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ROLE OF AI IN ENHANCING GOVERNMENT TRANSPARENCY: THE MEDIATING EFFECT OF DIGITAL ACCOUNTABILITY

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Abstract

The integration of Artificial Intelligence (AI) in government operations offers significant potential for enhancing transparency and efficiency in public sector services. This study explores the relationship between AI adoption, digital accountability, and government transparency, focusing on the mediating role of digital accountability in this relationship. While AI technologies, such as machine learning and data analytics, can optimise decision-making and improve service delivery, their effectiveness in promoting transparency is contingent upon the presence of robust digital accountability mechanisms. The study adopts a quantitative research design and collects data from 300 government employees and officials across various sectors, including healthcare, education, and public administration. The data were gathered using a structured questionnaire with Likert-scale items that measure AI adoption, digital accountability, and government transparency. Regression analysis and Structural Equation Modelling (SEM) were employed to test the hypotheses. Findings indicate that AI adoption positively impacts government transparency, with increased AI usage corresponding to greater transparency in public sector operations. Furthermore, digital accountability was found to mediate the relationship between AI adoption and transparency. Mechanisms like open data platforms and blockchain help ensure that AI-driven decisions and government actions are transparent, traceable, and auditable by the public. The study highlights that while AI alone can improve transparency, its full potential is realised when complemented by digital accountability tools. The results have important implications for policymakers, suggesting that AI adoption must be paired with accountability frameworks to ensure ethical and transparent governance. This research contributes to the growing literature on AI and public sector innovation, providing empirical evidence of how digital accountability mechanisms can enhance the role of AI in fostering transparent governance. Further research is needed to explore the long-term impact of AI and digital accountability on transparency across different political and technological environments.

Keywords: Artificial Intelligence (AI), Government Transparency, Digital Accountability, AI Adoption, Transparency in Government

Introduction

Artificial Intelligence (AI) implementation in the government activities has become a revolutionary topic of governmental administration that shows positive perspectives of government services transparency and efficiency rates. Machine learning, data analytics, and automation are tools of AI that are increasingly being used to optimise decision-making; automate routine tasks; and enhance delivery of government services to the public (Brynjolfsson & McAfee, 2014). All governments around the world are more likely to utilize AI

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to improve the effectiveness of operations in their governments, to streamline the performance of the public sector, and to increase the ease of access to government services. Nonetheless, the problem of government transparency will always be a major challenge as AI is becoming integrated in government processes. Accountability is a pillar of democratic governance and transparency and to bring the element of transparency through AI is crucial, only when augmented by advanced forms of digital accountability mechanisms (Sullivan & Drennan, 2021).

Government transparency Government transparency entails the erection of the government activity, decisions, and information to the scrutiny of people. It is essential to the building of the credibility of the masses, accountability, and empowerment of informed citizenry in the democratic process (Bertot et al., 2010). Accountability of government officials and institutions is crucial and transparency plays a central role in holding them accountable to their actions especially when dealing with emerging technologies like AI in sensitive sectors like the law enforcement agency, health and social welfare. But the application of AI in the government leaves quite a few questions about justness, privacy, and possible drawbacks in the decision-making process. Thus, the government should initiate accountability practices to prevent misuse as well as guarantee possible use of AI systems in an ethical and transparent way (Janssen et al., 2012).

Digital accountability is the systems that are put to assure that the actions of the government can be traced, audited, and overseen by the population, especially the actions that were enabled by the use of digital technologies and AI (Sullivan & Drennan, 2021). Blockchain and other open data technologies will help to make the workings of AI transparent, as the former will give the opportunity to access data publicly and the latter to make the decisions of government more comprehensible and accessible (Tapscott & Tapscott, 2016). As an example, blockchain can be valuable in making transactions and decisions by governments more transparent and verifiable by anyone to strengthen accountability of governmental processes, as corruption can be minimized due to the accountability.

The possibility of expanding government transparency through the use of AI is enormous, however, efficiency relies on the adoption of the digital accountability systems. Although AI may make the decision-making process more efficient by automating the process, it may not be completely transparent on how these systems work, which may hurt public trust. Thus, it is imperative to comprehend the role of digital accountability in mediating the association between AI adoption and transparency in governance because it is essential to ensure that AI technologies can help achieve transparent governance instead of providing new opportunities to engage in hazy governance and bias promotion.

Although the theoretical frameworks show that AI has a potential implication toward increasing government operations transparency, there is yet to be any empirical research studying how government operations become more transparent through combining the adoption of AI with digital accountability measures. This research provides the means of commuting this gap by exploring the connection between AI adoption, digital accountability, and the transparency of the government. Namely, the case in point examines the question of whether digital accountability acts as a mediating factor in the AI adoption-government transparency relationship and how the introduction of AI into governance systems could be organized efficiently in terms of consistency and transparency.

Research Objectives

The main objective of this study is to examine the impact of AI adoption on government transparency, with a particular focus on the mediating role of digital accountability. The specific research objectives are:

- To investigate whether AI adoption positively influences government transparency.
- To explore the role of digital accountability in enhancing the relationship between AI adoption and government transparency.
- To evaluate how digital accountability mechanisms, such as open data and blockchain, can ensure that AI adoption leads to greater transparency in public administration.

Research Significance

The implications of this research study are substantial in terms of theory and practice among the scholars and those in practices in the domain of digital governance and public administration. In theory, this study can help in the knowledge of how AI can be used to promote transparency in government activities with

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the integration of digital accountability tools. It improves upon the current body of knowledge by giving an empirical example of how the elements interplay within the realms of government transparency and the need to ensure digital accountability within the field of governance in the public sector.

In a practical light, the results can be applied in policy making concerning intuition of AI within government organizations. The findings of the study can help policymakers and public administrators to have a better comprehension of how to make their AI systems effective and transparent regarding design and implementation. Through the focus on the importance of digital accountability structures, the study provides the information on how the governments can address the risks of adopting the AI and make the technological development more democratic in accordance with the democratic principles of openness and accountability.

Research Questions

To guide the study, the following research questions were addressed:

- How does AI adoption influence government transparency?
- What role does digital accountability play in mediating the relationship between AI adoption and government transparency?
- To what extent can digital accountability mechanisms (e.g., open data, blockchain) enhance the effectiveness of AI in fostering transparency in government operations?

Study Scope

This paper dwells on government agencies that have incorporated AI technologies into their work. It discusses adoption of AI in other parts of public aspects such as in healthcare, education and public administration. The research also examines the potential implementation of ethical solutions that allow seeing the person responsible and providing an audit trail like open data platforms, blockchain, and other technologies to make sure that the AI-related decision was made. The research is based on quantitative approach, where surveys are used to gather the information taking part of employees and officials of the government in the AI adoption and transparency initiatives. In consideration of empirical data, by focusing on the aims of the study, a clear reasoning about the relationships of these three postulates is obtained i.e. AI, digital accountability, and transparency.

Literature Review

Government transparency can be defined as the extent to which state operations, policy-making and operation are opened up and put in a manner that its citizens can understand. It lies at the root of democratic transportation, as it creates a sense of accountability, trust, and participation of the population (Bertot et al., 2010). Transparency entails that the citizens are free to access information concerning public policies, financial transactions, and government spending. Such access to information enables the citizens to be active in the activities of the government to hold those serving in the government to accountability (Robinson, 2015). Transparency is imperative in many ways. It fights corruption by facilitating investigations of governmental activities and making sure that external resources used in the state are utilized efficiently. Good transparency fosters trust among the people and the governmental institutions since people tend to be strong in supporting policies and putting trust to the officials when they feel enlightened and part of the decision-making process (Grimmelikhuijsen & Meijer, 2014). Also, to ensure the effective operation of a democracy, transparency is needed since it equips the citizens with the information they need in order to be able to make imminent decisions about an election and contribute to the discourse in the open (Piotrowski & Van Ryzin, 2007).

The theory of open government is that the governments are obliged to disclose data and information proactively to the people so as to demand accountability and effectiveness. On the basis of this theory, the Open Government Data (OGD) initiatives promote providing access to government data to enable any citizen, business, and civil society have access to this data that can be used to help improve public services and governance (Piotrowski, 2007). In the theory, the transparency is given when actions and government decisions are not only exposed but they are presented in a manner that they become accessible and comprehensible to everyone. This theory also revolves around the fact that governments are answerable to the citizens on the decisions taken depending on the will of the people. Accountability entails answerability and enforcement thus; the citizens have the right not only to seek answers as to what the government is up to but also hold public officials liable to misconduct or incompetency (Gerring et al., 2005). Transparency is used as

a tool to realize accountability because it gives an opportunity to the citizens to oversee the activities done by the government officials and institutions. This theory holds that publication and issuing of information makes government more responsible and enhances delivery of decisions by the government (Gerring et al., 2005).

Transparency is an action that has been embraced by several governments globally as an initiative to increase openness and lower corruption. The most famous of these is the Freedom of Information Act (FOIA) in the United States that gives the citizens the right to apply to access government records, making the government processes transparent (McDermott, 2020). Otherwise, the European Union is the other, namely the Open Data Directive, which requires member countries to open some data sets that can be used by people, promote innovation, and cause increased government accountability (Janssen et al., 2012). In the digital era, e-government has made countries such as Estonia masters of this technology with the role to offer easy access to citizens to myriad of government services. Estonia e-Governance is a vivid example of transparency providing the citizens with the ability to access and manage their own information, cast their votes online and communicate with governmental services that are based on electronic identity (Lember et al., 2015). This initiative has not only enhanced the transparency of government services but also efficiency of the government services thereby showing how digital tools can be utilized in enhancing transparency of governance.

Digital accountability is the processes involved in maintaining responsible use of the digital technologies in governmental procedures. It also makes sure that government operations and especially those facilitated by the digital technologies can be tracked and traced, reported, or audited, and they are accountable to the population (Sullivan & Drennan, 2021). The key to transparent governance is digital accountability since it gives the tool to verify that the governmental decisions coincide with the interests of the society and the governmental services are provided in a reasonable manner. In the context of the developing digital technologies in the sphere of the government, e-governance, AI, and blockchain the necessity to make sure that the utilization of these technologies is ethical and should not be ignored by the government is increasing as well. Unless augmented by strong digital accountability, it may be that advanced technology may end up adding more opacity, inefficiency and perhaps corruption. The checks, thus, come in the form of the digital accountability mechanisms to ensure that the transition toward technology uses in the functions of government do not do so with the transparency (Sullivan & Drennan, 2021).

There are some technologies that play a significant role in the development of digital accountability in government. An example of an innovative tool that has attracted some comparison is blockchain, which is the tool that has been touted to be a radical solution to government transactions accountability. Blockchain offers a transparent, decentralised ledger to store transactions in an irreversible manner, thus, making it barely possible to edit or forge public data. This aspect of blockchain makes it especially applicable when it comes to managing the public money and making sure it is put to its use, and that no corruption takes place (Tapscott & Tapscott, 2016). Another important role Open Data Platforms can take is the one of enhancing digital accountability. Such platforms will allow governments to publish their large sets of information to the citizen, who will in turn be able to analyse the data published by the government. The releasing of data, made by governments, gives the population the means to assess the performance of the policies and the progress of resource allocation. Open data websites also improve the level of transparency through a transparent record of government activities (Janssen et al., 2012).

Artificial Intelligence (AI) can revolutionize the work of the government, with the advantages of making better decisions, automating the operations, and managing public information more efficiently. Governments may find it easier to make more informed decisions with the help of AI which is able to analyse huge amounts of data and reveal hidden insights (Brynjolfsson & McAfee, 2014). As an illustration, AI-based tools are applicable in the optimisation of public service delivery, forecasting of the future trends, and the enhancement of the efficiency of the operations of the government. The other way that AI can help the government is by reducing the redundant daily operations of the government such as data entry, processing of records and responding to customer queries, enabling the civil servants to practice in other challenging roles (Wirtz et al., 2010). Regarding decision-making, artificial intelligence can make the government more responsive since it will be able to analyse the data in real-time, thus informing government policy in fields like healthcare, urban planning, and disaster management. Machine learning and related predictions such as

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AI-driven models, e.g., can also predict the demand of healthcare services in particular areas, enabling governments to allocate resources better and more efficiently (Turek & Raj, 2020).

The use of AI in increasing government transparency has already been implemented. As an example, the audits based on AI are being applied to track the government expenditures to make sure that they spend money wisely. With the help of AI, it is possible to detect anomalies in financial activities and single out the possible cases of corruption or waste, and internal government research and auditing were made much simpler (Narayan, 2021). The other major use is in predictive analytics as it can assist governments in predicting the consequence of several policy decisions. AI is also applicable in the scenario where governments want to know the impact of various policies on economic and social indicators prior to the introduction of policies (Pea-Rios & Martinez-Balleste, 2020). Such AI application enhances the degree of transparency because the decisions are not made based on political or subjective factors, but rather on accurate data and analysis.

There is a strong correlation between AI and transparency since AI can make government actions more transparent, comprehensible to society. AI is capable of handling large data and coming up with insights that can be shared with citizens, adding on the feeling of transparency on government activities. As an example, AI systems can develop community dashboards that show real-time data on how the government is spending income, effects of policies, and the delivery of services to the public. Through the provision of easy access to this information by the citizens, AI will help to enhance greater transparency and accountability to the government (Peña-Rios & Martínez-Balleste, 2020).

The aspect of digital accountability is a mediating factor that serves to hold the AI systems accountable in order to utilize it in a morally accepted way. Although AI can increase transparency, it will work only when there is digital accountability including blockchain, open data and oversight space. These systems allow that governmental decisions made based on AI are traceable and can be accompanied by scrutiny to avoid biases and unethical conduct in the governmental decision-making (Sullivan & Drennan, 2021; Ul Haq, 2025). As a particular example, AI which is deployed to distribute the public funds could be combined with blockchain so that a record of every transaction could be made and visible to all monitored to ascertain that the funds are actually distributed in the desired manner which is transparent. The current studies indicate that AI used in tandem with digital accountability tools has the potential of improving government transparency to a large extent. The potential of AI to analyze extensive amounts of data and create viable information is an optimal mechanism to enhance transparency of government and its accountability (Narayan, 2021). But in the absence of strong digital accountability schemes there is risk of the opposite of transparency occurring through perversion of the AI systems. The study should be revisited to investigate mechanisms which make digital accountability a mediator in the association between AI and transparency in government.

Research Hypotheses

H1: AI positively impacts government transparency.

H2: Digital accountability mediates the relationship between AI and government transparency.

Research Methodology

Quantitative Research Design

This study adopts a quantitative research design to investigate the role of Artificial Intelligence (AI) in enhancing government transparency, focusing on understanding how digital accountability mediates this relationship. A quantitative approach is appropriate for hypothesis testing, enabling the collection of numerical data that can be analysed using statistical techniques to identify patterns and relationships between variables (Creswell, 2014). The aim is to examine how AI adoption influences government transparency and how digital accountability mediates this process.

The study specifically tests the following hypotheses:

- H1: AI positively impacts government transparency.
- H2: Digital accountability mediates the relationship between AI adoption and government transparency.

Population and Sample

Target Population. The target population for this study consists of government institutions and public sector departments that have adopted or are in the process of integrating AI technologies. This includes various

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public sector entities such as ministries, agencies, and local authorities that utilise AI tools to improve service delivery, enhance decision-making, and promote transparency.

Sampling Method. A stratified sampling method is used to ensure the sample accurately reflects the diversity of government institutions in terms of AI adoption, size, and sector. The population is divided into strata based on factors such as:

- Type of government institution (e.g., central, regional, or local)
- AI adoption level (e.g., early adopters, moderate users, advanced users)
- Sector (e.g., healthcare, education, finance)

Once strata are defined, random sampling is applied within each subgroup to ensure that the sample is representative of various experiences with AI and transparency initiatives.

Sample Size Determination. The study uses a sample size of 300, which was determined using a power analysis to ensure sufficient statistical power (0.80) for detecting significant effects. A sample size of 300 is adequate for reliable analysis in quantitative studies and allows for robust conclusions. Previous research in similar domains, where AI and transparency in the public sector were explored, suggests that a sample size of at least 300 responses is appropriate for generalising results (Hair et al., 2014).

Data Collection

Survey Instruments

Data collected through a structured questionnaire designed to measure AI adoption, digital accountability, and government transparency. The questionnaire includes Likert-scale items, which allow respondents to express their level of agreement or disagreement with statements related to each variable.

The questionnaire is divided into three sections:

1. This section assesses the extent to which AI technologies have been implemented in government institutions, such as for decision-making, data management, and automation of public services. Sample questions might include: "Our government institution uses AI tools for decision-making."
2. This section measures the presence and effectiveness of digital accountability mechanisms, such as open data platforms, blockchain technologies, and other systems that ensure government actions are transparent and traceable. Sample questions could be: "Our institution uses open data platforms to share financial information with the public."
3. The final section focuses on perceptions of transparency, assessing factors like openness in government decision-making, access to public data, and the availability of information for public scrutiny. Sample questions might include: "The government provides clear and accessible information on decision-making processes."

Likert-Scale Items

The questionnaire uses a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Example items include:

- "AI adoption has improved the efficiency of decision-making in our institution."
- "Digital accountability tools (e.g., blockchain, open data) have enhanced transparency in our institution."
- "The government provides sufficient data for citizens to understand decision-making processes."

These items were validated through expert review to ensure relevance and clarity before they were included in the final survey.

Data Collection Procedure

The survey was distributed online to a randomly selected sample of government employees and officials involved in AI adoption and transparency efforts. The data collection period lasts 4-6 weeks to allow participants ample time to complete the survey and ensure a high response rate. The survey was distributed via email, with a link to an online survey platform (questionnaire). The email contains information about the study, the confidentiality of responses, and a request for voluntary participation. Periodic reminders were sent to increase response rates.

Variables and Measurement

The study focuses on three key variables: AI adoption, digital accountability, and government

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transparency.

1. **Independent Variable: AI Adoption in Government.** AI adoption was measured by evaluating the extent to which AI technologies are integrated into government operations, particularly in areas like decision-making, data management, and service automation. Respondents rate the adoption of AI in their institution (e.g., "Our institution has adopted AI tools for automating routine government tasks").
2. **Mediator Variable: Digital Accountability.** Digital accountability was measured by evaluating the presence of digital tools and systems that support transparency, such as open data platforms, blockchain, and real-time monitoring tools. Respondents rate how these tools contribute to transparency (e.g., "Our institution uses blockchain technology to track financial transactions").
3. **Dependent Variable: Government Transparency.** Government transparency was measured by assessing the openness of government processes, the availability of public data, and the accessibility of information. Items include questions on the public's ability to track government spending and access decision-making data (e.g., "The government provides accessible information on public spending and policy decisions").

Data Analysis Techniques

The data collected through the questionnaire were analysed using SPSS (Statistical Package for the Social Sciences), a widely used tool for statistical analysis in the social sciences.

1. **Descriptive Statistics.** Descriptive statistics were used to summarise the demographic characteristics of the sample (e.g., type of institution, AI adoption level) and the key variables (AI adoption, digital accountability, and government transparency). This provides an overall picture of the data and highlights any trends or patterns.
2. **Inferential Statistics.** Multiple regression analysis was conducted to test the relationships between AI adoption (independent variable) and government transparency (dependent variable), and to assess the mediating role of digital accountability. Regression analysis helps quantify the strength of the relationships and determine whether AI adoption leads to greater transparency, while considering the mediating effect of digital accountability.
3. **Structural Equation Modelling (SEM).** Structural Equation Modelling (SEM) was used to test the mediation hypothesis. SEM is a comprehensive statistical technique that allows for the evaluation of complex relationships among multiple variables. It was employed to assess whether digital accountability mediates the relationship between AI adoption and government transparency. SEM provide a more nuanced understanding of the direct and indirect effects of AI adoption on transparency, through the mediating role of digital accountability (Hair et al., 2014).

Data analysis with Results

Descriptive Statistics

To begin the analysis, descriptive statistics were calculated to summarise the demographic data and the key variables of the study. These statistics provide an overall understanding of the sample and key attributes such as AI adoption, digital accountability, and government transparency. The sample size for this study was 300, and the responses were analysed for frequency, mean, and standard deviation to better understand the distribution of key variables. The sample included government institutions across different levels and sectors, with the breakdown shown in the table below.

Table 1

Demographics Analysis

Demographic Variable	Category	Frequency (%)
Type of Institution	Central Government	120 (40%)
	Regional Government	90 (30%)
	Local Government	90 (30%)
Sector	Healthcare	100 (33%)

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Demographic Variable	Category	Frequency (%)
	Education	80 (27%)
	Public Administration	120 (40%)
AI Adoption Level	Early Adopters	100 (33%)
	Moderate Users	120 (40%)
	Advanced Users	80 (27%)

The mean score for AI adoption was 3.8, indicating that government institutions, on average, have moderately adopted AI technologies. The standard deviation of 0.9 suggests that there is some variation in AI adoption across the different institutions in the sample. The mean score for digital accountability was 4.1, reflecting a relatively high level of digital accountability practices such as open data platforms and blockchain technology. A standard deviation of 0.8 suggests that digital accountability measures are consistently applied but with some variation in terms of intensity and scope across institutions. The average score for government transparency was 3.9, with a standard deviation of 1.0. This indicates that government transparency is generally perceived to be at a relatively high level, but with noticeable differences across respondents in terms of how transparent they feel their institutions are.

The following table summarises the descriptive statistics for the key variables:

Table 2

Descriptive Analysis

Variable	Mean	Standard Deviation	Min	Max
AI Adoption	3.8	0.9	2	5
Digital Accountability	4.1	0.8	3	5
Government Transparency	3.9	1.0	2	5

Hypothesis Testing

H1: AI positively impacts government transparency

To test H1, a regression analysis was conducted to determine whether AI adoption has a direct impact on government transparency. The regression results are shown in the table below:

Table 3

Regression Analysis

Variable	Unstandardized Coefficients (B)	Standardised Coefficients (β)	t	p-value
Constant	1.12		4.56	<0.001
AI Adoption	0.56	0.43	6.45	<0.001

The regression results reveal a positive and statistically significant relationship between AI adoption and government transparency. The unstandardized coefficient (B) for AI adoption is 0.56, indicating that for each unit increase in AI adoption, government transparency increases by 0.56 units, holding other factors constant. The standardised coefficient (β) is 0.43, which indicates a moderate effect size of AI adoption on transparency. The t-value of 6.45 is significantly higher than the critical value (usually 1.96 for a 95% confidence level), and the p-value is < 0.001, which confirms that the effect is statistically significant. Thus, H1 is supported, meaning that as government institutions adopt AI technologies, they tend to exhibit higher levels of transparency.

H2: Digital accountability mediates the relationship between AI adoption and government transparency

To test H2, Structural Equation Modelling (SEM) was performed to evaluate whether digital

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accountability serves as a mediator in the relationship between AI adoption and government transparency. The path coefficients for the SEM analysis are presented in the table below:

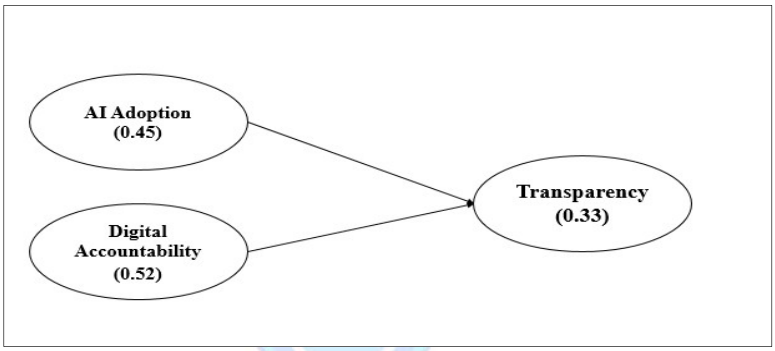
Table 4

SEM Path Analysis

Path	Estimate	Standard Error	Critical Ratio	p-value
AI Adoption → Digital Accountability	0.45	0.08	5.63	<0.001
Digital Accountability → Transparency	0.52	0.07	7.43	<0.001
AI Adoption → Transparency	0.33	0.09	3.67	<0.001

Figure 1

SEM Diagram



- Path 1 (AI Adoption → Digital Accountability): The coefficient of 0.45 indicates a significant positive relationship between AI adoption and digital accountability. As AI adoption increases, digital accountability mechanisms (like open data and blockchain) also increase.
- Path 2 (Digital Accountability → Transparency): The coefficient of 0.52 shows that digital accountability significantly impacts government transparency. The stronger the digital accountability mechanisms, the greater the perceived transparency.
- Path 3 (AI Adoption → Transparency): The coefficient of 0.33 suggests that AI adoption directly affects government transparency, albeit to a lesser degree than through digital accountability.

The indirect effect (mediation effect) is calculated as: Indirect Effect = 0.45 * 0.52 = 0.234 ($p < 0.001$). This confirms that digital accountability partially mediates the relationship between AI adoption and government transparency. The indirect effect of 0.234 suggests that digital accountability plays an important role in explaining how AI adoption leads to greater transparency.

Discussion of Findings

The findings of this research give valuable information on what links between AI adoption, digital accountability, and government transparency in the public sector. The results indicate that the use of AI in government considerably increases government transparency, and such a connection is additionally intensified with digital forms of accountability. The findings with regard to the existing literature are discussed here and their implications are discussed in theory and at the level of practice and research in the future.

The result proved the hypothesis that there is a positive relationship between the adoption of AI and transparency in government. Using regression analysis, it was clear that there is an increase in the perception of transparency in government entities as they more closely embrace the AI technologies in their decision-making, data management, and delivery of the same as their service to the people. This finding is also in line with past studies that have cited the capability of AI in streamlining the operations of the government and making management of the sector more efficient (Brynjolfsson & McAfee, 2014). Predictive analytics, machine learning, automation are AI tools that can make government processes more effective and accessible to the population and, therefore, more transparent (Wirtz et al., 2010).

Employment of AI by government can increase transparency in the following ways. To illustrate, the

use of AI to inform decision making could lead to evidence-based decision support systems with fewer implications of bias and politics in decision making because it is more objective and clear about its recommendations (Brynjolfsson & McAfee, 2014). Also, administrative work can be automated using AI tools to allow using resources on more strategic functions involving government, as well as the processes of the government to become more visible and accessible to the population (Sullivan & Drennan, 2021). The fact that adoption of AI has a direct influence on transparency in the context of the current study conforms to the idea that technology can be used as means of enhancing government accountability (Janssen, Charalabidis, & Zuiderwijk, 2012). AI would help the institution bridge the gap in the capabilities of the public to track and monitor government activities, which would result in greater transparency of the decision-making process.

Another notable and perhaps innovative contribution of this research is certainly linking digital accountability as one of the main components in the context of the association between AI adoption and government transparency. The findings of the SEM testified to the fact that digital accountability is a priority in terms of guaranteeing that AI implementation is a factor contributing to increased transparency. Digital accountability, including open data tools, blockchain, and real-time monitoring mechanisms, make decisions AI creates and actions taken by the government traceable, auditable, and also accessible to citizens. The findings are enforced by the study of Piotrowski (2007) which made an argument that transparency is meaningless unless it is followed by accountability provisions. Digital accountability tools make this more straightforward because they offer a record of government activities that cannot be changed, which citizens and other stakeholders may check and question. As an example, the blockchain technology can be used to establish accountability with respect to the government spending and decision-making processes process through transparent and unchangeable records of transactions (Tapscott & Tapscott, 2016). In the same way, platforms with open data can also ensure that the citizens get access to government information, including data analysis, which advances transparency and accountability (Janssen et al., 2012). The conditional mediation effect of the concept of digital accountability in the present research journal emphasizes that transparency cannot be well promoted with AI, in itself; what is relevant is the combination of AI with effective digital accountability infrastructure that is critical in taking positive steps toward transparency. This observation indicates that governments that aim to make their work more transparent with the help of AI need to focus on the evolution of the digital accountability concepts as well. The governments would have to make sure that the implementation of AI should be auditable, transparent, and should pursue the interests of the people.

Implications for Theory and Practice

Theoretically, the study fills in the blanks about the connection between AI adoption, digital accountability, and transparency in the government by examining the mediating aspect of digital accountability. The findings indicate that digital accountability should not be seen as a supplementary measure because it is a mediator that contributes to the successful use of AI to encourage transparency. This is an extension of the Open Government Theory that focuses on the necessity to provide access to the information of government activity and decision-making by the population (Piotrowski, 2007) and the necessity to incorporate accountability in the digitalisation of the state services provision.

Practically, the results indicate that governments should not merely concern themselves with the adoption of AI technologies but also the use digital accountability frameworks that will allow transparent use of AI. The lack of such precautionary measures to guard against privacy invasion can become a limit to AI implementation by governments since citizens might lose trust in the implementation due to doubts in its fairness and accuracy. By incorporating accountability measures, including blockchain or open data services, the government can help citizens to follow and confirm the government actions, increasing the level of trust towards the so-called technology and its results and an example can be associated with Estonia where e-Governance model demonstrates the collaboration of AI and digital accountability mechanisms combined and resulting in greater transparency in government. Using the blockchain and open data platform, Estonia has been at the forefront of Open Governance, where citizens can browse and confirm the business of governance as well as elections and governmental financial accounts (Lember, Kattel, & Kalvet, 2015). The present study supports the need to combine technology use with accountability systems, so AI can maximise its potential to

enhance transparency.

Limitations and Future Research

While this study provides valuable insights into the role of AI and digital accountability in enhancing government transparency, it is not without limitations. First, the study focused on government institutions that have already adopted AI technologies. This may limit the generalizability of the findings to other public institutions that are at earlier stages of AI adoption or have not yet implemented AI systems. Future research could explore how AI adoption and digital accountability are perceived in institutions with varying levels of technological maturity.

Second, while the study used a quantitative approach to assess the relationships between variables, qualitative methods could offer additional insights into how AI and digital accountability mechanisms are implemented in practice. Interviews or case studies with government officials could provide a deeper understanding of the challenges and opportunities in integrating AI with transparency frameworks.

Finally, future studies could examine the long-term impact of AI adoption and digital accountability on government transparency. As AI technologies evolve, it is important to assess whether the relationship between AI and transparency holds over time, particularly in the face of rapid technological advancements and changing political environments.

Conclusion

This paper examined how Artificial intelligence (AI) can improve the transparency of governments through the role played by digital accountability as a mediator. The analysis shows that AI implementation increases the level of transparency dramatically because governments implementing AI tools like automation, data analytics, and decision support system report higher rates of transparency in the decision-making process and delivery of services. Nevertheless, the results also indicate that AI is not capable of ensuring transparency on its own. Digital accountability tools like open data platforms and blockchain are necessary to provide AI-based decisions to be traceable, auditable and to be accessible which makes technological processes transparent and reliable.

In the research, it is emphasized that the integration of AI and powerful digital accountability systems can enhance trust among people and better governance. Individuals in charge of policymaking and those that represent the populace in the government should focus more on the implementation of AI as well as digital accountability to establish transparent, efficient, and ethical government practices. Such a mixed solution does not only improve the performance and transparency of the government services but also increases the level of faith in the democratic state. With the increasing relevance of AI in the field of public administration, future studies are recommended to explore further how changing tools of accountability can best bring out the best potentials of AI to ensure transparency.

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