European Journal of Business and Management
ISSN 2222-1905 (Paper) ISSN 2222-2839 (Online)
Vol.15, No.6, 2023

The Impact of Digital Transformation on Customer Satisfaction to Digital Banking Service of Commercial Banks in Vietnam

The Anh Khuc[1] Trung Duc Quan[2] Anh Thi Ngoc Tran[2] Tuan Dat Nguyen[2] Hong Ha Nguyen[3] Trung Kien Nguyen[2]
1. Lecture, Department of Business Administration, National Economics University, Hanoi 10000-14000, Vietnam
2. School of Advanced Education Programs, National Economics University, 207 Giai Phong Road, Hanoi 10000-14000, Vietnam
3. BIFA, National Economics University, 207 Giai Phong Road, Hanoi 10000-14000, Vietnam
E-mail: ngocanhtt268.neu@gmail.com

Abstract
The present study focuses on examining the interplay and correlation between the digital transformation process as assessed by the digital banking service quality components (Ease of use, Effectiveness, Interoperability, Privacy/ Security, Empathy, Responsiveness, Reliability, Service portfolios, Service charge) and customer satisfaction for digital banking services at commercial banks in Vietnam. The predictors (independent variables) for this study are the aforementioned service quality aspects and moderator is Service charge. The outcome variable (dependent variable) is customer satisfaction. The authors combined qualitative and quantitative research techniques to develop observed variables and assess the model's fit. This study can help banking leaders evaluate and improve the quality of digital banking services in the context of financial liberalization and globalization.
Keywords: Digital transformation, Digital Banking, Banking service quality, Customer satisfaction
DOI: 10.7176/EJBM/15-6-04
Publication date: March 31st 2023

1. Introduction

In Vietnam, the government's program "National transition to 2025, orientation to 2030" has clearly stated that finance and banking is one of the fields with great social impact; Therefore, digitization should be prioritized. The requirement for banks is to improve the quality of digital banking services to meet the needs and improve customer satisfaction. The benefits of e-banking are great for customers, banks and the economy, thanks to its convenience, convenience, speed, accuracy and security (Do Van Huu, 2005). Service quality assessment is an important leadership task needed to achieve organizational success (Glaveli et al., 2006). Cronin and Taylor (1992) described five dimensions (tangibility, reliability, responsiveness, assurance, and empathy) that constitute customer expectations of service. When information technology is applied to banks, the concept of electronic banking (e-banking) was born to create a new service platform to serve the requirements of a set of customers who have already participated and transferred. change in the digital environment (Nguyen Thuy Trang, 2018). The specific problem addressed in this study is the need for improvement in the quality of commercial banking services in Vietnam to increase customer satisfaction. Therefore, a big requirement for Vietnamese banks today is to actively develop and improve the quality of e-banking services in order to best meet customer needs. When deploying e-banking services at banks in Vietnam, the nature of the service environment has changed significantly, that is, the transition from the traditional environment to the online environment with a technology platform. new impact on the behavior of using the service as well as the different perception of customers. Therefore, the traditional banking service quality assessment model will no longer be suitable with traditional scales as before, but with the deployed e-banking service, it will require new scales to match with the new service deployed on the bank's e-banking platforms. Service Quality improvement is a key issue that determines the very survival of the bank itself. The gap-model of the SERVQUAL instrument (Parasuraman et al., 1991) and BSQ models, that compares the perception of performance (P) to expectation (E), has been widely used in past studies in a variety of industries. This study will attempt to utilize the SERVQUAL measurement of Parasuraman, Zeithaml, and Berry (1991) in determining the existence of 'service-gaps' in commercial banks of Vietnam.

2. Literature Review

2.1 Digital banking and digital banking services

Digital transformation is changing the financial services industry worldwide. In Vietnam, digital transformation has become an urgent issue for banks and financial institutions. However, this is an overly complicated, slow and multi-mode program. Digital banking involves the transition to technology-based banking, where banking services are managed for customers through a series of open and customized channels such as automated teller machines (ATMs) and ATMs. mobile platform, online/Internet. These channels present a popular opportunity for banks to offer services to their customers such as mobile and online banking, text messaging, electronic reporting and bill

payment. With the digital banking, for example, customers have the opportunity to fulfill their banking needs without going to a physical branch (Kimenyi et al., 2009). Digital Banking as defined by Chikoko & Munongo (2015) is the use of the internet, mobile phones and any other electronic means as a distribution channel for banking services, including all traditional services such as balance inquiry, statement printing, wire transfers, transfer of funds to other accounts, bill payment, and new banking services such as electronic bill presentation and payment without required to go to the bank. The State Bank of Vietnam has defined e-banking services as: "Modern and convenient banking products and services that are distributed to wholesale and retail customers quickly (online). online, continuously 24 hours/day and 7 days/week, regardless of space and time) through distribution channels (Internet and other terminal access devices such as computers, ATMs, POS, telephones) desktops, mobile phones, etc.) are called e-banking services".

2.2 Quality of digital banking services (e-SERVQUAL)

For the digital banking, assessing customer service quality perceptions is becoming increasingly important and strategic for banks (Huei et al., 2018). Since Parasuraman et al. (1988) introduced a 22-item scale, called SERVQUAL, to measure service quality, this model has been widely applied across industries. The focus of SERVQUAL lies in the five dimensions of service quality made possible by an indirect (or objective) comparison between pre-purchase expectations and post-purchase perceptions of a company's performance. Previously, Yang & Jun (2002) also confirmed that there are 6 factors, namely: reliability, accessibility, ease of use, personalization, security and reputation that affect service quality. service on the internet. However, approaching from the perspective of customer satisfaction on the internet, Zeithaml et al (2000, 2002) have proposed an e-SERVQUAL model that includes 7 influencing factors: efficiency, synchronization, and reliability. , personal data protection, response, reimbursement and contact. On that basis, Gerrard & Cunningham (2015) have studied more specifically with satisfaction with the quality of banking services on the internet including: presence, ease of use, reliability, responsiveness, safety. , service situation, staff quality. This result reinforces the study of Chu et al (2012) on the relationship between internet service quality, relationship quality and customer loyalty, which has shown relatively specific factors affecting affect internet banking. However, the above studies have only approached from the perspective of services provided by the bank through the website, but have not entered the specific application segment. On the basis of the above analytical studies and on the practical situation of deploying e-banking applications in Vietnam, these applications are focusing on the following aspects: ensuring reliability, responsiveness meet the needs of customers, equip modern facilities, improve service capacity when deploying e-banking, benefit for customers and the attention and support of employees.

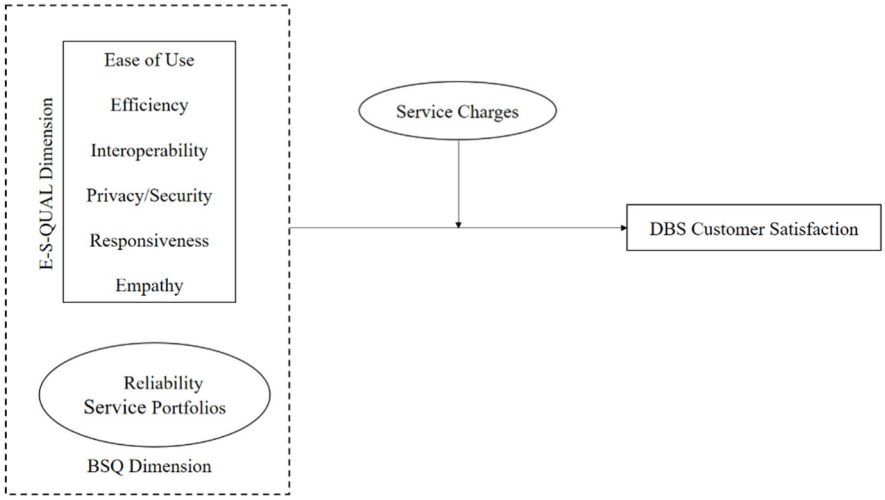
3. Methodology

Data: This study used survey questionnaires, both direct and indirect questionnaires with statistics analysis. The research team has collected 504 users of digital banking services in the North of Vietnam were surveyed using online forms and questionnaires created on a Google Docs Forms page. Moreover, we have created a preliminary scale for each variable in the suggested research model and finished the draft survey based on the synthesis of theories and findings from prior studies on the same topic conducted both domestically and abroad. They have in-depth knowledge of the banking sector and have handled problems that have arisen while implementing digital transformation with digital banking services from two commercial banks with branches in Hanoi. The research team modified the observed variables for the factors "Service Charge," "Empathy," and "Reliability" based on the observations and evaluations of experts.

Method: The research is done according to a process consisting of 5 main stages: research topic and theoretical review; collect documents; data collection; preliminary research; analyze the data and finally present the research results as well as the recommendations and suggestions of our team. In the data analysis process, we used statistical methods and SmartPLS 4 software to run the data. The statistical methods used include: descriptive statistics (to briefly describe the sample), quantitative analysis, t-test, ANOVA, and correlation methods (to eliminate nonconforming variables, measure the confidence level, and measure the relevance of the factors in the proposed model).

After consulting other studies, we propose the following research model:

Figure 1: The impact of Digital Transformation on Customer Satisfaction to Digital Banking Service of Commercial Banks



Research hypothesis:

3.1. Ease of use

The user-friendliness of digital programs is described by their ease of use (Parasuraman et al., 2005). User friendliness is a crucial component of human-computer Interoperability , according to Venkatesh et al. (2003), and it greatly promotes user acceptance and continuing use. Also, the complexity of digital applications varies, making simplicity of use a crucial consideration when assessing their utilization. The simplicity of use has a major impact on utilization and customer satisfaction, according to Ketema and Selassie (2020), who evaluated banking apps during the COVID-19 pandemic. Similar to this, earlier research (Simon and Senaji, 2016; Zavareh et al., 2012) came to the conclusion that the usability of e-services has an impact on customer satisfaction. Digital platforms must be developed to match the expectations of all users due to differences in user experience and demography, particularly during a pandemic. In this regard, Amin (2016) found that the ease of use of e-banking is positively correlated with Customer Satisfaction. Therefore, this study hypothesized that:

H1: Ease of use of DB services is positively related with customer satisfaction

3.2. Efficiency

When a digital service platform synchronizes with customer needs correctly and requests the least amount of information from consumers, it is effective (Parasuraman et al., 2005; Sharma and Malviya, 2011). Efficiency also affects how quickly a platform can offer customers flexible financial assistance and how easily a digital platform can handle customer support queries (Ariff et al., 2013). According to Ankrah (2012), enhanced operational efficiency in the banking sector of Ghana has the potential to yield strategic advantages including increased customer satisfaction. According to this, John and Rotimi (2014) contend that efficiency is still crucial for promoting electronic consumer satisfaction in Nigeria's banking sector. Also, recent research demonstrates that efficiency has a substantial impact on the pleasure of online customers (Amin, 2016; Raza et al., 2020). Given these perspectives, we contend that efficiency continues to be a crucial aspect of quality in the provision of DB services and propose the following hypothesis:

H2. The efficiency of the DB is positively related with customer satisfaction.

3.3. Interoperability

The capacity of an DB technology to connect to and communicate with other electronic banking systems is known as interoperability (Gupta et al., 2017). Due to its applicability in the development of inter-institutional platforms, particularly in the banking industry, this study has used this framework. In order to enable seamless service transactions between various service providers, banks are now integrating their digital services into a number of platforms. The national mobile money interoperability infrastructure in Ghana, for instance, has been integrated by banks to let users move money between two bank accounts or between many entities (GSMA, 2020). Without interoperability, financial information interchange will continue to take place in proprietary silos. Also, sharing financial data across various digital platforms has evolved into a strategy for banks to compete (Wu et al., 2006). Bank customers are required to use the available platforms to carry out a range of financial activities because of the limitations placed on people during the COVID-19 epidemic (Kelecic, 2020). Moreover, Bourreau and Valetti (2015) contend that interoperability drastically lowers consumer conversions and related expenses because e-customers no longer need to switch between several digital platforms in order to carry out a similar task. According

to this research (Bourreau and Valetti, 2015; Kelecic, 2020), there is a strong and positive correlation between Interoperability and consumer happiness. Therefore, we hypothesize that:

H3. DB applications interoperability is positively related with customer satisfaction

3.4. Privacy and security

The security and privacy dimension evaluates how well a bank's digital platform safeguards the private and financial data of its customers (Parasuraman et al., 2005). This feature of the database platform may have characteristics like authenticity, secrecy, non-repudiation, and integrity (Aboobucker and Bao, 2018; Pooya et al., 2020). Security is a significant issue in how customers perceive the quality of the services provided at COVID-19 in Ethiopia, according to Ketema and Selassie (2020). This claim is accurate because there are several security concerns caused by the limits placed on people that force them to rely solely on their DB applications for their financial transactions. According to research by Ketema and Selassie (2020), the level of security offered by mobile banking platforms has a big impact on how satisfied and trusted customers are. Note that assured DBs encourage trust, which leads to customer happiness and loyalty (Mujinga, 2020). Customer happiness and the privacy/security of DB services are positively and significantly correlated, according to research by Ketema and Selassie (2020). Finally, we hypothesize that:

H4. The privacy/security of the DB service application is positively related with customer satisfaction.

3.5. Empathy

Empathy involves providing care and attention to individual clients (Parasuraman et al., 1988). The essence of empathy is to assign a feeling that the customer is unique and different. Therefore, clients must be cared for on an individualized basis and provide services tailored to their preferences (AbuKhalifeh and Som, 2012). Tsoukatos and Rand (2006) argue that service firms in the banking industry, show empathy by ensuring their customers are taken care of 24/7; Services are provided conveniently to customers and always put the customer's best interests first as well as understand the specific needs of each customer. Parasuraman et al. (1994) pointed out that quantitative research has acknowledged archetypal aspects of service quality including philanthropic safety, reliability, as well as empathy-level exposure. Potluri et al. (2016) describes empathy as the ability to take care of customers and show devotion to them independently, especially while providing services. Similarly, studies by Siddiqi (2011) in Bangladesh confirmed that empathy highly predicts customer satisfaction. Ghana is a country noted for showing a high level of personal care and concern for people. This behavior, if reflected to a bank's customers, can lead to customer satisfaction. Therefore, the next hypothesis stated is:

H5. The empathy of the DB service application is positively related with customer satisfaction.

3.6. Responsiveness

The willingness to assist clients and render prompt service is referred to as responsiveness (Akinyemi et al., 2010; Parasuraman et al., 2005). This component of quality necessitates that the DB app offer clients rapid service, particularly in the COVID-19 era when people primarily rely on digital platforms. This is crucial because prompt resolution of client complaints affects how well they perceive the quality of the services provided (Narteh, 2018). The capacity to promptly and professionally recover after a bank's digital service failure or outage can frequently produce a very positive sense of quality (Zavareh et al., 2012). Narteh (2018) draws the conclusion that a bank's capacity to provide high-quality service has an impact on customers' happiness in Ghana. This suggests that banks have a duty to make sure that customer e-services people and digital platforms promptly respond to consumer inquiries and are ready to assist. Past research has demonstrated that customer happiness is impacted by the DB's response (Narteh, 2018; Al-Ghraibah, 2020). Therefore, in this study, we hypothesize that:

H6: DB service responsiveness is positively related with customer satisfaction.

3.7. Reliability

The DB platform's reliability is described as its capacity to carry out its functions in accordance with clearly defined mission characteristics without making mistakes (Bahia and Nantel, 2000; Parasuraman et al., 2005). According to Parasuraman et al. (1988), one of the most crucial aspects of service quality is reliability since customers want to know that the registered services can fully provide the service they have been promised. adequate and precise (Parasuraman et al., 2005). Given that dependability results in the provision of high-caliber services Customers' pleasure and loyalty are positively impacted by DB reliability, according to research by Raza et al. (2020) and Narteh (2018). Keep in mind that a happy customer will be content with the service they receive (Al-Ghraibah, 2020). As a result, we propose the following hypothesis for this study:

H7. DB reliability is positively related with customer satisfaction.

3.8. Service portfolios

According to Bahia and Nantel (2000), the service portfolio refers to a collection of cutting-edge goods and

services that adhere to its mission statement. Banks have shifted the majority of their traditional services to their digital platforms as a result of constraints put in place due to the COVID-19 epidemic. Customers, on the other side, are eager to anticipate bundled services on a consolidated platform from which they can (Mersha and Worku, 2020). Ghana's banking sector is competitive mostly as a result of the constant introduction of novel goods and services (Addai et al., 2019). The COVID-19 pandemic has boosted competitiveness, which has raised the requirement to provide quality customer-oriented services converging on digital platforms to satisfy and retain their clients (Agudze-Tordzro et al., 2014). It is clear that the service category significantly predicts customer satisfaction (Petridou et al., 2007; Narteh, 2018). Therefore, this study hypothesized that:

H8. The service portfolio of the DB applications is positively related with customer satisfaction.

3.9. Moderator: Services charge

Service fees are expenses related to using or gaining access to the DB (Bahia and Nantel, 2000). The price of using the DB, according to Abouraia and Othman (2017), has a big impact on whether or not people continue to use it. Senyo and Osabutey (2020) found that Ghanaian users of mobile banking were concerned about the cost of each transaction and came to the conclusion that lowering service prices would greatly increase customer satisfaction. There is evidence that the price-quality relationship has not been thoroughly investigated (Kim et al.,2006, Toncar et al., 2010). Previous research has demonstrated the relationship between high services charge and consumers' perceptions of high-quality goods and services. In a recent study, Toncar et al. (2010) discovered that customers' evaluations of the quality of the service are influenced by the extent to which their fees expectations are realized. This leads us to conclude that clients' expectations for the amount they will pay will affect how good of a service they will receive. The charge a consumer anticipates paying for a specific service is known as the expected charge (Toncar et al., 2010). Fees fairness affects the customer's faith in and happiness with the service provider, according to Kim et al. (2006). As a result, in this study, we choose “service charge” like moderate variable and propose the following hypothesis:

H9. DB service charge moderates the relationship between service quality of the bank and customer satisfaction.

4. Analytical Results

Reliability assessment

The results of Table 1 indicate that the Cronbach's alpha coefficient of the measurement scales were all above 0,7 criteria, specifically, α_{EOUS} = 0,820, α_{EFF} = 0,743, α_{INTE} = 0,804, α_{SECU} = 0,712, α_{EMP} = 0,912, α_{RES} = 0,879, α_{REL} = 0,755, α_{SEPO} = 0,808, α_{SEC} = 0,762, α_{SAT} = 0,771. Moreover, all observed variables in each measurement scale had inter-item correlation of the total score above 0,3, except for the observed variable of SAT1, which only reached a correlation coefficient of 0,228. Additionally, the inter-item correlation of the total score for SAT was only 0,322, which decreased the Cronbach's alpha value of the measurement scale. Therefore, the research team decided to remove the SEC1 and SAT1 variables from the model to improve the reliability of the measurement scales. As a result, it can be concluded that all of the measurement scales achieved consistent reliability, and 36 out of 38 observed variables were retained for further analysis in subsequent steps.

Table 1: Cronbach’s Alpha & Corrected Item – Total Correlation

Constructs	Items	Corrected Item - Total Correlation	Cronbach’s Alpha
EOUS	EOUS1	0,597	0,820
	EOUS2	0,647	
	EOUS3	0,717	
	EOUS4	0,611	
EFF	EFF1	0,578	0,743
	EFF2	0,568	
	EFF3	0,560	
	EFF1	0,578	
INTE	INTE1	0,723	0,804
	INTE2	0,683	
	INTE3	0,787	
SECU	SECU1	0,854	0,712
	SECU2	0,800	
	SECU3	0,729	
EMP	EMP1	0,817	0,912
	EMP2	0,832	
	EMP3	0,800	

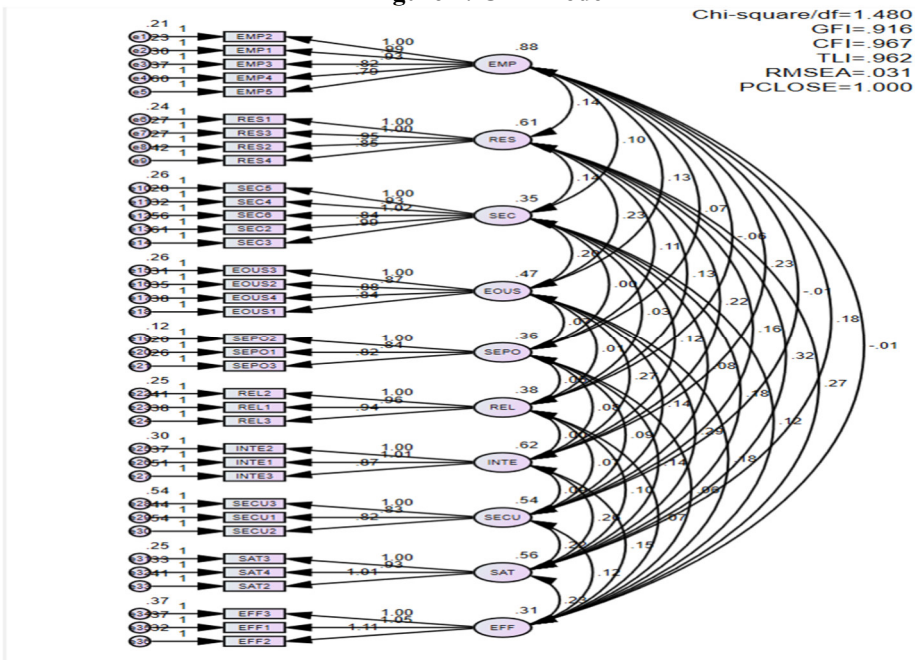
	EMP4	0,766	
	EMP5	0,671	
RES	RES1	0,776	0,879
	RES2	0,744	
	RES3	0,769	
	RES4	0,665	
REL	REL1	0,568	0,755
	REL2	0,626	
	REL3	0,563	
SEPO	SEPO1	0,750	0,808
	SEPO2	0,669	
	SEPO3	0,787	
SEC	SEC1	0,228	0,762
	SEC2	0,516	
	SEC3	0,526	
	SEC4	0,601	
	SEC5	0,636	
	SEC6	0,571	
SAT	SAT1	0,322	0,771
	SAT2	0,654	
	SAT3	0,682	
	SAT4	0,659	

After verifying the reliability of the measurement scales using Cronbach's alpha coefficient to eliminate invalid observed variables, the research team conducted exploratory factor analysis (EFA) with Promax oblique rotation and Principal Axis Factoring extraction on all 36 observations of the factors. The Kaiser-Meyer-Olkin measure was 0.874, indicating that the data was suitable for factor analysis (Hair et al., 2009). The significance level of the Bartlett's test was Sig = 0.000, which confirms that the variables are intercorrelated in the population. All 36 variables were extracted into 10 factors with Eigenvalues greater than 1, with a total variance explained of 58,010%, indicating that the 10 factors account for 58,632% of the data variability. Thus, it can be concluded that the model is appropriate and the 10 factors can explain the data.

Confirmatory factor analysis (CFA)

The resulting fit indices for the model are were follows: CMIN/df = 1,480 ≤ 2, GFI = 0,916 ≥ 0,8, CFI = 0,967, TLI = 0,962 ≥ 0,9, and RMSEA = 0,031 ≤ 0,08. Based on these analyses, it can be concluded that all fit indices meet the required standards, affirming the appropriateness of the research model (Hair et al. , 2010

Figure 2: CFA model



The results of Table 2 show that the CR of all constructs exceeds the recommended value of 0,6. Additionally, while most constructs have AVE values above the threshold of 0,5, the AVE of SEC, SECU, and EFF only reached 0,456, 0,466, and 0,491, respectively (close to but below 0,5). However, Fornell and Larcker (1981) suggested that when AVE values are below 0,5, but CR values are above 0,6 (the CR values of SEC, SECU, and EFF are 0,805, 0,715, and 0,439, respectively), the convergence value is still acceptable. Therefore, all measurement scales ensure reliability and discriminant validity (Hair et al., 2020).

Table 2: CR & AVE

	CR	**AVE**
SAT	0,832	0,624
EMP	0,913	0,680
RES	0,881	0,649
SEC	0,805	**0,456**
EOUS	0,823	0,539
SEPO	0,814	0,595
REL	0,759	0,514
INTE	0,808	0,585
SECU	0,715	**0,456**
EFF	0,743	**0,491**

Structural Equation Modeling (SEM) Analysis

The results of the goodness-of-fit test for the linear Structural Equation Modeling (SEM) show that the indices are as follows: CMIN/df = 1,526 ≤ 2, GFI = 0,925 ≥ 0,9, CFI = 0,970 ≥ 0,9, TLI = 0,965 ≥ 0,9, and RMSEA = 0,032 ≤ 0,08. Therefore, it can be concluded that the research model fits relatively well with the market data (Hair et al., 2010)

Figure 3: Normalized structural mode

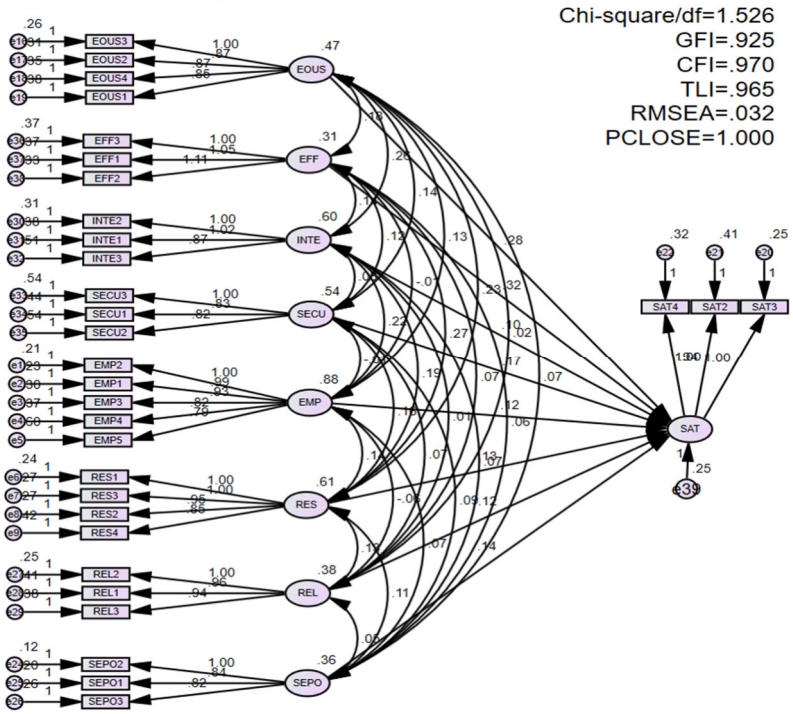


Table 3: Hypothesis test

	Path	β	S.E.	C.R.	P-value	Decision
H1	EOUS → SAT	0,277	0,063	4,387	***	Supported
H2	EFF → SAT	0,318	0,095	3,353	***	Supported
H3	INTE→ SAT	0,101	0,051	1,966	0,049	Supported
H4	SECU → SAT	0,166	0,051	3,257	0,001	Supported
H5	EMP → SAT	0,122	0,036	3,417	***	Supported
H6	RES → SAT	0,130	0,060	2,181	0,029	Supported
H7	REL → SAT	0,124	0,057	2,199	0,028	Supported
H8	SEPO → SAT	0,135	0,055	2,480	0,013	Supported

The findings indicate that all hypotheses H1, H2, H3, H4, H5, H6, H7, H8 are supported at a statistically significant level of 5%. Specifically, Ease of use and Effectiveness have positive and the most significant influence on customer satisfaction (H1: β = 0,277, p-value = 0,000 < 0,05), (H2: β = 0,317, p-value = 0,000 < 0,05). Interoperability , Security, Empathy, Responsiveness, Reliability and Service Portfolio all have have strong and positive impact on customer satisfaction (H3: β = 0,101, p-value = 0,0049 < 0,05), (H4: β = 0,166, p-value = 0,001 < 0,05), (H5: β = 0,122, p-value = 0,000 < 0,05), (H6: β = 0,122, p-value = 0,029 < 0,05), (H7: β = 0,124, p-value = 0,028 < 0,05), (H8: β = 0,124, p-value = 0,028 < 0,05)

Table 4: Moderating hypothesis test

	Path	β	S.E.	t	P-value	Decision
H9a	EOUS * SEC → SAT	0,2553	0,0711	3,5901	0,0004	Supported
H9b	EFF * SEC → SAT	0,4680	0,0608	7,7028	0,0000	Supported
H9c	INTE * SEC → SAT	0,2353	0,0470	5,0079	0,0000	Supported
H9d	SECU * SEC → SAT	0,2253	0,0613	3,6762	0,0003	Supported
H9e	RES * SEC → SAT	0,3475	0,0555	6,2585	0,0000	Supported
H9f	EMP * SEC → SAT	0,1352	0,0528	2,5593	0,0108	Supported
H9g	REL * SEC → SAT	0,2269	0.0717	3,1673	0,0016	Supported
H9h	SEPO * SEC → SAT	0,3241	0,0940	3,4488	0,0006	Supported

Regarding the moderating hypothesis, the analysis results show that all the moderating hypothesis H9 are accepted at a statistically significant level of 5%. There are 8 moderating relationships as follows:

(1) Service charge moderates the influence of Ease of use on Customer Satisfaction (H9a: β = 0,2553, P-value = 0,0004< 0,05)

(2) Service charge moderates the influence of Effectiveness on Customer Satisfaction (H9b: β = 0,4680, P-value = 0,0000 < 0,05)

(3) Service charge moderates the influence of Interoperability on Customer Satisfaction (H9c: β = 0,2353, P-value = 0,0000 < 0,05)

(4) Service charge moderates the influence of Security on Customer Satisfaction (H9d: β = 0,2253, P-value = 0,0003< 0,05)

(5) Service charge moderates the influence of Responsiveness on Customer Satisfaction (H9e: β = 0,3475, P-value = 0,0000< 0,05)

(6) Service charge moderates the influence of Empathy on Customer Satisfaction (H9f: β = 0,1352, P-value = 0,0108< 0,05)

(7) Service charge moderates the influence of Reliability on Customer Satisfaction (H9g: β = 0,2269, P-value = 0,0016< 0,05)

(8) Service charge moderates the influence of Service Portfolio on Customer Satisfaction (H9hβ = 0,3241, P-value = 0,0006< 0,05)

5. Discussion and Conclusion

5.1 Key findings

In this study, we investigate how different facets of digital banking services offered by Vietnamese commercial banks impacted Vietnam as a whole and the banking sector in particular throughout the period of digital transformation. The Covid-19 pandemic, when digital transformation is viewed as a strategic and unavoidable step of the economy, and the rising popularity of "mobile banks" among Vietnamese banking service users served as the impetus for this study. The model put forth by the research team is entirely appropriate and has surprisingly precise predictions, according to the findings of the confirmatory factor analysis CFA in the preceding chapter.

The independent factors "easy of use, efficiency, interoperability, security/privacy, insight comprehension, response, dependability and service category" all have a positive or negative impact on the dependent variable "satisfaction," according to test hypotheses H1, H2, H3, H4, H5, H6, H7, and H8. This finding is consistent with earlier studies by Egala (2019), Al-Ghraibah (2020), Ankrah (2012), and Ketema and Selassie (2020), which hypothesized that customer satisfaction is influenced by the quality of digital banking services (2021). Also, the study by RAHELA FAROOQI (2017) shows that the elements of online banking service quality have a big impact on how satisfied clients are with those services. In online banking, each single feature of effectiveness, system availability, fulfillment, privacy, contact, feedback, and individual Interoperability makes up about 70% of the total customer satisfaction. Although Ul Haq and Awan (2020) found that consumer happiness is connected with the privacy and security of digital applications, this association depends on the privacy and security of the platform. The study's findings are particularly significant because Ketema and Selassie (2020) discovered a link between customer happiness and how simple SQDB applications are to use. Similar findings are made for the variable "understanding" in Van Dinh and Lee Pickler's (2012) investigation of the connection between service quality and customer satisfaction in the retail banking industry. When employing multiple regression equations, knowledge and dependability have a considerably larger rate of positive influence than the other variables, with significant contributions of 0.26 and 0.28. The research team can determine whether characteristics related to banking services have an impact on customer satisfaction when utilizing the digital banking services of Vietnamese commercial banks thanks to these claims supported by data. This outcome is in line with the findings of Murali et al. (2016) and Al-Ghraibah (2020), who discovered a connection between high-quality digital services and customer satisfaction and intention to stick around. In contrast to Agala's study from 2021, his other hypotheses, such as interoperability, responsiveness, and service category, had no effect on customer satisfaction. Yet, this outcome is consistent with the findings of the research team when the independent variable "Services charge" is allowed to operate as a moderator in the association between consumer happiness and the quality of digital banking services. The results demonstrates that the connection between independent factors and dependent variables is positively impacted by service fees. As a result, H9 hypothesis is approved. Service charge is an important factor for meeting customer demand for digital banking services of commercial banks in Vietnam, specifically, reasonable service charges can enhance customer satisfaction with service quality and strengthen the link between customers and the bank. On the contrary, when customers perceive the service fee as not quite reasonable, they tend to feel dissatisfied as they have to pay more to use the service.

5.2 Implications

The research results of the project help commercial banks to save costs in researching and understanding the market. In the context of large competitive credit institutions in many fields, customer retention is therefore essential. Finding out about their experiences is a crucial step in being able to guarantee the accuracy of the information provided to customers. Managers can now concentrate their resources on creating a digital bank in the most efficient manner thanks to the research's identification of crucial aspects of the process of digital transformation that have an impact on customer satisfaction. Commercial banks can make strategic adjustments for business operations based on the topic and the precise information provided by the author group, which will help them better understand the general needs of each customer.

Theoretically, the research has contributed to building a model to evaluate the effect of digital transformation on customer satisfaction through measuring the quality of digital banking services in Vietnam. Indeed, the 9 aspects that the research team found have a positive effect on customer satisfaction in descending order as follows: Efficiency, Ease of use, Security and privacy, Service Category, Responsiveness, Reliability, Understanding, Interoperability. This is the basis for researchers to develop topics related to digital transformation in the future.

5.3 Limitations and future research directions

The impact of the quality of digital banking services on customer satisfaction is empirically assessed in this study, however not all aspects of the service process, such as procedures and processes, are fully covered. The data is collected from people between the ages of 18 and 29, most of whom are students who lack experience and have tight requirements for banking services. row. As a result, the outcomes might not be entirely fair. The research team suggests that future orientation can broaden the scope of research participants to balance different age ranges in order to get beyond the aforementioned constraints. The quality-of-service paradigm can also be expanded to yield comparable insights. Once more, other moderating factors like financial security and trust can be combined with other models to ascertain what encourages clients to keep using commercial banking services. A preference technique can also be used to understand which quality aspects consumers prefer in future research.

6. Conclusion

The aim of this research was to examine how quality DBS (digital banking services) affects customer satisfaction and retention intentions, using the E-S-QUAL and BSQ models. We collected 505 responses and at the end of the

result analysis, it emerged that DBS satisfaction directly impacts on customers' retention intentions. Specifically, the study is based on eight quality dimensions namely ease of use, efficiency, interoperability, privacy/security, responsibility, reliability, empathy and portfolio. Moreover, service charge has a role as a regulator variable. It emerged that ease of use, efficiency, interoperability, privacy/security, responsibility, reliability, empathy and portfolio of DBS impacts on customers' retention decision when satisfied. Although some portions of the study findings were inconsistent with prior studies, it offers an opportunity for further assessment in contribution to a broader knowledge of quality banking services.

References

[1]. Aboobucker, I. and Bao, Y. (2018), "What obstruct customer acceptance of internet banking? Security and privacy, risk, trust and website usability and the role of moderators", Journal of High Technology Management Research, Vol. 29 No. 1, pp. 109-123, doi: 10.1016/j.hitech.2018.04.010.
[2]. Abouraia, M.K. and Othman, S.M. (2017), "Transformational leadership, job satisfaction, organizational commitment, and turnover intentions: the direct effects among bank representatives", American Journal of Industrial and Business Management, Vol. 07 No. 04, pp. 404-423, doi: 10.4236/ajibm.2017.74029.
[3]. Abualsauod, E.H. and Othman, A.M. (2019), "A study of the effects of online banking quality gaps on customers' perception in Saudi Arabia", Journal of King Saud University - Engineering Sciences No. xxxx, pp. 1-7, doi: 10.1016/j.jksues.2019.09.001.
[4]. Addai, B., Agyeman, A.S. and Gyimah, A.G. (2019), "Customers' evaluation of service quality in the Ghanian banking industry: a case study of cal bank limited", International Finance and Banking, Vol. 6 No. 1, p. 9, doi: 10.5296/ifb.v6i1.14177.
[5]. Addai, B., Ameyaw, B., Ashalley, E. and Quaye, I. (2015), "Electronic banking and customer satisfaction: empirical evidence from Ghana", British Journal of Economics, Management and Trade, Vol. 9 No. 3, pp. 1-8, doi: 10.9734/bjemt/2015/19269.
[6]. Agudze-Tordzro, K., Buame, S. and Narteh, B. (2014), "Customer retention strategies: a study of Ghanaian banks", European Journal of Business and Management, Vol. 6 No. 15, pp. 2222-2839.
[7]. Chen, M.-C., Chen, S.S., Yeh, H.M. and Tsaur, W.G. (2016), "The key factors influencing internet finances services satisfaction: an empirical study in taiwan", American Journal of Industrial and Business Management, Vol. 06 No. 06, pp. 748-762, doi: 10.4236/ajibm.2016.66069.
[8]. Chirisa, I., Mutambisi, T., Chivenge, M., Mabaso, E., Matamanda, A.R. and Ncube, R. (2020), "The urban penalty of COVID-19 lockdowns across the globe: manifestations and lessons for Anglophone sub-Saharan Africa", GeoJournal, Vol. 6, doi: 10.1007/s10708-020-10281-6.
[9]. Cuesta, C., Ruesta, M., Tuesta, D. and Urbiola, P. (2015), "The digital transformation of the banking industry", Digital Economy Watch No. August 2015, pp. 1-10, available at: https://www. bbvaresearch.com/wp-content/uploads/2015/08/EN_Observatorio_Banca_Digital_vf2.pdf.
[10]. Elisa Indriasari (2019), "Digital Banking Transformation: Application of Artificial Intelligence and Big Data Analytics for Leveraging Customer Experience in the Indonesia Banking Sector", DOI: 10.1109/IIAI-AAI.2019.00175.
[11]. Jamal and Nasser (2002). Customer satisfaction and retail banking. An assessment of some of the key antecedents of customer satisfaction in retail banking. International Journal of Bank Marketing 20 (4) 146-160
[12]. Jayawardhena, C and Folley, P. (2000) Changes in the Banking Sector: The case of Internet Banking in the UK, Internet Research; Electronic Networking Applications and Policy. 10 (1) 19-30
[13]. Ketema and Selassie (2020), "The impact of M-banking quality service on customer's satisfaction during Covid-19 lock down: The case of Bank of Abyssinia, Ethiopia", African Journal of Marketing Management
[14]. Li – Y, (2009). A Model of Customer E-loyalty in Online Banking. Economics Bulletin, 29 (2), 891-902
[15]. Lovelock, C and Writz, J (2007). Services Marketing- People Technology, Strategy Pearson- Prentice Hall 6th Ed.
[16]. Mugenda, K and Mugenda, G (2003). Research Methods in Kenya Mugenda, MO, Mugenda GA (1999), Research Methods. Qualitative and Quantitative Approaches. Nairobi Acts Press.
[17]. Nguyễn Văn Thủy (2023), "Impact of digital transformation on competitiveness of Vietnamese commercial banks", ISSN 1859 - 011X
[18]. Parasuraman, A., Berry, L., & Zeithaml, V. (1991). Refinement and assessment of SERVQUAL scale. Journal of Retailing, 67, (4), 420-450.
[19]. Parasuraman, A., Zeithaml V.A., and Berry, L.L. (1988). SERVQUAL; A Multiple-Item Scale for measuring Consumer Perceptions of Service Quality. Journal of Retailing, 64, 12-40
[20]. Parasuraman, A., Zeithaml V.A., and Malhotra A. (2005). E-S-QUAL: A Multiple-Item Scale for Assessing Electronic Service Quality. Journal of Service Research, 17 (3) 213- 233
[21]. Sulemana, Dorcas Boateng (2021), "To leave or retain? An interplay between quality digital banking services and customer satisfaction", International Journal of Bank Marketing Vol. 39 No. 7, 2021 pp. 1420-1445.