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Blockchain Technology and Organizational Performance In Emerging Economy: Evidence From the Nigeria Banking Sector

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Abstract

The internet landscape is still changing. While the Internet enables data connectivity, it does not guarantee data reliability. Hence, this study examines the effect of blockchain technology on organizational performance in Nigeria's banking sector. This study examines the effect of (i) value proposition on organizational innovation, (ii) eNaira on business expansion, and (iii) payment system on competitive advantage. A descriptive research approach was adopted, and the staff of Guaranty Trust Bank served as the population. The sample size 142, calculated through Taro Yamane's (1967) method, was used with simple random sampling to collect primary data from the respondents. A partial Least Square structural equation model (PLS-SEM) was adopted to examine the causal relationship through SmartPLS 3.0. The results showed that all blockchain technology factors substantially predict organizational performance: 0.773 (0.770), 0.756 (0.754), and 0.810 (0.808), respectively. The study concluded that blockchain technology significantly contributes to high performance in emerging economies. Banking sector managers in emerging economies should always support the suggestion of original values that may boost the bank's innovativeness, particularly those that facilitate the creation of new services and enable consumers to transact quickly and affordably. In addition, they ought to allow cryptocurrency purchases using online payment methods. In order to facilitate cryptocurrency transactions, mobile banking apps, online banking pages, alongside other platforms must be redesigned.

Keywords: Blockchain Technology, Competitive Advantage, eNaira, Organizational Performance, Payment System, Value Proposition

1. Introduction

The internet has profoundly impacted our culture and way of life due to the advent of the fourth industrialization centred around technology. However, the internet landscape is still changing. Although data connectivity has been made possible via the internet, data dependability cannot be ensured. Blockchain technology constitutes one of several digital transformations brought about by the internet. Using distributed bookkeeping approaches, blockchain technology can eliminate information asymmetry and increase business trust, increasing efficiency and lower costs (Martinez, Zhao, & Blujdea, 2019).

Blockchain is a dispersed, decentralized, and digital ledger where transaction records are recorded chronologically to produce an irreversible and unchangeable record. The blockchain's decentralized arrangement, encryption technique, and consistency

mechanism are all features. The peer-to-peer network on the blockchain allows all users to access the same data (Kamble, Gunasekaran, & Gawankar, 2020). Blockchain uses consensus techniques to assure consistency and integrity by encoding events as blocks following encryption rules and organizing those blocks chronologically. Any web user can consult the confidential chain, which contains the public chain's data, and the alliance chain, which consists of the common chain. The combined and private chain information is only accessible to a restricted group of approved parties. Accordingly, the alliance chain is more often utilized in the corporate world (McCallig, Robb, & Rohde, 2019).

According to Bag, Rahman, Gupta, and Wood (2022), organizational effectiveness is an organization's actual result or outcome compared to its anticipated output, goals and objectives. Realizing organizational goals requires a thorough understanding of gauging and assessing organizational performance. Evaluating the significance of qualitative and quantitative performance indicators such as profit, clientele, and expenses is often how performance is assessed. Determining the pertinent indicators, their relationship to the established corporate goals, and their dependence on the actions carried out are critical tasks for every organization. Additionally, managers have realized this and deliberately defined performance indicators, targets, and assessments unique to the organization (Clohessy & Acton, 2019).

Businesses utilizing blockchain also see increased R&D, investment, and patent spending. These businesses exclusively employ blockchain to draw in investors, which helps them increase stock turnover and achieve anomalous short-term stock gains. Nevertheless, because of ongoing issues with business operations, such as acceptance of technological shifts, costs associated with technology investment, etc., these organizations do not entirely focus on the impact of blockchain on organizational performance (Kamble, Gunasekaran, & Gawankar, 2020).

This study considered the banking sector in Nigeria due to its strong adoption and use of blockchain technology compared to other industries. This adoption and use are evident in its crypto transactions, eNaira system, and payment system, which allow for the broad use of blockchain. While most studies (Clohessy & Acton, 2019; Bag, Rahman, Gupta, & Wood, 2022) reviewed blockchain adoption, this study examined its (value proposition, eNaira and payment system) intricate effect on organizational performance. This study aims to determine how blockchain impacts organizational performance in the Nigerian banking industry, particularly in Guarantee Trust Bank.

1.1 Research Objectives

The main objective of this study is to examine blockchain's effect on organizational performance in Nigeria's banking sector. Specifically, the objectives of the study were to:

- i. Examine how value proposition impacts organizational innovation;
- ii. Assess how the eNaira influences business expansion and
- iii. Examine how the payment system affects competitive advantage.

1.2 Research Hypotheses

The following hypotheses will be raised and tested during the study.

Ho1: Value proposition does not have a significant effect on organizational innovation.

Ho2: eNaira does not significantly influence business expansion.

Ho3: The payment system does not significantly affect competitive advantage.

2. Conceptual review

2.1 Concept of Blockchain Technology

Satoshi Nakamoto first presented and proposed the blockchain in 2008; its definitions vary. In order to create permanent and impenetrable records, the widely accepted definition of blockchain technology is that it is made up of an accessible, shared, decentralized, and distributed digital ledger (a ledger of all payment transactions) in which data about the parties involved in the transaction is recorded and added in chronological order (Nakamoto 2021). Even while some see blockchain technology as a logical byproduct of the growth of the internet, it is still one of the biggest upheavals in the digital world (Clohessy & Acton, 2019). The results are comparable with those in the commerce sector just a few years earlier when the internet was implemented; such effects were disruptive and significantly impacted supply chains (Kamble, Gunasekaran, & Gawankar, 2020).

Blockchain technology is a decentralized digital ledger system that records transactions across multiple computers to ensure data security, transparency, and immutability. Each transaction is grouped into a block and linked to previous blocks, forming a chain resistant to tampering and fraud. This technology eliminates the need for intermediaries, such as banks or payment processors, allowing for peer-to-peer transactions that can be executed quickly and at lower costs. Its applications extend beyond cryptocurrencies to various sectors, including supply chain management, healthcare, and finance, where it enhances traceability, accountability, and efficiency. As organizations increasingly adopt blockchain solutions, the potential for innovation and transformation in traditional business models becomes more pronounced, driving greater operational effectiveness and customer trust (Nakamoto 2021).

Blockchain technology is being used more and more in a variety of diverse sectors, including supply chains, insurance, banking and financial services, medical records management, the Internet of Things (IoT), the ongoing maintenance of digital archives, the sharing economy, and dispersed authentication (Chang, Chen, & Lu, 2019). The blockchain is not a distinct, independent technology; it is based on several different technologies, notably encryption, and uses the internet as a framework. The blockchain stores transaction data and establishes consensus guidelines (Bag, Rahman, Gupta, & Wood, 2022). Public and private blockchains are the two basic categories that may be classified based on the kind of access restriction. Users may stay anonymous, and transactions on a public blockchain do not need verification. The most prominent examples of public blockchains are Ethereum and Bitcoin, whose usage does not need permission from other participants. On the other hand, with a private blockchain, users need to get an invitation or authorization before they may join. Access is managed by teams of individuals or by a single organization (Wang & Han, 2019).

2.2. Measures of Blockchain Technology in the Banking Sector in Nigeria

2.2.1 E-Naira

E-Naira is also known as cybercash, digital money, or electronic currency (e-currency) for online transactions. African nations cannot be exempt from implementing e-currency to enable their population to transact locally and globally. Nonetheless, several nations, including Nigeria, China, South Africa, Ghana, India, and numerous more, have chosen to use their electronic currencies (Abraham, 2021).

The eNaira, Nigeria's Central Bank Digital Currency (CBDC), utilizes blockchain technology to create a secure and efficient digital payment system. Unlike decentralized cryptocurrencies such as Bitcoin, eNaira operates on a private blockchain managed by the Central Bank of Nigeria (CBN), which ensures regulatory compliance and enhances user trust. This technology enables real-time transaction processing, reducing the time and costs associated with traditional banking methods. By leveraging blockchain's inherent security features, such as encryption and immutability, eNaira aims to mitigate fraud risks and provide a transparent transaction history, fostering user confidence and encouraging wider adoption of digital currencies in Nigeria (Nakamoto 2021).

Despite its technological advantages, the eNaira has faced challenges regarding public adoption and awareness. While blockchain provides a robust framework for digital transactions, the success of eNaira hinges on the willingness of the Nigerian populace to embrace this new form of currency. The CBN is actively promoting the benefits of the eNaira, aiming to enhance financial inclusion and streamline payment processes for individuals and businesses alike. As the digital economy continues to evolve, the effective integration of eNaira within Nigeria's financial ecosystem will be crucial for realizing its potential as a transformative tool for economic growth and stability (Wang & Han, 2019).

2.2.2 Blockchain as Payment System

Blockchain technology ensures fast, cheap, safe, and reliable global payment processing capabilities (as well as other exchanges) through encrypted distribution that provides reliable, real-time transaction verification, lacking demand for middlemen like clearinghouses and reporter banks. Blockchain technology was initially developed to support the virtual currency Bitcoin, but it is currently being researched for various purposes unrelated to Bitcoin (Clohessy & Acton, 2019).

A payment system built on blockchain technology offers significant advantages over traditional financial infrastructures by enhancing security, transparency, and efficiency. Blockchain enables real-time transaction processing, reducing the time and costs associated with clearing and settlement that often burden conventional banking systems. Each transaction is recorded on a decentralized ledger, ensuring all parties can access the same information, thus minimizing disputes and fraud. This transparency is crucial for building user trust, as it allows for a verifiable transaction history that can be audited without relying on a central authority (Bag, Rahman, Gupta, & Wood, 2022).

Moreover, blockchain-based payment systems can easily facilitate cross-border transactions, eliminating the complexities and high fees typically associated with international transfers. By removing intermediaries, such as banks and payment processors, blockchain technology streamlines the payment process, making it faster and more cost-effective. Additionally, these systems can support digital currencies, including Central Bank Digital Currencies (CBDCs) like eNaira, allowing seamless integration into existing financial ecosystems. As blockchain continues evolving, its application in payment systems will transform how individuals and businesses conduct transactions, driving greater financial inclusion and global efficiency (Chang, Chen, & Lu, 2019).

2.2.3. Value Proposition

The whole company's operations that are worth to the client are called the value proposition. The significance of the task, the accessibility of alternative remedies, the

expenses, and the degree of satisfaction with the available alternatives substantially affect the client's value. In 2010 Osterwalder et al.

The value proposition of blockchain technology lies in its ability to provide a secure, transparent, and efficient framework for various applications, particularly in financial transactions and data management. By utilizing a decentralized ledger, blockchain ensures that all participants in a network have access to the same information, significantly reducing the risk of fraud and enhancing trust among users. This transparency is precious in sectors like finance, supply chain, and healthcare, where accurate and tamper-proof record-keeping is essential. Furthermore, the immutability of blockchain records means that once data is entered, it cannot be altered or deleted, providing an additional layer of security and accountability that is often lacking in traditional systems (Wang & Han, 2019).

In addition to security and transparency, blockchain technology offers substantial cost savings and efficiency improvements. By eliminating intermediaries, such as banks and payment processors, blockchain reduces transaction fees and processing times, making it an attractive option for businesses and consumers. This efficiency can lead to faster settlement times for financial transactions and streamlined processes in areas like supply chain management, where tracking goods and verifying authenticity can be done in real time. As organizations increasingly recognize the potential of blockchain to enhance operational efficiency and reduce costs, its value proposition becomes more compelling, paving the way for widespread adoption across various industries (Chang, Chen, & Lu, 2019).

2.2.4. Organizational Performance

Organizational performance results from effectively using resources and dynamic talents to enhance the organization's ability to remain competitive in the external business environment. It also acts as a barometer to see how successfully the goals have been achieved and the predetermined strategies executed. It also entails correcting any deviation by putting the required corrective actions in place (Nakamoto 2021). It is a signal showing the consensus reached at a particular institution while accounting for all organizational results. All monetary and non-monetary results are included in these outcomes (Ahmed et al., 2018).

Prosperous businesses uphold high organizational performance standards to win over clients and shareholders. It may also serve as a sign of developing optimistic views toward development and advancement. To stay in step with the evolving corporate environment, multidimensional aspects that improve the efficiency of operations must be addressed. Furthermore, according to Chatzoglou et al. (2018), organizational performance sets apart all firms that strive for excellence. According to Ali et al. (2020), organizational performance is the culmination of all organizational development initiatives inside the company.

2.3. Measures of Organizational Performance

2.3.1. Innovation

The definition of innovation is the process of inventing new concepts, methods, and viewpoints while advancing the existing ones, enabling them to be implemented and become reality on both a physical and psychological level. Innovation is a critical driver

of organizational performance, enabling companies to adapt to changing market conditions and consumer preferences. Organizations can develop new products, services, and processes that meet emerging needs by fostering a culture of creativity and experimentation. This proactive approach not only enhances customer satisfaction but also opens up new revenue streams. Companies prioritizing innovation often see increased efficiency and productivity, as new technologies and methods can streamline operations and reduce costs. Furthermore, innovative organizations are better positioned to respond to disruptions in their industry, ensuring long-term sustainability and growth (Ali et al., 2020).

Moreover, innovation can significantly enhance an organization's brand reputation and market positioning. Companies known for their innovative capabilities attract top talent, as employees are often drawn to environments that encourage forward-thinking and creativity. This talent acquisition further fuels the innovation cycle, creating a virtuous circle that enhances organizational performance. Additionally, by continuously innovating, organizations can differentiate themselves from competitors, establishing themselves as leaders in their respective markets. This differentiation drives customer loyalty and increases market share, ultimately contributing to improved financial performance and resilience in the face of competition (Ali et al., 2020).

2.3.2 Business Expansion

Following the region of the organization that has to be expanded, growth can be categorized as either product development, market expansion or both.

Business expansion enhances organizational performance by allowing companies to reach new markets and customer segments. By diversifying their operations, organizations can reduce reliance on a single revenue source, mitigating market fluctuations risks. Expansion can take various forms, such as entering new geographic regions, launching new product lines, or acquiring other businesses. These strategies can lead to increased sales and profitability and enhanced brand recognition. Moreover, expanding into new markets often encourages organizations to innovate and adapt their offerings, further driving performance improvements (Ali et al., 2020).

Additionally, business expansion can lead to economies of scale, where increased production and distribution reduce per-unit costs. This cost efficiency can enhance competitive positioning and allow organizations to offer more attractive pricing to customers. Furthermore, as companies grow, they often access new resources, including capital, technology, and talent, which can further enhance their operational capabilities. Ultimately, successful business expansion not only boosts organizational performance through increased revenue and market presence but also strengthens the overall resilience and adaptability of the organization in an ever-evolving business landscape (Ahmed et al., 2018). This is covered in the section below.

a. Market Expansion or Market Development:

This entails expanding an existing product into a whole new market. This approach focuses on offering current items in an emerging market. Increased sales of current items in mysterious markets result from market development (Nakamoto 2021).

b. Product Development or Expansion:

It entails bringing a fresh concept to an established market for a business. A company introducing new items to an established market should use a product development plan. According to Bag, Rahman, Gupta, and Wood (2022), an organization's product development strategy is to grow by creating better products for the current audience.

2.3.3. Competitive Advantage

To surpass its rivals, the business should develop competitive advantages (Li, Ragu-Nathan, Ragu-Nathan, & Rao 2006). Competitive advantage may be seen from the supply chain management standpoint regarding price, clientele, delivery, adaptability, responsiveness, and quality (Sundram, Bahrin, Munir, & Zolait, 2018).

Competitive advantage is essential for organizational performance, as it differentiates a company from its rivals and allows it to capture a larger market share. Organizations that effectively leverage their unique strengths—such as superior technology, exceptional customer service, or innovative products—can achieve higher profitability and customer loyalty. By understanding and capitalizing on their competitive advantages, companies can create barriers to entry for potential competitors and maintain a strong position in the market. This strategic focus enhances performance and fosters a culture of continuous improvement and innovation within the organization (Ahmed et al., 2018).

Moreover, maintaining a competitive advantage requires ongoing investment in resources and capabilities. Organizations must continually assess their market position and adapt to changes in consumer preferences, technological advancements, and competitive pressures. This adaptability sustains competitive advantage and drives long-term organizational growth and performance. Companies that prioritize their competitive strategies are better equipped to navigate challenges and capitalize on opportunities, ultimately leading to sustained success in an increasingly dynamic business environment Ali et al. (2020).

2.3.4 Effect of Blockchain Technology and Organizational Performance in the Banking Sector

Although some see blockchain technology as a logical byproduct of the growth of the internet, it is still one of the most significant upheavals in the digital world (Nakamoto 2021). Its consequences resemble the internet's adoption in the commercial industry a few years ago, which significantly disrupted supply chains and had disruptive repercussions (Kamble, Gunasekaran, & Gawankar, 2020).

Blockchain technology is being used more and more in a variety of diverse industries, including supply chains, insurance, banking and financial services, medical records management, Internet of Things (IoT), long-term preservation of digital archives, sharing economy, and decentralized authorization of access (Chang, Chen, & Lu, 2019). The blockchain, which maintains a record of transactions and defines consensus guidelines, is not an isolated technological development; instead, it is based on several other technologies, such as the internet and cryptography, which act as an infrastructure (Kamble, Gunasekaran, & Gawankar, 2020).

2.4. Hypotheses Development

2.4.1. Value Proposition and Organizational Innovation

An organization's value proposition is critical to its overall performance, as it defines the unique benefits and value that a company offers its customers. A strong value proposition attracts customers and fosters loyalty, driving repeat business and enhancing brand reputation. When organizations innovate in their value propositions—whether through new products, enhanced services, or improved customer experiences—they can better meet the evolving needs of their target market. This alignment between innovation and customer expectations can increase market share and profitability, as satisfied customers are likelier to recommend the brand to others (Ali et al., 2020).

Moreover, organizational innovation is essential for continuously refining and enhancing the value proposition. Companies that foster a culture of innovation encourage employees to think creatively and challenge the status quo, leading to the development of unique offerings that stand out in the marketplace. This innovative mindset helps organizations adapt to changing consumer preferences and positions them as industry leaders. By consistently delivering on their value proposition through innovative solutions, organizations can improve their performance metrics, including revenue growth, customer retention, and overall market competitiveness (Chepkwony, 2016).

Hypothesis One: *Value proposition has a significant effect on organizational innovation eNaira and Business Expansion*

The introduction of eNaira, Nigeria's Central Bank Digital Currency (CBDC), presents significant opportunities for business expansion within the country. By providing a digital payment solution, eNaira can facilitate faster and more efficient transactions, enabling businesses to operate more effectively in local and international markets. This ease of transaction reduces the barriers to entry for small and medium-sized enterprises (SMEs), allowing them to expand their customer base and explore new markets. Furthermore, eNaira's integration with existing financial systems can streamline operations, making it easier for businesses to manage cash flow and reduce transaction costs, ultimately driving growth and expansion efforts (Clohessy & Acton, 2019).

Additionally, adopting eNaira can enhance financial inclusion, allowing previously underserved populations to engage in the economy. As more individuals access digital currency, businesses can tap into a more extensive customer base, driving demand for their products and services. This expanded market potential supports individual business growth and contributes to Nigeria's economic development. Organizations leveraging eNaira to facilitate their operations can position themselves for sustainable business expansion and improved organizational performance in the rapidly evolving digital landscape (Ahmed et al., 2018).

Hypothesis Two: *The eNaira has a significant effect on business expansion Payment Systems and Competitive Advantage*

A robust payment system is crucial for establishing a competitive advantage in today's fast-paced business environment. Organizations implementing efficient and secure payment solutions can enhance customer satisfaction by providing seamless transaction experiences. Businesses can attract and retain customers who prioritize convenience and reliability by reducing payment processing times and minimizing transaction costs. This

operational efficiency differentiates a company from its competitors and allows it to respond quickly to market demands, reinforcing its competitive position in the marketplace (Nakamoto, 2021).

Moreover, an advanced payment system can enable organizations to gather valuable consumer behaviour and preferences data. This data can be leveraged to personalize marketing strategies, optimize pricing models, and improve customer engagement. Companies that utilize insights gained from their payment systems can innovate their offerings and tailor their services to meet customer needs better, further solidifying their competitive advantage. As organizations continue to enhance their payment systems, they will likely see improved organizational performance through increased customer loyalty, higher sales volumes, and more significant market share (Chang, Chen, & Lu, 2019).

Hypothesis Three: *Payment system has a significant effect on competitive advantage*

2.5. Theoretical Review

2.5.1. Technology-Organization-Environment Framework (TOE Framework)

The Technology-Organization-Environment Framework (TOE framework) is an application-level structure for organization-level studies (DePietro, Wiarda, & Fleischer, 1990; Tornatzky & Fleischer, 1990). (Piaralal, Nair, Yahya, & Karim, 2015). The TOE framework suggests three primary features to investigate the elements influencing an organization's adoption of innovative technology. The features and applications of new technology are included in the technological context; internal company issues, such as those about leadership, staff, products, and services, are included in the organization context; and external problems associated with business, such as those involving adversaries and partners in business, are included in the setting of the environment.

According to Zhu, Kraemer, and Xu (2006a), previous research has demonstrated the TOE framework's reasonable effectiveness. Information systems (DePietro et al., 1990), e-commerce (Rowe, Truex, and Huynh, 2012), web services (Lippert and Govindarajulu, 2015), e-CRM (Racherla and Hu, 2008), and cloud computing (Lian, Yen, and Wang 2014) are just a few of the novel technology-related studies that have been carried out using the TOE study approach.

2.6. Empirical Review

Given managerial notions, Acar and Küçükaltan (2019) investigated the effects of blockchain technology on supply chain management and logistics. This research specifically seeks to highlight the significance of this technology's history by outlining potential uses in the logistics and supply chain management (SCM) fields. It also tries explicitly to show how this technology can change the course of this industry by elevating it to a defined status. The research has highlighted the need for an updated business-level technology adoption paradigm and the possible effects of Blockchain technology on supply chains and logistics.

In order to pinpoint research problems and future objectives, Kummer, Herold, Dobrovnik, Mikl, and Schäfer (2020) thoroughly evaluated the blockchain literature in supply chain management and logistics. Since blockchain research is still in its infancy, it frequently lacks theoretical underpinnings, and it is unclear which organizational theories are applied and to what degree to study blockchain technology in the context of

LSCM. According to our findings, the six organizational theories that constitute the foundation of the blockchain literature in LSCM are information theory, agency theory, institutional theory, network theory, resource-based perspective, and transaction cost analysis. We also demonstrate how these theories might be applied to investigate particular blockchain issues by highlighting research concerns relevant to blockchain that need further study.

Sheraz (2021) looked at a comprehensive evaluation of the literature on the effects of blockchain technology on monetary transactions using data from the Italian banking industry. The study aimed to investigate the past value of blockchain technology and its use in financial transactions. The present study used a systematic literature review as its research approach in order to achieve its goal. The study used the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) approach for systematic literature resources. The results of this investigation demonstrated that the Italian financial market has not yet completely embraced blockchain technology. Stakeholders must handle the blockchain's intricacy, flexibility, and transformation mechanism in order for it to be successfully adopted.

3. Methodology

This study used a descriptive research approach to construct the project task. A descriptive research design is deemed suitable since it contributes to explaining present practices related to the topic issue. The effectiveness of this study design is demonstrated by how well it measures each factor and characterizes the degree to which workplace ergonomics affect employees' productivity. Using Guaranty Trust Bank as a study topic, the inquiry aims to determine Organizational Performance and Blockchain Technology. The 221 employees of Guaranty Trust Bank in Ilorin, who work for the bank's five branches, would comprise the research population.

The poll subjects were chosen randomly from the study region's population using a multistage sampling approach that involves stratification by branch and random sampling of respondents from each branch. The sample size was calculated using Taro Yamane's (1967) sample size estimate 142. In terms of data collection, the questionnaire was utilized to gather replies from the respondents and collect primary data for the study. The questionnaire was distributed to the bank staff at intervals as the branch staff allowed. The questionnaire had five Likert scale items.

In this study, construct validity was used to evaluate the accuracy of the report's evaluation of the impact of blockchain technology on organizational performance and the reliability of the questionnaire. A pilot study was conducted to ascertain if the Cronbach's alpha test reliability method would be appropriate for this project. Through the process of establishing the causal relationship between the variables, a partial structural equation model (PLS-SEM) Square and Path Modelling (PLS-PM) will be utilized to evaluate the hypotheses. We will examine this using SmartPLS 3.0.

3.1. Model Specification

Hypothesis I

Ho₁: Value proposition does not have a significant effect on organizational innovation;

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + \varepsilon$$

$$OI = f(QCT + FI + ANS)$$

Where:

Y = Organizational innovation (OI)

X₁ = Quick and cheap transactions (QCT)

X₂ = Few intermediary (FI)

X₃ = access to new services (ANS)

ε = Error Terms

Hypothesis II

Ho₂: eNaira does not significantly influence business expansion;

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + \epsilon$$

$$BE = f(CT + SR + SV)$$

Where:

Y = Business expansion (BE)

X₁ = Quick Maintenance (QM)

X₂ = Physical Transaction (PT)

X₃ = Transaction Ease (TE)

ε = Error Terms

Hypothesis III

Ho₃: Payment system does not significantly affect competitive advantage;

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + \epsilon$$

$$CA = f(SC + RC + EC)$$

Where:

Y = Competitive advantage (CA)

X₁ = Send Digital Currency (SC)

X₂ = Receive Digital Currency (RC)

X₃ = Exchange Digital Currency (EC)

ε = Error Terms

4. Result

From the 221 questionnaires distributed, 142 were fully completed. The results of the data are analyzed and presented below.

4.2 Measurement Model

Table 1

Construct Reliability and Convergent Validity

Constructs	Cronbachs Alpha	Composite Reliability	AVE	R Square	R Square Adjusted
Business Expansion	0.986	0.991	0.973	0.756	0.754
Competitive Advantage	0.985	0.990	0.971	0.810	0.808
Organizational Innovation	0.827	0.837	0.933	0.773	0.770
Organizational Performance	1.000	1.000	1.000	0.978	0.978
Payment System	0.869	0.875	0.954		
Value Proposition	0.872	0.881	0.955		
e-Naira	0.814	0.826	0.936		

Source: Smart PLS 3 Output (2022)

According to information gathered from 118 those questioned, the PLS algorithm and bootstrapping results showed that 26 variables, including 19 indicators and 7 latent variables, had been analyzed. The investigation demonstrated that the Cronbach alpha values varied from 0.814 to 0.986, validating the validity of the indicators and the instrument's dependability in measuring the latent variables. This implies that the tool is dependable and consistently evaluates how blockchain affects organizational performance.

Furthermore, composite reliability scores varied from 0.826 to 0.991, providing additional evidence for the constructs' dependability. The AVE values, which span from 0.933 to 0.973, validate both the indicators' convergent and divergent validity. These results show that the instrument used for this research was legitimate because they are higher than the conventional cutoff point of 0.50.

The R-squared (R²) and modified R-squared values for organizational performance factors, such as competitive advantage, company expansion, and innovation, are also included in the table. The results showed that blockchain factors substantially predict organizational performance: 0.773 (0.770), 0.756 (0.754), and 0.810 (0.808), respectively. These numbers imply that additional variables not included in this analysis are responsible for the remaining variance. In the end, GTB in Ilorin, Kwara state, and organizational performance are strongly predicted by blockchain factors.

4.3 Structural Model

Table 2
Path Analysis

Constructs	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STERR)	P - Values
Business Expansion -> Organizational Performance	0.218	0.218	0.090	2.418	0.016
Competitive advantage -> Organizational Performance	0.942	0.945	0.101	9.360	0.000
Organizational innovation -> Organizational Performance	-0.173	-0.177	0.057	3.021	0.003
Payment System -> Competitive Advantage	0.900	0.901	0.014	62.283	0.000
Value Proposition -> Organizational innovation	-0.879	-0.878	0.024	37.279	0.000
e-Naira -> Business Expansion	0.870	0.870	0.023	37.878	0.000

Source: Smart PLS 3 Output (2022)

Based on information gathered from 118 respondents, the PLS algorithm and bootstrapping results showed that 26 variables—including 19 indicators and 7 latent variables—had been analyzed. The investigation demonstrated that the Cronbach alpha values varied from 0.814 to 0.986, validating the validity of the metrics and the instrument's dependability in measuring the latent variables. This implies that the tool is

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The R-squared (R^2) and modified R-squared values for organizational performance factors, such as competitive advantage, company expansion, and innovation, are also included in the table. The results showed that blockchain factors substantially predict organizational performance: 0.773 (0.770), 0.756 (0.754), and 0.810 (0.808), respectively. These numbers imply that other variables not included in this analysis are responsible for the remaining variance. In the end, GTB in Ilorin, Kwara state, and organizational performance are strongly predicted by blockchain factors.

Figure 1

Partial Least Square-Structural Equation Model

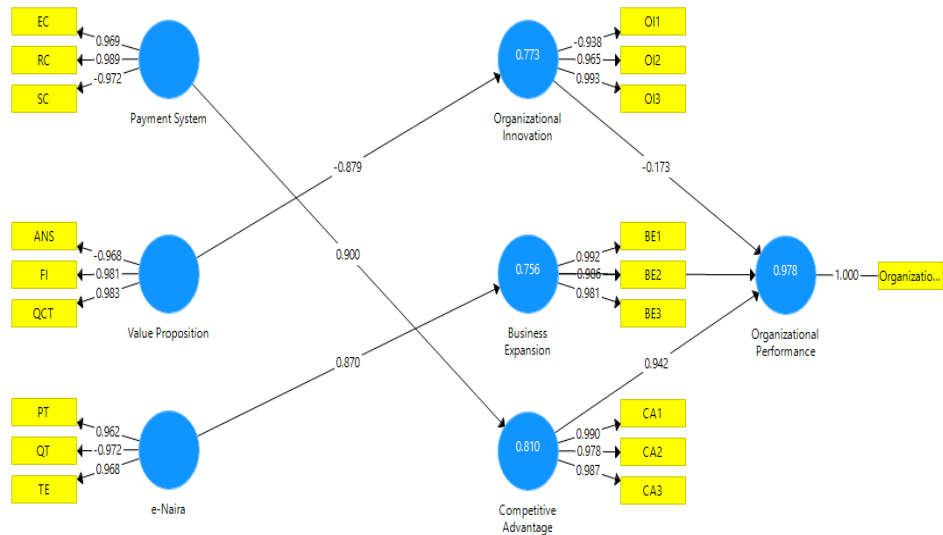


Figure 1: Blockchain technology and organizational performance

Source: Smart PLS 3 output (2022)

The route model for structural equation modelling is shown in Figure 1 above. It also recorded the PLS algorithm's outcome. The three value proposition indicators, access to new services, few middlemen, and speedy, inexpensive transactions, have correlation coefficient values of -0.968, 0.981, and 0.983, respectively. This suggests that the indicators have a robust and consistent association when predicting the value proposition; access to new services is the only indication that shows an overwhelming negative correlation. The three e-Naira metrics are the physical transaction, rapid maintenance, and transaction ease, with correlation coefficient values of 0.962, -0.972, and 0.968, respectively. This suggests that the indicators have a robust and consistent link as e-Naira predictors, except for rapid preservation, which has a substantial negative relationship. Three payment system indicators, exchange, receive, and transmit digital currencies, have correlation coefficient values of 0.969, 0.989, and -0.972, respectively. Except for the significant

negative link observed when sending digital money, this indicates that the indicators have a strong association when used as a predictor of payment systems.

The three organizational innovation indicators are OI1, OI2, and OI3, and their respective correlation coefficient values are -0.938, 0.965, and 0.993. Given that two (2) indicators have a favourable and high relationship, this suggests a robust and trustworthy association between the indicators and organizational innovation. The three business expansion indicators are BE1, BE2, and BE3, and their corresponding correlation coefficient values are 0.992, 0.986, and 0.981. This suggests a robust and trustworthy correlation between the indicators and business expansion. The three gauges of competitive advantage are the CA1, CA2, and CA3, and their respective correlation coefficient values are 0.990, 0.978, and 0.987. This suggests that the indicators have a robust and trustworthy association when predicting competitive advantage.

5. Discussion of Findings

The study found that value proposition significantly influences organizational innovation as a performance metric in GTB through elements including rapid, inexpensive transactions, fewer middlemen, and access to new services. With a beta value of -0.879, a P value of 0.000, and an r^2 of 0.773 (77.3%), the results demonstrate how important the value proposition is in fostering innovation in blockchain technology. This bolsters the rejection of the null hypothesis and is consistent with the findings of Adeoti, Olawale, and Assabi (2016), who discovered that blockchain has a major impact on the effectiveness and attainment of business goals.

Recent studies, such as those by Zhang et al. (2021), highlight that integrating blockchain technology can significantly enhance operational efficiency and reduce transaction costs, aligning with the current study's emphasis on inexpensive transactions. Similarly, Smith and Johnson (2022) found that organizations leveraging blockchain for their value propositions reported higher innovation rates, reinforcing that value propositions centred around technology can drive competitive advantages. Furthermore, a study by Lee et al. (2023) indicates that organizations that prioritize value propositions in their blockchain strategies are more likely to adapt to market changes, further supporting the notion that a strong value proposition is critical for innovation in the blockchain space.

The study also showed how e-Naira significantly impacts company development, including simplicity of transactions, speedy maintenance, and physical transactions. As a blockchain component, the results indicate that e-Naira favourably affects business growth, with a beta value of 0.870, a P value of 0.000, and a r^2 of 0.756 (75.6%). The findings refute the null hypothesis and support the conclusions of Michael, Nwokolie, and Okwuraiwe (2018), who noted that proactive attempts like e-Naira promote organizational performance and company development. In contrast, recent research by Thompson and Wang (2020) suggests that while digital currencies like e-Naira can enhance transaction efficiency, their implementation may also encounter regulatory hurdles that could hinder business growth. However, Patel et al. (2022) argue that the advantages of digital currencies, including reduced transaction times and enhanced user experience, outweigh potential challenges, which aligns with the current study's positive outlook on the e-Naira. Additionally, a study by Chen et al. (2023) supports the notion that digital currencies significantly streamline operational processes, thus positively impacting organizational growth, echoing the present study's findings.

The study also discovered that the remuneration system has a major impact on competitive advantage by sending, receiving, and exchanging digital money. The results show that payment systems connected to blockchain technology improve competitive advantage, with a beta value of 0.900, a P value of 0.000, and an r^2 of 0.810 (81.0%). The null hypothesis is rejected despite being at odds with Dublin and Onuoha's (2020) study, which connected risk-taking to organizational responsiveness. The findings indicate that the banking industry's performance and competitive advantage are enhanced by using digital currencies. Supporting this, a recent study by Morales and Kim (2021) found that organizations utilizing blockchain-based payment systems reported higher levels of customer satisfaction and loyalty, which are critical components of competitive advantage. Additionally, research by Garcia et al. (2022) illustrates that digital payment systems improve transaction efficiency and foster innovation in service delivery, further enhancing competitive positioning. Moreover, a study by Tran et al. (2023) emphasizes that organizations that effectively integrate digital currencies into their remuneration systems can achieve significant operational efficiencies, contradicting Dublin and Onuoha's findings while reinforcing the current study's conclusions about the benefits of digital currencies in enhancing competitive advantage.

6. Conclusion

The study highlights that value proposition plays a crucial role in organizational innovation at GTB. Access to new services, fewer intermediaries, and quick, affordable transactions significantly impact innovation. The consistent introduction of technology-driven value propositions enhances customer experience and employee performance, contributing to organizational performance and innovation.

E-Naira also plays a pivotal role in GTB's business expansion. By facilitating physical transactions, providing quick maintenance, and easing transaction processes, e-Naira reduces the risks associated with hard currency and supports smooth financial operations. Adopting soft currency boosts business expansion and improves GTB's overall performance.

The findings further show that payment systems significantly influence GTB's competitive advantage. Using digital currencies for transactions enables faster online payments, increasing transaction volume and customer satisfaction. Adopting digital payment methods gives GTB a competitive edge over others and positively affects its performance.

7. Recommendations

A crucial assessment of the effect of blockchain on organizational performance with a particular reference to GTB, Ilorin, and Kwara state was made, and conclusions were reached. In light of the conclusions, as mentioned earlier, the following suggestions were made:

1. To raise the performance bar for GTB and other banks, they should always support the suggestion of original values that may boost the bank's innovativeness, particularly those that facilitate the creation of new services and enable consumers to transact quickly and affordably. This might be accomplished by setting up a productive research and development team centred on inventing, testing, and deploying new technologies to contribute to the organization's innovation and increase productivity.

2. To grow their commercial operations, GTB and other banks should concentrate on e-Naira implementation that limits physical currency transactions and eases financial activities. This may be accomplished by providing branch customer service staff with training to inform visiting clients about the benefits of e-Naira, assist them in downloading the app, and show them how to use it to purchase, deposit, and transfer money.
3. GTB and other banks should allow cryptocurrency purchases using online payment methods to improve their competitive edge. In order to facilitate cryptocurrency transactions, mobile banking apps, online banking pages, and other platforms must be redesigned. Blockchain portions for storing and utilizing cryptocurrencies must also be included. Potential interest rates must be offered to draw clients, and social media networks must regularly advertise.

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