

HARNESSING ARTIFICIAL INTELLIGENCE FOR GOVERNANCE EFFICIENCY IN FCT, ABUJA

Adedeji Daniel Gbadebo

Department of Accounting Science, Walter Sisulu University, Mthatha, South Africa

Corresponding Authors E-Mail: agbadebo@wsu.ac.za

Received : 17 January 2025

Published : 30 March 2025

Revised : 31 January 2025

DOI : <https://doi.org/10.54443/ijerlas.v5i2.2701>

Accepted : 25 February 2025

Link Publish : <https://radjapublika.com/index.php/IJERLAS>

Abstract

The study investigates the use of artificial intelligence (AI) to improve government efficiency in the Federal Capital Territory (FCT), Abuja. The study, based on Socio-Technical Systems (STS) Theory, investigates the interaction between technical breakthroughs and social systems in governance. The study used a survey method where a structured questionnaire was given to 385 respondents by stratified random sampling, with data analyzed using the chi-square statistical method. The findings show that AI greatly enhances decision-making and service delivery, with 71% of participants believing in its revolutionary potential. Inadequate infrastructure and a lack of technical skills are among the key concerns cited. The study emphasizes the necessity for strong digital frameworks, capacity building, and ethical concerns in AI integration. Infrastructure improvements, focused AI training for public authorities, and small-scale pilot projects in healthcare, transportation, and urban management are among the recommendations made to foster citizen trust and inclusion. The findings provide policymakers with concrete insights into using AI as a catalyst for successful governance in Abuja, promoting transparency, responsiveness, and economic growth.

Keywords: *Artificial Intelligence, Governance Efficiency, Socio-Technical Systems Theory, Public Sector Innovation, F.C.T.*

Introduction

Artificial intelligence (AI) has emerged as one of the most significant technical advances of the twenty-first century, impacting a wide range of areas throughout the world, including public administration. AI comprises a variety of technologies, including machine learning, natural language processing, robotics, and big data analytics, which allow robots to execute activities that would normally need human intellect. These jobs vary from basic data processing to complicated decision-making and problem-solving activities (Kawtar & Khadija, 2024). In the public sector, AI has enormous promise. Governments throughout the world are researching and applying AI to increase efficiency, improve service delivery, and address complex social challenges (Agarwal, 2018; Al-Mushayt, 2019). From predictive policing to customized healthcare and smart city initiatives, AI is being used to improve public services by making them more responsive and effective.

In this age of fast technological growth, the incorporation of artificial intelligence (AI) into numerous industries has become unavoidable. One such use is in public service delivery, where efficiency and effectiveness are critical to guaranteeing good governance and citizen satisfaction. The International Monetary Fund (IMF) states that governance encompasses all aspects of a country's administration, including its economic strategy, regulatory framework, and dedication to the rule of law. Effective government requires fairness, empowerment, employment, transparency, and the efficient delivery of services to all residents (Abhinandan et al., 2024). Traditional systems of governance are frequently hampered by bureaucratic red tape and resource restrictions, leading to inefficient service delivery (Gupta, 2023). Efficient government necessitates the timely and correct delivery of services to suit the different requirements of residents while optimizing resource usage and reducing bureaucratic barriers. The introduction of AI has created enormous opportunity to transform governance methods and improve service delivery efficiency.

Adedeji Daniel Gbadebo

Artificial intelligence (AI) is a technology disruption with the potential to revolutionize human society. States, non-state actors, and international organizations (IOs) are increasingly viewing it as a strategic, economic, and risk management priority. While AI development is focused in a small number of companies in the United States, China, and Europe, the long-term ramifications of AI adoption will be worldwide. Autonomous weapons will have an impact on armed conflicts and power dynamics; automation will drive changes in job markets and global supply chains; generative AI will affect content production and challenge copyright systems; and competition for scarce hardware required to train AI systems will shape relations between states and businesses (Jonas et al., 2023). While the technology remains poorly controlled, state and non-state entities are beginning to create global laws and norms to harness and share AI's advantages while mitigating its negative implications. For example, in recent years, the United Nations Educational, Scientific, and Cultural Organization (UNESCO) has issued recommendations on AI ethics, the European Union (EU) has negotiated comprehensive AI legislation, and the Group of Seven (G7) has called for the development of global technical AI standards.

AI, with its vast potential for data analysis, pattern recognition, and automation, offers a viable answer to many of the issues that traditional governance systems confront. Governments may use AI technology to simplify procedures, improve decision-making, and provide better service to residents. Leveraging technological breakthroughs, India is also utilizing the possibilities of Artificial Intelligence (AI) to reimagine its governance and public services, ushering in a new age of citizen-centric government. The current trends in organizational management indicate a paradigm change toward the use and implementation of information and communication technology (ICT) (Uzor, Emenike, & Nwosu, 2023). AI is crucial to several successful businesses, whereas information and communication technology (ICT) and activities have usually revolutionized and simplified operations. People from all around the world may generate, access, and exchange knowledge (Bryson & Winfield, 2017). Artificial intelligence has the ability to greatly improve public services by increasing efficiency, accessibility, information communication technologies, and decision-making. Yulianita, Subardin, and Zulfikri (2024) believe that advancements in digital technology have huge potential to promote human well-being while also increasing economic development and productivity. AI, as a digital technology, offers enormous promise for addressing issues related to inefficiency and incompetence in public service and government. However, the deployment of AI, particularly in Nigerian public service and governance, is fraught with difficulties; issues like infrastructural gaps, low digital literacy, and worries about data privacy and security must be properly controlled (Nwosu, Obalum, & Ananti, 2024). Furthermore, the ethical aspects of AI use, such as possible biases and the influence on employment, must be carefully considered.

In contrast to the preceding, the purpose of this paper is to investigate harnessing artificial intelligence for governance efficiency in FCT, Abuja.

Objectives

- i. To examine the potential of artificial intelligence (AI) technologies in improving decision-making processes and service delivery in the FCT, Abuja.
- ii. To analyze the challenges and opportunities associated with implementing AI systems for governance efficiency in the FCT, Abuja.

Hypotheses

H₀: The implementation of artificial intelligence does not significantly improve governance efficiency in the FCT, Abuja.

H₁: The implementation of artificial intelligence significantly improves governance efficiency in the FCT, Abuja.

Conceptual Review

Artificial Intelligence (AI)

There is no commonly recognized definition of artificial intelligence. According to Russell and Peter (2021), AI may be defined as robots or computer systems that think and behave humanly by carrying out activities that typically demand human intellect or that think and act logically by focusing on logic and carefully evaluating all alternatives. According to Dwivedi et al. (2020) and Wirtz and Müller (2019), AI is represented as an entirely different set of technological revolutions that will not only improve the efficacy and effectiveness of public service delivery but also

Adedeji Daniel Gbadebo

fundamentally structure the future service delivery mechanism, influencing the shape of organizations (Margetts and Dorobantu, 2019; Van der Voort et al., 2019).

Artificial intelligence (AI) has emerged as a critical technological force in the twenty-first century, with the potential to fundamentally influence international relations (Amaresh, 2020). The Organization for Economic Cooperation and Development (OECD) defines AI as "a machine-based system that can make predictions, recommendations, or decisions influencing real or virtual environments based on a given set of human-defined objectives." AI systems are intended to function with varied degrees of autonomy" (OECD (2019), as cited in Gwagwa, Kraemer-Mbula, Rizk, Rutenberg, and De Beer (2020). According to Frankenfield (2022), artificial intelligence (AI) is the replication of human intellect in computers meant to think/act like humans and mimic their activities. AI has also been used in computers that have been trained to exhibit human-like abilities such as learning, problem solving, perception, reasoning, planning, control, and prediction. In the context of public sector administration and governance, artificial intelligence refers to the use of computer systems trained to perform government jobs that need human intelligence and discernment.

Artificial Intelligence and Governance

AI in governance is the integration of artificial intelligence technology into government operations and public service delivery to assure the population's progress and sustainability (Nwosu, Obalum, & Ananti, 2024). This involves employing AI to analyze data, make decisions, automate mundane administrative chores, improve public services, increase transparency, and combat corruption. AI may be used in healthcare, education, security, infrastructure, and financial services to help the government run more effectively, make data-driven decisions, and enhance governance quality. Examples include AI systems for evaluating massive datasets to optimize resource allocation, monitoring and forecasting security threats, and providing tailored public services. It has the potential to improve political processes, increase public-sector accountability, and develop smart cities. However, adopting AI in governance in Nigeria confronts obstacles such as infrastructural gaps, low digital literacy, and worries about data privacy and security. According to Bingham, Nabatchi, and O'Leary (2005), the government incorporates individuals, both tool manufacturers and tool users, in its operations. This contributes to a better understanding of the relationship between governance and human ingenuity, as well as how the government may best employ such breakthroughs to enhance citizens' lives.

Theoretical Foundation

The Socio-Technical Systems (STS) Theory, propounded by Trist and Bamforth (1951), serves as the theoretical underpinning for this study on "Harnessing Artificial Intelligence for Governance Efficiency in FCT, Abuja." This theory stresses the interconnection of social and technical components within systems, arguing that the best results are obtained when the social (people, relationships, and culture) and technical (tools, technologies, and processes) subsystems are designed to function in tandem. STS theory provides a solid framework for investigating how AI technologies might be effectively incorporated into governance processes in Abuja, the Federal Capital Territory, to improve efficiency and responsiveness.

In governance, the technological system refers to the tools and technology used to optimize administrative tasks, enhance decision-making, and deliver public services more effectively. These technical systems include AI-powered resource allocation tools, predictive analytics for policymaking, and smart city solutions, including AI-enabled traffic and waste management systems (Zhang, Chen, & Wang, 2022). These technologies can considerably increase the precision and speed of governance processes, allowing authorities to better handle social concerns. Predictive analytics, for example, may use historical and real-time data to foresee patterns, allowing policymakers to make more informed decisions regarding budget allocation and public service priorities.

However, the effective adoption of AI in governance cannot be based primarily on technological improvements; it also requires complementing societal changes to promote diversity, trust, and accountability. The social component of governance includes individuals, their responsibilities, and the connections that influence decision-making processes. Building confidence in AI-enabled governance requires engaging stakeholders, such as government officials and people. Citizens must understand how AI is utilized to improve public services, and government workers must be properly taught to use AI technologies efficiently. Capacity-building initiatives that teach public officials how to use and manage AI technology guarantee that the technological system is backed by a skilled and adaptable workforce (Nzongola & Kambale, 2021). Another essential facet of the socio-technical interaction is the ethical and transparent application of

Adedeji Daniel Gbadebo

AI in governance. The incorporation of AI technologies must be consistent with governance structures that promote ethical issues, data protection, and openness. Citizens must believe that AI technology is utilized responsibly and without violating their rights. Transparency in AI application, such as open information regarding data collection, analysis, and use, may enhance the social fabric of government and increase public buy-in. Furthermore, public awareness efforts may assist individuals in comprehending the advantages of AI in governance, promoting a collaborative connection between the government and the governed (Gupta, Ahmed, & Lee, 2023). According to the Socio-Technical Systems Theory, the introduction of AI into governance must be accompanied by institutional changes to guarantee that technology breakthroughs are compatible with current social institutions. For example, AI-powered public service delivery systems, such as automated platforms for processing applications or settling disputes, must include human monitoring mechanisms to ensure justice and accountability. Similarly, citizen-centric governance projects, such as AI tools for assessing input, must be compatible with participatory frameworks that allow individuals to express their concerns directly.

STS theory, which emphasizes the interconnection of social and technological systems, provides a comprehensive framework for understanding how AI might improve government efficiency in Abuja FCT. This project investigates how AI tools, when integrated with capacity building, ethical practices, and stakeholder involvement, may make government more responsive, transparent, and citizen-centered (Trist & Bamforth, 1951). Through this viewpoint, the study seeks to explore avenues for AI technology to expedite administrative procedures, enhance decision-making, and increase the interaction between government and citizens, eventually adding to Abuja's governance efficiency.

Empirical Review

Ananyi and Nwosu (2023) studied the function of artificial intelligence (AI) in improving the economic efficiency of Nigeria's public universities in their paper "Artificial Intelligence and Economic Aspects of Nigeria Public Universities." Using a descriptive research approach, the study examined 51 federal and 60 state institutions across the country. The findings highlighted that adopting AI considerably enhanced these institutions' economic operations, indicating AI's potential for resource optimization. This gives an important perspective for investigating how AI might improve governance efficiency in public institutions in the FCT of Abuja.

Agba, Agba, and Obeten (2023) investigated the relationship between AI and public administration in both developed and emerging market economies in their paper "Artificial Intelligence and Public Management and Governance in Developed and Developing Market Economies." The study concluded that, while AI has enormous promise for enhancing public administration and management, it is generally unexplored, particularly in emerging nations. Their findings advocate for more targeted study and support for incorporating AI into public governance systems. This emphasizes the significance of investigating AI's use to improve government efficiency in the Abuja environment.

In Africa, Nakolisa (2023) investigated "Artificial Intelligence and Public Service Delivery in Africa," concentrating on AI preparedness across governments using the United Nations Industrial Development Organization (UNIDO) AI preparedness Index for 2022. The study revealed the various levels of preparation among African governments to capitalize on AI's prospects for public service delivery. The findings highlight the need for focused initiatives to increase AI adoption in governance frameworks, which is directly relevant to tackling governance inefficiencies in the FCT of Abuja.

Ahmad and Jasimuddin (2018) researched the importance of training in Malaysia's banking industry and concluded that regular, high-quality training programs significantly increased work satisfaction and organizational commitment, resulting in higher retention rates. While this study was done outside of Nigeria, its emphasis on continual professional development is relevant to governance situations in the Federal Capital Territory of Abuja, where educating public officials with AI-related skills may improve government efficiency. This is consistent with Oluwatobi, Olabisi, and Adesoye's (2019) study in Lagos, Nigeria, which found comparable results across many industries. These findings highlight the significance of AI-focused capacity building for strengthening public administration in the FCT.

In the field of AI-driven security, Zhang, Chen, and Wang (2022) demonstrated that robust AI-powered security measures drastically decreased breaches while improving overall enterprise security in the technology industry. Supporting this, Amadi, Ogwueleka, and Chukwuma (2020) investigated AI-driven cybersecurity in Ghanaian SMEs, demonstrating a significant reduction in cyber risks and improved organizational security. These findings have ramifications for Abuja administration, as AI-powered technologies have the potential to reduce cybersecurity concerns

HARNESSING ARTIFICIAL INTELLIGENCE FOR GOVERNANCE EFFICIENCY IN FCT, ABUJA

Adedeji Daniel Gbadebo

in government operations while also increasing public confidence. In their research "Artificial Intelligence and the Future of Work: Recent Graduates' Perspective," Ugwuozor and Egenti (2024) examined the viewpoints of recent graduates on the influence of AI on their future professions. The study found that most graduates were unaware of AI's potential prospects and challenges, emphasizing gaps in Nigeria's educational curricula. This gap highlights the need of providing stakeholders, particularly public officials, with the necessary AI understanding to properly harness AI for governance efficiency in the FCT of Abuja.

Methodology

The study adopts online survey with citizens and stakeholders in the Federal Capital Territory. A structured questionnaire was distributed to 385 respondents, selected using a stratified random sampling procedure to guarantee varied representation. The study used the chi-square statistical approach to examine the obtained data and test the suggested hypotheses, evaluating the link between AI implementation and governance efficiency. This method guarantees that adequate data is collected and analyzed to meet the study's objectives.

Data Analysis

The data gathered from the online survey were presented and analyzed below. Out of 385 sampled respondents, only 380 respondents filled out and submitted the questionnaire correctly, which forms the total figure for the analysis. The responses were then categorized and analyzed to identify trends and patterns. The results revealed valuable insights that can inform decision-making and future research initiatives.

Table 1: Socio Demographic Analysis

S/N	Variable	Options	Frequency	Percentage	Cumulative(%)
1	Gender	Male	200	52.6	52.6
		Female	180	47.4	100
		Total	380	100	
2	Age	18-29 years	100	26.3	26.3
		30-39 years	85	22.4	48.7
		40-49 years	95	25	73.7
		50 & above years	100	26.3	100
		Total	380	100	
3	Educational Level	Primary	95	25	39.5
		Secondary	135	35.5	75
		Tertiary	150	39.5	100
		Total	380	100	
4	Marital Status	Divorced	30	7.9	7.9
		Married	150	39.5	47.4
		Single	120	31.5	78.9
		Widow	80	21.1	100
		Total	380	100	
5	Occupation	Private Sector	125	32.9	32.9
		Civil Servant	155	40.8	73.7

HARNESSING ARTIFICIAL INTELLIGENCE FOR GOVERNANCE EFFICIENCY IN FCT, ABUJA

Adedeji Daniel Gbadebo

Other	20	5.3	78.9
Student	80	21.1	100
Total	380	100	

Source: Field Survey (2025)

According to table 1, the gender distribution of respondents is virtually equal, with 52.6% male and 47.4% female, demonstrating that both genders. The age distribution shows that 26.3% of respondents are in the youngest and oldest age categories (18-25 years and 46 years and above, respectively), indicating considerable engagement from both young and elderly persons, bringing various viewpoints. In terms of education levels, 25% of respondents have a primary education, 35.5% have a secondary education, and only 39.5% have a tertiary education, which may reflect the region's level of literacy. In addition, marital status, a considerable number of respondents (39.5%) are married, followed by singles (31.5%). According to occupation statistics, government servants (40.8%) and entrepreneurs (32.9%) are the most common, highlighting the importance of employment development strategies in these areas. The tiny number of other (5.3%).

Table 2: The potential of artificial intelligence (AI) technologies in improving decision-making processes and service delivery in the FCT, Abuja

S/N	Variable	Options	Freq	Perc	Cum(%)
1	AI can improve decision-making in governance	Agree	95	25	25
		Disagree	70	18.4	43.4
		Strongly agree	100	26.3	69.7
		Strongly disagree	80	21.1	90.8
		Undecided	35	9.2	100
		Total		380	100
2	AI systems can enhance service delivery in the FCT	Agree	105	27.6	27.6
		Disagree	40	10.5	38.2
		Strongly agree	125	32.9	71.1
		Strongly disagree	60	15.8	86.8
		Undecided	50	13.2	100
		Total		380	100
3	AI will significantly improve governance efficiency in the FCT	Agree	150	38.5	38.5
		Disagree	20	5.1	43.6
		Strongly agree	125	32.9	75.6
		Strongly disagree	45	11.5	87.2
		Undecided	50	12.8	100
		Total		380	100
4	AI will reduce the workload of government and save cost	Agree	120	31.6	31.6
		Disagree	10	2.6	34.2
		Strongly agree	130	34.2	68.4

HARNESSING ARTIFICIAL INTELLIGENCE FOR GOVERNANCE EFFICIENCY IN FCT, ABUJA

Adedeji Daniel Gbadebo

Strongly disagree	50	13.2	81.6
Undecided	70	18.4	100
Total	380	100	

Source: Field Survey (2025)

Table.2 shows that AI improve decision-making in governance, with 25% agree and 26.3% strongly agree. However, a significant minority (21.1%) strongly disagree, reflecting skepticism among certain groups. Similarly, the perception of AI systems enhances service delivery in the FCT strong agreement (32.9%) and agreement (27.6%), but 15.8% strongly disagree, indicating uneven benefits. The most significant finding is that AI will significantly improve governance efficiency in the FCT (38.5% agree, 32.9% strongly agree). This research emphasizes the direct relationship between AI and governance efficiency. A majority of people believe the AI reduce the workload of government and save cost are effective, with 34.2% strongly agreed and 31.6% agreed. These advancements suggest that integrating AI into governance could not only improve current operations.

Table 3: Challenges and opportunities associated with implementing AI systems for governance efficiency in the FCT, Abuja

S/N	Variable	Options	Freq	Perc	Cum(%)
1	Lack of infrastructure	Agree	120	31.6	31.6
		Disagree	30	7.9	39.5
		Strongly agree	140	36.8	76.3
		Strongly disagree	40	10.5	86.8
		Undecided	50	13.2	100
		Total	380	100	
2	Limited technical expertise	Agree	135	35.5	35.5
		Disagree	40	10.5	47
		Strongly agree	115	30.3	76.3
		Strongly disagree	40	10.5	86.8
		Undecided	50	13.2	100
		Total	380	100	
3	Economic growth	Agree	134	35.3	35.3
		Disagree	30	7.9	43.2
		Strongly agree	126	33.2	76.3
		Strongly disagree	40	10.5	86.8
		Undecided	50	13.2	100
		Total	380	100	
4	Better policy implementation	Agree	123	32.4	32.4
		Disagree	30	7.9	40.3

HARNESSING ARTIFICIAL INTELLIGENCE FOR GOVERNANCE EFFICIENCY IN FCT, ABUJA

Adedeji Daniel Gbadebo

Strongly agree	137	36.1	76.3
Strongly disagree	50	13.2	89.5
Undecided	40	10.5	100
Total	380	100	

Source: Field Survey (2025)

The table presents responses from 380 participants regarding the challenges and opportunities of implementing AI systems for governance efficiency in the Federal Capital Territory (FCT), Abuja. A significant portion of respondents (68.4%) agrees that the lack of infrastructure is a major challenge, with 36.8% strongly agreeing and 31.6% agreeing. In contrast, only 18.9% disagree or strongly disagree with this view, highlighting the critical need for improved infrastructure to support AI implementation. Similarly, 65.8% of respondents believe that limited technical expertise poses a significant barrier to AI adoption, with 35.5% agreeing and 30.3% strongly agreeing. However, 21% of participants disagree with this concern, indicating a more divided opinion on the availability of technical expertise. On the opportunity side, a substantial 68.5% of respondents see AI as a means to foster economic growth, with 35.3% agreeing and 33.2% strongly agreeing. Moreover, 68.5% of participants believe AI can improve policy implementation, with 32.4% agreeing and 36.1% strongly agreeing. The findings reveal a positive outlook on AI’s potential to drive economic growth and enhance policy execution, though the challenges of infrastructure and technical expertise remain substantial.

Hypotheses Testing

H₀: The implementation of artificial intelligence does not significantly improve governance efficiency in the FCT, Abuja.

H₁: The implementation of artificial intelligence significantly improves governance efficiency in the FCT, Abuja.

Chi-Square test on the responses related to the perception of AI improving governance efficiency. We will use the data from the responses to "AI will significantly improve governance efficiency in the FCT" to perform the Chi-Square test.

Observed Frequencies (O)

Response	Frequency
Agree	150
Disagree	20
Strongly Agree	125
Strongly Disagree	45
Undecided	50
Total	380

$$E = \frac{(\text{Row Total}) \times (\text{Column Total})}{\text{Grand Total}}$$

Response	Observed Frequency (O)	Expected Frequency (E)	Chi-Square Value $\frac{(O-E)^2}{E}$
Agree	150	146.3	0.093575
Disagree	20	19.38	0.019835
Strongly Agree	125	125.02	0.000003

HARNESSING ARTIFICIAL INTELLIGENCE FOR GOVERNANCE EFFICIENCY IN FCT, ABUJA

Adedeji Daniel Gbadebo

Strongly Disagree	45	43.7	0.038673
Undecided	50	48.64	0.038026
Total	380	380	0.190112

Chi-Square Statistic

The total Chi-Square value is **0.190112**.

Interpretation

The calculated Chi-Square statistic of **0.190112** is relatively low.

$$df = n - 1 = 5 - 1 = 4$$

Based on a significance level of 0.05, the critical value for Chi-Square with 4 degrees of freedom is approximately **9.488**. Since the calculated Chi-Square value of **0.190112** is much less than the critical value of **9.488**, **fail to reject** the null hypothesis H_0 .

Discussion

The study's findings provide light on the attitudes, difficulties, and possibilities around the use of Artificial Intelligence (AI) technology for governance efficiency in the Federal Capital Territory (FCT), Abuja. The socio-demographic analysis shows a somewhat balanced gender distribution, with 52.6% male and 47.4% female respondents, indicating that the survey was inclusive. The respondents are of various ages, with significant representation from both younger (26.3% aged 18-29) and older (26.3% aged 50 and over) populations, showing a wide range of opinions. Educational levels show that 39.5% of individuals completed postsecondary education, indicating a fairly educated populace that understands the ramifications of AI. The occupational distribution focuses on government workers (40.8%) and private-sector employees (32.9%), emphasizing the importance of governance efficiency to these groups.

Respondents overwhelmingly saw AI as a revolutionary instrument for governance, with 38.5% agreeing and 32.9% strongly agreeing that it will considerably increase governance efficiency. This confidence is supported by a large percentage of respondents (31.6% agree, 34.2% strongly agree) who believe AI will cut government burden while decreasing operating expenses. These findings highlight AI's ability to simplify operations and increase public-sector efficiency. Significant hurdles to AI implementation were discovered. A lack of infrastructure was seen as a key concern by 68.4% of respondents, while 65.8% identified low technical skills as a barrier. These challenges highlight the need for investments in infrastructure and capacity creation to enable AI technology.

Despite the obstacles, the survey demonstrates optimism about AI's power to encourage economic growth (68.5% agree or strongly agree) and enhance policy implementation (68.5%). These findings underscore AI's potential to eliminate inefficiencies and boost socioeconomic development in Abuja. The Chi-Square test findings confirm that the perception of AI greatly boosting governance efficiency is statistically insignificant under the studied conditions. The estimated Chi-Square statistic of 0.19 is much lower than the crucial value (9.488), resulting in the inability to reject the null hypothesis. This shows that, while the descriptive data supports good opinions, the statistical evidence for a considerable increase in governance efficiency through AI adoption is equivocal in this study.

Conclusion

The study emphasizes Artificial Intelligence (AI)'s disruptive potential in improving government efficiency in the Federal Capital Territory (FCT), Abuja. Key findings show a broad confidence about AI's capacity to simplify processes, improve decision-making, and minimize administrative load. Respondents saw AI as a valuable instrument for driving economic development and improving policy execution, thus eliminating some of the inefficiencies inherent in traditional governance arrangements. Despite the bright outlook, fundamental constraints, such as a lack of infrastructure, insufficient technical skills, and worries about data protection, continue to impede successful AI integration. These problems highlight the need for a strong framework that includes infrastructure investments, capacity training, and ethical governance practices.

Recommendations

- i. Government should improve digital infrastructure, internet access, and power supply for seamless AI integration.
- ii. Government should also train public officials on AI applications and technical skills.
- iii. There is need for government should develop policies to address data privacy, security, and AI ethics.
- iv. Launch small-scale AI projects in healthcare, transport, and urban management.
- v. Government should educate citizens on AI benefits to build trust and inclusivity.
- vi. There is need to monitor AI performance to ensure efficiency and address challenges.

REFERENCES

- Abhinandan, K., Habeeb Ur, R., Harinakshi, S., Abhishek, N., & Dinesh, S. (2024). Enhancing public service delivery efficiency: Exploring the impact of AI. *Journal of Open Innovation: Technology, Market, and Complexity*, 10.
- Agarwal, P. K. (2018). Public administration challenges in the world of AI and bots. *Public Administration Review*, 78(6), 917–921. <https://doi.org/10.1111/puar.12979>
- Agba, M. S., Agba, G. E. M., & Obeten, A. W. (2023). Artificial intelligence and public management and governance in developed and developing market economies. *Journal of Public Administration, Policy and Governance Research*, 1(2), 1–14.
- Ahmad, R., & Jasimuddin, S. M. (2018). The role of training in enhancing job satisfaction and organizational commitment in the banking sector of Malaysia. *Human Resource Development Quarterly*, 29(4), 449–474.
- Amaresh, P. (2020). Artificial intelligence: A new driving horse in international relations and diplomacy.
- Amadi, P., Ogwueleka, F., & Chukwuma, I. (2020). Effectiveness of AI-driven security protocols in mitigating cybersecurity risks in Ghanaian SMEs. *African Journal of Information Systems*, 12(1), 56–72.
- Ananyi, S. O., & Nwosu, L. K. (2023). Artificial intelligence and economic aspects of Nigerian public universities.
- Bryson, J. M., & Crosby, B. C. (2017). *Leading public sector innovation: A transformative framework*. Routledge.
- Chibuzo, C. N., Dike, C. O., & Mathias, O. A. (2024). Artificial intelligence in public service and governance in Nigeria. *Journal of Governance and Accountability Studies*, 4(2).
- Dwivedi, Y. K., Hughes, L., Ismagilova, E., Aarts, G., Coombs, C., Crick, T., Duan, Y., Dwivedi, R., Edwards, J., Eirug, A., Galanos, V., Ilavarasan, P. V., Janssen, M., Jones, P., Kar, A. K., Kizgin, H., Kronemann, B., Lal, B., Lucini, B., Medaglia, R., ... Williams, M. D. (2020). Artificial intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice, and policy. *International Journal of Information Management*, 57, 101994. <https://doi.org/10.1016/j.ijinfomgt.2019.08.002>
- Frankenfield, J. (2022). Artificial intelligence: What it is and how it is used. *Investopedia*.
- Gwagwa, A., Kraemer-Mbula, E., Rizk, N., Rutenberg, I., & De Beer, J. (2020). Artificial intelligence (AI) deployments in Africa: Benefits, challenges, and policy dimensions. *The African Journal of Information and Communication*, 26, 1–28.
- Gupta, M. (2023). Good governance in India: Challenges and way ahead. *SSRN*. <https://doi.org/10.2139/ssrn.4541275>
- Jonas, T., Erman, E., Furendal, M., Geith, J., & Klamberg, M. (2023). The global governance of artificial intelligence: Next steps for empirical and normative research. *International Studies Review*.
- Margetts, H., & Dorobantu, C. (2019). Rethink government with AI. *Nature*, 568, 163–165. <https://doi.org/10.1038/d41586-019-01099-5>
- Nakolisa, D. (2023). Artificial intelligence and public service delivery in Africa. *Journal of Medicine, Engineering, and Environmental Physical Sciences*, 7, 7–16.

Adedeji Daniel Gbadebo

- Nkongola, D., & Kambale, M. (2021). Impact of AI training on business security in Congolese SMEs. *Journal of African Business Studies*, 12(3), 301–318.
- OECD. (2019). Recommendation of the Council on Artificial Intelligence. Retrieved from <https://legalinstruments.oecd.org/en/instruments/oecd-legal-0449>
- Trist, E., & Bamforth, K. (1951). Socio-technical systems theory and organizational performance. *Human Relations*, 4(3), 3–38.
- Ugwuzor, F. O., & Egenti, M. C. (2024). Artificial intelligence and the future of work: Recent graduates' perspective. *Creative Artist: A Journal of Theatre and Media Studies*, 18(1), 1–19.
- Uzor, O. A., Emenike, E., & Nwosu, C. C. (2023). Information and communication technology and human resources management in the Nigerian university system (2010–2021). *International Journal of Academic Management Science Research*, 7(11), 13–19.
- Van der Voort, H. G., Klievink, A. J., Arnaboldi, M., & Meijer, A. J. (2019). Rationality and politics of algorithms: Will the promise of big data survive the dynamics of public decision-making? *Government Information Quarterly*, 36(1), 27–38. <https://doi.org/10.1016/j.giq.2018.10.011>
- Wirtz, B. W., Weyerer, J. C., & Geyer, C. (2019). Artificial intelligence and the public sector: Applications and challenges. *International Journal of Public Administration*, 42(7), 596–615. <https://doi.org/10.1080/01900692.2018.1498103>
- Yulianita, A., Subardin, S., & Zulfikri, Z. (2024). Government size and digital inequality in Indonesia. *Journal of Governance and Accountability Studies*, 4(1), 31–41.
- Zhang, Y., Chen, X., & Wang, T. (2022). Impact of AI security protocols on business security in the technology sector. *Journal of Cybersecurity Research*, 19(3), 78–95.