Determinants of Intention to Adopt the Nigerian Digital Currency, the eNaira: A Conceptual Framework

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Abstract This research extends the Unified Theory of Adoption and Use of Technology (UTAUT) model by incorporating variables such as security, government regulatory, and a new moderating variable, technology awareness. This is achieved through an empirical review of relevant studies and the development of a conceptual framework for adopting Nigeria's digital currency, the eNaira. The proposed framework aims to guide future research on technology adoption in developing countries. Existing studies reveal that digital currencies have higher adoption rates in Western nations compared to non-Western ones. However, the distinct challenges and characteristics of emerging nations limit the direct application of findings from developed countries. Therefore, considering Nigeria's specific context, this study examines the critical factors influencing the intention to adopt the eNaira. These factors are integrated into a framework designed to address issues related to the adoption of eNaira among Nigerians. This research enhances and validates the UTAUT model, contributing to the academic literature. Practically, it offers insights into key factors that can improve eNaira adoption, supporting government organizations and policymakers in increasing the digital currency's adoption in Nigeria and any other developing country.

Keywords: "eNaira", "Developing Countries", "Digital Currency" "UTAUT Model", "Conceptual Framework"

1. Introduction

Digital currency is a virtual medium of exchange intended to be used as a means of payment. It addresses a number of difficulties, including the lack of financial inclusion offered by conventional banks and the corruption that results from transactions using cash (Abdullahi et al., 2024). In areas where traditional banking operations are scarce, digital currencies have played a vital role in advancing financial accessibility (Kumar, 2023). Nations leading in the adoption of digital currencies tend to be technologically advanced, promoting innovation within their financial sectors and staying aligned with the evolving global economy (Omotubora, 2024). A significant benefit of digital currencies is their ability to facilitate easier monitoring and tracing of transactions, which aids in combating money laundering,

tax evasion, and other illegal activities (Kingsley & Obiora, 2023). Globally, around 36 central banks have announced plans to introduce central bank digital currencies for consumer or commercial use (K. M. et al., 2024).

Countries currently in the pilot phase of digital currency implementation include Ecuador, Ukraine, Uruguay, and Nigeria, with ongoing trials also taking place in China, the Bahamas, Cambodia, the Eastern Caribbean Monetary Union, South Korea, and Sweden (Lee et al., 2023). The deployment of digital currencies is driven by the need to increase financial inclusion for rural residents, facilitate foreign nationals' tax payments, and formalize electronic payment methods (Sun, 2024). According to Statista (2023), with a compound annual growth rate (CAGR) of 12.13%, the global digital currency service market is projected to grow from USD 25.2 billion in 2022 to USD 76.9 billion by 2032. This indicates a rapid increase in profits derived from digital currency worldwide. The analysis also highlights that sub-Saharan Africa has the youngest population globally, with 70% of its population under 30. This demographic is favourable for adopting new technologies, typically driven by the youth, and for creating conditions that support the growth of new tech hubs home to the developers and builders essential for advancing the Web3 ecosystem (Rachmad & Rusydiana, 2024).

Technology adoption has been extensively studied in the field of information systems over the years. Despite the abundance of available resources, the challenge of successfully adopting technology by intended users remains a significant issue for organizations, industries, and countries (Hussin et al., 2023). According to data from the Central Bank of Nigeria, only about 700,000 of the nation's 200 million residents possess bank accounts (Georgieva, 2023). This has led to a high prevalence of cash-based transactions, contributing to the financing of illicit activities, limited financial inclusion, and government corruption (Adam & Ahmad, 2024). The situation is further exacerbated by the limited number of banks across the country, poor transaction execution, residents' lack of understanding, and the high percentage of unbanked individuals (Obiora et al., 2023). To address these issues, the Federal Government of Nigeria launched the eNaira digital currency on October 25, 2021 (Abdullahi et al., 2024). The eNaira, Africa's first digital currency, is an electronic version of the Naira, Nigeria's official currency. It aims to boost the nation's GDP by enhancing financial inclusion, curbing corruption and illicit activities, and simplifying tax remittances (CBN, 2021).

Numerous studies have utilized technology adoption models to explore the adoption of various technologies across different perspectives and domains (Alomari & Abdullah, 2023; Ho & Song, 2023; Hussin et al., 2023; Tamilmani et al., 2021). These technology adoption concepts are theoretical frameworks designed to explain how and why individuals embrace new technologies (Ozili & Alonso, 2024). The models aim to clarify the factors that influence decision-making processes when new technologies are introduced to people or organizations (Bazel et al., 2023). They have been instrumental in helping practitioners and scholars analyse the factors that affect technology adoption, enabling organizations to develop and implement strategies that encourage the adoption and effective use of new

technologies (Jain & Chowdhary, 2021). The Unified Theory of Adoption and Use of Technology (UTAUT) model offers comprehensive insights into the factors influencing technology adoption and usage. Due to its thoroughness and validation, the UTAUT model has proven relevant in various contexts, making it a valuable tool for researchers seeking to understand and predict consumer behaviour in the realm of technology adoption (Nasir et al., 2021).

The Unified Theory of Acceptance and Use of Technology (UTAUT) is widely recognized as a foundational model for technology adoption, synthesizing key elements from various information system models (Venkatesh, 2022b). Extensively validated across diverse contexts, the model consistently demonstrates high validity and reliability (Alomari & Abdullah, 2023; Hussin et al., 2023; Khan et al., 2022). Its strong predictive power has enabled effective application across a broad range of technologies and settings (Augustine et al., 2024). By utilizing the UTAUT model, researchers can systematically analyse the key factors influencing the adoption and use of new technologies among specific demographics. Understanding how these factors interact provides valuable insights into the drivers of consumer acceptance, allowing for tailored strategies to enhance adoption rates and predict the success of new technologies across various market segments and populations (Wiese & Humbani, 2020).

Moreover, Baron and Kenny (1986) suggest that when testing a theory in different contexts, incorporating mediating and moderating variables can enhance the theory's applicability. Extending a theory with new factors can lead to a more comprehensive, accurate, and robust understanding of the studied phenomenon, aiding policymakers and researchers in crafting more effective policies and making informed decisions. Although few studies have explored various aspects of technology adoption, there is a consensus among global academics that behavioural intention is a primary driver of new technology adoption (Udoh et al., 2023). By introducing new dimensions to existing variables within the research scope, this study addresses gaps in the literature, guiding researchers to explore previously unexplored areas and leading to novel insights and discoveries.

The Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) have consistently demonstrated a direct correlation between elements influencing technology adoption, as evidenced by existing literature across various contexts (Alshamsi et al., 2022; Hussin et al., 2023). However, the correlation between these constructs and the intention to adopt technology varies in different settings, leading some studies to contradict TAM and UTAUT (Ahmed et al., 2023; Alomari & Abdullah, 2023; Kamble et al., 2021; Ter Ji-Xi et al., 2021). These conflicting findings have sparked ongoing debates among researchers worldwide.

Additionally, prior studies have identified specific factors that may hinder technology adoption across diverse contexts and backgrounds. For instance, individuals who lack awareness of a particular technology may favour traditional methods (Li et al., 2023). Government regulatory (Xia et al., 2023) and a lack of trust in technology (Verma et al.,

2022) have also been cited as barriers to adoption. Moreover, evidence suggests that users' intention to adopt technology is often influenced by the opinions of those close to them, such as parents, teachers, colleagues, or neighbours (Asogwa et al., 2023).Factors such as ease of use (Chao, 2019) and infrastructure readiness (Li et al., 2023) are also critical in technology adoption. These considerations will guide the establishment of assumptions on the determinants of eNaira digital currency adoption, which can be empirically tested. It is recommended to extend mediating and/or moderating factors for strengthening theory evaluations and to further examine these correlations in different backgrounds (Baron & Kenny, 1986).

Building on this literature, this research extends the variables of technology awareness, trust, and government regulation to develop a conceptual framework that examines both the direct and indirect effects of these factors on the behavioural intention to adopt eNaira in Nigeria. The study aims to address two primary questions:

1. What are the key variables influencing the intention to adopt eNaira digital currency in Nigeria?
2. How can these factors enhance the adoption of eNaira digital currency in Nigeria?

And the research sets out to achieve two objectives:

1. To identify and explore the key factors influencing the intention to adopt eNaira digital currency in Nigeria.
2. To develop a conceptual framework that can guide future research on technology adoption in developing countries like Nigeria.

The research is organized into five sections. Section one presents the research background, section two reviews related literature, section three outlines the research methodology, and section four presents the discussion. The study concludes with recommendations and directions for future research in section five.

2. Literature Review

Digital currencies represent a virtual version of a nation's currency (Abdullahi et al., 2024). Given the significant proportion of unbanked or underbanked Nigerian citizens, digital currencies offer the potential to increase access to financial services, thereby promoting economic participation and reducing poverty. However, the adoption of any new technology is often accompanied by challenges related to how intended users perceive it (Ozili & Alonso, 2024). Prior research across various contexts has identified several factors that influence technology adoption. Among the most significant are performance expectancy (Abdullah et al., 2020), effort expectancy (Chao, 2019), trust (Rahman & Rahman, 2023), demographics, and government regulation (Rahmani et al., 2023). These variables are frequently incorporated into foundational theories to assess their impact on the behavioural

intention to adopt specific technologies within contexts (Lean et al., 2009; Memon et al., 2018; Mutahar et al., 2018).

Existing literature shows a significantly higher adoption rate of digital currencies in Western countries compared to African countries. Few studies have examined eNaira adoption, including research by Obiora et al. (2023), Ozil (2023a), and Ozil & Alonso (2024). However, these studies lacked rigorous analysis, revealing a methodological gap. To address this, researchers need to employ advanced data analysis tools to validate findings and develop models that address future challenges in eNaira adoption.

Additionally, no current literature has extended the contextual variables of the present study within a specific model to explore the relationships between determinants and the intention to adopt eNaira in Nigeria. Most existing studies have primarily focused on organizational contexts, leaving a gap in understanding at the individual level. This highlights the need for research that develops a framework incorporating key contextual elements of eNaira adoption. Such a framework could also inform future studies in other developing countries.

The current study aims to modify the UTAUT model to conceptualize the contextual variables influencing eNaira adoption within the Nigerian demographic. Figure 2.1 illustrates the identified research gaps, while Table 2.1 details the literature that has adapted the UTAUT model, specifying the extended variables in studies conducted across various contexts.

Figure 1: Conceptualisation of Research Gap

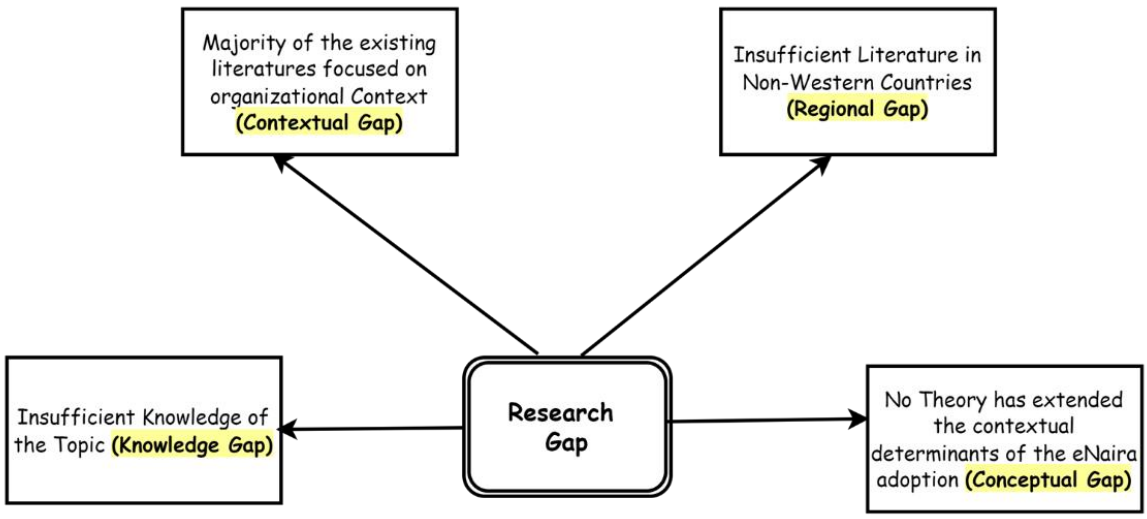

Figure 1 above illustrates the various gaps identified in the existing literature. This research aims to bridge these gaps by contributing to the academic literature on digital currencies,

particularly in developing countries like Nigeria. Additionally, a framework will be developed to address future challenges related to technology adoption in any developing country.

Table 1: Related studies reviewed with the theories/variables extended

Author	Title	Theory	Extended Variables	Construct
(Alomari & Abdullah, 2023)	'Factors influencing the behavioral intention to use Cryptocurrency among Saudi Arabian public university students: Moderating role of financial literacy'	UTAUT	Security and Financial Literacy	Independent Variable: Security Moderator: Financial Literacy
(Patil & Undale, 2023)	'Willingness of university students to continue using e-Learning platforms after compelled adoption of technology: Test of an extended UTAUT model'	UTAUT	Perceived Awareness	Moderator
(Ter Ji-Xi et al., 2021)	'Cryptocurrency Acceptance Model to Analyze Consumers' Usage Intention: Evidence from Pakistan'	UTAUT	Technology Awareness Financial Literacy	All are Independent Variables
(Jena, 2022)	'Examining the Factors Affecting the Adoption of Blockchain Technology in the Banking Sector: An Extended UTAUT Model '	UTAUT	Government regulation Perceived Security	All are Moderators
(Venkatesh, 2022)	'Adoption and use of AI tools: a research agenda grounded in UTAUT'	UTAUT	Technology Awareness (TA)	Independent Variable
(Rabaa'i & ALMaati, 2021)	'Exploring determinants of Chinese citizens' intention to use blockchain based health code apps: An extended UTAUT model'	UTAUT	Perceived enforceability of government policies	Independent Variable
(Mensah et al., 2020)	'E-Government Services Adoption: An Extension of the Unified Model of Electronic Government Adoption'	UTAUT	Trust in Government	Independent Variable
(Sabani, 2020)	'Investigating the influence of transparency on the adoption of e-Government in	UTAUT	Transparency and e-Government adoption	Independent Variables

Author	Title	Theory	Extended Variables	Construct
	Indonesia'			
(Alaeddin & Altounjy, 2018)	'Trust, Technology Awareness and Satisfaction Effect into the Intention to Use Cryptocurrency among Generation Z in Malaysia'	UTAUT	Technology Awareness (TA), Government policy	Independent Variables
(Alaeddin & Altounjy, 2018)	'Intention towards adoption of online shopping among Customers in Nigeria'	UTAUT	Technology Awareness (TA) and Mobile Skillfulness (MS)	Independent Variables
(Hurmuz et al., 2022)	'Factors Affecting the Adoption of m health Services among Young Citizen: Structural Equation Modeling (SEM) Approach'	UTAUT	Government policy	Independent Variables

Table 1 summarizes literature that has applied the UTAUT model across various studies, extending relevant constructs and excluding insignificant variables based on specific research contexts, as recommended by Baron and Kenny (1986). To date, no research has integrated the predictive determinants of eNaira adoption within this framework. However, previous studies by Kumar Jena (2022) and Tripathi et al. (2022) have examined government regulation and trust as variables. In this research, constructs such as performance expectancy, effort expectancy, social influence, and facilitating conditions will be adapted, with the inclusion of government regulation and trust. This adaptation aligns with insights from the reviewed literature (Chen et al., 2022; Lumpur, n.d.; Mutahar et al., 2018; Roussou et al., 2019; Siquian, 2020).

The relationships among the various determinants in the model are moderated by technology awareness to assess for enhanced variance. Existing moderators such as age, gender, experience, and voluntariness of use are excluded from the conceptual framework, as most internet users in Nigeria are students (Memon et al., 2019), who generally fall into similar age groups and experience levels. Gender is not a relevant factor for this research, and voluntariness is more pertinent to organizational contexts. This extension of variables and exclusion of irrelevant factors adheres to the recommendations of Baron and Kenny (1986) for theory testing. The proposed model uses behavioural intention (BI) to adopt eNaira as the dependent variable. All independent variables are adapted and extended to include trust and government regulation based on the research scope and reviewed literature. Technology awareness serves as the moderating variable for all determinants in the model. The variables of the proposed conceptual framework are reviewed in the subsections below.

2.1 Hypotheses Development

Performance Expectancy positively relates to Intention to Adopt eNaira. Performance expectancy refers to users' beliefs about how a technology will improve their productivity and job performance (Asogwa et al., 2023). This determinant has been observed to positively influence the intention to adopt, as evidenced by studies conducted in Malaysia (Alsmadi et al., 2023). It has also tested positively in research conducted in Jordan and China (Shuhaiber et al., 2023; Yang, 2020). In the context of this research, the following hypothesis will be proposed: H1: Performance expectancy (PE) positively relates to the intention (BI) to adopt eNaira.

Effort Expectancy positively relates to Intention to Adopt eNaira. Effort expectancy denotes the extent to which users perceive a technology as user-friendly, requiring minimal effort to learn and operate (Venkatesh, 2022a). This variable has been used in various contexts and has consistently shown a positive relationship with behavioural intention. It has been applied in the context of China (Han et al., 2023) and has similarly been found to positively influence behavioural intention in Saudi Arabia (Alomari & Abdullah, 2023) and South Africa (Wiese & Humbani, 2020). Therefore, this variable will be hypothesized as follows: H2: Effort expectancy (EE) positively relates to the intention (BI) to adopt eNaira.

Social Influence positively relates to Intention to Adopt eNaira. Social influence refers to the extent to which individuals perceive encouragement or endorsement from peers, family, colleagues, and authority figures regarding the adoption or use of new technology (Ebizie et al., 2022). This variable has consistently shown positive effects across different contexts and backgrounds, having been tested in Malaysia, India, and China (Chao, 2019; Daniali et al., 2022; Kumar Jena, 2022). Therefore, this variable will be hypothesized as follows: H3: Social influence (SI) positively relates to the behavioural intention (BI) to adopt eNaira.

Facilitating Condition positively relates to Intention to adopt eNaira. This includes having access to the appropriate gear and software, as well as the necessary resources and support, such as technical assistance and skill development (Satria et al., 2023). Research conducted by Ronaghi (2023) on bitcoin adoption in China has revealed a favourable correlation between the intention to adopt bitcoin and facilitating conditions. Another study by Alomari & Abdullah (2023b) on the use of cryptocurrencies by Saudi Arabian students also found a positive relationship between the intention to adopt and facilitating conditions. Therefore, this variable will be hypothesized as follows: H4: Facilitating conditions positively relate to the intention to adopt eNaira.

Trust positively relates to Intention to Adopt eNaira. In this research, trust is operationalized as the belief that the technology is reliable, secure, and will function as expected. When users have strong confidence in a technology, they are more likely to develop a positive attitude toward adopting it (Rahman & Rahman, 2023). Existing literature has reported a positive correlation between trust and intention to adopt. For instance, Chee et al. (2021) found a positive relationship between trust and intention to adopt in studies on mobile banking

adoption. Trust is thus an essential variable that can significantly influence the intention to adopt a technology. Therefore, trust is hypothesized as follows: H5: Trust positively relates to the intention to adopt eNaira.

Government Regulatory positively relates to Intention to Adopt eNaira. In the realm of technology adoption, government regulation pertains to the laws, policies, and standards established by governmental authorities to oversee the introduction, implementation, and use of technology in society. Previous research has demonstrated the beneficial influence of government regulatory measures on adoption intentions. For instance, Xia et al. (2023) found a positive relationship between government support and the intention to adopt cryptocurrency in China, while Abdullahi et al. (2022) reported a positive relationship between government support and the intention to adopt Facebook. Therefore, government regulation is hypothesized as follows: H6: Government regulation positively relates to the intention to adopt eNaira.

The Moderating Effect of Technology Awareness on The Positive Relationship Between the Determinants and Intention to Adopt The eNaira. Technology awareness refers to the level of knowledge or understanding individuals have about specific technologies or technological concepts being studied (Ali Alryalat et al., 2023). As recommended by Baron and Kenny (1986), this variable will moderate all the determinants of the intention to adopt eNaira. Many studies have extended technology awareness in testing theories across different contexts and backgrounds (Al-Fahim et al., 2021; Alomari & Abdullah, 2023c; Rasid et al., 2023). Hence, this variable will be hypothesized as follows:

H7a: Technology awareness positively moderates the relationship between performance expectancy and intention to adopt eNaira.
H7b: Technology awareness positively moderates the relationship between effort expectancy and intention to adopt eNaira.
H7c: Technology awareness positively moderates the relationship between facilitating condition and intention to adopt eNaira.
H7d: Technology awareness positively moderates the relationship between social influence and intention to adopt eNaira.
H7e: Technology awareness positively moderates the relationship between trust and intention to adopt eNaira.
H7f: Technology awareness positively moderates the relationship between government regulatory and intention to adopt eNaira.

2.2 Proposed Conceptual Framework

The conceptual framework consists of six independent variables identified as determinants influencing the intention to adopt the eNaira digital currency in Nigeria, based on empirical reviews from existing literature. Additionally, the model incorporates a new moderating variable: technology awareness. Consequently, the framework includes six direct effect hypotheses and six moderating hypotheses. This framework is adapted from the Unified

Theory of Acceptance and Use of Technology (UTAUT) model. The following outlines the justifications for adopting the UTAUT model for this research.

2.2 Justifications for Adopting the UTAUT Model

1. existing empirical literature have validated the Unified Theory of Adoption and Use of Technology model, affirming its status as a credible and reliable framework for investigating technology adoption (Hmoud et al., 2023; Kumar et al., 2023; Ozil & Alonso, 2024).

2. The Unified Theory of Adoption and Use of Technology model has been extensively adapted across diverse contexts and technologies, proven its flexibility and reliability in distinct domains such as education, healthcare, business, and beyond (Hmoud et al., 2023; Kumar et al., 2023; Ozil & Alonso, 2024).

3. The Unified Theory of Adoption and Use of Technology model is specifically designed to analyse individual behaviors regarding technology acceptance and use, making it suitable for studies focusing on individual users rather than organizations or groups (Marzuk et al., 2024).

4. The Unified Theory of Adoption and Use of Technology model can be adapted and extended to include additional variables or contexts specific to the research study, allowing for customized applications without losing its core strengths (Garba et al., 2022).

5. UTAUT integrates elements from eight prominent models of technology acceptance (e.g., TAM, TPB, DOI), providing a better understanding of the key elements influencing technology adoption and use (Venkatesh, 2022b).

6. UTAUT has evidently demonstrated strong predictive power in explaining variance in behavioural intention and actual usage behaviour, by outperforming all order models. The conceptual framework is presented in figure 2 below.

Figure 2: Conceptual Framework of the Research

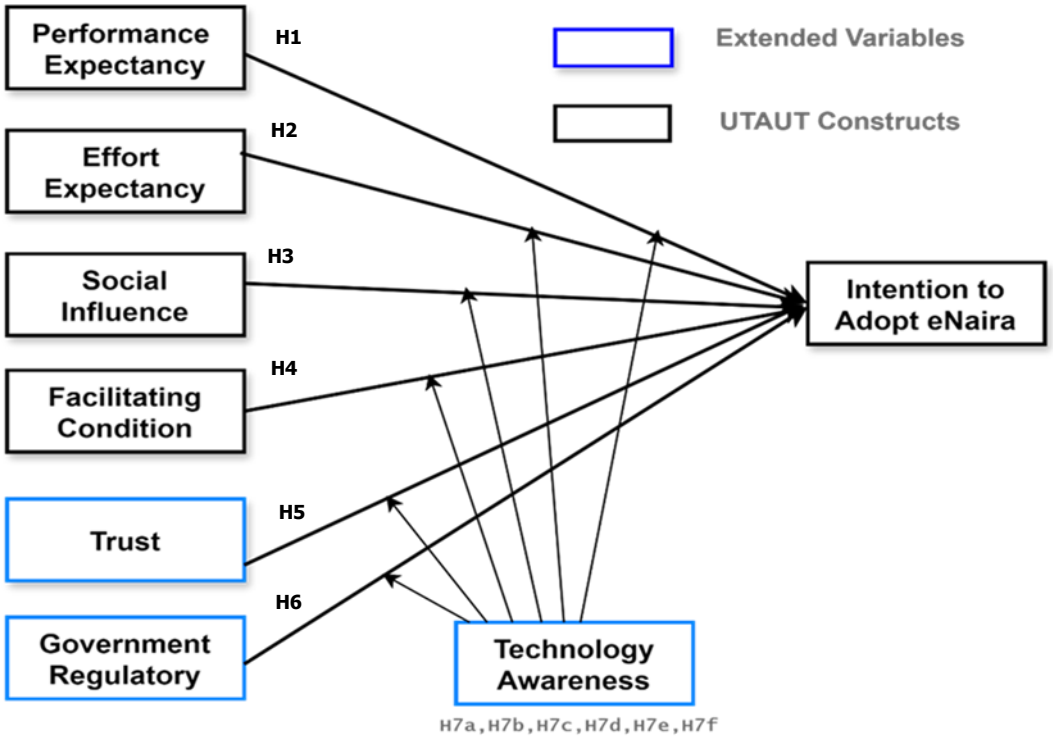

Figure 2 above presents the developed conceptual framework adapted from the UTAUT model (Venkatesh, 2022). The variables of trust, government regulatory and technology awareness are extended base on the literature reviewed. This framework is a blueprint for any developing country that seeks to improve on technology adoption related issues.

3. Methodology of the Study

Quantitative research is adapted to measure the data and to draw conclusions for this study. The target population comprises undergraduate and postgraduate students, chosen based on evidence that they are among the primary users of the internet in Nigeria. Abuja, Nigeria, is selected as the research setting due to its status as the most technologically advanced region in the country. Due to the absence of a definitive list of respondents, purposive non-probability sampling will be utilized. This approach facilitates targeted data collection from participants with relevant knowledge or experience, rather than relying on random sampling. A screening question, "I am not using eNaira," will be included at the start of the survey to ensure that responses are collected only from individuals who have not adopted the eNaira. The study is proposed to analyse a sample of 216 respondents to investigate the factors influencing the intention to adopt the Nigerian eNaira digital currency among citizens. The collected quantitative data will be analysed using partial least square structural equation

modelling (PLS-SEM) with SmartPLS, given its ability to evaluate causal frameworks that are theoretically supported and linear in nature. Due to the complexity of the conceptual model, which includes multiple constructs and various structural path linkages, PLS-SEM is the most appropriate method for assessing the strength of the relationships within the proposed model.

4. Discussion

This study is presenting a comprehensive model to investigate the intention to adopt the Nigerian digital currency, the eNaira, addressing the current gap in research on this topic in Nigeria. Given the limited exploration of digital currency adoption within this specific context, the study seeks to fill this void by employing a robust theoretical framework. Based on an extensive literature review, this research adopts the Unified Theory of Acceptance and Use of Technology (UTAUT) model, integrating its core variables with additional extensions of trust, government regulatory, and technology awareness.

The UTAUT model has demonstrated its reliability in assessing technology adoption across various contexts, showcasing its effectiveness in evaluating factors influencing users' intentions to adopt new technologies. By extending the model to include trust, government regulation, and technology awareness, this study aims to offer a more nuanced understanding of the factors driving the adoption of eNaira. Trust addresses users' confidence in the digital currency's reliability and security, government regulation explores the impact of regulatory measures on adoption, and technology awareness examines the role of users' knowledge about the eNaira.

The adoption of the UTAUT model, along with these additional variables, is designed to provide a comprehensive analysis of the intention to adopt eNaira. This approach not only enhances the theoretical understanding of digital currency adoption but also offers practical insights for policymakers and stakeholders in Nigeria. The research will contribute valuable findings that can inform strategies to promote the successful adoption of eNaira, potentially setting a precedent for similar studies in other developing countries.

5. Conclusions and Recommendations

The research highlights a significant gap in the literature on digital currency adoption, particularly in Nigeria and other non-Western countries, compared to Western nations. It proposes a new conceptual framework for understanding the adoption of Nigeria's eNaira digital currency, aiming to fill this gap. Key factors identified include performance and effort expectancies, social influence, facilitating conditions, trust, government regulatory, and behavioural intention. The developed framework can further be used in conducting future research on technology adoption in any developing country like Nigeria. Recommendations include empirical testing of the framework, broader geographical studies beyond Abuja and

student demographics, and global collaboration among researchers. The study suggests government initiatives mandating eNaira usage to promote adoption among citizens. The study examines variables within a particular context, potentially restricting the broader applicability of the findings. Future research should explore different models and contexts to evaluate the predictive power of the developed framework. The research highlights infrastructural issues, such as insufficient access to electricity and internet connectivity in rural areas, along with low financial literacy levels, as major obstacles to digital currency adoption in Africa. The policy makers and government can use these insightful findings to mitigate the low adoption of the eNaira digital currency in Nigeria.

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