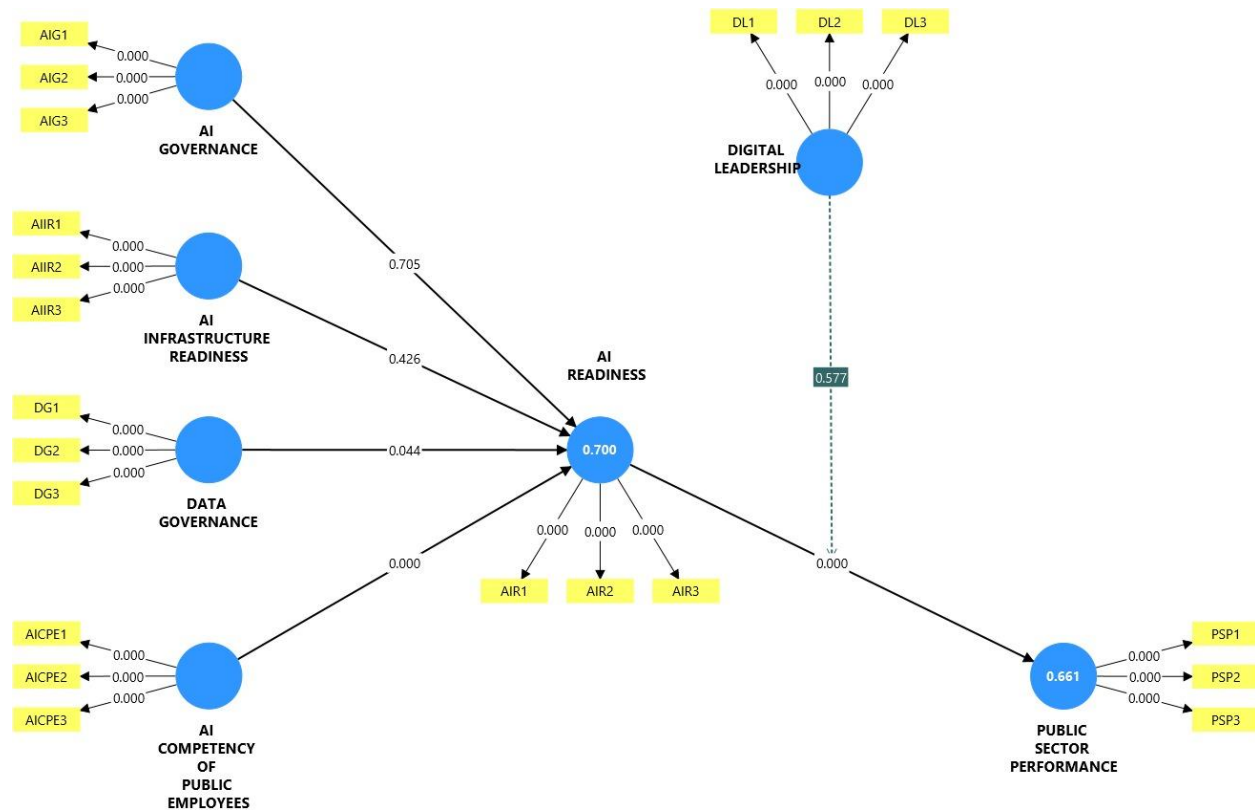


Figure 2 PLS SEM Bootstrapping

Structural model results indicate that the proposed framework accounts for a good amount of variance in the endogenous constructs. The model explained 70.0% of the variance in AI Readiness ($R^2 = 0.700$), suggesting AI Readiness is well explained by the complex variables of AI Governance, AI Infrastructure Readiness, Data Governance, and AI Competency of Public Employees together. The AI Governance variable has the greatest positive influence ($\beta = 0.705$), followed by AI Infrastructure readiness ($\beta = 0.426$) and then Data Governance ($\beta = 0.044$). The path coefficients show that AI Governance and AI Infrastructure Readiness are the main factors affecting AI Readiness, underscoring the significance of strategic governance and technological readiness in enabling public sector organisations to be ready for AI.

Hypothesis Testing

Table 2 Hypothesis Testing

Path coefficients Mean, STDEV, T values, p values					
	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
AI_COMPETENCY_OF_PUBLIC_EMPLOYEES -> AI_READINESS	0.623	0.612	0.088	7.121	0.000
AI_GOVERNANCE -> AI_READINESS	0.026	0.022	0.068	0.378	0.705
AI_INFRASTRUCTURE_READINESS -> AI_READINESS	0.063	0.068	0.079	0.796	0.426

<u>_READINESS</u>							
AI _READINESS -> PUBLIC _SECTOR	0.356	0.357	0.066	5.383	0.000		
<u>_PERFORMANCE</u>							
DATA _GOVERNANCE -> AI _READINESS	0.168	0.178	0.084	2.011	0.044		
DIGITAL _LEADERSHIP -> PUBLIC _SECTOR	0.518	0.517	0.068	7.608	0.000		
<u>_PERFORMANCE</u>							
DIGITAL _LEADERSHIP x AI _READINESS -> PUBLIC _SECTOR	0.024	0.022	0.043	0.557	0.577		

The path coefficient outcomes reveal that to be the strongest predictor of AI Readiness is AI Competency of Public Employees with a high positive path coefficient ($\beta = 0.623$, $t = 7.121$, $p < 0.001$). Similarly, Data Governance also has a significant positive influence on AI Readiness ($\beta = 0.168$, $t = 2.011$, $p = 0.044$). On the contrary, AI Governance ($\beta = 0.026$, $p = 0.705$) and AI Infrastructure Readiness ($\beta = 0.063$, $p = 0.426$) do not significantly impact on the AI Readiness. In addition, AI Readiness has a statistically significant direct positive impact on Public Sector Performance ($\beta = 0.356$, $t = 5.383$, $p < 0.001$) and Digital Leadership has a very strong, direct positive impact on Public Sector Performance ($\beta = 0.518$, $t = 7.608$, $p < 0.001$) as well. On the other hand, the interaction effect for Digital Leadership x AI Readiness on Public Sector Performance is not statistically significant ($\beta = 0.024$, $t = 0.557$, $p = 0.577$), which means that Public Sector Performance does not significantly differ from the AI Readiness variable when observing Interaction 3. Overall, four direct hypotheses are confirmed, while the hypotheses of the moderation of AI Governance, AI Infrastructure Readiness, and Digital Leadership were not supported.

PLS SEM

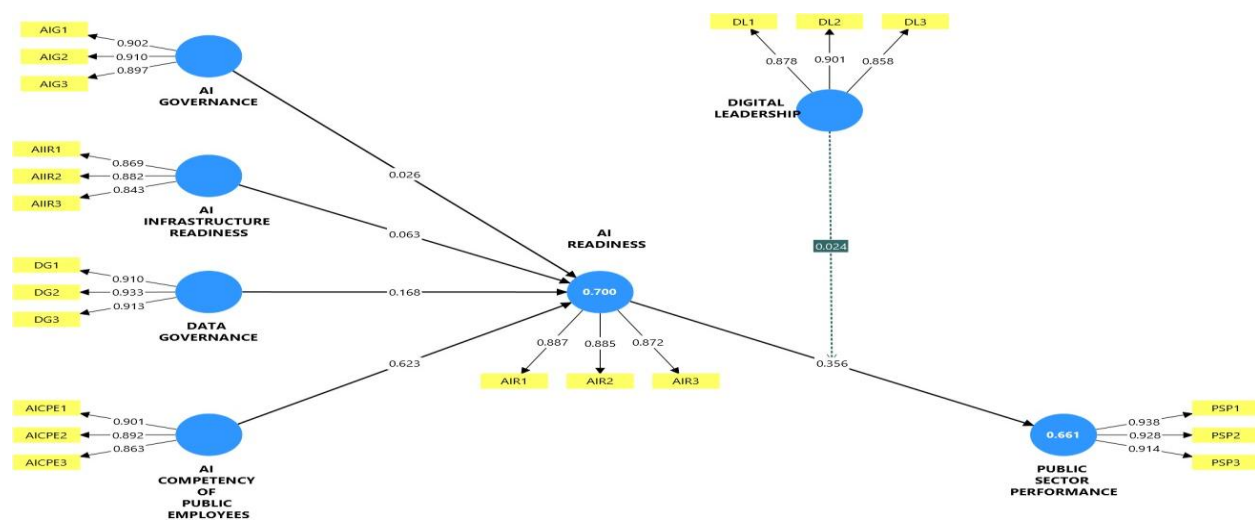


Figure 3 PLS SEM

The results of the measurement model indicate that the model has high indicator reliability, with all indicator loadings above 0.70. They run from 0.843 to 0.933 with AI Governance being in the range of 0.897 to 0.910, AI Infrastructure Readiness 0.843 to 0.882, Data Governance 0.910 to 0.933, AI Competency of Public Employees 0.863 to 0.901, AI Readiness 0.872 to 0.887, Digital Leadership 0.858 to 0.901 and, finally, Public Sector Performance 0.914 to 0.938. All measure-

ment items have high factor loadings, which means that they are good representatives of the underlying constructs and are strongly related to the underlying variables.

Model Fitness

Table 3 Model Fitness

Model fit		
Fit summary		
	Saturated model	Estimated model
SRMR	0.049	0.066
d_ULS	0.564	1.001
d_G	0.518	0.585
Chi-square	1146.519	1220.050
NFI	0.851	0.842

The findings of the current study were generally consistent with recent studies that highlight the critical role organizational AI capabilities play in building institutions' AI readiness to enhance institutions' performance. The results support recent reports indicating that staff knowledge about AI, grasping digital skills, and public sector readiness are more significant for the successful implementation of AI and the transformation of public services than the implementation of AI tools alone. In turn, the substantial positive impacts of Data Governance and AI Readiness on Public Sector Performance corroborate past research that good data management and organizational readiness are vital to AI-led governance and service delivery. The present study, however, did not reveal any significant positive impacts for AI Governance and AI Infrastructure on the organizational readiness, which is consistent with some of the emerging studies that highlighted the importance of proper HR and day-to-day organizational uptake of AI software for organization readiness (Aljehani et al., 2026; Mahmood, 2026).

Discussion

This present research adds to both Dynamic Capability Theory (DCT) and the Resource Based View (RBV) by providing evidence that organizational capabilities are not enough to enhance the public sector performance unless they are translated to organizational readiness. The result of these aspects are fairly conclusive, with AI Competency of Public Employees and Data Governance showing significant influence on AI Readiness, which in turn has a substantial impact on Public Sector Performance. The findings contribute to the theoretical framework by demonstrating that humans' capabilities and effective data management are strategic organizational resources essential for successful AI application in the service delivery and working efficiency of public institutions. Unexpectedly, there was no significant impact of AI Governance or AI Infrastructure Readiness on AI Readiness, indicating that responsibility and infrastructure aren't sufficient to ensure organizational readiness if trained personnel and good data usage are not in place. The results also provide partial support for recent research that highlighted organizational readiness and the level of AI capabilities, and a contradiction to the results of Aljehani et al. (2026) and Mahmood (2026) that found governance and infrastructure as direct drivers of AI readiness.

The study shows that from a literature and practical perspective, AI Readiness acts as a critical link between the organizational AI capabilities and the Public Sector Performance. The notable direct impact of Digital Leadership on Public Sector Performance underscores the need for executive leadership in enacting an AI-powered transformation. However, the moderating effect proved to be insignificant, meaning that there is no stronger relationship between AI Readiness and organizational performance in the present context in the presence of the Digital Leadership. The results contradict previous research that confirmed that digital leadership has a significant moderating effect and indicate that the institutional norms, formal structures, and procedures in the public sector may detract from the potential of a leadership's effects to boost AI readiness outcomes. In practice, these results indicate that policymakers need to focus on worker AI competency development and strong data governance, as well as boost organizational readiness, to invest more in future AI governance frameworks and technical capabilities (Sarker, 2022; Chen et al., 2020).

Conclusion

This current research explores how individual factors like the AI Governance, AI Infrastructure Readiness, Data Governance, and AI Competency of the Public Employees affect the overall Public Sector Performance while inflected by AI Readiness and moderated by Digital Leadership. The results show that both components (AI Competency and Data Governance) have a significant effect on the AI Readiness. The results confirm that AI competency, as well as data governance, have significant impacts on the AI readiness, whereas the impacts of AI governance and AI infrastructure readiness are insignificant. Moreover, Public Sector Performance is directly supported by AI Readiness, which validates its vital role in the transformation of organizations beyond the frameworks of AI using indicators and impact measures (Aljehani et al., 2026; Mahmood, 2026). The study is a valuable theoretical contribution, as it extends Dynamic Capability Theory and the Resource-Based view to public sector context in the field of AI. It stresses the importance of the operational readiness of the organizational capabilities, and notes that AI readiness is a strategic organizational capability that connects AI resources to performance outcomes (Barney, 1991; Teece, 2007).

On the literature side, the results can be of use for the growing research literature on AI governance, by offering empirical inputs from the public sector. This results shows that even after adding governance policies and tech infrastructure, employee competency and effective data governance are more influential in raising the readiness of an organization for AI than the other items in the literature reviewed. The study provides practical recommendations for public organizations to consider, including the need for developing expertise in AI, implementing data governance frameworks, and preparing their organizations for AI implementation. Regarding sustainability in the improvement of the Public Sector Performance (PSP), the focus should be on human capital development in addition to investments of technological equipment (Aljehani et al., 2026; Mahmood, 2026).

Future Research Direction

The current research could be expanded to include other organizational and technological factors such as AI trust, organizational culture, capabilities to innovate, HR change management, and regulatory support to comprehensively understand the public sector's adoption of AI. Longitudi-

nal research design would also facilitate in exploring the conditions of AI readiness over the time and their impact on the organizational performance (Mahmood, 2026; Sarker, 2022). There are a number of limitations in the present study. It used a cross-sectional study design, purposive sampling and looked exclusively at public sector organisations in one country. This means that the results are not necessarily fully representative of other institutional or national settings. Further research is needed using probability sampling methods as well as multi-country data and a mixed-method research design to enhance generalizability (Chen et al., 2020).

Theoretically, future studies could incorporate other theories like the Technology–Organization–Environment (TOE) framework, Institutional Theory, or the Unified Theory of Acceptance and Use of Technology (UTAUT) to provide a more complete explanation of the phenomenon of the adoption of AI technologies (Teece, 2007; Barney, 1991). In the managerial dimension, public sector leaders should start with building their AI competency in their organizations, enhance data governance, and create organization-wide AI readiness interventions instead of huge investments in AI infrastructure or governance. Beyond all doubt, these are proven to increase the successful implementation of AI and future performance of public sector organizations (Aljehani et al., 2026; Mahmood, 2026).

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