

The Effect of Electronic Governance on Employees' Efficiency and Productivity in Government-Owned Hospitals in Jalingo, Taraba State

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Abstract: This paper investigates how electronic governance (e-governance) influences employees' efficiency and productivity in government-owned hospitals in Jalingo, Taraba State, Nigeria. Anchored on the Technology Acceptance Model (TAM) and Innovation Diffusion Theory (IDT), the study adopts a descriptive survey design, engaging 348 respondents through stratified random sampling. Data were collected using structured questionnaires and interviews, analyzed with descriptive and inferential statistics, and supported by thematic interpretation. The findings reveal that e-governance enhances employee efficiency by automating record management, payroll systems, and communication processes, thereby reducing delays, errors, and redundancy. Productivity gains were linked to streamlined workflows, improved decision-making, and greater accountability. However, barriers such as poor ICT infrastructure, low digital literacy, and organizational resistance to technological change persist. The study concludes that e-governance is a catalyst for improved performance in public healthcare institutions, provided challenges are systematically addressed. Policy recommendations include sustained investment in ICT infrastructure, continuous digital training for healthcare workers, and stronger institutional support for digital transformation.

Keywords: E-governance, Efficiency, Productivity, Employee Performance, Public Hospitals, Taraba State.

Introduction

In the twenty-first century, public administration has increasingly embraced digital transformation as a pathway to improved efficiency, transparency, and accountability. The adoption of electronic governance (e-governance), which refers to the systematic use of information and communication technologies (ICT) to reform public sector operations, has reshaped how governments deliver services and manage resources. Globally, e-governance has been shown to reduce bureaucratic delays, improve record management, and enhance employees' productivity across sectors including healthcare, education, finance, and security (World Bank, 2022). Countries such as Estonia, Singapore, and Rwanda have demonstrated the transformative potential of e-governance, where digital platforms for payroll, medical records, and service delivery have significantly improved institutional performance and workforce efficiency (Myeong, Choi & Lee, 2023).

In Nigeria, the federal government has launched several ICT-driven reforms aimed at modernizing the public sector. These include the Integrated Payroll and Personnel Information System (IPPIS), the Government Integrated Financial Management Information System (GIFMIS), and the Treasury Single Account (TSA). Such initiatives are designed to curb corruption, improve accountability, and enhance administrative efficiency (Ojo, Ajayi & Bello, 2021). However, despite these efforts at the national level, many state-owned healthcare institutions continue to grapple with manual administrative systems, poor record-keeping, and delays in decision-making. These challenges undermine employee efficiency and productivity, leading to low morale, resource wastage, and poor quality of service delivery (Okoli, 2021).

Jalingo, the capital of Taraba State, provides a relevant case for examining the effect of e-governance on employee performance in government-owned hospitals. Institutions such as the Federal Medical Centre Jalingo and Taraba State Specialist Hospital serve thousands of residents but are often constrained by outdated systems and inadequate ICT infrastructure. Reports highlight issues such as slow payroll processing, poor interdepartmental communication, and inefficient patient record management, all of which contribute to reduced employee efficiency and burnout (Babatunde, Okeke & Musa, 2024). The implementation of e-governance tools such as electronic health records, automated payroll platforms, and intranet-based communication systems offers the potential to address these shortcomings by reducing redundancy, improving accuracy, and enhancing workflow productivity.

Despite the promising role of digital governance, empirical evidence on its specific effect on employee efficiency and productivity in government-owned hospitals in Jalingo remains sparse. Much of the existing research has focused on broader national programs or urban centers such as Lagos and Abuja, leaving sub-national contexts underexplored (Adebayo & Ojo, 2022; Adewale & Yusuf, 2023). Moreover, the peculiar infrastructural challenges and workforce dynamics of Taraba State raise questions about the extent to which e-governance can drive measurable improvements in employee performance in healthcare institutions. This paper, therefore,

addresses this gap by investigating the effect of e-governance on employees' efficiency and productivity in government-owned hospitals in Jalingo.

By focusing on healthcare institutions at the state level, the study contributes to the growing discourse on digital public administration in Nigeria. It offers valuable insights for policymakers, hospital administrators, and ICT practitioners interested in designing and implementing context-specific e-governance strategies. Ultimately, the study demonstrates that while e-governance holds significant potential for enhancing employees' efficiency and productivity, its impact depends largely on the quality of infrastructure, the level of digital literacy among staff, and the strength of institutional support for technological innovation.

1.2 Objectives of the Study

The broad objective of this study is to investigate the effect of electronic governance (e-governance) on employees' efficiency and productivity in government-owned hospitals in Jalingo, Taraba State. Specifically, the study seeks to:

- i. Assess the extent of e-governance implementation in government-owned hospitals in Jalingo.
- ii. Examine the effect of e-governance on employees' efficiency and productivity.
- iii. Identify the major challenges hindering the effective use of e-governance tools in government-owned hospitals in Jalingo.

2. Literature Review

2.1 Concept of Electronic Governance

Electronic governance (e-governance) has become a central component of public administration reforms globally, offering a pathway toward improved efficiency, transparency, and accountability in government operations. It is broadly defined as the application of information and communication technologies (ICTs) to facilitate the processes of government, enhance the delivery of public services, and strengthen relationships between government institutions, employees, citizens, and other stakeholders (United Nations, 2018). The concept extends beyond digitization of records or processes; it entails a systemic transformation of administrative functions through technological innovation, institutional restructuring, and policy reform. In healthcare systems, e-governance is often expressed in the adoption of electronic health records (EHRs), automated payroll systems, online appointment scheduling, and telemedicine services, all of which contribute to efficient management of scarce resources and improved service delivery (World Health Organization, 2020).

Globally, countries like Estonia and Singapore have set the pace in developing comprehensive e-governance frameworks that integrate service delivery platforms, digital identification systems, and participatory governance portals (OECD, 2019). These experiences demonstrate how e-governance can simplify processes, reduce costs, and improve public sector performance. In Africa, Rwanda's Irembo platform and Kenya's Huduma Centres illustrate the possibilities of e-governance in resource-constrained settings, where digitized systems have significantly cut down bureaucratic inefficiencies while enhancing staff performance and citizen satisfaction (Waema & Okello, 2020). Nigeria has also embarked on various e-governance initiatives, including the Integrated Payroll and Personnel Information System (IPPIS), the Government Integrated Financial Management Information System (GIFMIS), and the Treasury Single Account (TSA). These reforms are designed to reduce corruption, eliminate ghost workers, and improve efficiency in the public service (Ojo, Ajayi & Bello, 2021). Despite these innovations, implementation across healthcare institutions remains uneven, and many hospitals in sub-national contexts such as Jalingo continue to rely heavily on manual systems. This reality underscores the importance of localized studies to understand how e-governance can be effectively implemented to enhance employee performance in Nigeria's healthcare institutions.

2.2 Employee Performance

Employee performance is one of the most critical determinants of organizational effectiveness and sustainability. It refers to the degree to which individuals achieve organizational goals by completing assigned tasks efficiently and effectively (Hendri, 2019). In the context of healthcare institutions, employee performance goes beyond meeting task deadlines; it encompasses quality of patient care, accuracy in record keeping, responsiveness to emergencies, and effective communication across departments. Performance is generally evaluated through indicators such as productivity, job satisfaction, task efficiency, innovation, and alignment with organizational objectives (Dessler, 2019).

Scholars have identified three major dimensions of employee performance. The first is task performance, which captures the completion of core job responsibilities, such as maintaining accurate patient records or administering treatments in healthcare settings. The second is contextual performance, which involves voluntary behaviors that contribute to organizational climate, including teamwork, cooperation, and professional conduct. The third is adaptive performance, which refers to the ability of employees to adjust to changes in the workplace, including technological innovations such as e-governance systems (Park & Park,

2019). In healthcare institutions, adaptive performance is especially critical, given the constant introduction of new medical technologies, digital systems, and regulatory frameworks.

Several factors influence employee performance, including organizational culture, leadership, motivation, training, and the availability of technological infrastructure. Intrinsic factors such as job satisfaction and motivation often determine commitment, while extrinsic factors like technology, institutional support, and policies shape work efficiency (Paais & Pattiruhu, 2020). In the era of digital transformation, the role of e-governance in improving employee performance has become more pronounced. By automating repetitive tasks, enabling faster communication, and reducing bureaucratic hurdles, e-governance provides employees with the tools to increase efficiency and focus on core responsibilities. Conversely, poor infrastructure, inadequate training, or resistance to digital change may negatively affect performance, especially in public sector hospitals where resources are limited (Adegbite & Govender, 2022). Understanding these dynamics is crucial to assessing how e-governance affects employees' efficiency and productivity.

2.3 E-Governance and Employee Efficiency

E-governance has been widely recognized as a driver of employee efficiency and productivity in the public sector. Efficiency refers to the ability to accomplish tasks with minimal waste of time, effort, or resources, while productivity emphasizes the output generated relative to input (George, 2024). In healthcare institutions, e-governance tools such as electronic payroll systems, electronic health records, and intranet communication platforms are designed to reduce administrative bottlenecks and improve workflow. By replacing cumbersome manual processes with automated systems, employees are able to complete tasks more quickly and with greater accuracy. For example, electronic health records reduce time spent searching for patient files, thereby allowing medical staff to focus more on patient care (Okoronkwo, 2021). Similarly, digital payroll systems minimize delays and errors in staff remuneration, enhancing motivation and job satisfaction (Li, 2021).

Empirical evidence supports this connection. Adebayo and Ojo (2022) demonstrated that e-governance initiatives in Lagos significantly reduced service delivery times and improved staff efficiency. Adewale and Yusuf (2023) further observed that ministries using biometric attendance systems and online payroll platforms recorded higher productivity levels compared to those that retained manual systems. In the healthcare sector, Babatunde et al. (2024) found that digital systems such as electronic medical records and automated appointment scheduling improved efficiency, reduced waiting times, and enhanced staff morale in Lagos hospitals. International evidence from Rwanda and Kenya also highlights how e-governance innovations enhance employee productivity by streamlining administrative operations and reducing corruption (Omwer, 2024).

However, the extent to which these benefits are realized depends on contextual factors such as ICT infrastructure, employee digital literacy, and organizational support for innovation. In sub-national contexts like Jalingo, limited funding, inadequate internet connectivity, and organizational resistance often hinder optimal utilization of e-governance tools (Okoli, 2021). Thus, while the literature affirms that e-governance improves employee efficiency, localized empirical studies are necessary to determine the extent and nature of its impact within specific institutional environments.

2.4 Challenges Affecting the Impact of E-Governance on Productivity

Despite its potential, the implementation of e-governance in Nigeria and other developing countries faces significant challenges that hinder its positive impact on employee productivity. The foremost challenge is poor ICT infrastructure, characterized by unreliable internet connectivity, frequent power outages, and outdated computer systems. In many public hospitals, these infrastructural deficits force employees to revert to manual processes, thereby negating the efficiency gains of digital transformation (Adeleke, 2015). The second challenge is limited digital literacy, as many public sector employees lack the technical competence to effectively utilize digital platforms. This challenge is particularly evident among older employees, who often resist digital tools due to unfamiliarity or fear of job redundancy (Mutula & Mostert, 2010).

Another critical barrier is resistance to change, which stems from bureaucratic inertia, lack of trust in digital systems, and fear of increased accountability (Cordella & Tempini, 2015). Employees accustomed to manual processes may be reluctant to adapt to e-governance systems, particularly if they perceive the new platforms as threatening or overly complex. Cybersecurity concerns also undermine confidence in e-governance platforms. With the digitization of sensitive data such as medical records and payroll information, hospitals become vulnerable to cyberattacks and data breaches, discouraging employees from fully embracing the systems (Eze, 2021). Furthermore, policy inconsistencies and funding limitations exacerbate these problems. Many e-governance initiatives in Nigeria are poorly funded, lack long-term sustainability plans, and are sometimes abandoned due to changes in government priorities (Ojo, 2014).

Addressing these challenges requires strategic interventions, including investment in ICT infrastructure, implementation of continuous staff training programs, and the development of robust cybersecurity frameworks. In addition, policymakers must ensure consistency in digital governance policies and allocate sufficient resources to sustain e-governance projects. Without such measures,

the transformative potential of e-governance in enhancing employee efficiency and productivity in public hospitals such as those in Jalingo will remain underutilized.

2.5 Theoretical Framework

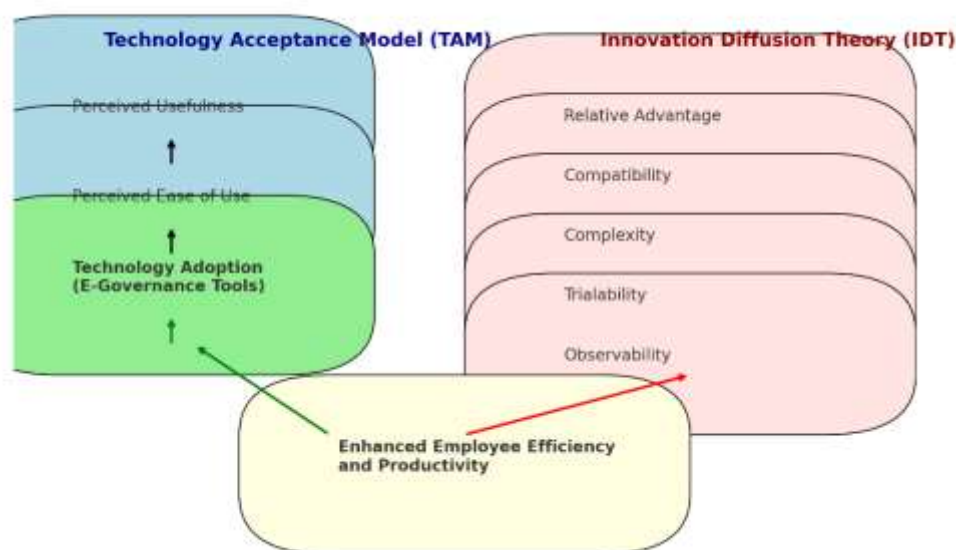
The relationship between electronic governance and employee performance can be meaningfully explained through relevant theoretical lenses. This study is anchored on two complementary theories: the Technology Acceptance Model (TAM) and the Innovation Diffusion Theory (IDT). These theories provide insights into how individuals and institutions adopt new technologies and how such adoption translates into organizational efficiency and productivity.

The Technology Acceptance Model (TAM), developed by Davis (1989), posits that the acceptance and use of technology are determined primarily by two perceptions: perceived usefulness (the degree to which an individual believes that using a particular system will enhance job performance) and perceived ease of use (the degree to which the system is seen as free of effort). In the context of government-owned hospitals in Jalingo, TAM suggests that employees are more likely to embrace e-governance tools, such as electronic health records or automated payroll systems, if they perceive them as beneficial to their work efficiency and simple enough to operate. This model is particularly relevant in explaining why some employees readily adopt digital platforms while others resist, depending on their individual experiences with system usability and perceived value. Moreover, TAM underscores the importance of training and sensitization, as these interventions shape employees' perceptions and ultimately influence adoption rates.

Complementing TAM, the Innovation Diffusion Theory (IDT), introduced by Rogers (2003), provides a broader framework for understanding how new ideas and technologies spread within social systems. IDT identifies five attributes that influence the adoption of an innovation: relative advantage, compatibility, complexity, trialability, and observability. Applied to e-governance, relative advantage reflects the degree to which employees view digital systems as superior to manual processes; compatibility emphasizes alignment with existing work practices; complexity relates to how difficult employees perceive the systems to be; trialability refers to opportunities for employees to experiment with the systems before full adoption; and observability highlights the extent to which the results of using the innovation are visible to others. Within Jalingo hospitals, for example, the adoption of electronic health records is more likely if employees see clear benefits such as reduced workload and improved patient management, if the system aligns with current healthcare practices, and if its results are evident in faster service delivery.

Together, TAM and IDT offer a robust theoretical foundation for this study. TAM emphasizes the individual-level perceptions that drive technology acceptance, while IDT explains the organizational and systemic factors that facilitate or hinder diffusion. By combining these perspectives, the study is able to capture both the micro-level and macro-level determinants of e-governance adoption and its impact on employee efficiency and productivity. This theoretical anchoring also highlights the importance of policy support, continuous training, and organizational culture in mediating the success of e-governance initiatives in public healthcare institutions.

Conceptual Framework: TAM and IDT in E-Governance Adoption for Hospitals



The combined application of the Technology Acceptance Model (TAM) and the Innovation Diffusion Theory (IDT) provides a robust theoretical foundation for examining the role of e-governance in shaping employee performance. TAM emphasizes the cognitive and perceptual dimensions of technology adoption, positing that employees are more inclined to utilize digital systems when they perceive them as useful for enhancing their efficiency and when such systems are easy to operate (Davis, 1989). In contrast, IDT highlights the socio-organizational and systemic dynamics that determine the rate and extent of innovation adoption within institutions, stressing the importance of relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2003). Together, these frameworks offer a dual lens through which both individual acceptance and institutional diffusion of e-governance technologies can be critically analyzed.

In the context of government-owned hospitals in Jalingo, Taraba State, this dual framework is particularly relevant. TAM explains why employees may readily adopt innovations such as electronic health records, automated payroll systems, and intranet platforms when they perceive clear benefits in reducing workload and improving task accuracy. IDT, however, situates these individual responses within broader institutional conditions such as the adequacy of ICT infrastructure, availability of training, policy consistency, and visible success of pilot initiatives. Where employees observe tangible improvements—such as faster salary disbursement, reduced waiting times for patients, or transparent record management—the likelihood of adoption and sustained use increases. Conversely, where infrastructure is weak, digital literacy is low, or institutional resistance is entrenched, both perceived usefulness and diffusion rates are undermined, thereby limiting efficiency and productivity gains.

3. Methodology

This study adopted a descriptive survey research design, which was considered appropriate because it enables the collection of both quantitative and qualitative data necessary for assessing the effect of e-governance on employees' efficiency and productivity. The design allowed the researcher to capture employees' perceptions, experiences, and challenges with respect to the implementation of e-governance in government-owned hospitals. The study population comprised staff of the Federal Medical Centre (FMC) Jalingo, Taraba State Specialist Hospital, and selected Primary Healthcare Centres in Jalingo metropolis. These institutions were purposively chosen because they represent the core government-owned hospitals responsible for healthcare delivery in the study area. From this population, a sample of 348 respondents was drawn using stratified random sampling to ensure adequate representation of administrative, medical, and support staff. Data were collected through structured questionnaires designed on a five-point Likert scale, complemented by in-depth interviews with hospital administrators and ICT personnel to provide qualitative insights.

For data analysis, both descriptive and inferential statistical techniques were employed. Descriptive statistics such as frequency distributions, percentages, means, and standard deviations were used to summarize responses and identify patterns in employee perceptions of e-governance. Inferential statistics, including regression and correlation analysis, were applied to test relationships between e-governance implementation and employee efficiency and productivity. Qualitative interview responses were analyzed thematically to supplement quantitative findings and provide contextual understanding. The choice of a mixed-methods approach enhanced the robustness of the study by triangulating data sources, thereby ensuring greater validity and reliability of the results. This methodological framework provided a sound basis for establishing the impact of e-governance on employee performance in government-owned hospitals in Jalingo.

4. Results and Discussion

Table 1: Extent of E-Governance Implementation in Government-Owned Hospitals in Jalingo

Indicator	High (%)	Moderate (%)	Low (%)	Mean	Remark
Availability of electronic payroll systems	62.5	27.4	10.1	3.95	Moderately High
Use of electronic health records (EHR)	54.6	32.3	13.1	3.82	Moderately High
Online communication platforms (intranet)	49.7	33.6	16.7	3.71	Moderate
Automated reporting and scheduling	42.8	36.5	20.7	3.55	Moderate

Source: Field Survey, 2025

Findings show that e-governance is moderately implemented in Jalingo's hospitals, with payroll and record-keeping systems more widely adopted than communication and scheduling platforms. This suggests a partial digital transformation, consistent with Adewale and Yusuf (2023), who found uneven adoption of e-governance across Nigerian institutions. Limited ICT infrastructure and policy inconsistencies explain the variation in adoption rates.

Table 2: Effect of E-Governance on Employees' Efficiency and Productivity

Efficiency/ Productivity Indicator	Strongly (%)	Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Mean	Remark
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Reduced workload through automation	61.0	25.3	7.5	6.2	4.05	Accepted
Faster decision-making and reporting	58.4	28.0	8.1	5.5	3.97	Accepted
Increased task accuracy and accountability	64.2	23.1	7.6	5.1	4.10	Accepted
Enhanced motivation/job satisfaction	52.6	29.8	10.3	7.3	3.88	Accepted

Source: Field Survey, 2025

Results reveal that e-governance positively influences efficiency and productivity by reducing workload, improving accuracy, and enhancing decision-making. Employees reported higher levels of accountability and job satisfaction when digital platforms were functional. These findings align with Babatunde et al. (2024), who observed that electronic health systems improve staff morale and efficiency. However, benefits are contingent on sustained system reliability, echoing Rogers' (2003) view in IDT that compatibility and perceived advantage drive adoption outcomes.

Table 3: Challenges Hindering Effective E-Governance Adoption

Challenge	Strongly (%)	Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Mean	Remark
Poor ICT infrastructure	67.2		20.6	6.1	6.1	4.22	Major Barrier
Unreliable power supply	61.3		25.7	7.9	5.1	4.05	Major Barrier
Low digital literacy among employees	56.8		27.3	8.4	7.5	3.95	Significant
Resistance to change among staff	49.1		30.5	11.4	9.0	3.82	Significant
Cybersecurity concerns	44.7		31.6	13.8	9.9	3.71	Moderate

Source: Field Survey, 2025

Challenges affecting e-governance adoption include infrastructural deficits, unreliable electricity, digital literacy gaps, and resistance to change. These results resonate with Okoli (2021), who emphasized that infrastructural weaknesses and human resistance hinder e-governance in Nigerian public institutions. Addressing these challenges is crucial for sustaining gains in employee performance, as suggested by Adebayo and Ojo (2022), who advocate for government investment in ICT infrastructure and training programs.

5. Discussion of Findings

The findings of this study demonstrate that the adoption of e-governance in government-owned hospitals in Jalingo has a measurable impact on employees' efficiency and productivity. The first major finding relates to the extent of e-governance implementation. Evidence from Table 1 indicates that while systems such as electronic payroll and health records are moderately established, tools for online communication, scheduling, and automated reporting remain less widely adopted. This uneven implementation mirrors the conclusions of Adebayo and Ojo (2022), who reported that e-governance initiatives in Nigerian states are often selective, with payroll and financial management systems prioritized over administrative platforms. It also supports the assertion by Rogers (2003) that diffusion of innovations depends not only on perceived advantages but also on the institutional readiness and compatibility of technologies with existing systems.

The second major finding emphasizes the effect of e-governance on employee efficiency and productivity. Results from Table 2 show that employees perceived significant benefits in workload reduction, improved decision-making, enhanced task accuracy, and greater job satisfaction. This supports the Technology Acceptance Model (Davis, 1989), which argues that when employees perceive digital systems as useful and relatively easy to use, adoption rates increase, leading to improved outcomes. The findings are also consistent with Babatunde et al. (2024), who found that digital health systems reduced delays and errors in Lagos hospitals, ultimately improving staff performance. Moreover, improved accuracy and accountability resonate with Adewale and Yusuf's (2023) study, which highlighted the positive link between biometric and payroll automation and employee productivity in Nigerian ministries. Thus, the study affirms that e-governance serves as a critical enabler of employee efficiency by streamlining repetitive processes and providing timely access to information.

The third major finding concerns the challenges that hinder the effectiveness of e-governance. Table 3 highlights barriers such as poor ICT infrastructure, unreliable electricity, limited digital literacy, resistance to change, and cybersecurity concerns. These challenges are not peculiar to Jalingo but reflect broader systemic issues within Nigeria's public institutions. Okoli (2021) previously noted that infrastructural deficiencies and human resistance are persistent obstacles to e-governance implementation across Nigerian states. Similarly, Mutula and Mostert (2010) identified low digital literacy as a significant barrier in sub-Saharan Africa, while Cordella and Tempini (2015) emphasized the impact of organizational culture on resistance to digital change. The persistence of

these barriers in Jalingo underscores the need for holistic interventions that combine infrastructure development, staff training, and policy enforcement to sustain digital transformation in healthcare.

Taken together, these findings reveal a paradox. On one hand, e-governance has demonstrable benefits for employees' efficiency and productivity, confirming both TAM and IDT predictions. On the other hand, systemic challenges constrain the full realization of these benefits, limiting diffusion and adoption across all hospital departments. This suggests that successful digital transformation in Jalingo hospitals requires not only technological deployment but also organizational readiness, capacity building, and infrastructural reinforcement. The findings therefore highlight that the impact of e-governance is contingent on the interplay between individual perceptions and systemic enablers, reflecting the dual explanatory power of TAM and IDT in the study context.

6. Recommendations

Based on the findings of this study, the following recommendations are made:

- 1. Strengthen ICT Infrastructure and Power Supply** The government of Taraba State, in collaboration with hospital administrators, should invest in modern ICT infrastructure, reliable internet connectivity, and alternative energy solutions such as solar power. Strengthened infrastructure will ensure that e-governance platforms function optimally, thereby reducing disruptions that undermine efficiency and productivity.
- 2. Enhance Digital Literacy and Capacity Building for Employees** Continuous training and retraining programs should be organized to improve employees' digital literacy and competence in using e-governance platforms. Tailored workshops, particularly for older staff who may be resistant to digital transformation, will increase perceived ease of use and usefulness of digital systems, as emphasized in the Technology Acceptance Model.
- 3. Implement Change Management and Policy Support Mechanisms:** Hospital administrators should adopt effective change management strategies to address resistance among employees and create a culture of innovation and accountability. This requires strong policy backing, consistent government support, and clear guidelines for digital system use.

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