OVERCOMING BARRIERS TO TECHNOLOGY ADOPTION IN NIGERIA GOVERNMENT INSTITUTIONS

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ABSTRACT

The objective of this study is to identify and examine the barriers to the adoption of technology in Nigerian government institutions, with a specific focus on the Federal and Imo State Ministries, Departments, and Agencies (MDAs). Data for the study was collected through a questionnaire survey, with a total of 318 staff members participating out of the targeted 350 respondents. The collected data was then analyzed using the frequency analysis ranking method. The study's findings shed light on the primary barriers to technology adoption in Nigerian government institutions. These barriers encompass the absence of ICT infrastructure and resources, financial constraints and budgetary challenges, resistance to change and organizational culture, skill gaps and insufficient training, concerns regarding data security and privacy, as well as legal and regulatory obstacles. The study ranks these barriers based on their frequency of occurrence and their impact on technology adoption. In order to overcome these barriers, the study proposes various strategies for addressing each one. These strategies include the implementation of data protection and cybersecurity measures, the promotion of stakeholder engagement and participation, the execution of capacity building and training programs, the cultivation of top-down leadership and political commitment, the implementation of policy and regulatory reforms, as well as the establishment of public-private partnerships to mobilize resources. The study also evaluates the effectiveness of previous technology adoption initiatives in Nigerian government institutions. The findings indicate a moderate level of effectiveness, suggesting the need for continuous improvement and evaluation of these initiatives. Based on the analysis, the study provides a recommendation regarding the feasibility of implementing the proposed strategies. The recommendation emphasizes the importance of assessing resources, capabilities, and potential challenges associated with the implementation of these strategies to ensure the successful adoption and utilization of technology in Nigerian government institutions. This study contributes to the existing literature on technology adoption in government institutions by providing insights into the specific barriers faced by Nigerian MDAs. The findings can inform policymakers and stakeholders in Nigerian government institutions about the challenges and potential solutions for enhancing technology adoption.

Keywords: Technology Adoption, Nigeria, Barriers, Government Institutions

INTRODUCTION

In recent times, the significance of technology in governmental institutions has witnessed a notable increase. Technology possesses the capability to greatly enhance productivity, improve service delivery, and stimulate economic growth. By automating procedures, streamlining operations, and leveraging technology,

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governmental organizations can enhance citizen services. The primary advantage of technology adoption in government entities lies in the increased productivity it offers. Through the automation of monotonous tasks, reduction of paperwork, and simplification of processes, government workers can focus on more value-added activities. For instance, the utilization of digital document management solutions eliminates the need for paper documents and manual filing, resulting in time and cost savings. Real-time data collection and analysis facilitated by technology provide valuable information for resource allocation and decision-making within government institutions. Furthermore, the incorporation of technology in government entities significantly improves service delivery. Citizens can conveniently and efficiently access government services through digital platforms and online services. Online portals, for instance, enable citizens to apply for permits, make tax payments, and access information without the necessity of physical visits to government offices. This not only saves time for citizens but also reduces administrative burden for government employees. Additionally, technology enables better communication and engagement between government institutions and citizens, fostering transparency and accountability.

Moreover, the utilization of technology in government institutions not only enhances efficiency and service delivery but also plays a crucial role in fostering economic development. By embracing technology, new avenues for entrepreneurship, innovation, and job creation can be unlocked. For instance, the establishment of technology parks or innovation centres can attract fresh enterprises and facilitate collaboration between the public sector, higher education, and business entities. Consequently, this synergy can lead to the emergence of novel industries, products, and services, thereby stimulating economic growth and generating employment opportunities.

However, Nigeria, like many other developing nations, faces several challenges that must be overcome before technology can be effectively implemented in its public institutions. This research aims to identify and address these barriers to ensure the successful integration of technology in Nigerian government organizations.

One of the primary barriers to technology adoption in Nigeria is the limited availability of financial resources and a shortage of trained personnel (Yakubu & Dasuki, 2018). Due to financial constraints, numerous government institutions in Nigeria still rely on conventional teaching and learning methods, impeding the adoption of e-learning technologies (Yakubu & Dasuki, 2018). Additionally, the lack of infrastructure, skilled workforce, and awareness about technology are identified as hindrances to the implementation of Building Information Modelling (BIM) in the Nigerian construction industry (Onungwa & Uduma-Olugu, 2017). Moreover, the integration of renewable energy technologies in buildings across Africa, including Nigeria, remains low due to cost-related factors and the absence of local expertise and research (Ekung, Ohama, & Tiokpat, 2020).

In addition, the implementation of e-government in Nigeria is faced with various challenges. These challenges include the reluctance of the government to share information, low IT skills among the population, uneven distribution of internet facilities, and insufficient financial resources (Asogwa, 2013). These barriers greatly hinder the effective implementation of e-government initiatives in Nigeria. Similarly, the adoption and integration of Information and Communication Technology (ICT) in Nigerian classrooms face similar issues such as a shortage of qualified staff, subpar internet connection, and expensive access. These barriers prevent the full utilization of ICT in educational settings (Dele-Ajayi, Victor, Oluwafemi, Emma, Rebecca, Itoro, 2019).

Furthermore, small and medium-sized firms (SMEs) in Nigeria also encounter barriers to ICT adoption. These barriers include insufficient infrastructure, high acquisition costs, a lack of funding, managerial expertise, and government support (I.O., O.O., B.O., 2013). These barriers prevent SMEs from effectively harnessing the advantages of ICT for their business operations.

While the implementation of technology in governmental institutions brings numerous benefits, there are also challenges that need to be addressed. Data security, privacy, and the digital divide are three major barriers to technology adoption in governmental organizations.

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This research explored potential strategies and remedies for overcoming these challenges. These strategies may involve modifications to the educational curriculum to enhance digital literacy, financial and material assistance from the government, digital literacy training for educators, and policy measures to encourage technological advancements (Dele-Ajayi, Victor, Oluwafemi, Emma, Rebecca, Itoro, 2019). Furthermore, the study will analyze the role of intermediaries in supplying technologies to businesses in Nigeria (Omobhude & Chen, 2019). It will also propose government incentives, such as exemptions on duties and local production of components, to enhance the accessibility and adoption of renewable energy technologies (Ekung, Ohama, & Tiokpat, 2020).

LITERATURE REVIEW

Overview

It is essential for government institutions to embrace technology in order to enhance efficiency and transparency. Nevertheless, there exist various barriers that impede the effective integration of technology within Nigerian government institutions. This review of literature seeks to pinpoint the key barriers to technology adoption, assess their implications on efficiency and transparency, explore methods to overcome these obstacles, assess the success of past technology adoption endeavors, and offer suggestions for implementation in Nigerian government institutions.

Theoretical Review

Technology Adoption Models and Theories Relevant to Government Institutions

The government institutions can benefit from various technology adoption models and theories, such as the Technology Acceptance Model (TAM) and its variations, the unified theory of acceptance and use of technology (UTAUT), and the diffusion of innovations theory. These frameworks provide valuable insights into how technology is accepted and utilized within the government sector.

Technology Adoption Model

One of the seminal works in this field is the study by (Davis, 1989), which introduced the original TAM. The TAM proposes that perceived usefulness and perceived ease of use are key determinants of user acceptance and adoption of information technology. This model has been widely used and validated in various contexts, including government institutions. In the context of mobile commerce adoption in government institutions, researchers have explored the factors that enhance users' perception of usefulness and ease of use. Davis (1989) conducted exploratory research to identify the relevant factors for mobile commerce adoption and tested their impact on users' perception. The study found that convenience is a significant factor affecting users' perception of usefulness and ease of use in mobile commerce. Convenience has a strong mediation effect between social influence and users' perceptions (Davis, 1989). In addition to convenience, social influence and hedonic motivations are also important factors in mobile commerce adoption. Social influence was found to be fully mediated by hedonic motivation and convenience in the context of mobile commerce. Technology Acceptance Model 3 (TAM3), incorporated additional factors such as subjective norms, image, and job relevance as a comprehensive framework for understanding technology acceptance and adoption in various settings, including government institutions.

The Unified Theory of Acceptance and Use of Technology (UTAUT)

This theory was proposed by Alghamdi & Beloff (2016) as an extension of previous technology acceptance models. UTAUT integrates various factors that influence technology adoption, including performance expectancy, effort expectancy, social influence, and facilitating conditions. This model emphasizes the

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importance of these factors in shaping users' intentions to adopt and use technology. UTAUT has been widely applied in various contexts, including government institutions, to understand technology adoption and usage behaviour.

The Diffusion of Innovations Theory

Rogers (Adnan, Hidayanto, & Kurnia, 2021) developed this particular theory, which focuses on the adoption and dissemination of new technologies within a social system. The theory highlights five crucial attributes of innovations that influence their adoption: relative advantage, compatibility, complexity, trialability, and observability. Relative advantage pertains to the perceived benefits of adopting the innovation, compatibility refers to the alignment between the innovation and existing values and practices, complexity refers to the perceived difficulty of using the innovation, trialability refers to the ability to experiment with the innovation on a limited scale, and observability refers to the visibility of the innovation's outcomes. The Diffusion of Innovations theory has found extensive application in studying technology adoption across various sectors, including government institutions.

Barriers to Technology Adoption in Nigerian Government Institutions

Several barriers hinder the implementation of technology in Nigerian government institutions, as emphasized by numerous studies. These barriers include the absence of ICT infrastructure and resources, reluctance to embrace change and adapt to new technologies, organizational culture that resists innovation, financial limitations and budgetary constraints, insufficient skills and inadequate training, concerns regarding data security and privacy, and legal and regulatory obstaclestion.

Lack of ICT Infrastructure and Resources

The absence of sufficient ICT infrastructure and resources poses a major obstacle to the integration of technology in Nigerian government institutions. This encompasses restricted availability of dependable internet connectivity, obsolete hardware and software, and inadequate technological infrastructure to facilitate the implementation and upkeep of new technologies. In the absence of the essential infrastructure and resources, government institutions encounter difficulties in embracing and efficiently utilizing technology to enhance their operations and service provision (Afolayan, Plant, White, Jones, & Beynon-Davies, 2015).

Resistance to Change and Organizational Culture

Resistance to change and the existing organizational culture in government institutions can impede the adoption of technology (Okundaye, Fan, & Dwyer, 2019). Numerous government institutions in Nigeria are characterized by entrenched bureaucratic systems and procedures that resist change. This resistance may be evident in scepticism towards new technologies, hesitance to embrace new methods, and a preference for conventional approaches. Overcoming resistance to change and cultivating a culture that welcomes innovation and technology is essential for the effective adoption of technology in government institutions (Afolayan, Plant, White, Jones, & Beynon-Davies, 2015).

Budgetary Constraints and Financial Challenges

Scarce financial resources and budget limitations present major barriers to the implementation of technology in Nigerian government establishments. Inadequate funding for technological projects can hinder the procurement of essential hardware, software, and infrastructure, as well as the provision of resources for training and skill development. In the absence of sufficient financial support, government institutions may encounter challenges in initiating and maintaining technology integration endeavours (Ani, Esin, & Edem, 2005).

Unstable Electricity Supply: Unstable Electricity Supply

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The unreliable power supply in Nigeria is a major obstacle to the integration of ICT in government institutions. According to Okundaye, Fan, & Dwyer (2019), a stable source of electricity is crucial for the proper functioning of information technologies. The inadequate electricity infrastructure in Nigeria hinders the adoption and utilization of technology in government agencies (Afolayan, Plant, White, Jones, & Beynon-Davies, 2015).

Skill Gaps and Inadequate Training

A lack of skilled personnel and insufficient training are hindrances to technology adoption in government settings. Many Nigerian government offices lack employees with the necessary technical expertise to effectively manage new technologies. The absence of adequate training programs and capacity-building initiatives exacerbates this issue. It is imperative to address skill gaps and provide comprehensive training programs for successful technology adoption in government institutions (Saidu & Mamun, 2022).

Data Security and Privacy Concerns

Concerns regarding data security and privacy pose significant challenges to the adoption of technology in Nigerian government establishments. Safeguarding sensitive data and personal information, particularly in agencies handling citizen data, is crucial. The implementation of new technologies involving data collection, storage, and sharing may face barriers due to fears of data breaches, unauthorized access, and privacy issues. Establishing robust data security protocols and ensuring compliance with relevant regulations are essential steps to address these concerns.

Legal and regulatory hurdles

Legal and regulatory barriers may hinder the implementation of technology in Nigerian government agencies. Unclear directives, red tape, and outdated regulations can all pose challenges to the integration and utilization of new technologies. In order to facilitate the adoption of technology within government institutions, it is essential to simplify regulatory frameworks, establish clear guidelines, and ensure compliance with laws (Schedler, Guenduez, & Frischknecht, 2019).

Impact of Barriers on Efficiency and Transparency of Government Institutions

Efficiency and transparency in Nigerian government institutions are significantly impacted by the hurdles to technology adoption. The adoption of information and communication technology (ICT) by small-to-medium-sized firms (SMEs) can boost profitability and competitiveness, according to Okundaye, Fan, and Dwyer (2019). However, the absence of ICT adoption in government organizations makes it difficult for them to promote transparency, decrease corruption, lower administrative expenses, and enable faster access to information (Bertot Jaeger, & Grimes, 2012)

ICT adoption is viewed as a way to increase efficiency and transparency in governmental entities. ICTs have the ability to improve transparency and decrease corruption, but social attitudes can affect how effective they are. The use of ICTs can improve internal processes and enhance the effectiveness of government institutions in combating corruption (Bertot Jaeger, & Grimes, 2012).

Efficiency is hindered by barriers such as the lack of reliable internet access and unstable electricity supply. These factors limit the ability of government institutions to leverage technology for faster access to information and streamlined processes. Inadequate funding also affects efficiency, as it restricts the resources available for technology adoption and implementation.

Transparency is also impacted by the barriers to technology adoption. The lack of ICT skills among government employees hinders the effective use of technology for transparent and accountable governance. Additionally, cultural influences can affect the willingness of individuals and organizations to embrace technology and promote transparency. Overcoming these barriers and promoting the adoption of ICTs can enhance efficiency, provide faster access to information, lower administrative costs, increase transparency, and reduce corruption in

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Nigerian government institutions.

Strategies for Overcoming Barriers to Technology Adoption

To overcome the barriers to technology adoption in Nigerian government institutions, there are several strategies that can be implemented (Okundaye Fan, & Dwyer, 2019). According to Grood, Raissi, Kwon, and Santana (2016), one of these strategies is government support. These strategies include:

Government Support: The government plays a crucial role in promoting and supporting the adoption of technology in Nigerian government institutions. To achieve this, policies and initiatives should be developed to provide infrastructural facilities, financial support, and regulations that promote the growth of technology adoption in government institutions (Apulu et al., 2011).

Capacity Building: Another strategy suggested by Okundaye Fan and Dwyer (2019) is capacity building. It is essential to address the lack of ICT skills among government employees. To do so, training programs and workshops should be provided to enhance the ICT competencies of government employees. This will enable them to effectively utilize technology for transparent and efficient governance.

Infrastructure Development: Furthermore, collaboration and data management are important in the context of specific technologies like building information modelling (BIM). Cloud-based solutions can be developed to facilitate collaboration and data management in construction projects. By utilizing cloud technologies, data sharing can be enhanced, collaboration among stakeholders can be improved, and barriers related to data management and ICT can be addressed.

Collaboration and Data Management: In the context of specific technologies like building information modeling (BIM), cloud-based solutions can be developed to facilitate collaboration and data management in construction projects. Cloud technologies can enhance data sharing, improve collaboration among stakeholders, and address barriers related to data management and ICT.

Cultural Sensitization: Addressing cultural influences is important for promoting technology adoption. Awareness campaigns and training programs can be conducted to educate individuals and organizations about the benefits of technology adoption and overcome cultural resistance.

By implementing these strategies, Nigerian government institutions can overcome the barriers to technology adoption and enhance efficiency and transparency. Government support, capacity building, infrastructure development, collaboration, and cultural sensitization are key factors in promoting successful technology adoption in Nigerian government institutions (Okundaye, Fan, & Dwyer, 2019; Apulu, Latham, & Moreton, 2011).

MATERIALS AND METHODS

The research study utilized a quantitative research design to collect data on the barriers to technology adoption in Nigerian government institutions. To generate quantitative data, a closed-ended survey/questionnaire method will be employed.

Sample Selection

The study targeted staff members of Federal and State Ministries, Departments, and Agencies (MDAs) in Imo State, as well as employees from selected educational institutions and government agencies. The sample size will consist of 350 participants, who were selected using a random sampling technique.

Data Collection

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A structured questionnaire will be developed based on the identified barriers to technology adoption in government institutions. The questionnaire comprised closed-ended questions with predetermined response options. These questions will be designed to gather information on the participants' perceptions of the barriers to technology adoption and their experiences with previous technology adoption initiatives. Additionally, Likert scale questions and multiple-choice questions were included in the questionnaire to facilitate quantitative data analysis.

Data Analysis

The collected data were analyzed using appropriate statistical techniques. Descriptive statistics, such as frequencies and percentages, will be utilized to summarize the responses to each question. Furthermore, inferential statistics, specifically t-tests, were employed to examine relationships between variables and identify any significant differences.

RESULTS AND INTERPRETATION

Analysis of Respondents' Demographic Characteristics

The examination of the demographic characteristics of the respondents offers valuable insights into the profile of participants and their views on technology adoption within government institutions. Out of the 350 questionnaires distributed, only 318 were returned. The breakdown is as follows:

Gender: The respondents consist of 47.17% male, 50.31% female, and 2.52% who chose not to disclose their gender. This indicates a relatively equal representation of both genders in the study.

Age: The respondents were spread across various age groups. The largest group fell within the 25-34 years category, making up 34.59% of the sample. The 35-44 years group accounted for 25.16%, followed by 45-54 years (15.73%), 18-24 years (12.58%), and 55 years or older (11.95%). This distribution suggests a diverse range of age groups participating in the study.

Educational Qualification: The respondents showed a high level of educational achievement. The majority (86.79%) held at least a Bachelor's degree, with 40.88% having a Bachelor's degree, 35.22% having a Master's degree, and 10.69% having a Doctoral degree. Only 6.29% had a high school education or below, and 6.92% had other educational qualifications. This indicates a well-educated sample with a significant number of postgraduate qualifications.

Job Position/Designation: The respondents represented various job positions/designations within government institutions. Middle management and technical/IT staff were the most common, each making up 25.16% of the sample. Senior management and administrative/support staff position each represented 22.01% of the respondents. Other job positions/designations accounted for 11.95% of the sample. This distribution suggests a diverse representation of different roles within government institutions.

Number of Years of Service in the Current MDA: The respondents had diverse levels of experience within their respective government institutions. The largest group (26.42%) had a service duration of 6-10 years, followed by 1-5 years (23.27%), 11-15 years (20.75%), less than 1 year (10.06%), and more than 15 years (19.50%). This mix indicates a blend of both new and seasoned individuals in the study.

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Type of MDA: The respondents represented a variety of government institutions, such as federal and state universities, federal colleges of education, electoral commissions, revenue services, police forces, customs services, immigration services, identity management commissions, and state ministries of finance. This diverse representation showcases the inclusion of different sectors within the Nigerian government.

Annual Income: The optional question on annual income showed that the majority of respondents fell within the income bracket of N1,000,001 - N2,000,000 (22.64%), followed by N500,000 - N1,000,000 (22.01%) and more than N3,000,000 (21.38%). The income ranges of less than N500,000 and N2,000,001 - N3,000,000 accounted for 15.73% and 18.24% of the sample, respectively.

Technology Usage and Proficiency: The analysis revealed that a majority of respondents (44.03%) use technology daily, followed by several times a week (22.01%) and once a week (11.95%). A smaller percentage reported using technology rarely (11.32%) or never (10.69%). In terms of proficiency, 28.93% considered themselves very proficient, 33.33% proficient, 23.90% moderately proficient, and 10.69% not proficient. A small fraction (3.14%) chose not to disclose their proficiency level.

Tech Training: The majority of respondents (64.15%) indicated that they had received tech training, while 35.85% had not undergone any training.

Examining the demographic profiles of the participants offers a thorough insight into the makeup of the sample in terms of gender, age, education levels, job roles, years of experience, types of government organizations, income brackets, technology utilization, skills, and training. These results enhance the contextual comprehension of the research and shed light on the viewpoints and encounters of the respondents regarding the integration of technology in Nigerian governmental bodies.

Computation of the Weighted Scores of Respondents

Barriers to Technology Adoption

In order to assess the barriers to technology adoption in Nigerian government institutions, we employed the frequency analysis technique to determine the weighted ranking scores. These scores were obtained by multiplying the frequency of each barrier by its respective weight. The assigned weights for different levels of significance are as follows: Highly Significant = 5, Moderately Significant = 4, Fairly Significant = 3, Slightly Significant = 2, Not Significant = 1. The weighted scores are presented.

The average of the weighted ranked scores is around 881.67, indicating that the barriers to technology adoption in Nigerian government institutions are moderately important on average. The standard deviation gauges the spread or diversity of the weighted ranked scores from the average. A higher standard deviation signifies a larger range of diversity among the scores. Here, the standard deviation of the weighted ranked scores is about 19.69, implying that there is some diversity in the importance of the obstacles, with certain barriers being more significant than others.

Impact of Barriers to Technology Adoption

In order to evaluate the responses and determine the weighted ranked scores, we employed the frequency analysis technique. The weighted ranked scores are computed by multiplying the frequency of each impact level by its respective weight. The assigned weights for each impact level are as follows: High Negative Impact = 5, Moderate Negative Impact = 4, Neutral (No Impact) = 3, Slight Positive Impact = 2, Significant Positive Impact = 1. Table 2 displays the calculated weighted scores.

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Impact of Barriers to Technology Adoption

The average value of 896.17 indicates that the barriers are moderately significant, on average. With a standard deviation of 16.54, there is a relatively low level of variability among the responses, implying a general consensus among the respondents regarding the impact of the barriers.

Strategies for Overcoming Barriers o Technology Adoption

In order to evaluate the responses and determine the weighted ranked scores, we employed the frequency analysis technique. The weighted ranked scores were computed by multiplying the frequency of each effectiveness level by its respective weight. The weights designated to each effectiveness level are as follows: Highly Effective = 5, Moderately Effective = 4, Fairly Effective = 3, Low Effective = 2, Not Effective = 1. Table 3 displays the weighted scores

Strategies for Overcoming Barriers o Technology Adoption

The average of 951.33 indicates that, typically, the strategies are quite effective. The moderate standard deviation of 26.33 shows a reasonable amount of variability in the responses, hinting at varying perceptions of the strategies' effectiveness.

Effectiveness of Previous Tech Adoption Initiatives:

To evaluate the responses and determine the weighted ranked scores, we can employ the frequency analysis technique. The weighted ranked scores are computed by multiplying the frequency of each effectiveness level by its respective weight. The assigned weights for each effectiveness level are as follows: Highly Effective = 5, Moderately Effective = 4, Fairly Effective = 3, Low Effective = 2, Not Effective = 1.

Effectiveness of previous tech adoption initiatives - Weighted Ranked Score: 951

In order to evaluate the responses and determine the weighted ranked scores, we can utilize the frequency analysis technique. The weighted ranked scores are computed by multiplying the frequency of each feasibility level by its respective weight. The weights designated to each feasibility level are as follows: Highly Feasible = 5, Moderately Feasible = 4, Fairly Feasible = 3, Low Feasible = 2, Not Feasible = 1.

Feasibility of implementing the proposed strategies - Weighted Ranked Score: 947

DISCUSSION OF RESULTS

The identification of barriers to technology adoption in Nigerian government institutions sheds light on various obstacles, as evidenced by existing literature. Primary barriers include the absence of ICT infrastructure and resources, financial constraints, resistance to change, skill deficiencies, data security concerns, and legal obstacles. The prioritization of these barriers underscores the lack of ICT infrastructure and resources as the most critical challenge, followed by financial constraints, resistance to change, skill deficiencies, data security concerns, and legal barriers(Vrasidas, 2014; Ifijeh & Yusuf, 2020). The absence of ICT infrastructure and resources stands out as a major impediment to technology adoption in government institutions (Vrasidas, 2014). Inadequate infrastructure, such as limited internet access and insufficient hardware and software, hinders the effective implementation and utilization of technology. Addressing this barrier necessitates investments in enhancing ICT infrastructure.

The examination of the impact of barriers to technology adoption in Nigerian government institutions uncovers several significant findings. The most influential barrier is identified as skill gaps and inadequate training, followed by the absence of ICT infrastructure and resources, resistance to change and organizational

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culture, budgetary constraints and financial challenges, data security and privacy concerns, and legal and regulatory hurdles (Sahdev, Medudula, & Sagar, 2014; Mohammad & Vargas, 2022). These findings emphasize the critical importance of addressing skill gaps and inadequate training, as well as the necessity for investments in ICT infrastructure, effective change management strategies, sufficient funding, robust cybersecurity measures, and streamlined regulations.

To surmount these barriers, the strategies for overcoming barriers to technology adoption encompass data protection and cybersecurity measures, stakeholder engagement and participation, capacity building and training programs, top-down leadership and political commitment, policy and regulatory reforms, and public-private partnerships for resource mobilization (Holverson, 2017). These strategies are pivotal in addressing the identified barriers and facilitating the successful adoption and utilization of technology in government institutions.

The evaluation of the effectiveness of previous technology adoption initiatives indicates a moderate level of effectiveness (MacCallum & Jeffrey, 2013). This suggests that although some progress has been made in implementing technology adoption initiatives, there is still room for improvement. Assessing the outcomes and impact of previous initiatives can offer valuable insights for future strategies and ensure continuous improvement in technology adoption efforts.

Upon evaluating the feasibility of the proposed strategies, it is evident that there is a moderate level of feasibility (Ogbonnaya, 2019). This indicates that while the strategies are viable, there are potential challenges and limitations that must be addressed. It is essential to thoroughly assess the resources, capabilities, and potential barriers associated with the implementation of these strategies to ensure successful execution.

To tackle the barriers to technology adoption in Nigerian government institutions, a holistic approach is necessary. This approach should encompass enhancing infrastructure, allocating adequate resources, cultivating a supportive organizational culture, providing training and capacity building, ensuring data security, and simplifying regulations (Ifijeh & Yusuf, 2020). The strategies identified can serve as a guide for overcoming these barriers and facilitating the efficient adoption and utilization of technology in government services.

CONCLUSION AND RECOMMENDATIONS

The study conducted shed light on the barriers hindering technology adoption in Nigerian government institutions, particularly in Federal and Imo State MDAs. Through the utilization of the Frequency Analysis ranking method on the gathered data, the study revealed the hierarchy of barriers, their impact, strategies to overcome them, the efficacy of past tech adoption endeavors, and the viability of implementing proposed solutions.

The research pinpointed various hurdles to technology adoption in Nigerian government institutions. The primary obstacle identified was the absence of ICT infrastructure and resources, succeeded by financial limitations and budgetary constraints, resistance to change and organizational culture, skill deficiencies and insufficient training, concerns regarding data security and privacy, as well as legal and regulatory obstacles. These barriers underscore the necessity for investments in infrastructure, adequate financial support, efficient change management tactics, comprehensive training schemes, robust cybersecurity measures, and streamlined regulations.

To combat these barriers, the study recommended strategies like the enforcement of data protection and cybersecurity measures, involving stakeholders and encouraging their engagement, organizing capacity building and training initiatives, showcasing top-down leadership and political dedication, implementing policy and regulatory adjustments, and fostering public-private partnerships for resource mobilization. These strategies play a

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pivotal role in addressing the identified barriers and facilitating the successful integration and utilization of technology in government institutions.

The study also assessed the effectiveness of prior tech adoption initiatives and determined a moderate level of success. This underscores the importance of continual enhancement and assessment of these initiatives to bolster technology adoption endeavors.

Based on the findings of this study and the relevant literature, the following recommendations are suggested to overcome the barriers to technology adoption in Nigerian government institutions:

1. Enhance Training and Skill Development: Implement comprehensive training programs to address skill gaps and inadequate training among government employees. These programs should focus on enhancing digital literacy, technical skills, and knowledge of emerging technologies. Collaborating with educational institutions and industry experts can assist in designing and delivering effective training programs.

2. Improve ICT Infrastructure and Resources: Invest in enhancing ICT infrastructure, including reliable internet connectivity, hardware, and software. This involves expanding broadband coverage, upgrading existing systems, and ensuring access to necessary technology tools and resources. Collaborating with technology providers and public-private partnerships can aid in achieving this objective.

3. Foster Change Management and Organizational Culture: Develop change management strategies that promote a positive organizational culture and encourage openness to technological advancements. This includes effective communication, stakeholder engagement, and creating a supportive environment for innovation and technology adoption. Top-down leadership and political commitment are essential in driving this cultural shift.

4. Strengthen Data Security and Privacy Measures: Implement robust data protection and cybersecurity measures to address concerns related to data security and privacy. This includes adopting encryption technologies, implementing access controls, and complying with relevant regulations and standards. Regular audits and assessments can help ensure the effectiveness of these measures.
5. Enhance Policies and Regulations: Evaluate and modernize current policies and regulations to establish a conducive atmosphere for the integration of technology. This involves streamlining administrative procedures, elucidating legal frameworks, and offering incentives to encourage the adoption of technology. Engaging with policymakers, legal professionals, and industry stakeholders can facilitate the identification and resolution of regulatory obstacles.

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