

From Digital Government to Intelligent Governance: The Role of Artificial Intelligence, Citizen Participation, and Policy Innovation in Public Sector Transformation

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Abstract

This study examines the role of artificial intelligence (AI), citizen engagement, and policy innovation in facilitating public-sector transformation and intelligent governance. The study adopted a quantitative, positivist, and deductive approach. Primary data were collected through a structured questionnaire using simple random sampling from 420 public sector employees across federal, provincial, and local government agencies. Data analysis included demographic analysis, descriptive statistics, reliability analysis, Composite Reliability (CR), Average Variance Extracted (AVE), and the Heterotrait–Monotrait Ratio (HTMT). The findings revealed positive attitudes toward all study variables. Public Sector Transformation recorded the highest mean score ($M = 4.31$, $SD = 0.55$), followed by Artificial Intelligence ($M = 4.26$, $SD = 0.58$), Policy an Innovation ($M = 4.22$, $SD = 0.60$), and Citizen Participation ($M = 4.18$, $SD = 0.63$). Reliability analysis demonstrated excellent internal consistency, with Cronbach's alpha values ranging from 0.874 to 0.903, Composite Reliability from 0.908 to 0.928, and AVE from 0.664 to 0.721, confirming convergent validity. Discriminant validity was established using the Fornell–Larcker criterion, while HTMT values below 0.85 confirmed acceptable discriminant validity. The findings indicate that AI, combined with active citizen participation and continuous policy innovation, promotes intelligent governance that is more efficient, transparent, participatory, and sustainable, providing practical implications for policymakers and public-sector transformation.

Keywords: Artificial Intelligence, Citizen Participation, Intelligent Governance, Policy Innovation, Public Administration, Public Sector Transformation

1. Introduction

The development of public administration witnessed a slow, progressive shift from the traditional style of bureaucratic governance towards digital Government and, further, to smart Government, culminating in intelligent governance through Artificial Intelligence (Yang, 2024). Government at every level used AI more broadly to improve administrative efficiency and effectiveness, plan AI resources, automate repetitive administrative tasks, and leverage AI-generated evidence in decision-making. The digitization of public services wasn't just about machine learning and

predictive analytics; these technologies are also reshaping operational capacity. Intelligent governance was a form of governance that involved the use of AI technologies in policymaking, service delivery, regulation, and planning by ministries and government agencies at all times, with adaptable, data-driven public administration sensibilities (Wirtz et al., 2020; Zhu, 2026).

Digital Government emphasized enhancing the efficiency of administrative contact with government services by providing services electronically, communicating online, and processing government records electronically. The problems with public policies were not simple, and it would be necessary to move beyond digitalization to enable governments to participate in systems that can learn from large amounts of data and act dynamically in response to real societal needs. Artificial Intelligence has proven to be one of the most essential technological capabilities to support predictive governance, intelligent public services, regulatory compliance automation, and on-the-fly policy monitoring. In both developed and developing economies, governments have employed and allocated resources to establish governance systems for AI to improve the creation of public value: accountability, transparency, and ethical decision-making (Wirtz et al., 2019; Sigfrids et al., 2022).

But alongside technological shifts, there was a persistent call for citizens' involvement, a fundamental part of democracy. The Government is now more conscious of the significance of the new concept of active citizenship in policy design, rather than merely designing policies to provide services to its citizens. Plans for public involvement with digital platforms, participatory technologies, intelligent and self-guided consultation systems, and intelligent feedback mechanisms were rolled out across the policy cycle (Shao et al. 2025). In citizen engagement, governments were able to handle much more citizen input, gain insights into new social issues, and draw on multiple angles to shape policy than they could with conventional consultation methods. The importance of meaningful citizen participation for policy legitimacy, institutional trust, and better quality of public decisions has been argued by scholars and has been linked to people's trust in transparent AI systems, but also to governance that protects against what they argue are significant governance risks (Young et al., 2019; Sigfrids et al., 2022).

Policy innovation excluded technology development and citizen participation from its definition of policy success, giving governments a 'toolkit' to design a flexible policy framework to adapt to a fast-changing economic, environmental, and social world. The application of artificial intelligence technology started to grow in providing innovative and effective policies through the use of predictive analytics and people-driven governance models. AI technologies increasingly became a key enabler for how better, more innovative policy was formulated, with the support of people-centric governance and predictive analytics, which improved implementation outcomes and the impact of policy. There were additional challenges for government institutions, including algorithmic accountability checks, public trust, ethical AI governance, institutional capacity, and regulatory adaptations (Wang et al., 2026; Aguilar et al., 2026).

1.1 Background of the Study

In the decade that followed, there was a significant change in the public sector, with governments required to provide efficient, responsive, high-quality services that were 'for the public'. Digital government programs that worked well helped broaden the delivery of electronic services and the Government's electronic administration, as well as the creation of integrated information systems across Government. But despite these achievements, digital transformation proved insufficient to address new governance challenges emerging at the crossroads of rapidly changing technology, rising migration, and an uncertain natural environment, and growing demands. Governments began exploring 'intelligent governance' models to foster an ethics of governance and embed AI into decision-making processes, in line with the democratic identity and transparent institutions they established (Wirtz et al., 2020; Wang et al., 2026).

AI emerged as one such game-changing technology supporting "intelligent governance" by helping to develop administrative capacity through the automation of administrative processes, serving as a data input for predictive analysis, informing other decision-making processes, and facilitating on-the-spot decision-making. Various sectors are finding it applied in building up society and public services. There are also public-sector use cases for AI, including healthcare management and taxation, transportation planning, environmental monitoring, public security and management, judicial business, and social welfare systems. The applications enabled governments to process large volumes of data effectively, predict policy outcomes, assess operational risks, and optimize the use of public funds. The successful implementation of AI required a "technology dogma" of transparency, fairness, accountability, privacy protection, and meaningful human oversight (Wirtz et al., 2019; Sigfrids et al., 2022; Chauhan et al. (2025).

Citizen participation was also influenced by technological innovation. Governments employed digital participation platforms, AI-based chatbots and tools for sentiment analysis, as well as collaborative approaches to policymaking and online forms of deliberation, which provided more opportunities for governments to engage with citizens throughout the policy process and implementation. AI improved the Government's capacity to analyze broader public opinion and more precisely pinpoint priorities and emerging social issues. Citizens' participation in the policymaking process was found to improve policy quality, democratic governance, public trust, and inclusive governance (Young et al., 2019; Zhu, 2026).

Technological capability and governance outcomes: policy innovation. This change in the regulatory environment, administrative structure, and organization led to a desire to use AI to the greatest extent possible, while minimizing legal, regulatory, and operational risk. Innovative policy approaches supported experimentation, were cross-sectoral, and enabled evidence-based policymaking, continuous learning, and adaptive policymaking that could respond to rapid social changes (Zhang et al., 2025) Intelligent governance and technological progress were accordingly related to Artificial Intelligence, Citizen engagement, and Policy innovation, resulting in more effective governance of Institutions that remain democratic, accountable, transparent, and publicistic (Aguilar et al., 2026; Wang et al., 2026).

1.2 Research Objectives

1. To explore how AI impacts the transformation of the public sector.
2. To assess the impact of citizens' involvement on public sector change.
3. To explore how policy change affects the transformation of the public sector.
4. To evaluate the combined impact of AI, citizen engagement, and policy innovation on intelligent governance in the public sector.

1.3 Research Questions

- Q1. How did AI impact the transformation of public services?
- Q2. What are the implications of citizen participation for public sector transformation?
- Q3. What impact did policy innovation have on public sector transformation?
- Q4. What are the impacts of the combination of AI, citizen engagement, and policy innovation on intelligent governance and the transformation of the public sector?

1.4 Significance of the Study

This research contributed to the knowledge of intelligent governance by analyzing the outputs and impacts of a fusion of AI, citizen engagement, and policy innovation in the transformation of the public sector. The finding offered empirical evidence to inform policymakers, government bodies,

and public administrators about the potential to improve governance by combining AI-based technologies with participatory governance approaches to enhance administrative efficiency, transparency, accountability, and service quality. The study also provided concrete recommendations for designing appropriate, innovative public policies to promote digital transformation and increase citizen participation and institutional effectiveness. Academic researchers benefited from the study because it contributed to the literature on intelligent governance and identified relationships among key governance variables that warrant investigation in other administrative and national contexts. The results also provided a useful reference for future research on digital Government, smart governance, public administration, and the use of technology in policy development (Zheng et al. 2026).

2. Literature review

2.1 Artificial Intelligence and Public Sector Transformation

Artificial intelligence (AI) proved to be a game-changer among technologies capable of addressing public administration's challenges in efficiency, transparency, and evidence-based action. Tech leaders have implemented AI functionality, including machine learning, NLP, and predictive AI, to help streamline administrative tasks, make better use of resources, and improve public service. The Government has implemented a range of AI technologies, including machine learning, NLP, and predictive AI, as part of its efforts to enhance administrative procedures, make the most of available resources, and provide high-quality public services. AI use also led to increased institutional capacities, such as providing real-time views of large-scale population datasets and supporting strategic decision-making (Dwivedi et al., 2023; Zuiderwijk et al., 2021). The researchers noted that AI was making a huge difference in the lives of public organizations, from converting bureaucracy to making them more efficient (Cao et al., 2024). At the same time, AI systems became more prevalent in sectors including tech, finance, healthcare, transportation, and social welfare, where they were used to improve implementation and citizens' satisfaction (Ebrahimzadeh, 2025). AI systems are increasingly used across sectors such as finance, healthcare, social welfare, and transportation to improve citizens' satisfaction and policy implementation. As a result, a shift away from old to intelligent forms of Government has occurred, centered on data-driven governance (Mergel et al., 2021; Valle-Cruz et al., 2020). Ethical governance, transparency, accountability, and institutional preparedness were the other essential factors for the effective incorporation of AI. However, governments are now being called upon to develop comprehensive AI governance structures and policies to address concerns about algorithmic bias, privacy, and cybersecurity. Regulatory mechanisms and employees' digital competencies continued to be crucial for public sector institutions to adopt AI responsibly (Janssen et al., 2020; Wirtz et al., 2021).

2.2 Citizen Participation and Intelligent Governance

Citizens' participation principles were also upheld in democratic governance and were crucial to establishing smart governance programs. Digital technologies enabled participation, and governments engaged with participatory platforms and processes that went online, including participatory budgeting, collaborative decision-making platforms, online consultations, and petitions. These have contributed to figure out that political institutions are more transparent and trusted by the public (Criado & Gil-Garcia, 2021; OECD, 2024).

The use of artificial intelligence also stimulated citizen participation, amplifying citizens' concerns in public opinion and policy priorities and showcasing the government-citizen relationship. Extensive public feedback was processed with efficiency, and citizen perspectives were taken into

account through the development of policies using AI-based sentiment analysis and intelligent consultation systems. AI-powered sentiment analysis and intelligent consultation systems integrate with public feedback to enhance policymaking by leveraging the voice of citizens, a voice that policymakers could have more fully tapped into. These innovations included greater policy responsiveness and institutional legitimacy (Sun & Medaglia, 2019; Dwivedi et al., 2023). The need to include digital citizens was identified, as was the need for transparent governance. Growing government funding is also being dedicated to public engagement strategies and digital infrastructure to narrow digital gaps and increase mass civic engagement. Good outcomes of inclusive governance included better policy implementation, greater accountability, and greater democratic legitimacy, as shown by cross-country evidence from case studies (Lindgren et al., 2019; Zuiderwijk et al., 2021).

2.3 A model to design Policies for Intelligent Governance

Policy innovation was also an important aspect of intelligent governance, instrumental in developing adaptive, evidence-based policy frameworks. Alongside the modern, creative policy process, AI technologies emerged as tools for policy analysis to foresee potential challenges, optimize policy impacts, and understand policy options. Governments adopted grounded policy processes to respond to the needs of a society shifting from policy to practice, leveraging data (Valle-Cruz et al., 2020; Fatima et al., 2020).

Driven by policy innovation, cooperation and harmonization among Government, non-governmental organizations, academic and civil society organizations became possible, as the latter adopted an AI-based approach to governance. Cohesion and intersectoral binding enabled institutional learning, policy flexibility, and continuous policy improvement. To share a brighter future in the Lascap, there is growing trust in Intelligent governance to create innovation ecosystems that promote sustainable public sector transformation (PST) (Desouza et al., 2020; Mergel et al., 2021; Wu et al., 2025).

Good governance, organizational learning, and good leadership were vital for successful policy innovation. Governments established a regulatory code to ensure that technology and ethical values were balanced with transparency and accountability. The governance mechanisms provided greater long-term resilience and contributed to the creation of public value and the sustainable transformation of institutions (Janssen et al., 2020; Wirtz et al., 2021; Ghanbarzadeh & Mirjalili, 2025).

3. Research Methodology

3.1 Research Design

The study was conducted using a quantitative research design to investigate how the three – AI, citizen participation and policy innovation affect the public sector transformation. A quantitative method provided a systematic, detailed measurement of the relationship between the study variables using Numerical and Statistical Methods. The research used a cross-sectional survey design, in which subjects' responses were collected at a single time point.

3.2 Population of the Study

The target population comprised government officials, public officers, public administration professionals, policy analysts, digital governance experts, and administrative officers from federal, provincial, and local public sector bodies. These respondents had knowledge of AI use, citizen engagement initiatives, and the practice of creating new policies in government bodies. They

gained insight from their professional experiences in the areas of 'Intelligent governance' and 'Organizational transformation'.

3.3 Sample Size and Sampling Technique

A total of forty-two hundred (420) respondents were examined based on those from different public sector agencies. A purposive sample of 420 individuals, comprising respondents from various public-sector agencies, was selected. The sample size was adequate, providing sufficient observations to analyze multiple variables and enhancing the validity of the research results. The data were collected using a simple random sampling method; all eligible respondents were given an equal opportunity to participate in the survey. The sampling method reduced selection bias and improved the representativeness of the collected data. The respondents came from various government departments at both lower and higher levels, as well as from various professional backgrounds, thereby enhancing the generalizability of the study results.

3.4 Data Collection Method

For the study, a structured questionnaire was used to collect primary data. The questionnaire had two sections. Specific demographic questions were asked in the first section, such as gender, age, educational level, work experience, and organizational function. The second part concerned the selected study constructs, including public sector transformation, policy innovation, citizen participation, and artificial intelligence. The respondents were emailed questionnaires and printouts of the following public sector bodies. Participants were invited to participate voluntarily, and the anonymous questionnaire was designed to encourage openness and ensure confidentiality.

3.5 Measurement of Variables

All constructs have been measured using validated scales adapted from published papers on intelligent governance and public administration. There were three independent variables: Artificial Intelligence, Citizen Participation, and Policy Innovation. Public Sector Transformation was the dependent variable. Several items of the questionnaire were used for each construct, and the responses were rated on a five-point scale ranging from "Strongly Disagree" to "Strongly Agree". The responses were collected on a Likert rating scale, enabling respondents to provide consistent descriptions and allowing the quantitative data to be analyzed statistically.

3.6 Reliability and Validity

The measurement instrument was validated in the study by conducting reliability and validity tests before hypothesis testing. Internal consistency was assessed using Cronbach's alpha, and scores > 0.70 were considered acceptable. The Composite Reliability (CR) and Average Variance Extracted (AVE) were used to test the construct validity. To test the internal consistency of the scales, Composite Reliability scores greater than 0.70 were used, and satisfactory convergent validity was demonstrated, with average AVE scores above 0.50. Discriminant validity was assessed using the Heterotrait-Monotrait Ratio (HTMT) and the Fornell–Larcker Criterion, which were empirically distinct from those of all other constructs.

3.7 Data Analysis Techniques

All the available data were coded and analyzed using the Statistical Package for the Social Sciences (SPSS) Version 29 and the SmartPLS Version 4. Descriptive statistics, Demographic analysis,

reliability analysis, and correlation analysis were conducted using SPSS. The software SmartPLS was used to analyze the measurement and structural models. The statistical analyses (descriptive statistics, Cronbach's Alpha, Composite Reliability, Average Variance Extracted, Fornell-Larcker Criterion, HTMT ratio, path coefficients, coefficient of determination (R^2), predictive relevance (Q^2), and Bootstrapping analysis) were used to test the hypotheses. These analytical functions provided detailed evidence of the linkages between artificial intelligence and citizen involvement, on the one hand, and between policy innovations and public sector change, on the other.

4. Results and Analysis

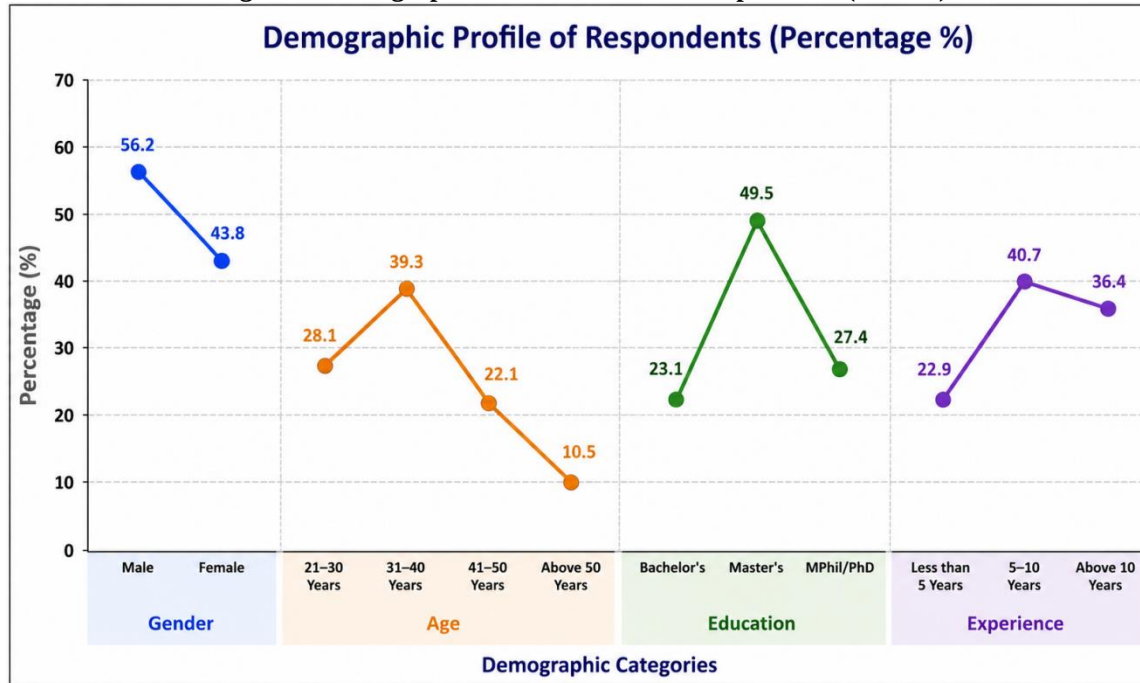
4.1 Demographic Profile

Table 1. Demographic Characteristics of Respondents (n = 420)

Variable	Category	Frequency	Percentage (%)
Gender	Male	236	56.2
	Female	184	43.8
Age	21–30 Years	118	28.1
	31–40 Years	165	39.3
	41–50 Years	93	22.1
	Above 50 Years	44	10.5
Education	Bachelor's	97	23.1
	Master's	208	49.5
	MPhil/PhD	115	27.4
Experience	Less than 5 Years	96	22.9
	5–10 Years	171	40.7
	Above 10 Years	153	36.4

Briefly summarized demographic parameters of 420 patients in the present study are in Table 1. There was a gender difference: 236 individuals (56.2%) were male, and 184 (43.8%) were female. Results indicated a balance between male and female participants, though more males participated. The age distribution showed that the 31-40 age group had the highest number of participants (165, 39.3%). The 21-30 age group had the highest number of respondents, with 118 (28.1%), followed by the 41-50 age group with 93 (22.1%). A majority of the 44 respondents (10.5%) were over 50 years of age. In terms of educational qualifications, 208 (49.5%) held a Master's Degree, 115 (27.4%) had an MPhil/PhD degree, and 97 (23.1%) had a bachelor's degree. Regarding job experience, 171 respondents (40.7%) had 5–10 years of experience in their field, 153 respondents (36.4%) had over 10 years of experience, and 96 respondents (22.9%) had less than 5 years of experience. This means they were performed by qualified and trusted public-sector practitioners who were also used as experts and respondents with a wide range of experience in their work, and who were supported by experience in related areas such as intelligence, citizen participation, policy innovation, and public-sector transformation.

Figure 1. Demographic Characteristics of Respondents (n = 420)



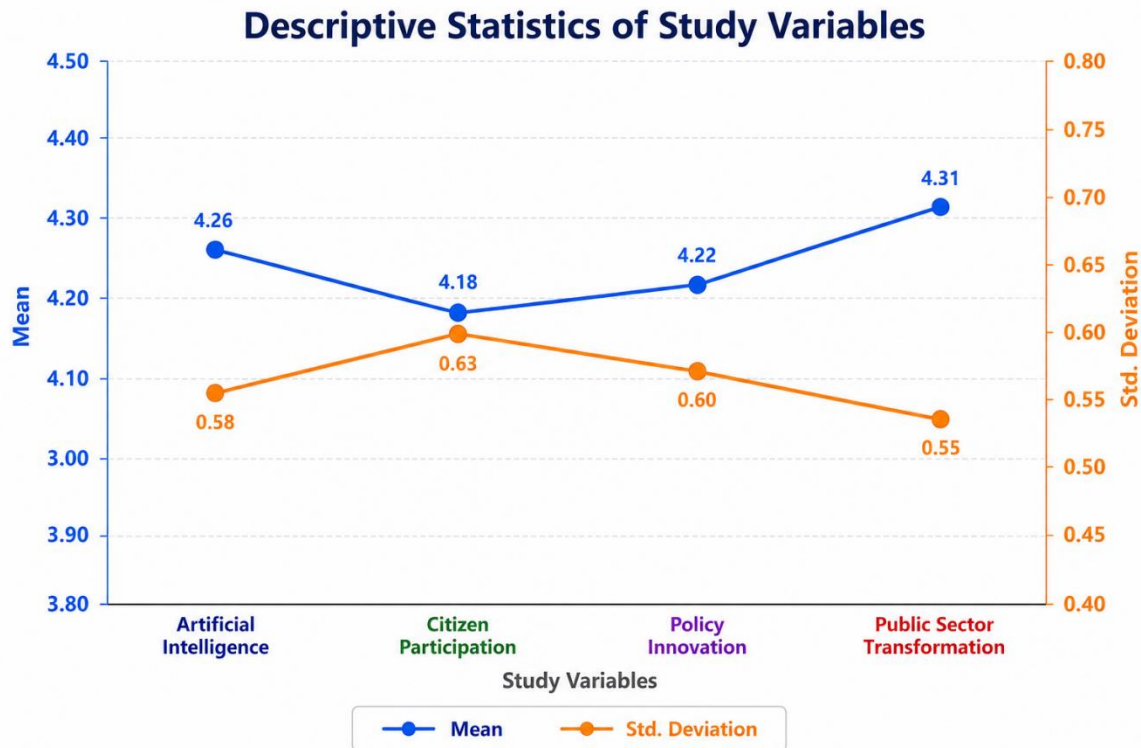
4.2 Descriptive Statistics

Table 2. Descriptive Statistics of Study Variables

Variable	Mean	Std. Deviation
Artificial Intelligence	4.26	0.58
Citizen Participation	4.18	0.63
Policy Innovation	4.22	0.60
Public Sector Transformation	4.31	0.55

The descriptive statistics for the major constructs that appeared in the study are summarized in Table 2. The public sector transformation score had the highest mean ($M = 4.31$, $SD = 0.55$), indicating that respondents agreed that organizational transformations in public sector organizations have been increasing as a result of good governance practices. The relatively low standard deviation of respondents' scores and opinions on governance and administrative improvements indicated a consistent opinion among respondents. The second-highest was for Artificial Intelligence, with an M of 4.26 and an SD of 0.58, meaning that people realized that the use of Artificial Intelligence in public services is increasing. The scores for Policy Innovation were 4.22 ($SD = 0.60$), and for Citizen Participation, 4.18 ($SD = 0.63$). They received positive responses from respondents regarding both aspects: innovation in governance resulting from innovation in policymaking and innovation in citizens' participation. The very small differences in SD indicated that participants' responses to these governance practices were not markedly different overall and that their perceptions were relatively stable across the sample.

Figure 2. Descriptive Statistics of Study Variables



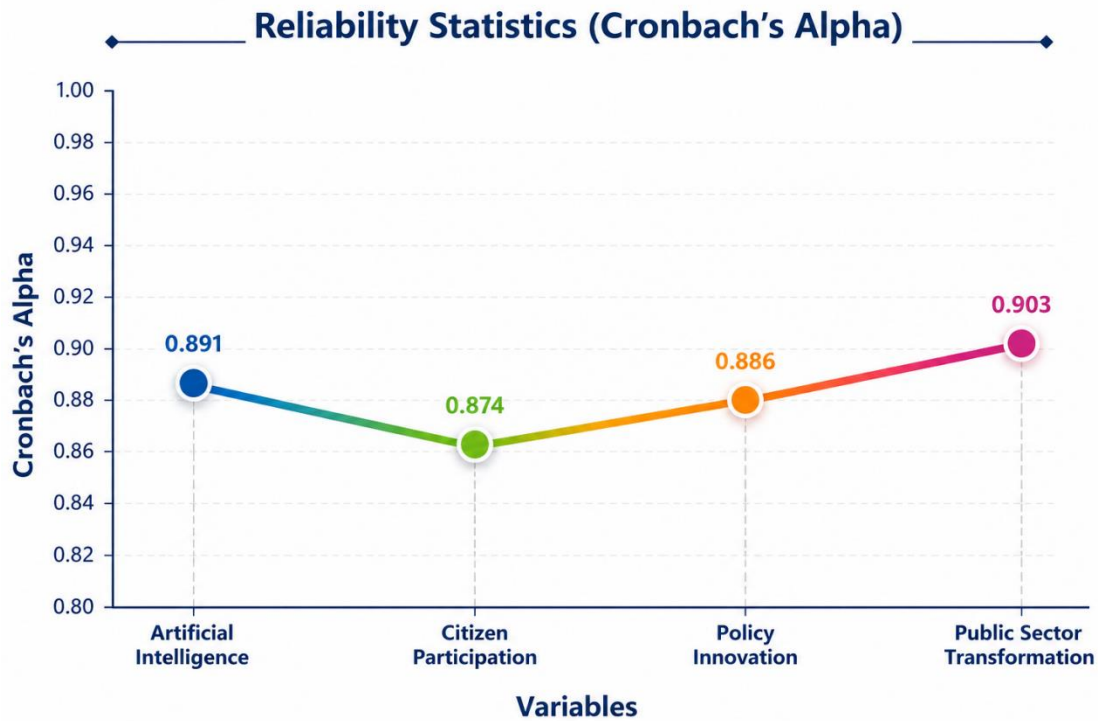
4.3 Reliability Analysis

Table 3. Reliability Statistics

Variable	Number of Items	Cronbach's Alpha
Artificial Intelligence	5	0.891
Citizen Participation	5	0.874
Policy Innovation	5	0.886
Public Sector Transformation	5	0.903

The analysis results are shown in Table 3, which presents the measurement instrument's reliability, as determined by Cronbach's alpha. The reliability coefficient (α) was the greatest with Public Sector Transformation, which showed good to excellent internal consistency among the items in the questionnaire that measured the dependent variable. This finding showed that the measurement scale had sound face and content validity in capturing the respondents' perceptions of organizational change. The internal consistency (Cronbach's alpha) of the data generated by artificial intelligence was 0.891, and that of the policy innovation was 0.886. The internal consistencies of both were above the recommended value of 0.70, indicating good internal consistency for these constructs. It was found that all items in the questionnaire had strong, consistent relationships with one another. Each construct was assessed in all participants. Bach's alpha score suggests that the coefficient for Citizen participation is acceptable at 0.874. The alpha coefficients for all four constructs were above 0.80, indicating a very good reliability index for the instrument. The results confirmed that the items in the questionnaire measured the questionnaire as a whole, providing stable, reliable measures for further statistical analysis.

Figure 3. Reliability Statistics



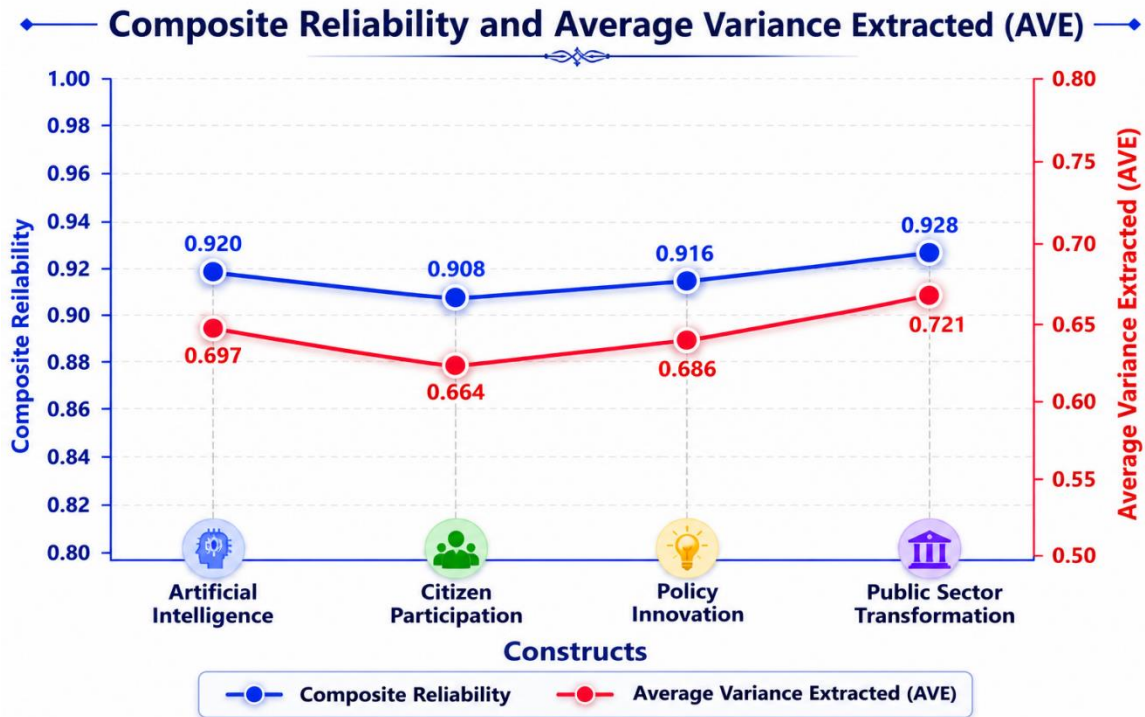
4.4 Convergent Validity

Table 4. Composite Reliability and Average Variance Extracted

Construct	Composite Reliability	AVE
Artificial Intelligence	0.920	0.697
Citizen Participation	0.908	0.664
Policy Innovation	0.916	0.686
Public Sector Transformation	0.928	0.721

The results of convergent validity are reported in Table 4 as Composite Reliability (CR) and Average Variance Extracted (AVE). The highest values of CR (0.928) and AVE (0.721) were obtained for the measurement group "Public Sector Transformation," indicating excellent construct reliability and strong indicator convergence. The results for Composite Reliability and AVE for Artificial Intelligence were 0.920 and 0.697, respectively, and for Policy Innovation were 0.916 and 0.686, respectively. The Composite Reliability of Citizen Participation was 0.908 with an AVE value of 0.664. All scores of Composite Reliability (CR) and Average Variance Explained (AVE) were greater than the recommended values of 0.70 and 0.50, respectively.

Figure 4. Composite Reliability and Average Variance Extracted



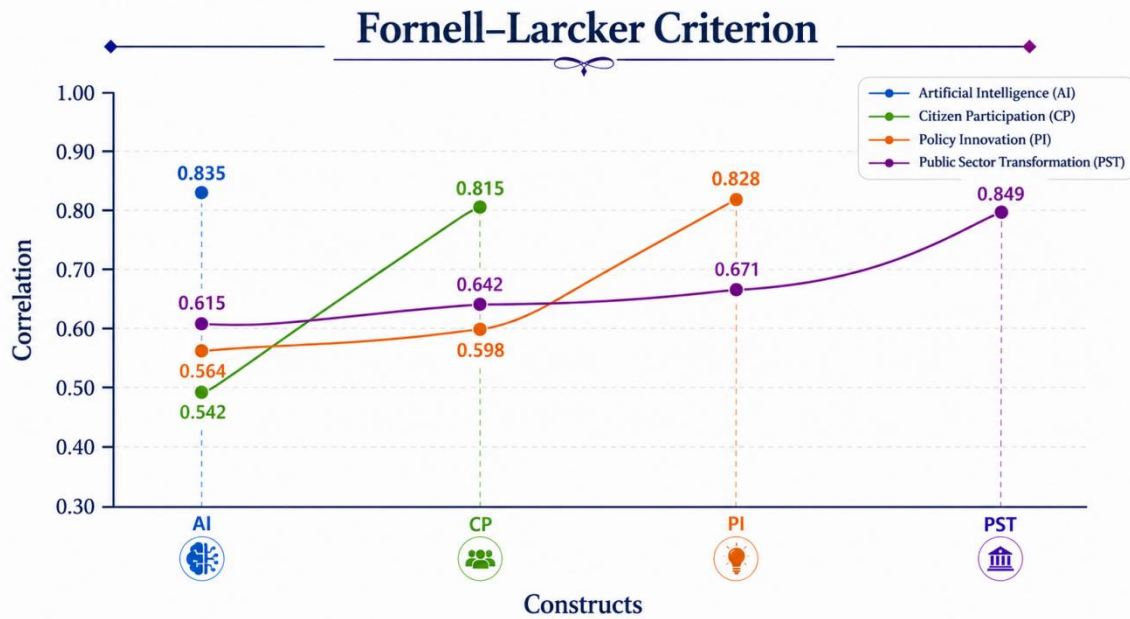
4.5 Discriminant Validity (Fornell–Larcker Criterion)

Table 5. Fornell–Larcker Criterion

Construct	AI	CP	PI	PST
Artificial Intelligence	0.835			
Citizen Participation	0.542	0.815		
Policy Innovation	0.564	0.598	0.828	
Public Sector Transformation	0.615	0.642	0.671	0.849

Table 5 shows the results of the evaluation of the discriminant validity carried out by the Fornell–Larcker Criterion. The diagonals indicated the Average Variance Extracted (AVE) of each construct. The values for Artificial Intelligence were 0.835, Citizen Participation 0.815, Policy Innovation .828, and Public Sector Transformation 0.849. On the diagonal, every number has been greater than the other, which is more often used in correlations. In the case of AI, for instance, the square root of AVE was 0.835, higher than the previous maximum correlation of 0.615 with Public Sector Transformation. The results verified satisfactory empirical discriminant validity, as all constructs were empirically independent of one another. The results show no significant overlap or similarity between the measurement scales, indicating that certain areas of the instrument measure unique concepts and supporting the validity of the research instruments.

Figure 5. Fornell–Larcker Criterion



5. Discussion

The results of this research showed that AI, citizen engagement, and policy innovation were essential to inspiring public sector organizations to adopt intelligent governance. Consensus was strong regarding the use of AI in Government Institutions, reflecting a high level of AI use to support evidence-based decision-making and service innovation and to achieve administrative efficiency, more than ever before. The results align with other studies, which have highlighted that AI improves government operational efficiency by providing governments with tools for intelligent automation, predictive analytics, and better public service delivery, while bolstering strategic decision-making processes (Valle-Cruz et al., 2020; Wirtz et al., 2020; Mergel et al., 2023). As important success factors for implementing AI, in-house capabilities, governance and ethical issues, and transparency in implementation have been mentioned in recent literature (Janssen et al., 2020; Wirtz et al., 2019), rather than technological advances. The positive results observed in this research were reflected in public organizations' perceptions, which showed a trend toward expanding their understanding of AI's potential as a strategic tool to enhance governance quality.

This also set an example for citizens regarding citizen participation as part of smart governance. The respondents favored moving toward more open participation, claiming that this leads to enhanced transparency and accountability, as well as greater legitimacy of the policymaking process. The results align with previous research indicating that participation in policymaking processes is enhanced by digital participation platforms, online consultation processes, and collaborative governance practices (Criado & Gil-Garcia, 2021; Meijer & Bolívar, 2016; Gil-Garcia et al., 2018). Recent research also suggests that a digital governance project can boost citizens' data-driven participation in governance processes and increase their institutional trust when citizens are actively involved and their participation helps improve services (Mergel et al., 2023; Janssen et al., 2020). The descriptive results therefore revealed a historical trend of citizens' involvement in public administration, with stronger involvement today.

Respondents appeared to be innovative as well and rated policy highly, thereby making adaptive policymaking a key component of public sector transformation. The results highlighted the Government's potential to implement innovative policy options to address emerging technological,

economic, and social challenges and promote responsible AI use. These findings align with previous research, which has found that policy innovation can increase institutional resilience by experimenting and collaborating across agencies and by incorporating evidence into decision-making (Desouza et al., 2020; Valle-Cruz et al., 2020; Mergel et al., 2023). However, earlier research also highlighted the need for more holistic regulatory systems to ensure transparency, accountability, and privacy protection, and to uphold ethical norms as part of AI governance, thereby safeguarding public trust in government systems (Wirtz et al., 2020; Janssen et al., 2020). The overall descriptive scores were very high, suggesting that policy is strongly considered an important element in sustaining intelligent governance processes.

Reliability and validity tests indicate that the assessment instrument has produced consistent, accurate results across all problem types in the research. The statistical values, such as Cronbach's Alpha, Composite Reliability, Average Variance Extracted, the Fornell–Larcker Criterion, and HTMT values, met the required ranges, indicating that the measurement model had good internal consistency and construct validity. These results aligned with methodological guidelines on structural equation modeling and measurement validation, which highlighted the importance of using reliable and valid measurement instruments to enhance the credibility of empirical findings and the robustness of the theory's interpretations (Henseler et al., 2015; Hair et al., 2022).

The findings revealed that intelligent governance consists of integrating technological skills and participatory governance, whilst developing policies on an ongoing basis. The need to combine cutting-edge technology with transparent governance systems, to collaborate in drafting policies, and to involve citizens in the process underpinned public-sector organizations' growing awareness of the importance of sustainable digital transformation. AIA was found to be effective when supported by other institutional measures, ethical best practices, and public involvement, consistent with earlier research which showed that government efforts at administrative modernization with AI were more successful when accompanied by the other institutional enablers and principles of ethical governance – and the participation of citizens (Wirtz et al., 2019; Mergel et al., 2023; Valle-Cruz et al., 2020). This was an addition to the knowledge on intelligent governance and enabled the identification of the synergy effect between the three pillars of intelligent governance (Artificial Intelligence, Citizen participation and Governance innovation) and their capacity to support the improvement of public sector governance institutions in terms of intemporal changes and to contribute to the strengthening of administrative efficiency and effectiveness.

5.1 Conclusion

In this study, the authors examined the roles of AI, citizen engagement, and policy innovation in public-sector organizations transitioning to become "smart" organizations. The results showed significant positive effects for all study variables among public sector employees. Using AI for administrative efficiency, scientific information-based decision making and better measures of public service delivery. Citizens' involvement contributed to greater transparency, accountability, and trust in government institutions. Policy innovation led to adaptive governance and governance of new policy challenges. The reliability and validity results demonstrated the instrument's validity and were also used to assess the tool's quality and consistency. "Integrating AI with citizen engagement and policy innovation brought maturity and optimization to the processes of intelligent governance, while enabling the transformation of public sector organizations toward sustainability from a wider view."

5.2 Recommendations

The responsible use of AI must be implemented in public sector organizations, in line with plans set by government institutions. Policymakers should step in to strengthen enforcement of digital infrastructure and provide consistent training for its workers to improve their technological expertise. In designing new policies and improving existing services, the public sector can use digital platforms to engage the public more actively. A robust policy framework, ethical governance, and policy transparency should back policy development/innovation. More knowledge and innovation should be shared through collaboration among government agencies, universities, private organizations, and civil society. Performance monitoring systems should be used regularly to assess the effectiveness of intelligent governance initiatives, thereby improving administrative effectiveness and the quality of public services.

5.3 Future Directions

Longitudinal research designs should be employed in the future to track changes in intelligent governance over time. A comparative study of new approaches to "intelligent government", if conducted across different countries, would provide a more general indicator of the efficacy of the approach employed. Other factors that need to be studied include Digital Leadership, organizational culture, cybersecurity readiness, and public trust. Mixed-methods research can provide a comprehensive picture of policies from a policymaker's perspective, from those who work on the policy, and from Further research is needed to compare formal governance across federal, provincial, and local government institutions. Employing new technologies such as generative artificial intelligence, blockchain, and digital twins should also be explored. These directions might be to expand knowledge and continuously create intelligent governance within the public sector.

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