Research Factors Affecting to Decide to use the QR Code Service in Payment of Individual Customers at Commercial Banks: Experimental Survey on Da Nang City

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Abstract:- The objectives of this study indicate the factors affect the decision to use QR code services in the payment of individual customers at commercial banks, include:

- **Attitudes**
- **useful feeling**
- **convenience feeling**

From the research results, the authors provide some suggestions for administrators in commercial banks in completing a number of policies to develop existing services and new services, thereby increasing Further high quality service provided to ensure customer satisfaction with services in the unit as well as develop the number of customers using QR code payment in the coming time.

Keywords:- *QR Code Payment Service, Commercial Bank, Da Nang, Decided to Use.*

I. INTRODUCTION

In recent years, along with the trend of international economic integration, Vietnam is gradually integrating with other countries in the world in many areas of socio-economic life, expanding cooperation and exchanges. trade - culture between regions, countries in the region and the world. The developed economy has made significant changes in people's lives, the needs of the people have also changed more and more complicated days. In order to meet that demand, the strong development of payment services is an indispensable objective and especially to promote the development of the banking and finance sector, which is typical in Vietnam, the Da Nang City Nang - this is considered the most livable city in Vietnam.

QR code is a payment service via Mobile banking, a QR code can contain a website address, an event time, contact information, email address, SMS message, text character content or even location positioning information. Depending on the QR CODE reader that you use when scanning, it will lead you to a web page, call a phone number or view a message. QR codes are most commonly used, and are currently the most commonly used two-dimensional code. Current QR code is extremely popular so its application is everywhere such as inventory, product information, origin, product origin, inventory of personal information, use at terminals bus, train, subway ...

Fig 1

QR Code is a code snippet scanned by a QR Code Reader. However, instead of using a dedicated scanner, you can use your smartphone to scan through the camera of the device. Most applications now use QR code to support users most accurately instead of manually entering the password will have a high accuracy. There are many ways to create QR codes, can be created online just by entering information and the website will give QR code for users, you can use the services of some websites below or can search on Google with the QR code creator or QR code Generator keyword, or it can be created using QR Droid Code Scanner software.

II. BACKGROUND STUDIES

In the world there are many studies on the decision to accept and use the service. In the of research and accept the use of commercial banking services, researcher use models and rencent Theory of Reasoned Action (Fishbein and Ajzen, Theory of Reasoned Action, 1975. According to the TRA model, intention is the most important factor predicting consumer behavior.

Intention is influenced by two factors: attitude and subjective norms. Biside that, we also use Technology Acceptance Model (Davis, 1986) model to study user acceptance of information systems. Technology Acceptance Model is to provide an explanation for deciding to accept computers, able to explain user behavior related to computer technology and the number of users.

TAM acknowledges that there are 2 important factors - feel the usefulness and feel of ease of use - that are related to technology adoption.

Proposed behavioral theory (TPB) (Ajzen, 1991), developed from rational action theory (TRA; Ajzen & Fishbein, 1975), assumes that a behavior can be predicted or explained by behavioral tendency to perform that behavior.Behavioral intention is influenced by three factors: attitude, subjective factor and control feeling.

Model of MPCU (Model of PC Utilization): By the source of the theory of human behavior of Triandis [1977], this model introduces an opposition to the factors given by TRA and TPB. Thompson et al [1991] applied and selected the model of Triandis for IS scope and used the model to predict PC usage. However, the nature of the model is very suitable to predict the acceptance and use of personal information technology segments. It includes elements: Suitable for work, Complexity, Long-term results, Influence on use, Social factors, Favorable conditions. UTAUT (Unified Theory of Acceptance and Use of Technology): Model of Unified Theory of Acceptance and Utilization of Utau technology was developed by Venkatesh (2003) with 4 core elements that determine intent and use. According to this theory, 4 factors that play a direct role in the user's acceptance and use behavior, including: Expectations for expressing, expectations for efforts, social influences, and favorable conditions . There are also external factors (gender, age, voluntary, and experience) that adjust to the intended use.

So far, there have been many practical studies on the adoption and use of e-banking services , including studies that address factors affecting decision making. Use typical e-banking services, such as:

Study the factors affecting the intention to use electronic purchase services via the online application of UTAUT model of Hoang Quoc Cuong (2010). The study identifies 6 factors that affect the intention to use electronic purchase services online: (1) Expect prices, (2) Feel the convenience, (3) Feeling ease of use (4) Feel the excitement, (5) Social influence, (6) Feel the risk when using it. In addition, the model will also be considered to influence the intention to use of three demographic variables: gender, income, age.

Study the factors affecting the ability to accept Mobile Banking by individual customers who apply UTAUT model of Chian-Son Yu (2012). Using the Consolidated Theory of Acceptance and Technology Use (UTAUT) to investigate the impact on people through Mobile banking, this study concludes that the intentions of individuals for Mobile services Banking is significantly affected by the following factors: (1) social influence, (2) perceived financial costs, (3) performance expectations, and (4) perceived trust in order influence. Applying UTAUT model to study the behavior of users of 3G mobile telecommunications by Yu-Lung Wu and colleagues (2007). The author used the UTAUT model to conduct research surveys. Research results show that factors affecting "behavioral intent" include: "efficiency expectations", "social impact" and "favorable conditions", while "expectation" about effort "has no effect.

III. RESEARCH METHODOLOGY

A. Research Modle

Each decision to use the service will depend on many different factors, based on the theoretical basis of banking services and the factors affecting the decision to use the services of the authors in the world. At the same time,in qualitative research, we conducted interviews with experts in the banking and finance filed, the author proposes a research model on the factors affecting decision intend to use QR code service in payment of individual customers at commercial banks as follows(see Figure 2)
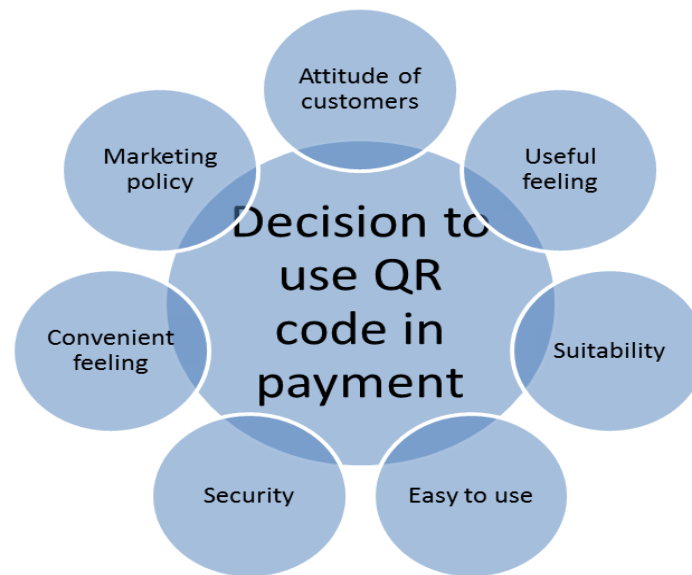
Fig 2

- *Easy to Use:* Awareness easy to use for technology will have a positive influence on the perception of users of services on mobile banking. Many research results show that easy-to-use awareness has a positive impact on self-confidence because easy-to-use awareness motivates customers to have a good first impression on service providers, making customers. The goods carry and maintain the commitment between buyers and sellers.

- *Suitability:* Cash payment is the simplest and most convenient payment method used to buy and sell goods easily. However, it is only suitable for economies with small production scale, underdeveloped production, exchange of goods payment takes place in small numbers, within a narrow range. Therefore, when the economy is growing at a high speed both in quality and quantity, cash payment is no longer able to meet the payment needs of the entire economy. Cash payments have revealed certain limitations.

- *Convenient Feeling:* The convenient feeling is that customers feel comfortable about logging in or out of the system, transaction location, trading time, trading engine ...

- *Marketing Policy:* Marketing policies are the guiding principles, rules, methods, and procedures established in connection with marketing activities to support and promote the realization of the identified goals. How customers to use , when and where.

- *Security:* Information security is to protect personal and organizational data information to avoid "stealing, stealing" by bad guys or hackers. Information security as well as information security in general. Good security of data and information will avoid unnecessary risks for the individual user.

- *Useful Feeling:* The perceived usefulness is the degree to which individuals believe that using a particular system will improve their performance (Davis, 1989). In this study, perceived usefulness is the level that customers believe that using the service will bring more efficiency.

- *Customers Attitude:* Attitude is a verbal expression, a gesture of action about phenomena and people with valuable reviews and comments including awareness, influence and behavior. Attitude has a direct influence on decisions.

The overall objective of the project is to study the factors affecting the decision to use QR code services in the payment of individual customers at commercial banks, so that the objects participating in the survey are all customers who use QR code services and customers who intend to use.

B. Data Collection

The sample size will depend on what we want to study from the data collected and the relationship we want to establish with the research goal (Kumar, 2005). The general rule is that the larger the research sample, the more accurate the research results. For this topic, with time and financial limitations and other related issues, the sample size is determined to the minimum necessary but still meets the research needs. For factor analysis, the sample size depends on the number of variables in the analysis. Gorsuch (1983, quoted by MacClallum et al. 1999) suggested that the number of samples needed was five times the number of variables. While Hoang Trong & Chu Nguyen Mong Ngoc (2008) think that rate is 4 or 5. In this topic, all 25 parameters (observed variables) need to conduct factor analysis, so the minimum number of samples required by the author group is in the range of 25 x 5 = 125 number of observed samples minimum, and try to grow as large as possible to serve more authentic research. The sample size is required, currently survey 400 customer.

IV. RESEARCH RESULTS

In this study , the survey was conducted in convenient manner. The total number of questionnaires distributed to customers in Danang and customers with business transactions nationwide is 400. The total number of questionnaires was 360 (90.00% of total votes). Result of distribution of surveyed subjects according to different characteristics as above Table 1.

Characteristics	Frequency	Ratio %
1.Gender	N = 360	100%
Female	225	62.5
Male	135	37.5
2. Age	**N = 360**	**100%**
16-20 ages	19	5.3
20-30 ages	138	38.3
30-40 ages	135	37.5
> 40 ages	68	18.9
3.Academic level	**N = 360**	**100%**
High school	5	1.4
Colleges/ University	214	59.4
Postgraduate	137	38.1
Other	4	1.1
4.Job	**N = 360**	**100%**
Student	60	16.7
Employees	14	3.9
Housewife/ retire	235	65.3
Other	51	14.2
5. Income	**N = 360**	**100%**
Up to 4.000.000 VND/month	60	16.7
4.000.000-6.000.000 VND/ month	74	20.6
6.000.000-10.000.0000 VND/month	137	38.1
>10.000.000VND/moth	89	24.7
6.Type of electronic banking service	**N = 360**	**100%**
Internet banking	190	52.8
Mobile banking	68	18.9
Bank card	102	28.3
7.Frequency of using electronic banking services	**N = 360**	**100%**
Daily	28	7.8
Several times a week	87	24.2
Weekly	122	33.9
Several times a month	123	34.2
8. Time	**N = 360**	**100%**
< 6 months	28	7.8
6-12 months	87	24.2
1-3 years	122	33.9
>3years	123	34.2

Table 1:- Sample Survey Statistics

As shown in table 1, with 360 individual on the survey lits, he results showed that in a total of 360 samples, the number of female customers was 225, accounting for 62.5%, male customers were 135, accounting for 37.5% of the total.

The analytical results prove that female customers often pay more attention to forms of payment through Mobile banking in general and QR code in particular at present. There are 5.3% of customers are aged between 16 and 20 years old, 38.3% of customers are aged 20-30 years old, 37.5% of customers are aged 30-40 and 18.9% of customers are above the age 40 years old. The group of customers who are the staff members is the group that uses the most e-banking services because the payers are not paid in the form of bank transfer, so if there is a need to spend on activities They often use mobile banking or internet banking. 16.7% of customers have low income of about 4 million / month, customers have income of 6-10 million, accounting for 38.1% and are considered the current income level in the city. Customers with incomes above 10 million / month account for a relatively high proportion of about 24.7%. The type of electronic banking service that customers use regularly is mobile banking, accounting for 18.9% and using bank card is 28.3%. It can be seen that these are very popular forms of payment for daily services of individual customers. The frequency of using e-banking services is at most weeks, 33.9%, several times per month, accounting for 34.2%.

There are many customers using e-banking services for more than 3 years, accounting for 43.3%, customers with 1-3 years of service also account for 33.1%, using time 6-12 months use accounted for 17.5%, use time under 6 months accounted for 6.1%.

No	Group variables	Symbol	Number of observation variables	Cronbach's Alpha
1	Security	BM	4	0.753
2	Convenient feeling	TT	5	0.863
3	Useful feeling	HI	5	0.890
4	Easy to use	SD	4	0.752
5	Marketing policy	MKT	3	0.907
6	Suitability	PH	2	0.760
7	Attitudes	TD	3	0.831
8	Decision	QD	3	0.942

Table 2:- Results of Reliability Analysis of Variable Groups by Cronbach'Alpha Coefficient
(Source: Author synthesis)

Based on the Cronbach's Alpha coefficient analysis, the five components of the customer satisfaction scale and the reliability factor of greater than 0.6 are reliable for use. The correlation coefficients of all observed variables are

greater than 0.3 and however Cronbach Alpha coefficients of all observed variables are unsatisfactory more than 0.6, hence this observed variable ensures reliability for the scale.

After eliminating 2 variables of Suitability (PH1, PH2) according to the above evaluation results, carry out re-testing of the reliability of the scale with the remaining 23 observed variables out of 25 original designed variables . This shows that the scale is statistically significant and the reliability coefficient is required. Should be further included in the EFA discovery factor analysis. Analyzing the EFA factor First, to check if the independent factors are relevant for inclusion in the EFA discovery factor analysis, we conduct Bartlett's test and the KMO coefficient:

Based on Table 3, the KMO value is 0.820> 0.5 and the Bartlett's Sig value of 0.000 are correlated, so the model is suitable for inclusion in exploratory factor analysis.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**.820**
Bartlett's Test of Sphericity	**Approx. Chi-Square**	**7487.460**
	Df	**253**
	Sig.	**.000**

Table 3:- The Kmo Coefficient and Bartlett's Test of the Independent Factors
(Source: Author synthesis)

The extraction method in factor analysis requires that extracts of Eigenvalue be greater than 1 to be retained in the analytical model. The extracted factors have an Eigenvalue value greater than 1 and a stop when extracts at factor 6 have an Eigenvalue of 1.044> 1. The total deviation of the 6 factors equals 78.508%> 50% of this. The ability to use these five factors explained 75,508% variability of the observed variables. The results of the EFA exploratory factor analysis with KMO are 0.756 and 0.5 and Bartlett's test has a sig value of 0.000 .

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.756
Bartlett's Test of Sphericity	Approx. Chi-Square	1008.047
	Df	3
	Sig.	.000

Table 4:- Kmo Coefficients and Bartlett's Test of Decision Factors
(Source: Author synthesis)

➤ *Regression Analysis*

After extracting the factors from the analysis of the exploratory factor, we conduct a regression analysis to determine the factors affecting career adaptation. Regression analysis will be performed with 6 independent factors:

- Factor F1: Attitudes include variables TD1, TD2, TD3, TT3
- Factor F2: Useful feeling - includes variables HI1, HI2, HI3, HI4, BM4
- F3 factor: Marketing policy - includes variables MKT1, MKT2, MKT3
- F4 factor: Convenience - including variables TT1, TT2, TT4, TT5
- F5 factor: Security - includes variables BM1, BM2, BM3
- F6 factor: Ease of use and perception - including variables SD1, SD2. and 1 dependent variable is QD - Decision to use QR code in payment. The value of each factor used to run regression is the average of the observed variables of that factor.

In the analysis of the variance above, it was found that the F value was significant for Sig. F = 0.000.

Results of first regression estimation

ANOVAᵃ

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	129.791	6	21.632	100.453	.000ᵇ
	Residual	76.016	353	.215		
	Total	205.807	359			
a. Dependent Variable: QDINH						
b. Predictors: (Constant), F6, F3, F5, F4, F1, F2						

Table 5:- Statistics Tables for Regression Coefficients Model Summary
(Source: Author synthesis)

Coefficientsᵃ

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.042	.199		.210	.834
	F1	.589	.056	.525	10.447	.000
	F2	.232	.058	.207	4.021	.000
	F3	-.027	.048	-.024	-.570	.569
	F4	.272	.054	.225	5.054	.000
	F5	.005	.047	.004	.111	.912
	F6	-.099	.041	-.094	-2.395	.017
a. Dependent Variable: QDINH						

Table 6
(Source: Author synthesis)

The regression results show that the three independent factors from F1, F2, and F4 are statistically significant, however F3, F5, and F6 have the significance of sig> 0.05 which is unsatisfactory so remove from the model.

The second regression result:

After the first regression, the results show the relevance when the remaining variables have a high meaning to influence the decision to use QR code in

payment of individual customers according to the model

original output.

Model Summary

Model	R	R2	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.790[a]	.624	.621	.46595	.624	197.316	3	356	.000	2.096
a. Predictors: (Constant), F4 , F2 , F1 b. Dependent Variable: QD										

Table 7

Coefficients[a]

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
Consatant	-0.129	0.173		-.747	0.456
F1	0.566	0.055	0.504	10.230	0.000
F2	0.203	0.054	0.181	3.783	0.000
F4	0.244	0.051	0.202	4.746	0.000
a. Dependent Variable: QD					

Table 8
(Source: Author synthesis)

Regression results show that Durbin-Watson Statistics are 2,096. Thus the model exists and with d = 2,096 ≈ 2.0, it can be concluded that the model does not exist a positive or negative self-correlation phenomenon.So, the regression estimation model will be:

The standardized recollection will be: QDINH = -0,129+ 0,566F1 + 0,203F2 + 0,244F4
The normalized regression will be: QDINH * = 0.504F1 * + 0.181F2 * + 0.202F4 *
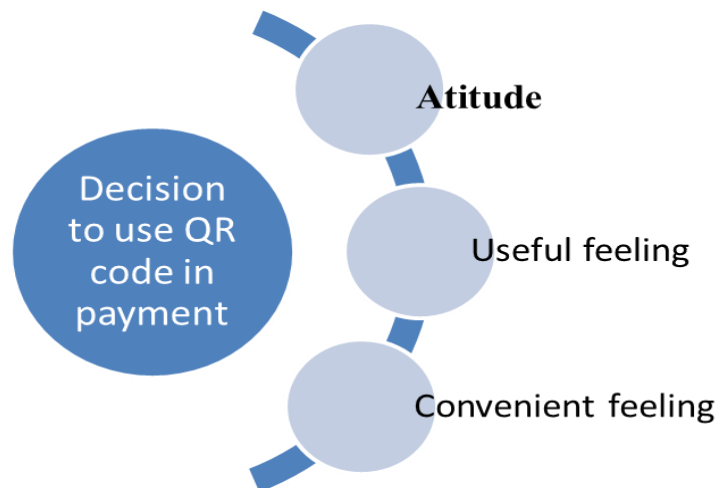And, the model of quantitative research results takes the form:

Fig 3

V. CONCLUSION

Thus, the results of this study when considering the specific factors show: Factor F1 - Attitude of customers; Factor F2 - Useful feeling; F4 Factor - Perceived convenience has a value of Sig = 0,000 <0.05, rejecting H0, means having a positive impact on the decision to

choose QR code in individual customer payment or when Thai The more interested and interested, the higher the influence on Decision to choose QR code in payment of individual customers. The contribution of each variable in the order of importance decreases: The variable "Customer's attitude" contributes 50.4%, the variable "Convenience feels" contributes 20.2% of the variable

"Usefulness feels "Contributed 18.1%. Through verification, it can be reaffirmed that the factors that influence the decision to use QR code in payment of individual customers at banks in the city of Da Nang in the order of importance Key: Customer's attitude; Convenience feeling ; Useful feeling.

RECOMMENDATIONS AND SUGGESTIONS

A. For the Attitude of the Customer

In Da Nang, with a population of more than 2 million people - mostly young people, about half of the population is exposed to the Internet and more than 70% of the population uses smartphones. They like new payment methods, especially those integrated on the mobile platform, making it easy and convenient to connect payment without having to use cash or cards. follow me. In order for the QR code payment method to become a modern and convenient payment trend in the future, this depends on the attitude of the user, because the attitude will determine the behavior of the customer.

➢ *Firstly,* answer customer questions

The questions that customers often ask when using the QR code service are the confidentiality of the information, the level of safety and the cost of using the service. These banking questions should have staff knowledgeable about services and advice to customers.

Also give suggestions on how to set up a secure password and warn about the security of the login password that the customer has just set so that customers can equip themselves with a real password. Safe.

➢ *Secondly,* build a professional staff to focus on relationships with customers.

The principle of respecting customers is reflected in the fact that employees listen to customers' opinions, know how to overcome, and behave smartly to satisfy customers. Encourage customers to share about the type of service they are using, know how to control emotions and receive information in a two-way way, help employees catch information in time to advise leaders to make improvements about services as well as reducing unnecessary procedures in trading operations.

In the process of direct contact, staff should wait, know how to choose a stop to create an impression for customers to use their banking services. Understand the psychology and needs of customers, advise them on the benefits of using the bank's products and services.

B. For Perceived Usefulness

➢ *Firstly,* the problem of the cost of using the service

According to a survey of consumers' payment attitudes conducted by Visa Card Organization in October 2018 in Da Nang, 70% of respondents said they preferred electronic payment methods compared to other banks. traditional payment method. However, among those who are using e-banking services, 32% are not satisfied with

this channel. Service fee is considered the first factor that makes customers afraid to come to QR code service. Therefore, banks should take action to reduce e-banking service fees to attract customers such as applying free program to register and use Internet Banking & Mobile Banking, free of internal transfer fee via Internet Banking. & Mobile Banking.

➢ *Secondly,* the level of dissemination of service information

Banks should strengthen banks' marketing campaigns, thus promoting marketing campaigns, advertising through leaflets, brochures, websites, etc. This will be helpful in introducing services to consumers. More broadly and give potential customers the benefits of QR code. The promotion must emphasize the advantages of services such as time saving, low-cost services, convenient transactions and the full supply of financial information and non-financial information.

C. For Perceived Convenience

➢ *The first,* simple web interface design

Simple website design, friendly interface is the most important and necessary solution to attract customers' attention when learning the service as well as creating comfort for customers when manipulating.

Each utility of the service should be guided in detail, how to operate on the system must be simple. Information and instructions on the website should be provided in both Vietnamese and English for the convenience of customers.

Bank managers should regularly survey customer opinions about service procedures in order to simplify operations and upgrade and develop websites.

➢ *The second,* equip ATM system

The bank can equip more personal computer systems at branches and transaction offices so that NH staff can directly introduce QR code services as well as instruct customers to access and manipulate on the system.

In addition, the bank should clearly indicate the use of QR code services anytime, anywhere, for example, QR codes can be used for inventory, product information or can be used at Use at bus, train, subway stations .

D. Other Solutions to Improve the Intention to Use QR Code Service for Individual Customers at Joint-Stock Commercial Banks in Da Nang City.

Thus, in addition to solutions related to Attitude, perceived convenience, perceived usefulness as mentioned above, these are direct solutions related to the intention to use QR code services for Individual customers at joint-stock commercial banks in Da Nang city through survey conducted, there are many other solutions related to the intention to use the customer's QR code service (R2 of experimental survey 63.1% showed that the decision to use QR code was influenced by 36.9% by other factors).

Therefore, in the opinion of the authors in the coming time commercial banks in Da Nang city need to perform the following tasks:

➤ *The First, Implement Marketing Policy*

When the quantity and quality of the products and services of the Banks in the market are equivalent and there are insignificant differences, although marketing is not a too new activity but can completely become a strategic weapon to help banks overcome rivals to gain advantage in the market. Promoting for customers to understand the benefits of using Qr code services and understanding their real needs. From there, make a marketing plan to cross-sell products and services.

➤ *The Second, Strengthen Information Security*

Internet development and the increase in internet penetration lead to the development of Internet banking services. In the face of increasing technology crime with increasingly sophisticated tactics, the bank needs to develop and apply synchronized solutions from improving system security to customer guidance and communication. use products and services to ensure safety. In particular, the bank should prioritize research to apply international standards for payment and security systems, such as ISO 2001 for information technology systems; At the same time, strengthen implementation of warning solutions, early identification of suspicious transactions.

Securing electronic card, account and banking information to bring convenience and safety to customer transactions is always a top priority in the bank's operations. In addition, customers also hold a particularly important position in preventing attacks and taking advantage of card information, accounts and electronic banking.

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