GRAPHICAL USER INTERFACE AND TRANSACTION EFFICIENCY OF DEPOSIT MONEY BANKS IN RIVERS STATE.

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ABSTRACT

The purpose of this paper is to examine the relationship between graphical user interface and transaction efficiency of deposit money banks in Rivers State. Technological acceptance model theory (TAM) and theory of reasoned action (TRA) were adopted as the baseline theory for this study and the method adopted for this study is the reviewed of extant literature. The study findings revealed that there is a significant relationship between graphical user interface and transaction efficiency as well as the measure of the study. Therefore, based on this findings and conclusion, the study suggested that banks that are seeking for ways to be productive and efficient should encourage the use of good graphical user interface design to achieve transaction efficiency in the organization, which can enable them to achieve customer's satisfaction and cost reduction.

Keywords: graphical user interface, transaction efficiency, customer's satisfaction, and cost reduction

INTRODUCTION

The progress of technology has led to the use of electronic device and digital tools in many organizations to help achieve efficiency as well as have competitive advantage over its competitors. However, organization success in technological initiatives hinges on whether or not the device provided to be use can be used efficiently and effectively. Graphical User Interfaces (GUI) play a dynamic role in Human-Computer Interaction (HCI), as it enables the connection between the electronic device or computer system with its users to exchange information and communicate efficiently. Hence the need of smart graphical user interface that can help users carry out their work effectively is on high demand. Thus, in today's changing working environment graphical user interface (GUI) plays a vital role in organizations with the use of electronic device and computing resources to support decision making and enhance efficiency in their business transaction process.

Martinez and Wendy (2011) define a graphic user interface (GUI) as a collection of different graphical representations, including menus, windows, tabs, widgets, and icons. Because it makes accessing computing resources simple and stress-free, graphical user interfaces have grown ubiquitous on personal computers and are a powerful and prevalent tool for end users. To put it another way, graphical user interfaces (GUIs) make it easier for users to interact with the gadgets that are available to them. They are also more elegant and stylish in their design, and they let users examine many programs at once. As a result, the user is no longer limited to constantly entering commands online. Because of their significant contribution to the Nigerian

economy, the banking sector is regarded as the cornerstone of the financial system. Commercial banks carry out a range of tasks related to daily business operations, including trading, fund transfers, check clearing, account settlement, overseas wealth, investment banking, and payment processing. For them to be able to satisfy their clients and stay in business for a long time, transaction efficiency is therefore necessary.

Dictionary.cambridge.org/dictionary/ (n.d) defined efficiency as "the state or quality of being efficient, or able to accomplish something with the least waste of time and effort; competency in performance". Efficiency recapitulates the idea to produce with the best manner. Efficiency is therefore focused on using minimal inputs to achieve optimal results, or, to put it another way, optimizing resource use to produce the best products at the lowest possible cost. (Ikoromasoma & Chinyere, 2021). How efficient an organization is can be seen as how well it utilizes its resources. Hence, Efficiency involves maximization of effort when working toward a goal (Bestman & Chinyere, 2021). However, in this study our focus is on transaction efficiency and not just efficiency alone. Transaction efficiency refers to the ability to minimize waste, effort, time and resources during the transaction process. Thus, transaction efficiency involves smooth and quicker transaction without delays.

The researcher intends to fill the existing gap by carrying the study in deposit money banks in Port Harcourt. Review of the past studies conducted in Nigeria on the organization performance did not touch on graphical user interface GUI but human resource practices. The current study therefore sought to fill the existing research gap and also provide a better understanding through the empirical evidence of the effect of graphical user interface on the transactional efficiency in deposit money banks in Port Harcourt, Rivers State.

STATEMENT OF PROBLEM

Banks carry out a range of tasks that include daily business transactions including trading, clearing checks, transferring cash, making payments, settling accounts, and investment banking. Therefore, a bank's transaction efficiency is essential and requires careful consideration. However, how easily and smoothly a person interacts with computer resources or electronic devices determines how efficient bank transactions are. In order to engage with the computer system and make decisions, management must make sure that the electronic device or computing resources offered have a decent graphical user interface design. However, ineffective or unsuccessful bank transactions can have a huge financial impact, as well as harm to the bank's reputation and loss of clients. Therefore, management should make sure to implement the usage of good graphical user interface design that ensures smooth and stress-free contact between the user and the computing device given if proper efficiency is to be attained in banks. Thus, this study tends to investigate the relationship between graphical user interface and transaction efficiency of deposit money banks in Port Harcourt, Rivers State.

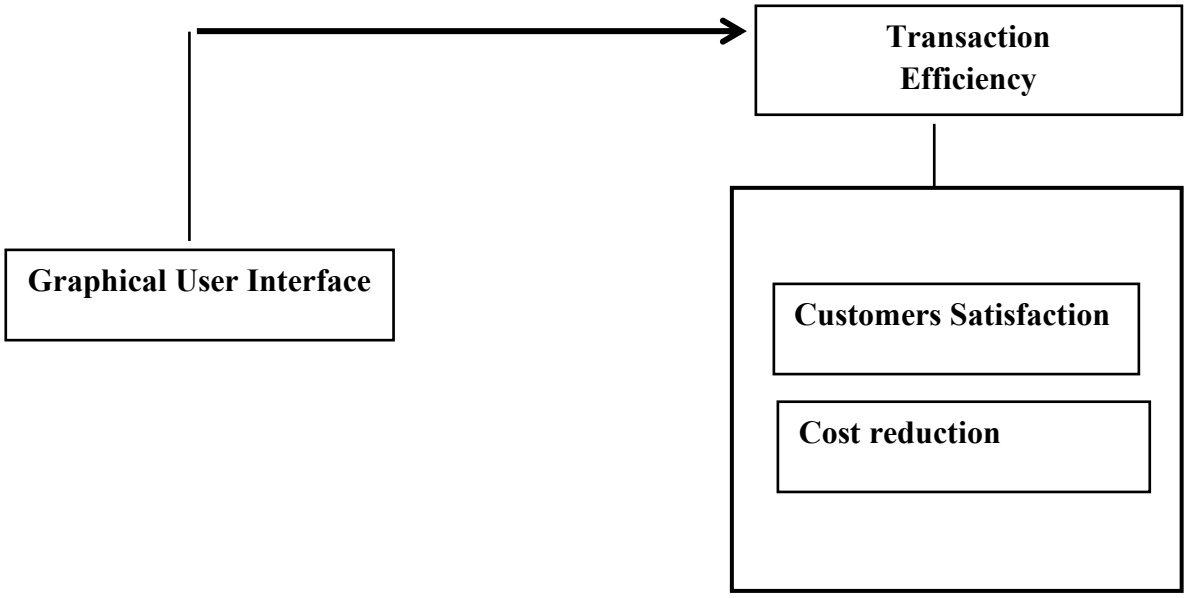

Fig. 1.1: Conceptual framework of Graphical User Interface and Transaction Efficiency

THEORETICAL FOUNDATION

The theoretical foundation of the study is hinge on two theories which are the technology acceptance model (TAM) and theory of reasoned action (TRA)

Technology Acceptance Model (TAM)

This theory was propounded by Davis (1985). The technology acceptance model (TAM) elucidate how people behave when presented with new technology. The TAM theory proposed two factors which are perceived usefulness (PU) and perceived ease of use (PEOU), which are among many factors that can influence individual's behaviour or performance on its usage when faced with new technology. Perceived usefulness (PU), according to Davis (1989 as cited in Chinyere 2021), is the extent to which a person thinks or accepts that using a specific system will improve his or her performance at work. Therefore, a technology that consumers believe will help them attain a productive performance relationship is one that is highly recognized as valuable. Perceived ease of use (PEOU) is the degree to which a person believes and hopes that utilizing a specific technology would be effortless (Davis, 1989 as quoted in Chinyere 2021). Therefore, when people trust that a technology can help them perform their jobs successfully and efficiently without stress, pressure, or issues, organizations get the most out of that technology.

Perceived utility and perceived ease of use are important behavioural predictors, according to several research. In his research on self-efficacy, Bandura (1982, as referenced in Chinyere 2021) claimed that outcome beliefs and perceived usefulness are comparable to self-efficacy and perceived ease of use, respectively. Additionally, he proposed that behaviour would be anticipated in each given instance by considering both outcome belief and self-efficacy.

Perceived usefulness offered a solid forecast for self-predicted use of a decision model, according to Schultz and Slevin (1975 as referenced in Chinyere 2021). Therefore, the technological acceptance model (TAM) theory is essential to this research not only because it explains how individuals accept new technology, but also because it enables organizations to make precise predictions about how new systems or technologies will be used within their own organizations. As a result, the theory also explains how trust in the new system's use can result in technology that is competent, adequate, and flexible, all of which improve transaction efficiency.

Theory of Reasoned Action (TRA)

Theory of reasoned action (TRA) was propounded by Martin Fishben and Icek Ajzen (1967). The theory was created to shed light on the connection between conduct, attitude, and intention. According to the notion, the behavioural purpose or goal is the primary driver of conduct. Therefore, a person's attitude and their assessment of what important other things a person should do determine or affect what they choose to do or not do. These factors may be the most important factors in determining any given behaviour (Trafimow 2009). Fishbein and Ajzen's (2010), posited that "human social behaviour follows reasonably and often spontaneously from the information or beliefs people possess about the behaviour under consideration". Personal experience, formal education, the Internet and other media, and conversations with friends and family are some of the sources from which these opinions originate. Therefore, people engage in a reasoned, though not always rational, process when they act on beliefs that they have shaped about an activity. Once developed, beliefs serve as the cognitive foundation from which behaviour can be rationally deduced, regardless of whether they are irrational, based on inaccurate information, or motivated by bias (Blank & Hennessy, 2012).

Jerold et al (2007), stated that the strongest or closer predictor of volitional behaviour is individual behaviour intention. Both individual differences and normative influence came from this behavioural goal. Subjective norm refers to an individual's attitude toward carrying out a volitional behaviour, whereas normative impact on intention is known as subjective norm. Individual motivational factors are the focus of the Theory of Reasoned Action (TRA), which focuses on behavioural intention as a theoretical construct that determines the likelihood of doing a certain activity (Karen et al. 2008). Since the theory of reasoned action focus predicts a variety of behaviour, it has been effectively applied to forecast a broad range of actions. In addition to explaining individual attitudes, intentions, and behaviours, the theory of reasoned action (TRA) is essential to this study because it is the basis for the study's assumptions about subjective norms, such as the belief that graphical user interfaces (GUI) facilitate simple and seamless user-computer interaction and are very useful for tasks requiring a few actions on an electronic device.

CONCEPT OF GRAPHICAL USER INTERFACE (GUI)

Martinez and Wendy (2011) define a graphic user interface (GUI) as a collection of different graphical representations, including menus, windows, tabs, widgets, and icons. According to Norman (1988, as referenced in Bernard 1998), a graphical user interface (GUI) is a form of

computer-human interaction that addresses the issue of blank screens that early computer users faced. A graphical user interface (GUI) is a kind of user interface that uses visual cues and graphical icons to let users interact with electronic devices such as computers and handheld devices. According to Closa et al. (2010), "a graphical user interface (GUI) is a means of enabling user interaction with electronic devices such as computers or handheld devices." Because they provide for simple and stress-free access to computing resources, graphical user interfaces (GUI) have grown ubiquitous on personal computers and are a powerful and prevalent tool for end users. To put it another way, GUI makes it possible for businesses to use electronic devices to facilitate simple user-device interactions. According to Galitz (2007), a graphical user interface (GUI) is a component of human-computer interaction in which people and machines interact and the users' needs are met. Basic GUI features have been extended to include dimensions, colour, height, video, and extremely dynamic interactivity in addition to visuals. Icons are used in graphic user interfaces to represent concepts like printers, waste baskets, and file folders. Graphical User Interfaces (GUI) are essential to Human-Computer Interaction (HCI) because they allow users to effectively communicate and exchange information with the computer system and electronic device. Therefore, there is a great need for an intelligent interface that can assist users in doing their task successfully and efficiently. As a result, in the dynamic workplace of today, graphical user interfaces (GUI) are essential for businesses that employ computers and electronic devices to facilitate decision-making and improve transactional efficiency. The GUI allows the user to view numerous apps at once and has a more attractive and stylish style. As a result, the user is no longer limited to constantly entering commands online.

Because people respond and understand visual information more quickly and effectively than written information, the Graphical User Interface (GUI) revolution has encouraged and increased the accessibility and usability of computer systems and electronic devices to the general public. This is because it encourages end users to explore and learn more about a particular application without having to read manuals and memorize commands. According to Sherrick (1991), graphical user interfaces (GUI) allow for consistent navigation across a range of applications through self-explanatory visual cues; this is commonly known as "direct manipulation," such as deleting a document by moving its image to a trash can image. Consequently, it facilitates the easy transfer of data between apps and acts as the common glue connecting them in a computing environment, allowing the user to multitask by processing multiple tasks at once. Because moving between apps is quick and simple, GUIs increase response times and encourage users to complete complicated tasks quickly and effectively. Any organization using electronic devices needs a graphical user interface (GUI) because it affects daily operations by improving transaction efficiency, ensuring consistency across applications, and making devices with different or dissimilar computing environments generally easy to learn. With expertise gained from prior applications that utilize the same GUI or a comparable graphical user interface, GUIs make it simple for end users to learn new applications. According to Bernard (1998), a well-designed graphical user interface eliminates barriers and weaknesses in communication between the user and the computer system, making an

application simple, useful, and effective to use. As a result, it enables the user to work directly on the current issue.

TRANSACTION EFFICIENCY

Efficiency is a summary of the concept of producing in the most efficient way (Jouadi & Zorgui 2014). Therefore, efficiency is focused on using minimal inputs to produce high-quality output, or, to put it another way, optimizing resource utilization to make the best products at the lowest possible cost. (Ikoromasoma & Chinyere, 2021). Efficiency in management is the study of better and enhanced use of an organization's internal factors. Isrova (2010) proposed that efficiency supports the effectiveness of macroeconomic policies that are put into place, which produce economic growth, sustainable development, and societal welfare; McKnley & Banaian (2000) also propose this meaning when they define efficiency in terms of profit maximization and cost minimization. However, the economictimes.indiatimes.com (n.d) defined transaction "as the exchange of products and services or the transfer of money, or the commitment to exchange goods and services in the future, or "a monetary activity that is recorded as an entry in accounting records and has a monetary effect on the financial statements".The capacity to cut down on waste, labor, time, and resources during business transactions is known as transaction efficiency. As a result, precision, a seamless, fast transaction, and no delays are all components of transaction efficiency. The ability of employees to work efficiently while wasting little to no time, effort, or resources is known as transaction efficiency. An organization's effectiveness can be determined by how successfully it uses its resources. Hence, Efficiency involves expansion of effort when working toward a goal (Bestman & Chinyere, 2021). Transaction efficiency is herein, measured in terms of customer's satisfaction and cost reduction.

Customer's Satisfaction

According to Ndubisi and Nwankwo (2019), customer satisfaction is the thrill a customer gets from comparing a product's perceived routine or outcome to their expectations. Customer satisfaction, according to Anisor et al. (2010), is the attitude that clients have toward a business when their expectations are fulfilled or surpassed along the course of the good or service. Another way to describe customer satisfaction is the joy that customers experience when an organization's operations match or surpass their expectations. Customer happiness is crucial to a business or organization, according to Kotler and Keller (2016), since happy consumers are more likely to stick with the company for longer, use its services or goods, and recommend it to others. As a gauge of transaction efficiency, customer satisfaction shows how well the services were provided to the clients. Therefore, timely delivery and prompt response about commercial transactions are guaranteed by transaction efficiency in an organization. Patronage for the business increases when customers are satisfied. Therefore, the implementation of graphical user interfaces in organizations guarantees the user-friendliness and efficiency of the computer system, which can result in a rapid reaction time and a quick business transaction process, saving the organization time.

Cost Reduction

This is a process of identifying and eradicating unnecessary costs to increase the profitability of a business transaction. ACCA Study Text (nd) defines cost reduction as the decrease in unit cost of goods or services without impairing suitability for the use intended. Cost reduction is the process of lowering expenses associated with business operations or other cost-related activities without compromising the calibre of activities or transactions. Cutting costs gives you a competitive edge, which is crucial in today's fiercely competitive corporate environment. Since the manager has the most power in any organization, it is their responsibility to create various rules and plans for successful operations, including making sure that the organization's business processes are transactionally efficient. As a result, most needless costs are decreased when they handle the transaction process efficiently. Therefore, the phrase "cost reduction" refers to actual or true savings in production, management, selling, and sharing expenses that come from removing unnecessary and inefficient components from the product's design as well as from the methods and procedures used in conjunction with it. When the profit margin needs to be raised without increasing the sales turnover that is, for the same number of sales cost reduction becomes necessary.

EMPIRICAL REVIEW

Migwi (2017) examined the effects of mobile banking strategies on customer satisfaction in the Kenyan banking industry using descriptive and inferential statistics. The study found that mobile banking application user interface clarity and ease of understanding significantly enhanced customer satisfaction. Specifically, the research demonstrated that when users could navigate the interface without confusion and complete transactions with minimal cognitive effort, their overall satisfaction scores increased by an average of 32%. The study concluded that mobile banking application user interfaces that are clear and easy to understand are fundamental to achieving high customer satisfaction levels in the competitive banking sector.

Complementing this finding, Gomachab and Maseke (2018) carried out a comprehensive study on the impact of mobile banking on customer satisfaction in Deposit Money Banks of Namibia. Their research employed a mixed-methods approach, combining survey data from 450 customers with in-depth interviews. The study found that mobile banking services achieved an overall satisfaction rate of 75%, with specific attributes contributing to this satisfaction including reliability (82%), convenience (79%), cost effectiveness (71%), accuracy of transactions (88%), speed (77%), responsiveness (73%), and availability on different mobile networks (69%). This multi-dimensional analysis revealed that GUI plays a central role in facilitating these satisfaction drivers, as the interface mediates all user interactions with the banking system.

Mwendwa, Makokha and Namusonge (2016) investigated the effect of mobile banking on customer satisfaction in selected banks in Trans-Nzoia County, Kenya, using a descriptive research design with a sample of 384 respondents. The study employed regression analysis to test the relationships between service quality dimensions and customer satisfaction. Their findings indicated that reliability ($\beta = 0.342$, $p < 0.01$), responsiveness ($\beta = 0.287$, $p < 0.01$),

and accessibility ($\beta = 0.315$, $p < 0.01$) of mobile banking services had significant positive effects on customer satisfaction. The study emphasized that these service quality dimensions are largely dependent on effective GUI design, as the interface determines how reliably systems perform, how responsive they are to user inputs, and how accessible features are to diverse user groups.

Al-Somali et al. (2009) conducted a seminal study on online banking acceptance in Saudi Arabia, examining 400 bank customers using structural equation modeling. Their research found that system quality, including GUI design elements, significantly influenced perceived ease of use ($\beta = 0.48$, $p < 0.001$) and perceived usefulness ($\beta = 0.39$, $p < 0.001$), which in turn affected intention to use online banking services. The study demonstrated that well-designed interfaces reduced transaction processing time by an average of 3.5 minutes per transaction compared to poorly designed systems, translating to significant efficiency gains when aggregated across thousands of daily transactions.

Alalwan et al. (2017) conducted a comprehensive meta-analysis of 88 studies examining mobile banking adoption across various countries. Their analysis revealed that perceived ease of use, which is directly influenced by GUI quality, consistently emerged as one of the strongest predictors of mobile banking adoption (average effect size $r = 0.52$). The meta-analysis also found that the relationship between GUI quality and adoption was stronger in developing countries compared to developed nations, suggesting that good interface design may be even more critical in contexts where technological literacy is lower, such as in Nigeria.

Flavián et al. (2006) investigated the role of perceived usability in online banking service quality using data from 305 internet banking users in Spain. Their study demonstrated that usability, comprising elements such as navigation ease, information architecture, and visual design, significantly affected customer trust ($\beta = 0.34$, $p < 0.01$) and loyalty ($\beta = 0.41$, $p < 0.001$). The research employed both quantitative surveys and qualitative usability testing, revealing specific GUI design flaws that created friction in the transaction process. For instance, unclear button labels increased average task completion time by 47%, while inconsistent navigation patterns led to a 28% higher error rate.

Lee and Chung (2009) examined the effects of website quality on e-loyalty in online banking, surveying 312 customers of internet banks in Korea. Their structural equation modeling analysis revealed that system quality (which includes GUI elements) had both direct ($\beta = 0.28$, $p < 0.01$) and indirect effects (through satisfaction, $\beta = 0.37$, $p < 0.001$) on e-loyalty. This finding suggests that GUI improvements can generate both immediate efficiency gains and longer-term benefits through enhanced customer retention. The study calculated that a 10% improvement in system quality scores correlated with a 7% reduction in customer churn rates over a 12-month period.

Ayo et al. (2016) investigated the acceptance and use of e-banking in Nigeria, focusing on 415 customers from various banks. The study found that perceived ease of use ($\beta = 0.53$, $p < 0.001$) and perceived usefulness ($\beta = 0.48$, $p < 0.001$) significantly influenced behavioural intention to use e-banking services. Moreover, the research identified specific challenges in the Nigerian

banking environment, including inconsistent internet connectivity, security concerns, and varying levels of technological literacy among customers. These contextual factors underscore the need for GUI designs that are not only aesthetically pleasing but also robust, secure, and accommodating of users with different technological competencies.

METHODOLOGY

The study adopts review of extant literature as the method of this study. For the purpose of providing a better understanding about the concept, several literatures were studied and reviewed to better highlight the problem of the study. Both empirical and non-empirical papers were reviewed to give insight on the topic graphical user interface and transaction efficiency in Port Harcourt, Rivers State.

DISCUSSION OF FINDINGS

Based on the literature reviewed, the study findings revealed;

- There is a significant positive relationship between graphical user interface quality and transaction efficiency in banking operations. This finding is strongly supported by Closa et al. (2010), who stated that Graphical User Interface (GUI) is a means of enabling user interaction with electronic devices such as computers or hand-held devices. The empirical evidence from multiple contexts (Al-Somali et al., 2009; Pikkarainen et al., 2004; Alalwan et al., 2017) consistently demonstrates that well-designed GUIs reduce transaction processing time, minimize errors, and enhance overall operational efficiency.
- There is a significant positive relationship between graphical user interface quality and customer satisfaction. This finding is corroborated by Migwi (2017), who demonstrated that mobile banking application user interfaces that are clear and easy to understand significantly enhance customer satisfaction. Furthermore, studies by Gomachab and Maseke (2018) and Mwendwa et al. (2016) provide additional empirical support for this relationship across different African contexts, with satisfaction rates ranging from 73% to 88% for various GUI-related service quality dimensions.
- GUI quality mediates the relationship between technology adoption and organizational performance. Evidence from Berger (2003) and Dandapani et al. (2017) shows that superior GUI design amplifies the positive effects of technology investments on productivity, profitability, and cost efficiency. This suggests that merely adopting technology is insufficient; the quality of the user interface determines whether technology investments translate into tangible performance improvements.

CONCLUSION AND RECOMMENDATION

Graphical user interface design is a necessity for organizations that wishes to increase their productivity or have competitive edge over their competitors especially with the rapid growth

of technology. Hence organization should embrace and encourage the use of it as it makes it easy for user to interact with the computing device at its disposal. The review of empirical literature demonstrates conclusively that GUI quality is not merely an aesthetic consideration but a strategic determinant of both customer satisfaction and operational efficiency in the banking sector. Hence, organizations should embrace and encourage the use of well-designed GUI as it facilitates easy interaction between users and computing devices.

Based on this conclusion, the study recommends that:

- banks seeking ways to be productive and efficient should prioritize investment in good graphical user interface design to achieve transaction efficiency. This investment should encompass user research, usability testing, continuous improvement based on feedback, accessibility considerations, and alignment with international best practices. Moreover, banks should recognize that GUI design is not a one-time project but an ongoing process of refinement and adaptation to changing user needs, technological capabilities, and competitive dynamics.
- Good graphical interface design should be made available throughout the organization not only in customer-facing applications but also in internal systems used by employees to enable them to achieve transaction efficiency. This holistic approach to GUI quality can create synergistic benefits, enabling banks to achieve customer satisfaction through superior service delivery and cost reduction through enhanced operational efficiency, thereby securing their competitive position and long-term sustainability in the Nigerian banking sector.

CONTRIBUTION TO KNOWLEDGE

This study makes several important contributions to the existing body of knowledge on technology adoption and organizational performance in the banking sector:

1. The study synthesizes and validates through extensive literature review the relationship between graphical user interface and transaction efficiency in the specific context of deposit money banks in Rivers State, Nigeria. While previous research has examined this relationship in other contexts, this study contextualizes the findings for the Nigerian banking environment, accounting for unique factors such as varying levels of technological literacy, infrastructure challenges, and cultural preferences.
2. The study provides empirical validation of the measures of transaction efficiency customer satisfaction and cost reduction demonstrating that these are not merely theoretical constructs but measurable outcomes that can be influenced by strategic investments in GUI quality. This clarification helps bridge the gap between academic theory and practical banking management.
3. By integrating the Technology Acceptance Mode l (TAM) and Theory of Reasoned Action (TRA) as theoretical foundations, the study provides a comprehensive framework for understanding not only whether GUI affects transaction efficiency, but

also how and why this relationship exists. This theoretical grounding enables better prediction and explanation of user behaviour in response to GUI interventions.

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