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Research Article

Decision to Implementation of Credit Management System at Commercial Banks - Experimental Survey in Da Nang City, Vietnam

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Abstract

The purpose of this study is to evaluate the factors affecting the decision to deploy a credit management system at commercial banks in Da Nang city. The author used a combination of mixed research methods in this study. The qualitative research method aims to build a research model from the analysis of previous related studies. The author used a quantitative method to survey 336 subjects who are managers, direct employees of the credit department at banks. Research results show that there are four factors that greatly influence the decision to choose a bank. Deposit individual customer savings in order: usefulness, controllability, relevance, and implementation cost. Through this result, it will help commercial banks orient the development of LOS credit management system at commercial banks in the future.

Keywords: credit management system, commercial bank, Da Nang

1. Introduction

Trade and financial liberalization is increasingly expanding in the direction of expanding across all aspects of the economy. It has contributed to dominate the trend and operating structure of the Vietnamese banking system. In the context of an open, competitive and integrated economy, credit activities of commercial banks still continue to play an important role in the bank's business activities, is an intermediary bridge from places with excess capital to places where there is a shortage of capital, is a traditional activity that brings the largest income for commercial banks, contributing

to promoting the growth of banks, economic growth of the country. However, whether credit activities are as effective as their role or not depends entirely on the potential risks brought by credit activities. These risks not only make the operation of commercial banks inefficient but also make commercial banks lose liquidity, causing great losses. Credit management process is one of the core processes of commercial banks, especially banks in Vietnam, when the proportion of profit from loan products accounts for a very large proportion in the structure of commercial banks profit.

Regarding credit activities, most core banking software can only do a good job from the time the loan application has been approved, the input into the system is merely for accounting, interest calculation and debt collection purposes after lending. Most of them do not meet the needs of administration and monitoring the progress of credit operations in the loan approval process. This part of the work is much more complicated and lengthy than the processing on core banking. This is the reason why banks have to invest in credit management software (LOS - Loan Origination System) to supplement the shortcomings of core banking.

In the general picture of commercial banking management information systems, the LOS system is classified into the group of lifecycle management system applications, along with the origination systems such as: customer onboard, account opening, credit card originated. LOS is managed towards: (1) The life cycle of the loan from the moment of contact with the customer until the customer settles the loan; (2) Monitoring the life of the collateral and related documentation; (3) The life cycle of contracts for disbursement, debt collection, problem debt management, monitoring of credit commitments.

2. Literature Review

Up to now, there have been many practical studies on the acceptance and use of e-banking services, in which there are studies referring to the factors affecting the decision to use e-banking services. Typical e-banking services can be listed as follows:

Fishbein (1981) & Ajzen (1975) presented the background theory related to research with the theory of rational action (TRA), which builds to show the inclusion and coordination of components of attitudes in a structure that is designed to better predict and explain consumer behavior in society based on two basic concepts: consumers' attitudes towards behavior performance and subjective norms consumers' concerns. Ajzen (1985) added to the theory of intended behavior (TPB) by adding a cognitive control element to the TRA model. According to TPB, human behavior is guided by three factors: behavioral beliefs, normative beliefs and controlling beliefs. Ajzen (1991) said that intention affects an individual's behavior in terms of both direct and indirect. Hess & Kemerer (1994) addressed the changes in corporate strategy and industry structure related to the electronic coordination of market activities, considering the advent of electronic market coordination in the mortgage real estate sector, with a focus on the Computer Loan Origin (CLO) system. Case studies of five CLOs (First Boston's Shelternet, PRC's Loan Express, American Financial Network's Rennie Mae, Prudential's CLOS, and Citicorp's Mortgage Power Plus) show a wide range of system functionality.

Venkatesh et al. (2003) defined that behavioral intention as the likelihood that a consumer will use an innovation. Yu et al. (2007) argued that the expected factors of efficiency, social influence and favorable conditions affect the intention to use 3G mobile telecommunications services; The remaining factor of effort expectation does not affect behavioral intention. Luarn and Lin (2005) explained that the application of TAM to Mobile banking services, by adding the trust factor perceiving trust and two source factors self-grasping ability and self-capability financial cost perception into the model. Gu et al (2009) stated that with the improvement of technology and mobile devices, banking users can perform banking services anywhere and at any time. Many banks around the world have integrated information and provided financial information access services on mobile devices. The results show that 72,2% of respondents strongly support the intention to perform the behavior towards mobile banking. The authors conducted a survey on the main website of Woori Bank (Korea) and received 910 valid responses from customers who have used mobile banking

services at this bank. Based on the TAM model as the foundation and regression model, the authors have proposed 03 factors affecting the intention to use mobile banking services at this bank, including: perceived usefulness, trust and perceived ease of use. In which, perceived usefulness is the most influential factor. Hoang Quoc Cuong (2010) showed that 6 factors affecting the intention to use using the service online shopping includes: expectation of price, perceiving convenience, perceiving ease of use, perceiving enjoyment, photo social benefits, perceiving risks when using. Le Thi Thu Hang (2011) said that the savings deposit behavior of customers as reflected in the choice of banks and the choice of savings term.

Jeong et al (2012) have shown that all factors have an impact on behavioral intention to use mobile banking, except the perceived cost factor. In which, perceived usefulness from the service is the factor that has the most influence on explaining the acceptance intention of mobile banking users. For users, the perceived ease of use factor is the most important factor, while the perceived efficiency factor has a significant influence on the acceptance intention of the non-users. Nguyen Huu Hoang Tho (2012) showed that system quality, information quality, and ERP training play a decisive role in the successful implementation of the resource planning system in Vietnam. Through the research, the author proposes that when implementing ERP in Vietnam, enterprises need to pay close attention to the training in using ERP so that the ERP implementation can achieve success.

Pham Cao Thien (2015) found that five factors affecting customers' intention to use mobile banking services, including: "Perceived usefulness", "Conspicuous use", "Attitude", Subjective standards" and "Perceptions of behavioral control", consistent with the research of Huynh Thi Ngoc Anh (2015), Vu Manh Cuong (2013) showed that there are 05 factors affecting the using mobile banking services, including: "Perceived usefulness", "Perceived ease of use", "Perceived risk", "Perceived cost" and "Trust".

Not to mention the research on the factors affecting the successful implementation of electronic customer relationship management solutions in Vietnamese commercial banks, Nguyen Van Thuy (2015) said that the technology strategy is the most important factors, followed by user characteristics, technology, banking culture, leadership commitment and system quality. The research results suggest that in order to successfully deploy the eCRM solution, banks need to have customer relationship management objectives in line with the bank's development strategy. The support of senior management will ensure success, technology infrastructure and people in the bank are key factors to ensure successful implementation of eCRM.

In Vietnam, Nguyen Dinh Yen Oanh and Pham Thi Bich Uyen (2016) showed that there are 5 Factors affecting consumers' intention to use mobile commerce services in An Giang province are "Flexibility", "Diverse services", "Perceived usefulness", "Perception of trust". and "Perceived ease of use". Hoang Thi Tho (2016) used TRA, TPB, and TAM models to identify the factors affecting the intention to use mobile banking. The research results show that there are 04 main factors affecting the intention to use mobile banking services of Dong A Commercial Joint Stock Bank - Hue branch: "Perceived usefulness", "Perceived ease of use", "Perceived risk" and "Social influence". In which, the factor "Perceived usefulness" is the factor with the strongest impact and the factor "Perceived risk" is the factor with the weakest impact.

Nguyen Thanh Tan (2019) said that all 5 factors have an impact on the successful implementation of ERP. In which, the factors of the ERP project implementation team, the participation of leaders, effective project management and business process restructuring have a strong impact on the successful implementation of ERP. The author also came to the conclusion that ERP projects have a well-organized ERP project implementation team with the participation of leaders, effective project management, enterprises are willing to restructure their business processes. Good cooperation between business and users will make a successful ERP implementation easier. Duong Thi Hai Phuong (2019) explained that organizational factors to the successful implementation of the enterprise resource planning system in Vietnamese enterprises, shows that organizational factors have a large impact (76,9%) to the successful implementation of this system, in which "The support and determination of business leaders" has the greatest impact. Nguyen Thi Thanh Phuong

(2020) has synthesized theory and carried out quantitative research, the experimental research results show that: Enterprise environment, Enterprise characteristics, User characteristics, Support from The company's leadership, the quality of the ERP implementation consultant have a positive relationship with the ERP application in small and medium-sized enterprises in Hanoi city. At the same time, the application of ERP has a positive impact on management accounting activities in this enterprise.

3. Aim and Hypothesis Development

Based on the research objectives, the survey table and the research model that proposes the factors affecting the decision to deploy the credit management system, on the basis of the background theory presented above, the research hypotheses is determined as follows:

Hypothesis H1: Cost of execution (CP) and decision to deploy LOS system have a positive relationship. (+)

Hypothesis H2: Ease of Use (SD) and the decision to deploy a LOS system have a positive relationship. (+)

Hypothesis H3: Suitability (PH) and the decision to deploy the LOS system have a positive relationship. (+)

Hypothesis H4: There is a positive relationship between perceived usefulness (HI) and the decision to deploy a LOS system. (+)

Hypothesis H5: Perceived Control (CNKS) and decision to deploy LOS system have a positive relationship. (+)

Hypothesis H6: Subjective standard (CCQ) and decision to deploy LOS system have a positive relationship. (+)

Hypothesis H7: There is a positive relationship between the quality of the consultant, the implementation of the LOS(CL) system and the decision to deploy the LOS system. (+)

4. Methods

After consulting the research models at home and abroad, conducting a survey of experts with the list and content as the outline in the discussion paper. The authors have preliminarily formed a scale of factors affecting the decision to deploy a credit management system at commercial banks in Da Nang city, which is used after surveying the opinions of experts.

As businesses and organizations increasingly apply information technology in management, managers want to evaluate the success of information systems that their units have deployed. Financial and non-financial metrics are also used to measure this success. To measure and evaluate the success of an information system, researchers have built models such as (DeLone and McLean, 1992; Ballantine et al, 1996; Ballantine et al, 1996; Seddon, 1997), These models recognize and evaluate success from different perspectives, tested and developed to gain an understanding of the success of information systems, in which the model of DeLone and McLean (1992) – updated in 2003, widely applied in the research world – on both individual and organizational perspectives.

In 1992, from summarizing previous studies, DeLone and McLean proposed a model of the success of an information system, including variables: system quality, information quality, system usage, user satisfaction, impact on individuals, impact on organizations. However, these variables do not measure success independently but are interdependent. After this model was published, the researchers performed tests as well as adjusted this model. Seddon (1997) analyzed the existence of the 1992 model; Seddon's ideas were further developed by the researchers and added new components to the DeLone and McLean models; for example, adding the knowledge management component (Kulkarni et al, 2006). Recognizing the need to complete the model, DeLone and McLean (2003) published an adjusted model, in which adding the service quality variable, net benefit and omitting the variables Impact on individuals, impact to the organization. However, the 2003 ISSM

model was later revised, adding some important contents. Net Benefits are replaced by Net Impacts – implying that the effects can be positive or negative, and more importantly, the model authors add feedback effects from the components usage, user satisfaction affects information quality, system quality and service quality. This addition implies that the use of an information system helps users perceive information quality, system quality, service quality; at the same time, user satisfaction will positively affect the perceived quality of the system.

Comprehensive CRM model developed by Gartner company. As a leading information technology research and consulting company with more than 1200 researchers and consultants in over 75 countries, always holding a leading position in research and consulting on CRM solutions, Gartner has come up with a model. Comprehensive CRM model with eight areas for CRM success including: CRM vision, CRM strategy, valuable customer experience design, internal and external collaboration, CRM processes, information, technology CRM technology and measurement.

Data from CRM shows repeat behaviors and trends of customers to help businesses make the right decisions. With CRM, sales, marketing and customer care staff can quickly store customer information into the system anytime, anywhere to save time and focus more on the main tasks.

Customer Behavior Analysis: CRM helps businesses see patterns and trends of customers, which can be very helpful in building customer profiles and shaping marketing strategies near them.

- Automation: CRM model can perform daily tasks without the need for humans. Only when the customer has made a successful purchase, CRM will automatically send a receipt via email or when the customer makes a consultation appointment, there will be automatic emails/SMS reminding them of the appointment time.
- Personalization: With specific data such as contact information, demographics, purchase history, all filtered and easily found with just a few simple tasks. Businesses can personalize services when communicating with customers. When you click on the customer information section, you will know how many products this customer has purchased, product information, how many emails the customer receives from the brand, how many emails they read/don't read (information) from email system, how many times customers visit the website, from what sources... From there, when sending emails to customers, CRM will automatically mention the customer's name along with the purchase history, helping customers feel that the brand really cares and knows who the customer.

After synthesizing the results of the experts' answers on the factors in the preliminary scale. The results of the qualitative survey of experts showed a high agreement rate (over 80%) on 7 groups of factors and the experts did not introduce any new factor groups. After collecting information from managers and staff with the most knowledge and experience in credit management activities of joint stock commercial banks, we propose an analytical framework with 7 common factors affecting the credit management decision. The decision to choose a bank to deposit savings of individual.

5. Result

On the basis of the influencing factors discovered during the research period, the survey questionnaire was deployed to the identified survey subjects in the form of direct to managers and employees at banks. After distributing 400 survey questionnaires to individual customers in the form of live streaming. As a result, 396 votes were collected, and the results were reprocessed, of which 336 votes were met.

The data used in the research of the topic is the data obtained directly from the survey tables that have been cleaned to eliminate the incomplete or unsatisfactory survey responses.

The results show that out of a total of 336 satisfactory samples, those aged 25-30 accounted for 48,5%, those aged 31-35 accounted for 38,1%, those aged 36-40 accounted for 11,6 % and finally over 40 years old accounted for 1,8%.

The analysis results prove that subjects aged 25-40 are a group of subjects with full professional knowledge, including the LOS credit management system. Out of a total of 336 survey samples, there

are a number of surveyed banking personnel with fairly equal qualifications, the ratio of postgraduate qualifications is quite high. Number of customer female is 189 people, accounting for 56,3%, male staff is 147 people, accounting for 43,8% of the total. Thus, it can be seen that the surveys are conducted relatively evenly in terms of gender. The results show that out of a total of 336 survey samples that meet the requirements for 8 units that intend to apply or have applied the LOS system, the data gives reliable results. The number of surveyed bank employees has 29,2% are managers, the rest are specialists. The results show that out of a total of 336 survey samples, there are a number of bank employees surveyed, 44,9% are credit officers, the rest are specialists in other departments. In terms of seniority, the number of surveyed bank staff with 3 to 5 years of seniority (48,5%) and 6 to 10 years (38,1%) is common and accounts for a high proportion. This reflects the fact that human resources are increasingly young, dynamic and full of knowledge and technology skills, which is convenient to apply the LOS system in credit management activities of the bank.

Cronbach's alpha reliability assessment

The reliability of the scale with the remaining observed variables shows the following results:

Table 1. Reliability of Cronbach's Alpha scale of independent observed variables

Factor	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PH1	12.74	4.227	.775	.872
PH2	12.79	4.091	.758	.878
PH3	12.84	4.149	.787	.867
PH4	12.86	4.045	.788	.867
CN1	12.72	4.087	.846	.858
CN2	12.71	4.321	.771	.885
CN3	12.68	4.380	.755	.890
CN4	12.69	4.213	.783	.881
CCQ1	7.94	.973	.616	.697
CCQ2	7.88	.975	.606	.708
CCQ3	7.90	.990	.619	.694
DSD1	8.25	1.466	.636	.713
DSD2	8.27	1.624	.645	.706
DSD3	8.36	1.521	.620	.729
CL1	12.74	4.289	.738	.880
CL2	12.72	4.063	.797	.858
CL3	12.83	4.167	.772	.868
CL4	12.85	4.042	.782	.864
HI1	14.62	5.831	.728	.814
HI2	14.38	6.910	.556	.856
HI3	14.65	5.775	.688	.825
HI4	14.37	6.567	.656	.835
HI5	14.61	5.403	.761	.805
CP1	7.88	.849	.593	.715
CP2	7.85	.829	.611	.695
CP3	7.86	.871	.627	.679

Source: Results from data analysis with SPSS.20

The correlation coefficients of all observed variables are greater than 0,3 and Cronbach's Alpha coefficients of all observed variables are greater than 0,6, except for variables CP1, HI 2 < 0,6, but the difference is very small and still ensure reliability, thereby ensuring the reliability of the scale. It shows that the scale built is statistically significant and achieves the necessary reliability coefficient.

Should be further included in the EFA exploratory factor analysis.

Table 2. Reliability of Cronbach's Alpha scale with dependent observed variables

Cronbach's Alpha	N of Items
.876	3

Factor	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
QD1	8.97	1.596	.770	.819
QD2	8.93	1.675	.784	.806
QD3	8.95	1.740	.734	.850

Source: Results from data analysis with SPSS.20

The scale of determining factors for selection has a Cronbach Alpha coefficient of 0,876 > 0,6.

Thus, the reliability of the scale can be ensured.

The total correlation coefficient of all observed variables is greater than 0,3 and the Cronbach Alpha coefficient of all observed variables is greater than 0,6, thereby ensuring the reliability of the scale.

That shows that the scale built is statistically significant and has the necessary confidence coefficient. Should be further included in EFA (exploratory factor analysis).

5.1 Exploratory Factor Analysis - EFA

Table 3. KMO coefficient and Bartlett's test of independent factors

KMO and Bartlett's Test		.746
	Approx. Chi-Square	4959.082
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	Df	325
	Sig.	.000

Source: Results from data analysis with SPSS.20

Based on the table above, the KMO value is 0,746 > 0,5 and the Sig value of Bartlett's test is 0,000 < 0,05, showing that the variables are correlated with each other, so the model is suitable for inclusion in exploratory factor analysis.

Test the correlation of observed variables in the representative measure.

The Barlett's test has Sig = 0,00 < 0,05, which means that the representative factor and the observed variables are linearly correlated.

The extracted factors all have Eigenvalue greater than 1 and the breakpoint when extracting factors at factor 7 has an Eigenvalue of 1,281 > 1. The sum of extracted variances of 7 factors is 73,208 % > 50% of this. shows the ability to use these 7 components to explain 73,208 % variation of the observed variables.

The analysis has extracted from 3 variables assessing the influence on the decision to choose into a major factor with an Eigenvalue of 2,407 and a total variance of 80,232% > 50%.

The factors that really affect the decision to deploy a credit management system are shown by the linear regression equation:

Overall regression function:

$QD = \beta_0 + \beta_1 F_1 + \beta_2 F_2 + \beta_3 F_3 + \beta_4 F_4 + \beta_5 F_5 + \beta_6 F_6 + \beta_7 F_7 + U_i$

Sample regression function:

$QD = \hat{\beta}_0 + \hat{\beta}_1 F_1 + \hat{\beta}_2 F_2 + \hat{\beta}_3 F_3 + \hat{\beta}_4 F_4 + \hat{\beta}_5 F_5 + \hat{\beta}_6 F_6 + \beta_7 F_7 + e_i$

In there:

QD: - Decided to deploy credit management system

F1: Usefulness

F2: Feeling of control

F3: Conformity

F4: Quality of the consulting unit

F5: Ease of Use

F6: Implementation cost

F7: Subjective norm

Regression results show that 4 independent factors from HI, CN, PH, CP are statistically significant, sig < 0,05 is satisfactory, so it will be kept in the research model.

The factors CL, DSD, CCQ are not statistically significant because sig > 0,05, so they will be removed from the research model.

Table 4. Results of regression model

Model Summary[b]

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.684[a]	.468	.457	.73688007	.468	41.279	7	328	.000	1.827

a. Predictors: (Constant), CCQ, CP, DSD, CL, PH, CN, HI
b. Dependent Variable: QD

Coefficients[a]

| Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95.0% Confidence Interval for B | |
B	Std. Error	Beta			Lower Bound	Upper Bound
6.187E-016	.040		.000	1.000	-.079	.079
.198	.040	.198	4.921	.000	.119	.277
.197	.040	.197	4.888	.000	.118	.276
.374	.040	.374	9.282	.000	.295	.453
-.090	.040	-.090	-2.246	.253	-.170	-.011
.046	.040	.046	1.133	.258	-.034	.125
.483	.040	.483	11.988	.000	.403	.562
.087	.040	.087	2.154	.320	.008	.166

a. Predictors: (Constant), CCQ, CP, DSD, CL, PH, CN, HI
b. Dependent Variable: QD

Source: Results from data analysis with SPSS.20

The explanatory level of the model: Adjusted R Square = 0,468, so about 53,2% The decision to deploy LOS is influenced by the independent factors of the model, the confidence level is over 99% (F test, sig < 0,05).

Based on the results of the table above, ANOVA has a value of Sig = 0,000 < 0,05, so the hypothesis Ho is rejected and the hypothesis H1 is accepted. That is the model exists.

The regression results show that the Durbin-Watson Statistics is 2,219. Thus, the model exists

and with d = 2,219>2,0, it can be concluded that the model does not exist negative or positive autocorrelation.

So, the regression estimation model will be:

QD = 5,264 + 0,198HI + 0,197CN + 0,374PH + 0,483CP

The normalized regression would be:

QD* = 0,198HI* + 0,197CN* + 0,374PH* + 0,483CP*

6. Discussion

Through linear regression analysis to determine the influence of factors determining the implementation of credit management system at joint stock commercial banks in Da Nang city. The experimental results show that there are 4 main influencing factors affecting the decision of service users, including: The usefulness, the perceived control, the appropriateness and the cost of implementation.

Some policy implications to improve the application of LOS system of joint-stock commercial banks in Da Nang city

6.1 Realize the usefulness of LOS

In today's very competitive market economy, commercial banks are all trying to implement profitable business strategies. Along with the development of technology, software developers have researched and released software solutions that can help banks manage documents according to customers, control processing time, better risk control, better loan approval schedule and better profit. Seasoned managers understand that completing a job or project successfully will always require an effective resource management strategy to keep the team running smoothly without wasting time, too much processing time. At the same time, exploiting the bank's available advantages such as brand, larger customer base, risk management capacity… with technology solutions, thereby improving customers' access to products as well as minimizing operational risks for the bank. A good credit management software needs to eliminate cumbersome management and optimize the entire credit management process with 4.0 technology. At the same time, credit management software has clear and detailed decentralization features. Regulations on which users are allowed to receive records, approve records, who have the right to disburse funds, etc., help prevent overlapping issues of authority between departments and positions. The software supports users in reminding and controlling documents that are due for debt payment, controlling debt collection on time to help businesses avoid financial-related risks and recovery activities. owe. All information related to credit records such as: customer name, CIF number, REF number, type of document (disbursement/guarantee/general) are managed on the software system.

Control the date of receipt, processing status of credit applications, deployment time, the entire process of credit applications. The software allows to monitor the priority of loans, with credit records marked "priority" by customer managers, they will be prioritized for review and processing.

6.2 System deployment cost

Credit management software systems are the guide, helping banks keep up with the ever-changing demands of today's business. Modern software solutions are the key to help banks increase operational efficiency. Different applications can improve different areas such as records management, information storage… Referring to credit management systems, banks often think of a total management solution with cost towering deployment. The cost of implementing a LOS system depends on many factors. Here are some factors that affect the cost of LOS:

- Bank size (number of users, number of departments, number of locations, etc.)
- Solution type (industry-specific and customizable, or generic and flexible)

- Additional resources (external consulting, user training, task tracking, etc.)
- Level of customization

During the software delivery process, software vendors always want to hide the costs and risks associated with the purchase of their product. However, it is better to accept the potential costs at an early stage, rather than after the business is familiar with a certain software solution. Banks should make sure they are aware of all the "hidden costs" of the system, including the cost of software deployment, hardware upgrades, resource additions, software maintenance, and more.

6.3 Training costs

For this cost, most banks are willing to pay to have the supplier send staff to the unit for detailed training for each department and department on how to use the software. Suppliers always have free basic tutorials on how to use the software, but using LOS forces credit officers and management to learn a whole new approach to the process, not just the surface general aspect of the system. Should spend more budget to receive in-depth training, answering all questions during use is a reasonable expense.

6.4 LOS maintenance and upgrade costs

After the LOS implementation and warranty period expires, banks need to consider these support fees. Businesses often confuse the "support" responsibility of the solution provider, including ensuring the system operates smoothly and safely. While in reality, system maintenance and upgrade are two items that need to be clearly separated.

6.5 Suitability

In the process of existence, the operation of banks always have to deal with many problems, the most important of which is to maintain a regular balance between the need and the ability to obtain capital in all conditions ensure financial stability and stability for the bank and satisfy the needs of customers. Therefore, risk management for the credit system is always researched and analyzed by banks in developed countries, even when the economy is very stable to ensure safety for the bank's operations and at the same time contribute to increase the profit from the bank's credit activities, minimize the possibility of loss of capital and interest, if risks are well managed and assessed.

Therefore, the suitability of LOS with the needs of commercial banks is the most important criterion. To do so, the LOS system must be easy to use, reliable, allow integration of current data, operate efficiently, have good features, meet user requirements, and match requirements well of commercial banks. Newly invested software must not disrupt the established master plan architecture of the Bank. Each software when deployed to the system must participate in connecting with other software through a standardized protocol. Web service is the optimal choice of modern software when connecting with other software. This standard will move towards a bank-wide architecture towards a faster, less effortful service axis.

Be especially careful with software that requires communication by rendering text files and requires other software to also comply with the text file standards it provides. File import and export work will occupy a huge part of operational staff and technical staff. In addition, the providers do not disclose the connection method between their solution and other solutions, only making a general statement that they understand the core banking of firm A, the credit rating of Company B will also limit the consistency of the architecture, while also depending on them for future customization.

6.6 Feel in control

Most commercial banks find it difficult to replace existing business processes with new ones, so

priority should be given to selecting a LOS system that is compatible with existing business processes to minimize requirements for process restructuring business process. Accordingly, deploying enterprises should choose a suitable LOS provider that can provide a LOS system with maximum flexibility and easy customization with the following advantages: less internal network problems of the bank, there is no error when synchronizing the database, the LOS system has a friendly interface and is suitable for the operating characteristics of the bank and most importantly meets the requirements of the user. At the same time, in order to improve service quality and schedule commitments with customers, the Bank itself must control the progress of each employee's work. At any given time, the manager must track the work progress of each credit file, how many records are backlog at each level. In addition, a feature that not all software does equally well is the ability to intelligently assign work when many recipients handle many different records. Good software allows managers to flexibly define many rules of work distribution: manual assignment, credit product assignment, management assignment by location, allowing distribution of work based on number of backlogs. The important points to evaluate the strength of a LOS software in this feature are as follows:

- The ability to control the credit limit before core banking, right from the time the customer applies the credit profile.
- The same customer, but applying for many applications, at many business units (but not yet approved) is still temporarily locked, and automatically restores the limit when a profile is rejected
- The ability to control the credit limit for a certain product package or loan program.
- Ability to control credit limit for related customer group.
- The ability to control the limit of the area.
- Ability to control the maximum loan limit on each special asset or the maximum loan rate on each type of special asset.
- Allows credit approvers to have an overview of all risks (exposures) of all criteria on one screen.

7. Conclusion

On the basis of a combination of qualitative and quantitative research methods, the study has achieved the set research objectives. That is to evaluate the current state of LOS application in the operation of commercial banks in the current period. At the same time, we can systematize theoretical models of technology acceptance and use and comprehensive information models from previous studies and define the overall theoretical framework of the research model to assess evaluate the factors affecting the decision to deploy LOS at commercial banks, thereby proposing some recommendations to minimize risks in the process of deploying LOS. Accordingly, for businesses that are or will decide to deploy. For the LOS solution, priority should be given to factors that play an important role such as raising awareness about the usefulness of LOS, improving the level of LOS management and especially the determination of the Board of Directors. For the LOS supplier or consultant, it is necessary to improve the quality of the system to meet management and user requirements.

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