Applied Regression Modelling to Propose Recommendations for the Development of Banking Services: A Case Study of Commercial Banks in Vietnam

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Abstract

The trend of global economic integration has created conditions for the strong development of our country's economy during the integration process. More and more foreign banks have been participating in our country's financial market, creating increasingly fierce competitive pressure in the commercial banking system. Despite many efforts, domestic banks still face difficulties in surviving and developing. Facing so many competitive challenges and the entry of foreign banks requires banks to have a clear strategy to maintain and increase market share. Many banks have made great strides in service quality, improving management levels, and applying applications such as Internet banking, ebank, Fintech, etc. Providing customers, the best quality of service has become more critical than ever if banks want to survive and develop in the current period. Therefore, the article aims to discover the essential factors contributing to developing commercial banking services in Vietnam. In addition, policy implications for banking service development are proposed. Based on the goal, the author surveyed 500 customers using the banking services, applied the multiple linear regression method, and processed data using SPSS 20.0. The key findings showed seven factors affecting banking service development with a significance of 0.05. The contributions of this study have focused on analyzing and identifying factors and the level of influence of factors on banking service development. Based on the research results, the author proposed some recommendations to help commercial bank leaders develop banking services in the coming time. The research novelty discusses the proposed seven policy recommendations, which include (1) tangibles, (2) responsiveness, (3) competence, (4) empathy, (5) reliability, (6) management capacity, and (7) technological capacity. Finally, the results are also scientific evidence and are very important for managers and policymakers for Vietnamese commercial banks to apply to contribute to developing the banking services to the higher demand of customers.

Keywords: Regression Modeling, Banking, Service, Development and Policy

1. Introduction

In recent years, the consumer market has become a strategic field from a secondary position due to the nature of risk dispersion and the ability to diversify products in this market. Scientific and technical advances in electronics and telecommunications have also allowed banks to reach individual customers anytime, anywhere through modern retail channels. Along with the process of integrating the financial and banking market, Vietnamese commercial banks are increasingly aware of the importance of developing banking services with essential characteristics such as diversity and richness of products as well as customers in terms of product and service utilities and types of distribution channels. In addition to regular loan credit products, the bank has cooperated with Vietnam Life Insurance Companies to provide many preferential insurance packages such as health insurance, auto and motorbike insurance, car insurance, business insurance, and borrower insurance with many incentives. At the same time, banks actively propagate digital service utilities, encouraging customers to powerfully shift over-the-counter transactions to online transactions on the eFast platform for corporate customers and iPay for individual customers. In addition, there are many convenient service products integrated by banks on online digital technology platforms, such as booking train tickets, bus tickets, airline tickets, hotel rooms, buying movie tickets, and sending money to save and pay for essential life services such as electricity and water bills, telecommunication phone charges, internet [1]. In the face of fierce competition from integration, Vietnamese commercial banks' focus on exploiting and developing banking services brings enormous socio-economic significance.

Address the requirements of the market economy's growth and progress: (1) The development of banking services facilitates the consolidation of financial resources for the economy, streamlines various capital movements, stimulates production and consumption, fosters economic growth, generates employment opportunities, and enhances the quality of social security. Furthermore, the objective is to stimulate production, generate employment opportunities, and enhance the quality of social life. Banking services facilitate the efficient movement of money, encourage the use of electronic payments, and reduce expenses. The purpose of banking services is to entice people and households [2], [3]. Households and small and medium enterprises (SMEs) utilize the contemporary banking system to facilitate payments, resulting in faster payment processing and enhanced capital circulation. As a result, the circulation of currency is increased while decreasing the amount of physical cash in circulation and encouraging electronic payments. Simultaneously, it aids in diminishing social expenses such as printing, storage, distribution, and disposal.

In addition, the development of financial services would facilitate the growth of other sectors. The banking sector serves as a financial middleman, facilitating the movement of capital between individuals, organizations, and corporations. It has the ability to collaborate effectively and influence all economic activities and professions. The advancement of banking services enhances the accumulation of a country's foreign currency reserves and improves the balance of payments. International banking services, such as international money transfer and collection, facilitate remittances and aid in the State's efforts to bolster foreign currency reserves, enhance the balance of payments, and foster economic development. Advanced banking services can assist the Government and the Vietnam State Bank (SBV) in implementing macroeconomic policies. By monitoring account balances and transactions, the Government and SBV have the ability to manage budget revenues generated from taxes. This allows them to regulate internal resources within the population and the broader economy, making decisions on macro policies that aim to avoid and enhance the efficacy of operational instruments.

Furthermore, the development of financial services will aid in the diversification of society's requirements. (1) The development of banking services will help to mitigate risks, ensure the security of financial transactions, and provide a means of holding assets. Individuals and small and medium enterprises have the option to make payments through bank transfers, approved collections, authorized payments, or electronic payments. By employing this technique, clients will be exempt from the same hazards associated with direct payments. An asset storage service provides a secure means for consumers to keep their money, valuables, precious papers, essential documents, or artifacts. (2) Expand the range of banking services to generate other sources of revenue: While savings services may not provide as high return rates as investments, they are well-suited for individuals with little savings [4]. Our goal is to enhance banking services in order to facilitate access to credit for various economic sectors while ensuring that interest rates remain fair and affordable. By doing so, we aim to create a conducive environment for investment and consumption. Customers are offered retail credit programs. Both individuals and small and medium enterprises possess the necessary financial means to implement new investments or increase their production and commercial operations.

Given the intense rivalry in the market resulting from the economy's liberalization, the domestic market no longer enjoys the same degree of protection as it did in the past. Vietnamese commercial banks must take an active role in engaging in the process of integration and competition, which has sparked a heated discussion. Acknowledging the socio-economic importance of enhancing banking services would enable Vietnamese commercial banks to remain focused and integrate more efficiently. Based on the aforementioned perspectives, the author asserts that the advancement of banking services aids in the enhancement of commercial banks' competitiveness, market expansion, and the strengthening of their position and brand. The financial market is becoming more competitive and imposing stringent restrictions. Commercial banks, credit institutions, and non-credit organizations consistently provide highly competitive goods and services, regularly update technology, and enhance the quantity and quality of their offerings. This entails strengthening the bank's competitiveness, enlarging its market share, and bolstering its reputation and position. Based on the theoretical basis, previous studies, and set goals, this study has built a model including 7 research hypotheses and 7 factors affecting the development of banking services.

2. Literature Review

2.1. Literature empirical review

Banking services: According to research, banking services refer to the financial activities offered by banks to fulfill the financial requirements of customers, including capital management, currency exchange, and payment processing, which are essential for both commercial operations and personal financial management. The bank generates revenue by charging fees, collecting interest rate differentials, or profiting from exchange rate fluctuations while storing customer assets. In industrialized countries, banks are increasingly being viewed as service supermarkets or financial department stores, offering a wide range of services that can number in the hundreds or even thousands, depending on the bank's classification and degree of development [4], [5], [6], [7]. A bank is a financial institution that offers various services to its consumers. This notion aligns with established international norms, as seen in the categorization of service sub-sectors outlined in the draft WTO Agreement that Vietnam agreed to and negotiated throughout the process of joining the organization. It is also in line with the provisions of the Trade Agreement, trade between Vietnam and the United States. Banking is classified as a service sector industrial group under the segmentation of economic sectors by the General Statistics Office of Vietnam.

Banking service development: Development involves the process of transforming something from a lesser state to a greater state, from a narrower scope to a broader scope, from a lower level to a higher level, and from simplicity to complexity. On the other hand, innovation refers to the act of making changes to be distinct from what came before, to be more advanced, to overcome a state of being stagnant or illegal, and to meet the demands of progress. According to the standpoint of dialectical materialist philosophy, development is a progressive process that involves transitioning from a lower state to a higher state. Development is characterized by quantitative changes and qualitative transformations in many aspects of things and events. Development is the process of progressing from a lower state to a higher state, from a simpler form to a more complex form, and from an incomplete state to a perfect one through the resolution of conflicts, the occurrence of significant advancements, and the adherence to the pattern of negating previous negations.

Thus, development refers to the process of augmenting both the number and quality of something. Developing banking services refers to the process of extending the scale of financial services while simultaneously improving the quality of service provided. In summary, based on the aforementioned principles of service development, the author asserts that banking service development refers to the actions undertaken by banks to bring about modifications in the quantity and quality of services offered [8], [9]. Accordingly, in terms of quantity, it is expressed as an increase in the scale of the number of services. Quality means increasing the facilities provided following the bank's capabilities according to the bank's development goals and orientation and the economy. Developing banking services is a banking activity that includes expanding the types of service activities provided by the bank and improving the quality of the bank's services.

2.2. Research hypothesis

X1: Tangibles: The bank possesses a capacious headquarters, hence facilitating consumers in doing transactions. The bank possesses a state-of-the-art infrastructure with advanced equipment and machinery. The papers, forms, and slips utilized in financial transactions are intentionally crafted to maintain a plain and uncomplicated style, ensuring ease of implementation. The bank workers exhibit a highly professional approach and maintain a tidy and pleasant appearance when interacting with clients. The items mentioned include the outward image of the facilities, the manner of the staff, various papers and instructions, and the communication system of the bank [10], [11]. In general, everything customers can see directly with their eyes and senses can affect this factor. Tangible means are expressed through the appearance and costumes of service staff and the facilities and equipment serving the service. Thus, the author proposed hypothesis 1:

H1: Tangibles affecting banking service development.

X2: Responsiveness: Responsiveness is expressed through the desire and willingness of bank staff to respond promptly to customer inquiries. Besides, the development of modern banking services is not a complete replacement of traditional products but rather an inheritance or upgrade of conventional products. It can be understood that modern banking services include traditional banking services that are upgraded and developed on a modern technology platform, and

completely new services are provided to bring new utilities to users [12], [13]. Other studies show whether commercial banks offer customers complete, timely, and accurate information, can quickly resolve problems, effectively handle complaints, and respond to customer requests and requirements. During the transaction process, when there is a change in information, commercial banks promptly notify customers [14]. Besides, commercial banks provide complete and accurate information to customers. Officers of commercial banks are ready to answer customers' questions, guides the procedures fully and easily for customers to understand. Thus, the author proposed hypothesis 2:

H2: Responsiveness affecting banking service development.

X3: Competence: The component that instills trust and confidence in consumers is the combination of competent service, extensive professional knowledge, courteous behavior, and effective communication skills. These qualities contribute to customers' positive perception. Be certain that each time you utilize the services provided by the bank, [15]. Service capacity is determined by the level of expertise and certifications required to carry out professional services. Serviceability is evident when staff interact with clients, directly provide services, and gather essential information for customer service. Additional research indicates that clients exhibit a high level of interest in the service attitude and professional expertise of workers working in commercial banks [16]. When employees possess experience and professional competence, they exhibit a courteous demeanor. The staff demonstrates exemplary professionalism and amiability, efficiently and precisely executing operations, so fostering a sense of confidence and reliability among clients, thereby elevating the overall quality of the bank's services. Thus, the author proposed hypothesis 3:

H3: Competence affecting banking service development.

X4: Empathy: Empathy is a concern and attentive customer care, giving customers the best possible thoughtful treatment, helping customers feel like they are "honored guests" of the bank, and always warmly welcomed post anytime, anywhere [17], [18]. The human factor is the core of this success, and the more the bank cares for its customers, the more sympathy it will have. According to other studies, empathy is the employee's care and concern for customers. The bank personnel exhibit a cordial and zealous demeanor, ensuring equitable customer treatment. Customers need commercial banks to demonstrate concern for their well-being and families while comprehending their specific requirements and preferences. The staff shows genuine concern for the well-being and satisfaction of clients. Employees possess a comprehensive understanding of the distinct requirements and advantages that consumers need, enabling them to efficiently fulfill client requests [19]. Empathy demonstrates considerate customer service, providing consumers with the utmost caring attention. The success of this endeavor hinges on the human component, with the level of care exhibited by the service provider directly correlating to the degree of empathy displayed by staff in addressing the individual requirements of each consumer. Thus, author proposed hypothesis 4:

H4: Empathy affecting banking service development.

X5: Reliability refers to providing accurate, punctual, and reputable services. This requires consistency in service delivery, honoring commitments, and keeping customer promises. Besides, reliability is the ability to perform services as committed to customers, reasonable information security, and asset safety for customers [20], [21]. Whether commercial banks are reputable or not, have significant market value, whether they fulfill their commitments to customers, and whether they make them feel secure when transacting at the bank. According to other studies, commercial banks have a high level of trust, always do strictly what commercial banks have committed to, and all customer complaints are handled by commercial banks concerned and resolved satisfactorily; customer information is kept confidential, and the quality of banking services will increase. This, in turn, will contribute to the sustainable development of the tourism industry [22]. Reliability also refers to the ability to provide/perform appropriate, accurate, reputable, and trustworthy services to what has been committed and promised. This demonstrates consistency in performing services, respecting commitments, and keeping promises to customers [23]. This criterion is measured by the following scales: The bank does it right the first time, and the bank provides services at the time they promised. Thus, the author proposed hypothesis 5:

H5: Reliability affecting banking service development.

X6: Management capacity: Administrative capacity demonstrates the management of one's actions and decisions by evaluating how to achieve goals to solve problems and find new resources to adapt to the work environment. Therefore,

this competency is necessary for management personnel to help them manage themselves to possess the ability to lead others [24]. Commercial banks focus on consolidating and developing key business activities towards safety and efficiency and gradually innovating banking governance to be more consistent with international practices and standards. After the shortcomings, weaknesses, and losses arising from management and administration reasons, many banks have become more aware and focused on improving banking management capacity. However, commercial banks are only in the early stages of applying modern management methods; the management structure still has many limitations, leading to low efficiency [25]. Banks have risk management departments, but they mainly focus on credit risks and lack the experience to effectively handle new and increasing risks. The reporting and information disclosure system is still lower than international standards, leading to difficulties in analyzing and handling risks. Thus, author proposed hypothesis 6:

H6: Management capacity affecting banking service development.

X7: Technological capacity: Technological capacity is not only reflected in modern machinery and technology equipment. The ability to exploit such equipment and technology is also an essential factor. Because invisible wear and tear in the technology sector is very high, quickly exploiting the maximum efficiency of modern technology is a fundamental requirement, a decisive factor in the ability to maintain and increase profits in the technological position of an industry [26]. In addition, commercial banks engage in competition to enhance and broaden their range of banking services, as well as to enhance the quality of their services. However, the quality of banking services is also contingent upon the amount of advanced technology utilized. The advancement of banking technology is the fundamental factor that shapes the growth of financial services in present circumstances. Insufficient advancement or modernization in banking technology hinders the improvement of service quality [27]. Practice around the world has proven the strong impact of the 4.0 Industrial Revolution on the finance and banking sector, in which, especially the application of the latest achievements of technology in industries, is highlighted financial services and transactions, electronic payment development, and digital banking development [28]. Thus, author proposed hypothesis 7:

H7: Technological capacity affecting banking service development.

Studies show that banking service development is the customer's assessment of the perfect level of service quality. It is a form of attitude and results from comparing what is expected and the perception of what the customer receives. Banking service quality based on the customer's perspective must be considered in terms of quantity and quality. Banking service development is evaluated through customer satisfaction with banking services. Through domestic and foreign research, the author focuses on models related to banking service quality. On that basis, the author proceeds to build a research model suitable for commercial banks in Vietnam as follows.
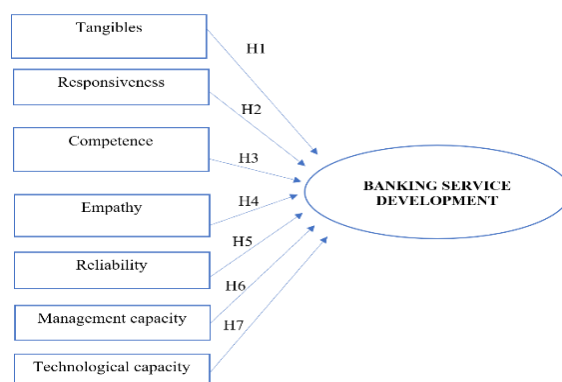

Figure 1. Seven factors affecting banking service development

Source: The author proposed the model

Figure 1 shows seven factors affecting the banking service development of commercial banks in Vietnam. Seven factors include (X1) tangibles, (X2) responsiveness, (X3) competence, (X4) empathy, (X5) reliability, (X6) management capacity, and (X7) technological capacity. Y: Banking service development.

3. Method

The study uses dialectical and historical materialist methodologies to achieve the research content and purposes. Detailed methods of investigation, survey, collection, analysis, and synthesis of information are as follows:

Qualitative research: From the established research process, the thesis conducts preliminary research, including 2 steps: qualitative and quantitative. Qualitative research was conducted using focus group interviews with 15 managers of 15 commercial banks in Vietnam. From the initial theoretical scale (initial scale), through focus group interviews, adjustments and additions are made to obtain an adjusted scale [29]. Then, continue to conduct preliminary quantitative research to evaluate the scale through Cronbach's alpha coefficient analysis and EFA analysis [29]. The author can acquire concepts about the growth of financial services by consolidating reference documents and doing desk research. Metrics for assessing the progress of banking services and the variables that influence the advancement of commercial banking services. The author analyzed and assessed variables in the assessment model for the development of banking services. Qualitative research is performed to assess the suitability of the theoretical model and to aid in the examination, modification, and augmentation of the questions used to gauge research concepts, ensuring that the constructed scale is fitting and in line with research theory. The author utilized quantitative techniques by conducting interviews with 15 managers at 15 commercial banks and administering a questionnaire survey to clients regarding banking service operations in Ho Chi Minh City, Vietnam, between December 2023 and January 2024. The group discussion results indicate that there are seven elements that influence the development of commercial banking services in Vietnam.

Quantitative research: In the official quantitative research, the paper conducted quantitative research through questionnaires for official research that will also be sent to 500 customers. Questionnaires sent to each customer will be used for official research with a survey sample size of n = 500 customers and a simple and convenient sampling method by email. However, only 468 questionnaires were considered valid and contained comprehensive information. A likert scale: (1) Strongly disagree; (2) disagree; (3) Neither agree nor disagree; (4) Agree; (5) Strongly agree , which is employed in the construction of a questionnaire to categorize the responses from strongly disagree to agree strongly [29]. In the research article, the author employs descriptive statistics to delineate the fundamental attributes of data obtained from a survey encompassing 500 clients that utilize the services of commercial banks in Vietnam. Descriptive statistics illustrate the utilization of graphs for data representation. In order to comprehend the phenomena and arrive at accurate conclusions, it is essential to employ fundamental techniques of data description such as frequency tables, survival rates, and cumulative frequencies. Furthermore, the study used descriptive statistics, including measures such as mean, standard deviation, variance, and standard error. Survey questionnaire and customer reviews about banking services. This indicates customer agreement on service quality, administrative, and technological capacity. From there, we can assess the general status of customers regarding banking services. This study selected the sample from customers transacting with 15 commercial banks concentrated mainly in Ho Chi Minh City, Vietnam. Because the overall research is composed of many types of customers using many different kinds of services at banks, the elements that constitute service quality expressed in each type of service are not uniform, and the meaning is inconsistent. The opinions of customers of different ages are different, so to increase the accuracy of assessing overall service quality, the collected data is guaranteed to be quite comprehensive; the author divides it according to each branch of the commercial bank system, at the same time, at each branch the author distributed the survey evenly to all operational departments.

In addition, this study used regression methods to predict the intensity of the impact of factors on the development of banking services. After the scale of the tested factors has met the requirements, the next step will be to run linear regression and test with a 5% significance level according to the model. Identifying factors affecting banking service development is essential to help the banks make positive adjustments to factors that directly affect banking service development. Inferential statistics allows the researcher to infer data from the study sample when analyzing the relationship between two variables, the difference in a variable between different sample groups, and the association between the independent variable and dependent variable. This study also uses inferential statistics to test research hypotheses. The independent variables include X1: tangibles, X2: responsiveness, X3: competence, X4: empathy, X5: reliability, X6: management capacity, and X7: technological capacity. The dependent variables: Y: Banking service development.

4. Result and Discussion

The trend of digital transformation in the world is becoming increasingly clear, and businesses worldwide have had an evident change in awareness. Especially during and after the COVID-19 pandemic, digital transformation is gradually becoming a familiar concept and an inevitable trend for development and survival. Research results show that banks' service quality management is well implemented. Compared with the principles of service quality management, this work achieves high compliance, and there is not much difference between the group of joint stock commercial banks with state capital and joint stock commercial banks without state capital. Although service quality management at the bank is clearly understood by bank employees and is highly appreciated for its implementation results and compliance with quality management principles, there are still many problems and opportunities to improve quality. Commercial banks all realize the practical benefits of applying a quality management system and implementing it at different levels with different contents. Besides the potential, Vietnam's banking industry faces many difficulties and challenges, specifically as follows: Compliance with the principle of data-driven decisions is rated the second-best performance with a score of 3.25/5 points. When comparing and evaluating the compliance with quality management principles according to total quality management at two banking groups, it can be seen that the group of joint stock commercial banks with state capital complies with the principles better than the group of joint stock commercial banks without state capital. State capital in most aspects. The reason is that in addition to the task of providing banking services like the group of joint stock commercial banks without state capital, the group of joint stock commercial banks with state capital must also take on the regulatory role of the State in the banking sector customers, requiring absolute compliance with risk prevention principles with strict regulations from the State Bank of Viet Nam (SBV).

As for the process approach principle, compliance is higher in the group of joint stock commercial banks without state capital, with an evaluation score of 3.28/5 points compared to 3.22/5 points in the group of joint stock commercial banks with state capital. However, the general assessment of implementing service quality development according to total quality management has also been implemented well at commercial banks in Vietnam, even though the implementation according to total quality management is not yet known and practiced by many banks.

Performance results of banks in recent times: The general assessment of banks' performance results shows that the assessment results of banks' achievements in recent years ranged from 2.4786 to 3.6132/5 points. Banks completed the set quality goals were rated highest, scoring 3.37/5 points. This shows that the importance and focus on quality are determined in most banks, and they have become a criterion for evaluating task performance. The criteria for evaluating results based on the number of new customers increased is rated lowest, with a score of 3.36/5 points. Therefore, the expansion of new customers' needs to continue to be improved at banks in the coming time. However, customer requests and complaints still exist even though the number of complaints has recently decreased. Intending to improve operational quality, banks need to do better to satisfy customer needs and aim to avoid customer complaints.

To continue improving the quality-of-service quality management in banks. The author proposes some solutions: Firstly, it is necessary to raise awareness among all organization members about service quality management to create understanding, necessity, and compliance when implementing. Developing a team to carry out control activities, implement appropriate improvement activities, and enhance the ability to use quality management and improvement tools is essential. Second, commercial banks must plan implementation programs and ensure quality for specific products and services by assessing the industry's development trends and general development, comparing and contrasting with the best-performing banks in the industry, based on standard risk prevention guidelines. Third, the bank's service quality management system needs to follow the principles of service quality management. Accordingly, products and services should always be customer-centric, and customers should understand their expected values and usage habits. The bank's quality management activities not only depend on the departments and committees in charge of quality management but also on the participation of all members.

Besides the advantages and achievements, the banking service development of commercial banks in Vietnam still has certain limitations, specifically: (1) Vietnamese commercial banks have not yet developed a long-term digital banking development strategy linked to the development of digital banking in the world and actual conditions in Vietnam. (2) although many legal documents on digital banking have been issued, with the rapid development of science, engineering, and technology, the promulgation of legal regulations has not kept up with the pace of science,

engineering, and technology development. (3) human resources for managers, executives, and digital banking development experts are lacking; training and retraining staff for digital banking development in some banks has not been given due attention. (4) investing in technical and technological infrastructure for digital banking development has been focused on by banks, but with the rapid development of science, technology, and technology, it has not yet kept up. On the other hand, there are still specific gaps compared to banks in advanced countries around the world. (5) in reality, recent cases of fraud related to digital payment activities are becoming increasingly sophisticated and complex. Although banks are always concerned about information security and confidentiality, there are still incidents of information insecurity that cannot create peace of mind for customers. (6) currently, non-cash payments have had many positive changes, but most Vietnamese people still use cash in payments, limiting the development of digital banking. (7) propaganda and advertising for digital banking development have not been done correctly, so many people do not really understand digital banking or have not seen its benefits and obstacles to the development of digital banking.

Table 1. Mean and standard deviation for banking service development

Factors	N	Min	Max	Mean	Std. Deviation
X1: Tangibles	468	1.00	5.00	3.4765	0.82356
X2: Responsiveness	468	1.00	5.00	3.1282	0.94190
X3: Competence	468	1.00	5.00	3.6132	0.85200
X4: Empathy	468	1.00	5.00	3.1645	0.93049
X5: Reliability	468	1.00	5.00	3.6090	0.86006
X6: Management capacity	468	1.00	5.00	2.5556	0.65369
X7: Technological capacity	468	1.00	5.00	2.5662	0.73596
Y: Banking service development	468	1.00	5.00	2.4786	0.61527

Notes: n = 500 samples but 468 values, 32 lacks of information

Table 1 shows that the data is perfect for developing their service sector, which needs banking service development. However, the necessary conditions for transitioning from traditional to digital banking services of Vietnamese commercial banks are still lacking. Banks are still in the early stages of building a Digital Transformation Strategy and a roadmap for converting to digital banking services. Financial priorities for creating conditions for digital human resources, technology, and information security systems are still low because the capital source to invest in developing digital banking services is quite large. The transition to core banking also requires very high investment capital. In addition, the State's mechanisms and policies for developing digital banking services have not yet caught up with reality, increasing risks that lead to some commercial banks being hesitant to accelerate the speed of digital transformation.

Therefore, some requirements and conditions to ensure the development of digital banking services at commercial banks: Commercial banks must build a strategy to develop digital banking services. This is a requirement and prerequisite for success in developing digital banking services. A digital banking service development strategy is a set of plans and solutions to achieve long-term goals. The digital banking service development strategy is the basis for orienting the digital transformation process and building an implementation roadmap. Identify clear goals and directions in developing digital banking services, help predict contexts that impact goal implementation, show how to implement with a long-term vision, and Identify factors and conditions for strategy implementation.

In addition, commercial banks must establish a roadmap for developing digital banking services suitable for each stage and according to the bank's comparative advantages. Transitioning from traditional banking services to developing digital banking services means changing the method of approaching customers and providing banking services on a digital platform to ensure the expansion of the scale of provision services, improve the quality of banking services, increase competitiveness, and increase bank profits compared to the old method. Banking activities are now not limited to physical transactions in banks but are also moving towards handheld devices. The COVID-19 pandemic has made the need for digital banking greater than ever. This pandemic has forced consumers to access their funds only through digital channels and banking services.
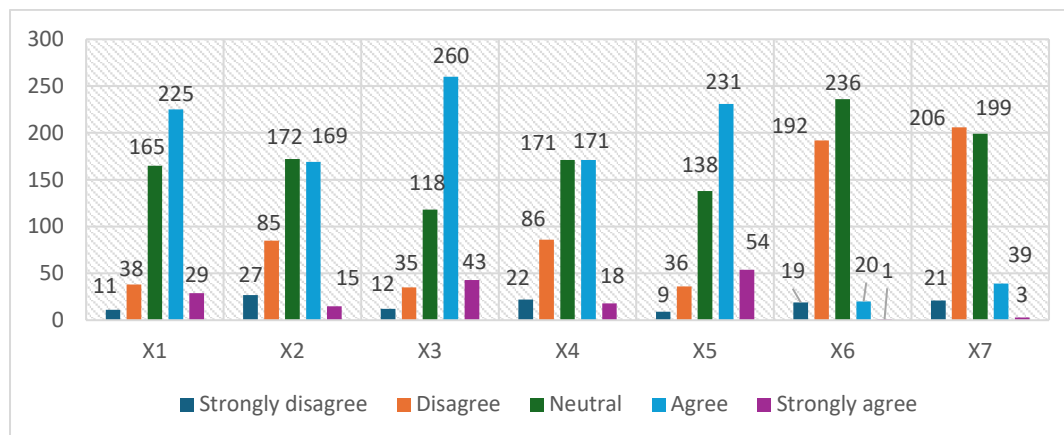
Figure 2. Frequency of factors for banking service development

Source: Data processed by Excel

Figure 2 illustrates that the research findings exhibited over 50% for levels 3 to 5. This provides the scientific foundation for leaders to make suggestions about banking service development. In addition, developing digital banking services brings many benefits to banks and customers. However, it also faces many challenges from commercial banks themselves, such as a lack of investment resources for infrastructure digital technology layer and the ability to secure customer information, huge customer files, digital human resources and challenges from the external environment, the level of completion of the State's policies and laws level of non-cash payment in the economy; level of integration in the financial and monetary sectors; connectivity of digital infrastructure; level of competition of commercial banks; habits customer familiarity; customer's technology usage level [30]. Commercial banks need to establish an appropriate transformation and development roadmap for each stage, which is associated with improving management and executive capacity, changing thinking and awareness with advanced technology, leadership style, and pursuing the digital technology development strategy. The development roadmap needs to combine the provision of traditional services with digital services in each stage, survey customer needs and ability to meet digital service needs, and associate the development of digital banking services with creating the necessary conditions to take advantage of opportunities and limit risks that arise when implementing digital banking services.

Table 2. Testing seven factors influencing banking service development

Model	Unstandardized Coefficients		Standardized Coefficients	t	Significance	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	0.424	0.137		3.089	0.002		
X1	0.105	0.029	0.140	3.582	0.000	0.507	1.973
X2	0.053	0.019	0.081	2.798	0.005	0.925	1.081
X3	0.050	0.020	0.069	2.459	0.014	0.976	1.024
X4	0.070	0.023	0.106	3.117	0.002	0.666	1.501
X5	0.095	0.026	0.132	3.591	0.000	0.570	1.756
X6	0.584	0.028	0.620	21.099	0.000	0.895	1.118
X7	0.054	0.024	0.064	2.277	0.023	0.969	1.032

Dependent Variable: Banking service development

Note: Significance 0.05
Source: Data using SPSS 20.0 and Excel

Table 2 shows seven factors affecting banking service development with a significance of 0.05, and sseven hypotheses were accepted. The research model shows that the banking service development of a destination is affected by the following factors: X1: tangibles, X2: responsiveness, X3: competence, X4: empathy, X5: reliability, X6: management capacity, and X7: technological capacity. Promoting the transformation and development of banking services requires

synchronous efforts in perfecting policy institutions, expanding the level of non-cash payments, and connecting technology infrastructure between bank's trade with related units. Commercial banks need to proactively build strategies and development roadmaps, prepare necessary resource conditions in terms of capital, digital human resources, and technology to serve the development of digital banking services, focus on building a monitoring system to prevent risks in the process of developing digital banking services; communication to raise awareness about opportunities and challenges in developing digital banking services.
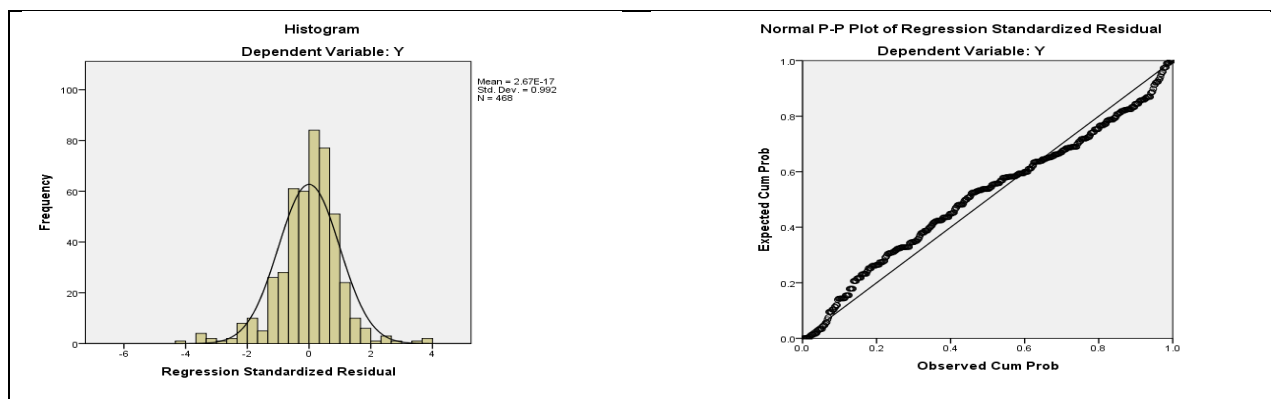

Figure 3. Testing for standardized residual for banking service development in Vietnam

Source: The data processed by SPSS 20.0

Figure 3 shows that the research model is consistent with the survey data set, is consistent with practice at commercial banks, and is statistically significant at the 5% level. In addition, banking service development is a harmonious combination of the banking sector; the digital transformation process is taking place exceptionally firmly; from the original traditional banking model, the world has undergone steps towards digital banking, such as digitization of processes and operations, customer submission; open banking and beyond; decentralized finance for application of Blockchain technology. The world is starting to participate in forming Metaverse Bank - Metaverse Banking, also known as digital universe bank, is the next generation of the Internet, combining the physical and digital worlds.

Table 3. Testing Bootstrap for seven factors affecting banking service development

Model	B	Bootstrap				
		Bias	Std. Error	Significance (2-tailed)	95% Confidence Interval	
					Lower	Upper
(Constant)	0.424	0.005	0.140	0.005	0.706	0.155
X1	0.105	0.004	0.033	0.002	0.034	0.168
X2	0.053	0.001	0.019	0.006	0.016	0.090
X3	0.050	0.005	0.020	0.014	0.010	0.089
X4	0.070	0.000	0.023	0.002	0.025	0.115
X5	0.095	0.001	0.028	0.002	0.042	0.151
X6	0.584	0.005	0.051	0.001	0.492	0.693
X7	0.054	0.001	0.021	0.013	0.013	0.095

Note: 20000 bootstrap samples; Significance 0.05

Source: The data processed by SPSS 20.0

Table 3 tested Bootstrap for coefficients for critical factors affecting banking service development with a significance of 0.05; all the hypotheses were accepted. Besides, technology investment costs are high, and infrastructure to serve digital banking development still has many shortcomings. The technology utilized in digital banking frequently undergoes fast development and is swiftly superseded by newer technologies. The high expenses of investing in technology arise from the bank's ongoing efforts to improve, maintain, and upgrade their systems in order to satisfy the growing demands of consumers and enhance their competitiveness. Emerging payment methods, such as rapid

response (QR) codes, have been created but have not been systematically designed and assessed for extensive implementation. Furthermore, the present payment systems are mostly focused on metropolitan regions, catering to those with substantial incomes and bank accounts, although they have not been extended to other demographics. This results in inefficiency as they are unable to utilize a shared payment infrastructure.

5. Conclusion and Recommendations

In a market economy, competition is a natural law of operation in every industry and every field, especially the banking sector, with the current tendency for banks to provide customers with identical products stemming from uniformity. It is the driving force for banks to maintain their market share and expand the market share of their competitors to maximize profits. Therefore, developing banking services is a prerequisite for the success of banks. Maintaining and continuously improving service quality through mechanisms to meet customer needs and satisfy them is the measure and key to the bank's success. To help Vietnamese commercial banks realize the importance of developing banking services and have appropriate and effective policies for customers using banking services, the research has achieved its goal. It draws conclusions as well as proposed policy implications with the following contents.

5.1. Conclusions

Today, the rapid development of science and technology, especially the information technology industry, has strongly impacted all aspects of life, the economy, and society, changing perceptions and methods of production and business methods of many fields and economic sectors, including banking activities. In the current era of international financial integration, developing non-cash payment services is an inevitable, objective trend in the modern economy, especially in the context of the COVID-19 pandemic, which strongly impacts all sectors, including the banking industry. Improving service quality is an indispensable development strategy in the service era, helping customers become more attached, transact more, and introduce the bank to many other customers, making an essential contribution to the development sustainability of banks. Therefore, developing banking services is a prerequisite for the success of banks, maintaining and continuously improving service quality through mechanisms to meet customer needs and satisfy them is the measure and key to the bank's success. To help Vietnamese commercial banks realize the importance of developing banking services and have appropriate and effective policies for customers using banking services. Finally, the key findings of the study showed seven factors affecting banking service development with a significance of 0.05. The contributions of this study have proposed seven policy recommendations, which include (1) tangibles, (2) responsiveness, (3) competence, (4) empathy, (5) reliability, (6) management capacity, and (7) technological capacity. The results are also scientific and essential evidence for researchers and policymakers for Vietnamese commercial banks to apply research results to improve banking service development in the future.

5.2. Recommendations

To promptly grasp opportunities and challenges from the impact of the 4th industrial revolution and the COVID-19 pandemic. Orienting the development of banking industry services from a deep understanding of the application of science, modern technology, and innovation coupled with developing high-quality human resources. These are the primary and critical elements for rapid and sustainable development, improving competitiveness, and shortening the gap in the development level of Vietnam's banking industry compared to the region and the world. The following are some orientations for developing banking services for Vietnamese commercial banks as follows:

(1) Based on the results of Table 2, the author accepted H1: Tangibles affecting banking service development at the 5% significance level, this result is consistent with studies [31], [32]. Therefore, the tangible aspects of service are manifested through the look and attire of the workers, while the equipment used to provide the service remains restricted. Furthermore, in recent years, commercial banks have prioritized allocating resources toward investing in information technology through the utilization of cutting-edge software. Aside from the deposit program, there are distinct management programs for electronic banking services, cards, and payments. These systems are routinely updated and include steps to secure data. Nevertheless, it fails to fully satisfy the criteria for development. Moreover, with each system change, it becomes challenging for both staff and consumers to acclimate to unfamiliar apps and capabilities. Consequently, banks should periodically update their facilities through repairs, refurbishments, and renovations. Financial institutions are required to regularly examine, uphold, and substitute equipment and machinery

used for operations. The investment bank upgrades outdated equipment that no longer fulfills the bank's requirements. Establish financial reserves to allocate funds for the acquisition of new equipment. Finally, commercial banks continue modernizing banking technology. This is a mandatory requirement and condition to deploy digital banking services. Because technology affects the quality-of-service provision and information security. Any malfunction in the system will affect the bank's reputation, causing significant damage to both the bank and customers and even increasing risks related to information security. Therefore, commercial banks must invest in modern machinery systems, high-speed internet systems, and technical technology that approach international standards. In addition, commercial banks need to wisely choose reputable contractors with enough capacity to select advanced and optimal technologies to meet competition in the international environment. At the same time, it is necessary to be more proactive in cooperating with e-commerce businesses and logistics infrastructure to further improve the operational efficiency of digital banking.

(2) Based on the results of Table 2, the author accepted H2: Responsiveness affecting banking service development at the 5% significance level, this result is consistent with study [33]. Therefore, the reality shows that some customers want to withdraw money but do not want to go to the bank to transact, ask relatives to bring their savings books to withdraw cash, want to be served first, and do not want to wait even though they come to transact later if A bank that does not provide service will no longer use the bank's services and will switch to another bank then if the bank does not respond, it will lead to customer dissatisfaction. Still, if it responds, it will lead to insecurity for banks and customers. Bank staff demonstrate their desire and willingness to provide timely service to customers. Continuously improve service quality based on customer feedback. Therefore, commercial banks consolidate and upgrade facilities and rearrange transaction spaces, ensuring all transaction offices have space to serve customers and meet standards. Besides enhancing, supporting, and boldly applying scientific working methods to officials' and employees' work, banks should encourage and have policies to reward officers and employees who apply scientific initiatives and strategies to their work. Regularly organize periodic and unexpected inspections of skills, expertise, and problem-solving skills that arise at work. Finally, commercial banks continue training and developing digital human resources to meet development requirements. Digital human resources are essential for commercial banks to transform and develop digital banking services. The shortage of digital human resources will significantly affect the ability to create services. Therefore, commercial banks closely follow the roadmap for developing digital banking services to proactively build a team through professional training related to digital banking, including credit and payment officers, accounting, maintenance staff, network system operations, information technology experts, internal auditors combining training with recruitment, rotation, and placement of human resources. Proactively improve financial capacity and synchronously deploy digital banking. Gradually supplementing equity sources such as issuing additional shares to mobilize capital, submitting to competent authorities to supplement equity capital, and improving quality and operational efficiency to enhance financial capacity; from there, commercial banks will have strong enough financial resources to innovate technology, upgrade, improve, and maintain to meet the requirements of competition and international economic integration.

(3) Based on the results of Table 2, the author accepted H3: Competence affecting banking service development at the 5% significance level, this result is consistent with study [34]. Reality shows that bank staff are still limited in terms of professional qualifications and polite and welcoming customer service. Currently, personnel frequently change jobs from one bank to another. Due to a lack of personnel, banks have lowered recruitment standards, recruiting new untrained personnel and bringing them to the units immediately, or the transformation of models and departments from headquarters to branches and transaction offices, leading to a situation where the staff is not competent and qualified for the work to be performed, leading to incorrect implementation processes, regulations and operations. Each officer and employee are a brand ambassador and a long-term bridge between customers and the bank. The tellers' bright smiles and dedicated, considerate, and professional service attitude will always leave an impression on customers when they come to transact. Therefore, commercial banks need to deploy incentive programs to meet the psychology and needs of each customer. Banks have started giving branded, valuable, and more practical gifts instead of mass-produced ones. Reality shows that ensuring customer information is not exploited for the wrong purpose. Comply with the correct procedures for using customers' personal information. Officers and employees must learn to cultivate their experience and industry knowledge to provide accurate information and advice to customers. Enhance empathy, pay attention to customer emotions, and always proactively pay attention to the difficulties of each individual customer group. In addition, Vietnamese commercial banks proactively increase training and professional development related to digital

banking, as well as information technology for staff, thereby having a sufficient team of officials and employees. capacity and qualifications in digital banking. At the same time, training results must be associated with the arrangement of staff based on the right person, right job, right professional capacity, and the strengths of each staff member, thereby promoting the spirit of creativity creation of staff.

(4) Based on the results of Table 2, the author accepted H4: Empathy affecting banking service development at the 5% significance level, this result is consistent with study [35]. Empathy represents an increase in consulting, support, and customer care. Commercial banks need to build specific, short-term, and long-term business plans for each customer group, grasp each customer group's psychology and needs, and prioritize each type of service that the bank provides. It is necessary to establish and build a customer information database to classify each customer group specifically and to have appropriate working methods for each customer group. Regularly organize customer surveys through many different forms, such as direct chat, surveys, and reviews on the website. Commercial banks need to improve their ability to respond to the actual needs of each individual customer group further. Besides, empathy is understood as the attitude of customers who like to be in control of themselves. Therefore, for this customer, the bank employee should act as a guide, offering different instructions and options, ensuring that the customer is always in the position of a decision maker, taking action. Fast, decisive, focused on problems. A slow response will make this customer easily angry or frustrated. For customers with positive thoughts and actions, bank staff should be open in communication to create a comfortable atmosphere, helping customers freely express their views and then be happy. Put money to get goods; if you ask questions and do not receive a warm answer from the bank staff, the customer will immediately withdraw and not go to the bank. For customers who value rules more than the law, bank staff should follow a reasonable sequence, ask specific questions to find out their true needs, and thereby assist and advise them fairly conscientious and objective. If a bank changes its working process too quickly, it will make customers unhappy. In parallel with the application of digital technology, commercial banks also cooperate with Fintech to upgrade processes and operations, provide advanced products and services, and integrate technology in an automated manner, competent to help banks conduct business, provide products and services quickly on digital platforms, and exploit data effectively. On the part of commercial banks, urgently complete and organize the implementation of policies on security, safety and security of information technology systems, as well as information technology risk management.

(5) Based on the results of Table 2, the author accepted H5: Reliability affecting banking service development at the 5% significance level, this result is consistent with study [36]. In the context of fierce competition in the banking industry, which creates many pressures and challenges, proactive change and creativity are needed to improve service quality and customer satisfaction, one of the best solutions to promote development. Evidence demonstrates that customers' demands for goods and services that cater to their specific needs are on the rise. However, banks are currently offering an inadequate number of products and services to meet their customers' expectations. Moreover, clients now have a growing desire to have their requirements met promptly and to receive preferential treatment when being served, despite the fact that banks are required to adhere to established rules and legal procedures. Indeed, ensuring operational safety is paramount. However, there are instances when consumers may be reluctant to adhere to safety protocols and prefer expedited resolutions instead. It can be said that currently, people's ability and need to use the Internet is quite large, so banks should have solutions to support detailed usage instructions for these subjects such as: attaching to use Internet banking properly. In detail, place more networked computers at the place where customers come to make transactions so that customers can access the Internet promptly and conveniently for the bank to guide customers in using e-banking. The selected tellers must be good-looking, skillful and have a soft, easy-to-listen voice. There should be uniformity in clothing and service style for transaction staff throughout the system to create the unique culture of each bank. Research and apply advanced and innovative technologies, business models, and digital solutions associated with the 4.0 industrial revolution to develop a variety of payment products and services on a digital platform, ensuring safety and security, bringing convenience to users, developing electronic payments in e-commerce, expands and develops non-cash payments in rural and remote areas, mountainous areas, borders, islands. In addition, commercial banks need to fully equip non-cash payment equipment systems to agencies and units that need to expand non-cash payments, in particular, it is necessary to pay more attention to opening the cashless system to rural, remote, mountainous, border, and island areas.

(6) Based on the results of Table 2, the author accepted H6: Management capacity affecting banking service development at the 5% significance level, this result is consistent with study [37]. Reality shows that the first challenge must be followed by many foreign banks with strong financial potential, technology, and management skills participating in the financial market in Vietnam, so competition is fierce. Harshness is unavoidable. International integration also requires Vietnamese commercial banks to have a human resource that is not only highly specialized in banking operations but also knowledgeable about international trade law and has knowledge and skills in assessment and forecasting. According to international standards, the human resources level of Vietnamese commercial banks is still minimal. Therefore, the urgent issue now is that commercial banks in Vietnam, besides taking advantage of and promoting the opportunities brought about by the integration and development process, need better management capacity than their competitors. Therefore, commercial banks need specific strategies and goals to restructure their operations, such as revenue structure, cost structure, customer structure, personnel structure, investment portfolio, etc. Building a commercial bank that operates autonomously diversifies banking activities, makes it less dependent on credit activities and more able to resist and adapt to fluctuations. In addition, commercial banks continue to train and retrain their staff and direct sales staff in both professional expertise and professional ethics to improve service quality and customer service attitude, consistent with the market mechanism. Finally, commercial banks must establish a technology infrastructure to contribute end-to-end services and products through channels. In addition, building technology infrastructure to ensure connectivity between departments in commercial banks and the ability to cross-check between departments to limit risks in providing digital services. Ensuring compatibility and compliance with the provisions of the State Bank Law; Law on Credit Institutions; Law on Prevention and Combat of Money Laundering; Commercial Law and ensure the management and supervision authority of the State Bank over payment systems, as well as payment services and means, in accordance with practical requirements, development trends and practices international.

(7) Based on the results of Table 2, the author accepted H7: Technological capacity affecting banking service development at the 5% significance level, this result is consistent with study [38]. Reality shows that the 4.0 Industrial Revolution affected not only all economic sectors but also deeply and comprehensively affected Vietnamese banking. Vietnamese people have gradually shifted from cash to non-cash payments, receiving many opportunities and challenges from the 4.0 industrial revolution. Commercial banks can further deploy or eliminate traditional OTP authentication methods by applying QR code technology to improve transaction safety. Therefore, the application of digital technology in the banking sector has a notable effect of reducing transaction, transportation, and management expenses for Vietnamese commercial banks, leading to financial savings. In light of Vietnam's deep integration into the global economy, the remarkable technological advancements of the Fourth Industrial Revolution present significant opportunities for the Vietnamese banking sector. Specifically, these advancements can enhance the capacity to utilize modern technology in order to enhance the quality, features, and utilities of products and services. This, in turn, can increase competitive advantage, reduce reliance on manual labor, lower product distribution costs, and improve profitability. This study's results enhanced banks' access to global markets and facilitated the expansion of banks' access to the provision of services to a wide range of consumers, particularly in geographically isolated regions, thereby enhancing the advancement of financial services. Commercial banks are actively upgrading their technological systems to support the creation of innovative financial services. Centralize customer information and account information so that customers can make transactions at any branch of the bank. Deploying technology systems in human resource management, risk management, building management information systems ensuring centralized, timely, accurate information to effectively support management work; training information technology staff following the development requirements of modern banking.

Limitations of the study and future research: The study constraint is that the research model was solely evaluated on a sample of 500 individual customers, specifically representing Ho Chi Minh City in Vietnam. This sample size does not represent the customer base of all commercial banks, and several other criteria were not considered. The research model does not encompass corporate culture and marketing operations. Although this research has successfully achieved its research aims, there is a restriction that has to be acknowledged. The use of stratified random sampling and a quick and convenient sampling approach by mail may have resulted in representative data that are not highly representative. In order to address limits, shortcomings, and reduce mistakes, it is advisable to undertake more extensive and thorough study in future studies. Simultaneously, elements such as organizational culture and marketing efforts have a significant

role in shaping the development of digital banking services in commercial banks across the country. Furthermore, it is imperative to broaden the scope of the study to encompass numerous additional regions and towns nationwide in order to enhance the dependability of the findings and conduct a more comprehensive analysis of distinct client segments with varying income levels.

6. Declarations

6.1. Author Contributions

Conceptualization: P.T.L.; Methodology: P.T.L.; Software: P.T.L.; Validation: P.T.L.; Formal Analysis: P.T.L.; Investigation: P.T.L.; Resources: P.T.L.; Data Curation: P.T.L.; Writing Original Draft Preparation: P.T.L.; Writing Review and Editing: P.T.L.; Visualization: P.T.L.; Author have read and agreed to the published version of the manuscript.

6.2. Data Availability Statement

The data presented in this study are available on request from the corresponding author.

6.3. Funding

6.4. Institutional Review Board Statement

Not applicable.

6.5. Informed Consent Statement

Not applicable.

6.6. Declaration of Competing Interest

The author declares that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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