

Facilitators and Barriers Influencing the Integration of ChatGPT-Based Models in Enhancing the Delivery of Public Services within Government Institutions in Nigeria

Onwuka, Ifunanya Amara

Public Administration and Local Government, University of Nigeria Nsukka

Okeke, Ogochukwu Kaycee

Social Sciences Unit, School of General Studies, University of Nigeria Nsukka

***Melugbo, Doris Ujunwa**

***Centre for Entrepreneurship and Development Research, University of Nigeria Nsukka
Correspondence to dorismelugbo@unn.edu.ng**

Jemisenia, Oluwaseyi John

Sociology & Anthropology, University of Nigeria Nsukka

Abstract

Background: Integrating advanced technology and Chat Generative Pre-trained Transformer (ChatGPT-type) artificial intelligence (AI) models in public service delivery has global significance. However, limited research exists on ChatGPT's adoption and implementation in Nigerian government institutions, which is crucial given Nigeria's unique challenges and opportunities in its pursuit of digital transformation and governance improvement.

Objectives: This study investigated the facilitators of ChatGPT-based model integration in Nigerian public institutions, investigated the obstacles impeding their deployment, and proposed policy recommendations for their effective use in the public sector.

Methodology: This study employed a cross-sectional survey design to investigate the adoption of ChatGPT-based models in Nigerian government institutions. The study was conducted in Abuja, targeting IT personnel in public organisations. Purposive sampling was used to select 108 respondents with expertise in the field. Data was collected using a structured questionnaire based on the principles of the Technology Acceptance Model (TAM).

Results: The study found strong support for ChatGPT integration in Nigerian government institutions, with favourable opinions on its potential to enhance public service delivery. However, concerns included security, employee resistance, resource needs, and usability were found. Policy recommendations included training, data privacy regulations, clear guidelines, awareness campaigns, gradual integration, incentives, combining ChatGPT with human support, and oversight mechanisms. Significant positive correlations were observed between facilitators and intentions and between perceived barriers and intentions. Users' intentions were also positively associated with their perceptions of ChatGPT adoption in public institutions, highlighting the link between intention and perceived adoption.

Conclusion: The significance of enhancing user-friendliness, public service delivery, and resolving security issues and employee resistance are highlighted by crucial findings. These

findings provide useful information for developing evidence-based strategies to improve ChatGPT integration and advance the provision of public services in Nigeria's government sector.

Unique Contribution: This research offers valuable insights for developing evidence-based strategies to enhance the use of ChatGPT and improve public service provision in the Nigerian government sector.

Recommendation: Among other recommendations, it is advised that a comprehensive training program should be designed and implemented for public workers in order to ensure a smooth technological transition and effective public service delivery in Nigeria.

Keywords: ChatGPT, technology integration, public service, Nigeria, institutions

Background for the Study and Research Problem

The integration of advanced technology and artificial intelligence (AI) has been crucial in the modern global environment for optimising the delivery of public services within government organisations (Willems et al., 2022). The use of ChatGPT-type models, which are a subset of the larger area of natural language processing (NLP) (Alawida et al., 2023; Haleem et al., 2022; Ray, 2023), is one major technical advancement in this subject matter. These deep learning-based models with extensive text data have shown significant potential in giving information, automating query replies, and improving user engagement (Ray, 2023). The application of ChatGPT-based models has enormous possibilities for revolutionising public service delivery as the world progresses towards a digitally linked and data-driven society (Yang & Wang, 2023).

Recent research in AI and public administration has recognised how ChatGPT-like models have a revolutionary effect on numerous facets of governance. For example, researchers like Gesk and Leyer (2022) have investigated how AI-driven technology might result in more responsive and efficient public services, thereby increasing citizen happiness. Additionally, incorporating AI into the public sector can aid governments in streamlining processes, cutting expenses, and more efficiently allocating resources (Zuiderwijk et al., 2021).

Despite the burgeoning interest in AI-driven solutions for public administration at the global level, there remains a significant gap in research concerning the specific adoption and implementation of ChatGPT-based models within government institutions (Wirtz et al., 2022). For example, Biswas (2023) highlights the value of ChatGPT in distributing public health information and services, but also the necessity to be aware of its facilitators and barriers and to utilise it in conjunction with other resources to ensure accurate and successful results. There are 15 criteria, according to empirical research by authors like Yang and Wang (2023), that affect the adoption of ChatGPT-style models in the public sector. The most important aspects influencing public acceptability are perceived risk, trust, and satisfying demand. Perceived danger and trust are two of them that directly impact public acceptability and are impacted by other variables. The most significant parts in the adoption process, which are causative variables impacting other components, are oversight and accountability.

While numerous studies have examined the broader implications of AI in public service delivery (e.g., Chen et al., 2023; Gesk & Leyer, 2022; Zuiderwijk et al., 2021), there is a notable dearth of research focusing on the Nigerian context. This gap is especially concerning given Nigeria's unique

opportunities in its pursuit of digital transformation and improved governance. In a report presented by Onasani (2023), AI can help with targeted benefit distribution and poverty reduction by studying demographic data and identifying people who need help. The government might be able to use this technology to provide services more successfully and with more inclusiveness. Careful management and conservation are needed for Nigeria's abundant natural resources, according to Onasami (2023).

Nigeria, the most populous nation in Africa, has a complex and diversified array of governmental organisations that are tasked with providing a wide range of public services to its people. The Nigerian government has a range of issues to deal with, from transit to taxation, healthcare to education. The delivery of effective public services has been hampered by problems such as bureaucratic inefficiency, corruption, and a lack of transparency in Nigeria (Abdulwaheed & Lawal, 2022; Ijewereme, 2015; Uguru & Ibeogu, 2014).

Equally, being the first country in the region to institutionalise a National Centre for AI and Robotics (NCAIR) and the establishment of committed government institutions that are fostering a knowledge-based economy and promoting the use of AI, Nigeria can be considered an artificial intelligence (AI) champion on the African continent (Effoduh, 2021). By automating repetitive operations, improving information distribution, and fostering openness through standardised replies in the nation's public sector, the incorporation of ChatGPT-based models might, therefore, provide the ability to address these concerns.

This study seeks to fill a crucial knowledge gap arising from the paucity of empirical research on the use of ChatGPT-based models in Nigerian government organisations. It aims to investigate the enablers and impediments to the integration of these AI-driven models in the context of providing public services. This study aims to offer insightful analysis and suggestions that might guide policy and decision-making procedures within Nigerian government agencies by identifying the elements that support or obstruct the effective deployment of ChatGPT-type models. In the end, this study focuses on the unique possibilities and problems encountered by Nigerian public institutions while aligning with the larger global conversation on harnessing AI for effective public administration.

Study Objectives

1. To identify facilitators of the integration of ChatGPT-based models in Nigerian government institutions.
2. To examine challenges and barriers preventing the deployment of ChatGPT-type models in the Nigerian public sector.
3. To identify policy suggestions for the deployment of ChatGPT-based models in Nigerian public institutions.

Theoretical Direction

This study is hinged on the technology Acceptance Model (TAM) proposed by Davis (1989). TAM is a well-established theory that seeks to explain how users come to accept and use new technologies (Lai, 2017). The study is based on certain premises which are discussed below.

Perceived Ease of Use and Perceived Usefulness: Despite the fact that TAM asserts that users are more likely to accept and employ a technology if they believe it to be simple to use (He et al.,

2018), it also states that users must believe the technology to be helpful for their jobs. Numerous new research (Anderson et al., 2023; Sallam et al., 2023; Shoufan, 2023) that support the aforementioned premises in the context of ChatGPT has been conducted. According to research by Shoufan (2023), the capabilities of ChatGPT pleased students in a computer engineering course, who also found it to be engaging, motivating, and helpful for learning and working. They like how it has a user-friendly layout and a human-like design that provides kind responses and straightforward explanations. Additionally, ChatGPT offers users the chance to learn a new language, have a customised learning experience, write clear communications, and manage their time more efficiently, according to findings from the research Anderson et al. (2023). Despite the positive association between the perceived ease of use as well as its actual usefulness, studies such as those of Tiwari et al. (2023) revealed that the adoption and usage of ChatGPT by the students at a higher institution was not found to be significantly influenced by perceived ease of use.

External Variables: TAM acknowledges that external factors can influence the acceptance of technology (Davis, 1989). These could include social influence (i.e., social influence like subjective norm [social pressure], peer demonstrations and references from trusted sources) and facilitating conditions (i.e., accessibility, government policies, technical support and training and education). This perspective aligns with the study's aim to identify facilitators and barriers of ChatGPT adoption. Few empirical studies on how external factors can constitute barriers or facilitators towards ChatGPT adoption. For example, Filipec and Woithe (2023) used a qualitative, observation-based, exploratory cross-sectional case study adopting a constructivist-interpretive framework to examine the variables impacting the adoption of ChatGPTs among students of Engineering and Business in a higher institution. According to the study's findings, barriers to the efficient use of AI may include a learning curve and unfavourable public perceptions towards technology. Also, based on data elicited from academics who are members of an online research community (Academia.edu and Researchgate), it was revealed that peer influence had a negative effect on the usage of ChatGPT (Bin-Nashwan et al., 2023).

Behavioural Intention: TAM proposes that user attitudes and perceptions directly influence their intention to use a technology, which, in turn, affects their actual use (Davis, 1989). In this case, intentions are described as the extent to which a person has made conscious plan to use or not to use ChatGPT. Empirical findings from the study of Haglund (2023) have indicated that students' acceptance and use of ChatGPT is largely dependent on behavioural intention, which is also determined by other factors. A related study equally revealed that behavioural intention, alongside other predictors, served as a facilitator of the use of ChatGPT across a sample of university students in Spain (Romero-Rodríguez et al., 2023).

So far, the principles inherent in TAM, which have been adopted in studies about ChatGPT, mainly rely on empirical research conducted in contexts and settings related to education. Also, virtually all the existing research was conducted outside Nigeria. Except for the study of Yang and Wang (2023), no other studies are using TAM to explain the possibilities and challenges of ChatGPT in the realm of public service delivery. It is, therefore, crucial to understand that ChatGPT's use in the provision of public services in Nigerian government institutions may vary greatly from its usage outside of the country. Overall, incorporating TAM into the study's theoretical framework can provide a structured and validated approach to understanding the facilitators and barriers to ChatGPT adoption within Nigerian government organisations and guide the development of effective policies and strategies.

Based on the above, the following hypotheses were developed:

1. H₀: There is no significant association between the facilitators of ChatGPT-based models and their intention or plan to integrate the tool within specific Nigerian government institutions.
2. There is no significant association between barriers to ChatGPT use and their intention or plan to integrate the tool within specific Nigerian government institutions.
3. There is no significant association between users' behavioural intention, particularly their conscious plans to utilise ChatGPT-based models for improving public service delivery, and the perceived deployment of these models within Nigerian public institutions.

Methodology

For this study, a cross-sectional survey was used as the research design. Cross-sectional surveys are useful for capturing a population's attitudes and perceptions at a particular moment in time (Connelly, 2016; Wang & Cheng, 2020), making them suitable for determining the facilitators and barriers of the adoption of ChatGPT-based models in Nigerian government institutions for public services provision.

Study Population

The study was carried out in Abuja, Nigeria's capital. Abuja was the ideal environment for this study since it was home to several government organisations and public spaces that served as the study's focus points. The study's target audience was Nigerian IT personnel employed by various public or government organisations. Federal ministries, government organisations, and public institutions engaged in providing a wide variety of public services, such as healthcare, education, taxes, and transportation, were among these establishments. However, they were not the only ones.

Sample Size and Sampling Approach

Cochran's (1977) statistical calculation was used to establish 150 sample size for this study. This sample size was determined using a 95% confidence level, a conservatively projected population percentage of 50%, and an 8% margin of error. We used the following formula to calculating the sample size: $n = \frac{Z^2 * P * (1-p)}{E^2}$

By selecting an adequate sample size, the study's statistical power is guaranteed to be strong enough to support inferences about the population as a whole while data collection and processing remain manageable (Memon et al., 2020).

Purposive sampling, a non-probability sampling approach, was used to select respondents for this study. Purposeful sampling was selected due to its compatibility with the objectives of the research and the traits of the study's target group. This strategy made it possible to carefully choose IT personnel or officials employed by government institutions who have specialised expertise pertinent to the study (Berg, 2009). Additionally, respondents with special knowledge and insights into ChatGPT-based models for public service delivery were included in the study thanks to purposeful sampling, which was deemed suitable. This method gave better control over respondent selection and addressed the potential drawback of a small population size, which is typical in specialised groups (Patton, 2002).

It is vital to recognise that purposive selection may introduce some bias because respondents were not randomly selected. However, the study aims, and the target group's distinctive characteristics were carefully considered before selecting this sample strategy. Researchers have made steps to avoid the possible constraints associated with purposive sampling by using defined selection criteria.

Research Instrument

A structured questionnaire that was designed based on the principles of the TAM (Technology Acceptance Model) was used to gather the data for this study. First, respondents' demographic characteristics like age and gender were elicited using the instrument. Furthermore, questions on the plan or intention to use ChatGPT and the perceived level of use within government institutions were also designed. Afterwards, three scales were included in the questionnaire, each of which was designed to focus on a different component of the study objectives.

Facilitators Scale: Items and statements relating to ChatGPT adoption facilitators in the context of public service delivery were included on this scale. These items were developed using concepts from the TAM literature that were already available, including perceived usefulness and ease of use. On a 5-point Likert scale, respondents were asked to indicate how much they agreed with these statements.

Barriers Scale: The barriers that prevent the integration of ChatGPT-based models in the provision of public services were the focus of the items that made up the Barriers Scale. Like the facilitator's measure, this measure used a 5-point Likert scale to assess respondents' perceptions of barriers to ChatGPT adoption in government institutions.

Policy Suggestions Scale: The items and statements on the Policy Suggestions Scale offer policy suggestions for the implementation of ChatGPT-based models in Nigerian public institutions. This scale utilised a 5-point Likert scale to measure respondents' perspectives on policy recommendations.

Data Collection

Google Forms, a reliable and effective online survey tool, was used for data gathering. Invitations to participate in the survey were sent to respondents, and Google Forms was used to collect and retain their answers securely. The usefulness and effectiveness of this approach of data collecting in eliciting participant answers led to its selection. Several authors have justified the use of online survey tools like Google Forms in research. For instance, Dillman et al. (2014) emphasised the benefits of conducting surveys online, such as its affordability and capacity to reach a larger and more varied population. Online surveys were also cited by Babbie (2016) as a good option for research in the digital era due to the ease of use and quickness in gathering data.

Reliability

The internal consistency of each scale was evaluated using reliability analysis using Cronbach's alpha. The findings showed that all scales had very high levels of reliability since the results surpassed the 0.70 threshold (Taber, 2018). The Facilitators Scale has a high level of internal consistency, as measured by its 0.85 Cronbach's alpha coefficient. The Barriers Scale, with a Cronbach's alpha coefficient of 0.87, also showed good internal consistency. With a Cronbach's

alpha of 0.83, the Policy Suggestions Scale also demonstrated strong internal consistency. Put together, the overall reliability score for all the scales was 0.81, which was considered to be very high. These high alpha coefficients suggest that the scales are reliable measures for the study, indicating consistent and dependable data collection.

Data Analysis

In this study, descriptive statistics and correlation analysis were used as data analysis techniques. The responses were summarised using descriptive statistics, which provided thorough patterns and trends of the data collected. Correlation analysis was used to examine the relationships between the key study variables, shedding light on potential associations among them. Mean, and standard deviation was used to find crucial determinants relating to the use of ChatGPT-based models in public service delivery. Data analysis was performed utilising the statistical software SPSS 25. The findings were evaluated in light of the study's theoretical foundations.

Result

Of the 150 Google form questionnaires sent to respondents, 108, representing 72%, were returned complete. The average age of respondents was 35.18 years (7.18), indicating a moderate level of variability. In terms of gender distribution, the majority of respondents (62.0%) identified as female, while 38.0% identified as male.

Research objective 1: Facilitators of the integration of ChatGPT-based models in Nigerian government institutions

Table 1. Facilitators of ChatGPT integration

Statement	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Mean	Standard Deviation
1. The use of ChatGPT-based models would enhance public service delivery.	8 (7.4%)	13 (12.0%)	41 (38.0%)	20 (18.5%)	26 (24.1%)	3.68	1.35
2. ChatGPT-based models make it easier for users to access information.	6 (5.6%)	13 (12.0%)	24 (22.2%)	23 (21.3%)	42 (38.9%)	4.00	1.16
3. ChatGPT-based models are user-friendly.	11 (10.2%)	13 (12.0%)	20 (18.5%)	29 (26.9%)	35 (32.4%)	4.14	1.20
4. Using ChatGPT-based models is time-efficient.	17 (15.7%)	28 (25.9%)	14 (13.0%)	43 (39.8%)	6 (5.6%)	3.36	1.44
5. ChatGPT-based models can be a valuable addition to government institutions.	13 (12.0%)	9 (8.3%)	9 (8.3%)	46 (42.6%)	31 (28.7%)	4.16	1.24

6. ChatGPT-based models improve user engagement.	8 (7.4%)	15 (13.9%)	25 (23.1%)	32 (29.6%)	28 (25.9%)	4.04	1.18
7. I believe ChatGPT-based models are helpful for public service delivery.	16 (14.8%)	11 (10.2%)	12 (11.1%)	33 (30.6%)	36 (33.3%)	4.16	1.24
8. ChatGPT-based models provide clear explanations.	15 (13.9%)	12 (11.1%)	19 (17.6%)	37 (34.3%)	25 (23.1%)	3.88	1.29

Data from Table 1 reveal that respondents generally have favourable opinions of ChatGPT-based models when it comes to public services provision. A mean score of 3.68, which leans towards the “Agree” category, indicates that they perceived these models have the potential to improve public service delivery. Additionally, respondents expressed the view that these models are user-friendly (mean rating: \bar{x} =4.14), accessible for information (mean rating: \bar{x} =4.00), and beneficial for boosting user engagement (mean rating: \bar{x} =4.04). Respondents agree that ChatGPT-based models are generally beneficial for public service provision (mean of \bar{x} =4.16), and they perceived the models as important additions to governmental institutions. With a mean score of 3.36, which is closer to the "Disagree" category, there is some doubt about how time-efficient these models are. Additionally, the majority of responders (mean of \bar{x} =3.88) think that ChatGPT-based models offer concise justifications. Pertaining concerns about time efficiency, these responses reveal generally positive sentiments towards the potential advantages of ChatGPT-based models in delivering government services.

Research Objective 2: Barriers preventing the deployment of ChatGPT-type models in the Nigerian public sector

Table 2. Barriers influencing the integration of ChatGPT

Statement	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Mean	Standard Deviation
1. There are security concerns associated with ChatGPT-based models.	6 (5.6%)	5 (4.6%)	5 (4.6%)	46 (42.6%)	46 (42.6%)	4.20	1.01
2. Government employees are resistant to using ChatGPT-based models.	8 (7.4%)	4 (3.7%)	6 (5.6%)	36 (33.3%)	54 (50.0%)	4.48	1.16
3. Integrating ChatGPT-based models requires significant resources like subscription fees.	4 (3.7%)	2 (1.9%)	3 (2.8%)	52 (48.1%)	47 (43.5%)	4.34	1.18
4. Lack of technical support hinders the	7 (6.5%)	7 (6.5%)	14 (13.0%)	32 (29.6%)	48 (44.4%)	4.34	1.18

adoption of ChatGPT-based models.								
5. ChatGPT-based models are difficult to learn and use.	4 (3.7%)	4 (3.7%)	6 (5.6%)	16 (14.8%)	78 (72.2%)	4.76	0.94	
6. There is a lack of trust in ChatGPT-based models as it could lead to redundancy and cheating/dishonesty.	4 (3.7%)	4 (3.7%)	9 (8.3%)	21 (19.4%)	70 (64.8%)	4.68	1.05	
7. The fear that ChatGPT-based models may lead to job losses.	6 (5.6%)	5 (4.6%)	4 (3.7%)	30 (27.8%)	63 (58.3%)	4.64	1.03	
8. Resistance from government officials hampers ChatGPT adoption.	4 (3.7%)	6 (5.6%)	14 (13.0%)	40 (37.0%)	44 (40.7%)	4.50	1.19	
9. Overdependence on manual and old methods of discharging duties.	5 (4.6%)	9 (8.3%)	6 (5.6%)	23 (21.3%)	65 (60.2%)	4.72	1.02	

The barriers preventing ChatGPT-based models from being implemented in Nigerian government institutions to provide public services are shown in Table 2. According to the respondents' perceptions of these obstacles, they generally see several difficulties. With a mean score of 4.20, which indicates strong agreement, security issues related to ChatGPT models are seen as a significant hurdle. Another significant hurdle is the unwillingness of government personnel to use ChatGPT-based models; their mean score is a high 4.48, suggesting good agreement. With a mean score of 4.34, respondents also voiced worries about the significant resources needed for integration. Given mean ratings of 4.34 and 4.76, respectively, the absence of technical assistance and the challenge of understanding and using ChatGPT models are both obstacles. With respective mean ratings of 4.68, 4.64, and 4.50, distrust in these models, concern about possible job losses, and opposition from government authorities are further barriers. A barrier with a mean score of 4.72 is an overreliance on manual means of doing duties. These findings suggest barriers to the integration of the ChatGPT model, notably those relating to security, employee resistance, resource needs, and technological usability, among others.

Research Objective 3: Policy suggestions for the deployment of ChatGPT-based models in Nigerian public institutions

Table 3. Policy suggestions towards ChatGPT integration

Statement	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Mean	Standard Deviation
1. Government institutions should invest in training programs for ChatGPT-based model users.	5 (4.6%)	6 (5.6%)	11 (10.2%)	36 (33.3%)	50 (46.3%)	4.78	0.90
2. Policies should be established to ensure data privacy in ChatGPT-based models.	7 (6.5%)	8 (7.4%)	10 (9.3%)	34 (31.5%)	49 (45.4%)	4.80	0.91
3. There should be clear guidelines for the use of ChatGPT-based models in public service delivery.	5 (4.6%)	8 (7.4%)	11 (10.2%)	14 (13.0%)	70 (64.8%)	4.86	0.75
4. Government should promote the use of ChatGPT-based models through awareness campaigns.	7 (6.5%)	13 (12.0%)	8 (7.4%)	41 (38.0%)	39 (36.1%)	4.52	0.99
5. ChatGPT-based models should be integrated gradually to mitigate resistance.	11 (10.2%)	8 (7.4%)	23 (21.3%)	27 (25.0%)	39 (36.1%)	4.46	1.03
6. Incentives should be provided to encourage government employees to embrace ChatGPT-based models.	9 (8.3%)	7 (6.5%)	20 (18.5%)	29 (26.9%)	43 (39.8%)	4.60	1.05
7. ChatGPT-based models should be used alongside human support for public service delivery.	13 (12.0%)	7 (6.5%)	13 (12.0%)	26 (24.1%)	49 (45.4%)	4.38	1.10
8. Government agencies should	7 (6.5%)	8 (7.4%)	5 (4.6%)	26 (24.1%)	62 (57.4%)	4.74	1.05

establish oversight
mechanisms for
ChatGPT-based
model usage.

The policy recommendations for integrating ChatGPT-based models in Nigerian government institutions to provide public services are shown in Table 3. The respondents' opinions about these policy recommendations show a generally optimistic perspective. With a high mean score of 4.78, emphasising great agreement, they strongly support developing training programmes for ChatGPT users. With a mean score of 4.80, respondents support the creation of data privacy regulations, demonstrating a broad consensus. With a mean score of 4.86, indicating a significant degree of agreement, clear standards for ChatGPT use in public service delivery are highly preferred. With a mean score of 4.52, government promotion via awareness initiatives is likewise well-received. A mean score of 4.46 indicates strong support for the progressive inclusion of ChatGPT models to reduce resistance. A mean score of 4.60 indicates that incentives for government employees to use ChatGPT models are supported. Another well-acceptable solution with a mean score of 4.38 combines ChatGPT models with human help. With a mean score of 4.74, government supervision procedures for using the ChatGPT model are also well-supported. According to these results, government personnel support a variety of policy recommendations for ChatGPT integration, focusing on the value of education, data privacy, clear instructions, promotion, gradual deployment, incentives, a mix of human assistance, and supervision measures.

Hypotheses Testing

1. H_0 : There is no significant association between the facilitators of ChatGPT-based models and their intention or plan to integrate the tool within specific Nigerian government institutions.

Table 4. Correlation between facilitators of ChatGPT-based models and intention to use ChatGPT

Variable	TFCHATGPT	Intention to use ChatGPT
TFCHATGPT	1	0.938**
	Sig. (2-tailed)	.000
N	108	108
Intention to use ChatGPT	Pearson Correlation	0.938**
	Sig. (2-tailed)	.000
N	108	108

** Correlation is significant at the 0.01 level (2-tailed).

The Pearson correlation between the intention to use ChatGPT and the total scores of facilitators of ChatGPT integration (TFCHATGPT) is shown in Table 6. With a value of 0.938, the correlation is highly significant at the 2-tailed 0.01 level. This denotes a very significant positive relationship, showing that people are more likely to utilise ChatGPT if they have a more positive perception of facilitators of ChatGPT integration. These findings underlie facilitators' critical role in influencing users' intentions to use ChatGPT and the importance of these facilitators in encouraging technology adoption. The null hypothesis (H_0) that there is no significant relationship

between the facilitators of ChatGPT-based models and their intention to incorporate the tool into particular Nigerian government institutions is rejected.

2. H₀: There is no significant association between barriers to ChatGPT use and their intention or plan to integrate the tool within specific Nigerian government institutions.

Table 5. Correlation between barriers towards ChatGPT-based models and intention to use ChatGPT

		TBCHATGPT	Intention to use ChatGPT
TBCHATGPT	Pearson Correlation	1	.948**
	Sig. (2-tailed)		.000
	N	108	108
Intention to use ChatGPT	Pearson Correlation	.948**	1
	Sig. (2-tailed)	.000	
	N	108	108

** . Correlation is significant at the 0.01 level (2-tailed).

The total scores on barriers to ChatGPT integration (TBCHATGPT) and the intention to use ChatGPT have a highly significant Pearson correlation (coefficient of 0.948). This indicates a very significant positive correlation, showing that those who think there are more obstacles to ChatGPT integration are also more likely to want to utilise ChatGPT. These findings emphasise how perceived barriers affect users' intentions, emphasising the importance of removing these obstacles to encourage technology adoption. As a result, the alternative hypothesis (H_a) is accepted, and the null hypothesis (H₀) is rejected, showing that there is a substantial correlation between perceived obstacles and the desire to utilise ChatGPT among Nigerian government organisations.

3. There is no significant association between users' behavioural intention, particularly their conscious plans to utilise ChatGPT-based models for improving public service delivery, and the perceived deployment of these models within Nigerian public institutions.

Table 6. Correlation between intention to use ChatGPT and Perceived Extent of ChatGPT adoption in public institutions

Variable	Intention to adopt ChatGPT	Perceived extent of ChatGPT adoption in public institutions
Intention to adopt ChatGPT	Pearson Correlation	1
	Sig. (2-tailed)	.000
	N	108
Perceived extent of ChatGPT adoption in public institutions	Pearson Correlation	.393**
	Sig. (2-tailed)	.000
	N	108

** . Correlation is significant at the 0.01 level (2-tailed).

The Pearson correlation between users' intentions to utilise ChatGPT in the performance of their tasks and their perception of the level of ChatGPT adoption in public institutions is shown in Table 6 above. Given a value of 0.393, the correlation is highly significant. This suggests a generally favourable association. Although the correlation coefficient indicates that the association is not very strong, it is statistically significant. Based on the findings, it can be said that there is a large but somewhat favourable relationship between users' perceptions of the amount of deployment of ChatGPT-based models within Nigerian public institutions and their intention to use them for enhancing the delivery of public services. As a result, the alternative hypothesis (H_a) is accepted, and the null hypothesis (H_o) is rejected, demonstrating that there is a strong correlation between users' behavioural intentions and the perceived deployment of ChatGPT-based models in public institutions.

Discussion

The study aimed to provide a holistic assessment of the facilitators, barriers and policy directions regarding adopting ChatGPT technology in the context of Nigerian public institutions and services. The study's target audience was Nigerian IT personnel employed by various public or government organisations, and several findings were revealed from their perspective. First, the study's key enabling factors were the perception that ChatGPT would improve public service delivery, increased information accessibility of ChatGPT, its user-friendliness, increased user engagement, belief in the informational value of ChatGPT-based models, and its provision of clear explanations. These findings are in consonance with previous results (e.g., Anderson et al., 2023; Sallam et al., 2023; Shoufan, 2023) outside the context of public service or institutions. For example, extant studies have only focused on students, not workers, providing services to the general public (Sallam et al., 2023; Shoufan, 2023). However, Yang and Wang (2023) found in their study of factors affecting the early acceptability of the ChatGPT-type model by the general public for government services that the most powerful force at work was supervision and responsibility, which served as the causal factor. Overall, the current research findings deviate from this focus (i.e., students in higher institutions) and shift attention to the adoption of this technology in the public space. Therefore, the implication of the current findings cannot be overemphasised as it could assist in informing policy and intervention direction within the Nigerian public service.

Second, findings suggest that barriers to the integration of the ChatGPT model, notably those relating to security, employee resistance, resource needs, and technological usability, cause substantial concerns among government employees. While this finding is consistent with those from a study by Yang and Wang (2023) which emphasised that risks, trust and meeting demand were critical variables impacting the integration of ChatGPT into public service among an Asian sample, it extends empirical knowledge in an area of study that is currently scanty. We made this position because of the realisation that most of what is known about the acceptability of ChatGPT models is outside the context of public service. Regardless, the implication of understanding the patterns and trends within which barriers and facilitators of ChatGPT models operate across public institutions has been highlighted in a recent report by the Council of the European Union (2023). While it is a reality that ChatGPT models are not in use in most public institutions, At the present rate of development, it will not be long until similar models are adopted by the public sector, where they might have a wide range of benefits and potential efficiencies, such as 24/7 accessibility and simultaneous handling of high quantities of queries (Council of the European Union, 2023). Although scepticism continues to become a part of responses and reactions from governments

concerning the integration of ChatGPT into the framework of public institutions, the appreciation and potential acceptability of Nigerian IT personnel in the current study is an indication that such technological integration could become successful if evidenced-based policies are made and implemented to that effect. While the Federal Government of Nigeria is currently making efforts to develop a practice code for ChatGPT and other related technologies, it would be important to factor in and address critical barriers relating to security, employee resistance, resource needs, and technological usability, particularly if it is to be adopted by the public institutions in the country.

Going forward, there is a great need to design an evidence-based technology policy. According to the current results, Nigerian government personnel supported a variety of policy recommendations for ChatGPT integration, with a focus on using education, data privacy, clear instructions, gradual deployment, incentives, a mix of human assistance, and supervision measures. Such an understanding could be capitalised within the framework of technological acceptance in public institutions. Yang and Wang (2023) had argued that the understanding of technologies could inform public policy and decision-makers. It is, therefore, imperative that more research be conducted in order to build large evidence bases within which effective policy will be designed and implemented.

The study's findings align closely with the principles of the Technology Acceptance Model (TAM) (Davis, 1989), providing a framework for understanding the factors influencing the integration of ChatGPT-based models in Nigerian government institutions. According to TAM, users are more likely to adopt and use technology if they find it simple to use and believe it will be helpful for their work. This theoretical basis of TAM is supported by the favourable correlation between ChatGPT integration facilitators and users' intent to utilise ChatGPT as the result of the first hypothesis suggested. Users are more likely to embrace ChatGPT if they believe it to be user-friendly and time-efficient, showing that usability and perceived utility are important variables affecting their intention (Anderson et al., 2023; Shoufan, 2023).

TAM also acknowledges the role of external factors, such as social influence and enabling environments, on technology acceptance. The results of the study highlight the significance of these outside factors. As evidenced by the significant positive association between user intents and the presence of barriers in ChatGPT integration, perceived barriers may considerably impact behavioural intention (Filipec & Withe, 2023). Furthermore, the detrimental impact of peer pressure on ChatGPT usage, as noted in Bin-Nashwan et al.'s (2023) research, is a prime illustration of how social variables might serve as adoption barriers. Government regulations, technical assistance, training, and education are crucial enabling factors for ChatGPT integration.

According to TAM, user perceptions and attitudes, which are represented in behavioural intention, have a direct influence on how technology is used. The study's final hypothesis, which asserts that users' behavioural intention significantly predicts their propensity to use ChatGPT (Haglund, 2023), is consistent with this theory. This is consistent with the notion that deliberate decisions to utilise ChatGPT-based models are impacted by various elements, including perceived utility, perceived ease of use, and extraneous elements like peer influence and enabling situations. This supports the notion that behavioural intention plays a key role in how quickly people embrace new technologies (Romero-Rodriguez et al., 2023).

The results of this study have important implications for integrating ChatGPT technology in Nigerian government institutions. Identifying facilitators emphasises the necessity of giving

enhanced public service delivery and user-friendly interfaces as a top priority in implementation plans. For adoption to be effective, addressing issues with security, employee resistance, resource allocation, and usability is essential. Education, data protection, and progressive rollout are just a few examples of evidence-based policy suggestions that offer a road map for effective policies that meet the demands of government employees. In conclusion, our findings highlight the significance of evidence-based, well-informed policy design to increase ChatGPT use and better public service delivery in Nigeria's public sector.

Conclusion

The use of ChatGPT technology by Nigerian government institutions is examined in this paper, along with its facilitators, barriers, and policy implications. The significance of enhancing user-friendliness, public service delivery, and resolving security issues and employee resistance are highlighted by key findings. These findings provide useful information for developing evidence-based strategies to improve ChatGPT integration and advance the provision of public services in Nigeria's government sector.

There are several limitations regarding this study. It primarily utilised surveys to provide a quantitative viewpoint. Future studies can benefit from qualitative designs to delve more into the motives and concerns of Nigerian government employees. A wider geographical reach might produce more comprehensive and in-depth results because the study focused on Abuja, the capital of Nigeria, although it offers valuable insight. To have a deeper understanding of ChatGPT's effects on public institutions, more research might examine how the technology has been used in various regions and contexts.

Recommendations

The implementation of thorough training programmes for ChatGPT users, the creation of strong data privacy policies and usage guidelines, the promotion of ChatGPT adoption through awareness campaigns, gradual integration to mitigate resistance, offering incentives for government employees to adopt ChatGPT, and combining ChatGPT with humour are some of the study's key recommendations for the successful integration of ChatGPT-based models in Nigerian government institutions.

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