

RISK OF OBSOLESCENCE OF SYSTEM IN E-BANKING IN INDIA

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ABSTRACT

This paper analyzed the bankers' viewpoint towards the factors responsible for risk of obsolescence of system in e-banking in India, its potential impacts and the risk management measures taken by selected public, private and foreign banks in India. A sample of 107, 104 and 100 respondents (bank employees) is taken for data collection from the different branches located in Haryana, Punjab, Chandigarh and Delhi from selected public, private and foreign banks respectively. Statistical techniques such as mean, mode, standard deviation have been used for the analysis of data. ANOVA technique has been applied to validate the results. The analysis shows that delay in processing of transactions is found as the most important factor leading to the risk of obsolescence of the system followed by disruptions in processing transaction in public and private sector banks, whereas disruptions in processing transactions is found as the most important factor leading to the risk of obsolescence of the system followed by deficiencies in the system and delays in processing transactions in foreign banks. On the other hand, adverse public reactions is viewed as the most potential impact on these banks followed by possible legal repercussions as law suits could result from erroneous transactions and costs associated with resolving customers' problems. Further, regular review of capabilities of existing software to overcome the risk of obsolescence of the system is viewed as the most adopting measure followed by regular review of capabilities of existing hardware, installation of accountability system that assigns responsibility for updates to equipment/system in the selected banks under study.

Key Words: *Obsolescence, Disruptions, Deficiencies, Transactions, Accountability.*

RISK OF OBSOLESCENCE OF SYSTEM IN E-BANKING IN INDIA

Indian banking industry today is in the mid of an IT revolution. New private sector banks and foreign banks have an edge over public sector banks in the implementation of technological solutions. However, public sector banks are in the process of making huge investment in technology. To be successful in this competitive environment, these banks have to take certain steps like cost reduction by economies of scale, better relations with the customers by providing better services and facilities to them. Pressure of performance and profitability will keep them on their toes all the times as the shareholders expect good performance along with good returns on their equity. The changing scenario and the new technologies like internet banking, mobile banking, improvement in payment technology, etc. can help in increasing the scale of economies in providing financial services. With the help of technology, the banks are now able to offer such products and services, which were difficult or impossible with traditional banking. But Indian banks have to go a long way before making themselves technology savvy. India has been able to take one step in this direction - physical cash has been replaced by anytime, anywhere money, but these are more pronounced in foreign and private sector banks. The public sector banks are far behind in technology integration. Thus, there is a huge scope for automation in the banking industry. The service based areas of banks have perhaps been the largest beneficiary of e-banking. ATMs, credit cards, internet banking, mobile banking which are already widely used around the world, have yet to reach their full potential in India. These services and products are all expected to grow in the coming years. No doubt, e-banking provides so many benefits, but face to face contact between the bank and the customer is absent in e-banking transactions, which causes most of the problems like credit card frauds, fraud of internet, etc. Rising competition is forcing the banks to find innovative ways to reduce the cost of transactions and increase the profitability. Technology has been one of the major enabling factors for enhancing the customer convenience in the products and services offered by the various banks and help in enhancing service range but the security of the transactions is a major concern. While it mitigates some risks, but induces some risks also. The main risks of e-banking are: strategic risk, business

risk, operational risk, security risk, privacy/security risk, legal risk, cross-border risk, reputational risk, liquidity risk, etc. These risks are highly interdependent and events that affect one area of risk can have ramifications for a range of other risk categories.

Review of Literature

Various articles appeared in different journals in varied aspects of e-banking, which are restrictive in nature and do not give a comprehensive picture. Ahmad et. al. (2010) discussed the security issues on banking systems and stated that banking system intrusion shows the vulnerabilities that exists in financial institution, that have been used by those illegal and unauthorized individuals or groups to intrude an area with secure environment. With the developing of high technology and information system around the world, banking system should not be left behind in terms of security system and should keep a sharp eye when there is any vulnerability in authentication and authorization that may lead to confidentiality, availability and integrity issues. Fatima (2011) concluded that biometric based authentication and identification systems are the new solutions to address the issues of security and privacy. One thing that can be said with certainty about the future of the biometrics industry is that is growing. Biometrics is finding their way into all kinds of applications beyond access control. It is expected that more and more information systems/computer networks will be secured with biometrics with the rapid expansion of internet and intranet. Adewuyi (2011) examined the concept of information technology, meaning of e-banking, origin of e-banking in Nigeria, areas of information and communication technology deployment by banks, guidelines on e-banking in Nigeria, reasons for automation of banking operation, challenges of regulatory on e-banking in Nigeria and the way forward. It is concluded that the adoption of TCT has influenced the content and quality of banking operations and presents great potential for business re-engineering of Nigerian banks. Thus investment in ICT should form an important component in the overall strategy of banking operation to ensure effective performance. Mermud (2011) analyzed the internet bank branches in Turkey with regard to many dimensions and found that online customers admit that internet bank branches are safe and cheaper and understandable and saving extra time. Internet banking usage rate have increased in the last years, depending on the increase of educated users. The

usage rate of the internet banking is significantly related with the education levels. Education and also income level makes an important difference in the usage of internet banking facilities. Karimzadeh and Alam (2012) examined the e-banking challenges in India and concluded that legal and security, socio-cultural and management, banking issues are accepted as challenges for the development of e-banking. But there is less awareness regarding new technologies and unsuitable software which are ranked respectively as the highest and lowest obstacles in India. Osunmuyiwa (2013) examined the various aspects of online banking risks and the risk management methods employed in mitigating these risks. It is widely recommended that banks that carry out online banking clearly should explain the privacy rule and communicate it to their clients. Banks can also make use of materials like vendor oversight, assignment sheet; excel spreadsheet for risk assessment for policies amongst so many created from a range of data resources to carry out data safekeeping. With this background, an attempt is made to examine the various aspects of risk of obsolescence of system in e-banking in selected public, private and foreign banks in India.

Scope of the Study

The present study is confined to the selected public, private and foreign banks in Haryana, Delhi, Chandigarh and Punjab.

Objectives of the Study

The present study is conducted to achieve the following objectives:

1. To identify the factors leading to risk of obsolescence of system in e-banking.
2. To examine the potential impacts of risk of obsolescence of system in e-banking.
3. To appraise the risk management measures for overcoming the risk of obsolescence of system in e-banking.

Research Hypotheses

The following hypotheses have been formulated and tested to validate the results of the study:

H₀₁: There is no significant difference among the bankers' viewpoint towards the factors leading to risk of obsolescence of system in e-banking.

H₀₂: There is no significant difference among the bankers' viewpoint towards the potential impacts of risk of obsolescence of system in e-banking.

H₀₃: There is no significant difference among the bankers' viewpoint towards the risk management measures to overcome the risk of obsolescence of system in e-banking.

Sample Profile

For the purpose of the study, all the banks have been divided into three categories *i.e.* public, private and foreign banks. The banks selected from the public sector are State Bank of India (SBI), State Bank of Patiala (SBP), State Bank of Bikaner and Jaipur (SBBJ), Punjab National Bank (PNB), Dena Bank (DB), Oriental Bank of Commerce (OBC), Canara Bank (CB), Central Bank of India (CBI), Union Bank (UB), Corporation Bank (CB), Bank of Baroda (BOB), Allahabad Bank (AB), Bank of India (BOI), Syndicate Bank (SB) and Indian Bank (IB). The banks selected from the private sector are ICICI Bank (ICICI), Axis Bank (AXIS), IDBI Bank (IDBI), HDFC Bank (HDFC), Yes Bank (YB), Kotak Mahindra Bank (KOTAK) and The Federal Bank Limited (FBL). Foreign banks include Standard Chartered Bank, City Bank, SBER Bank, State Bank of Mauritius, ABN-AMRO Bank N.V., HSBC Bank, American Express, BNP Paribas, Deutsche Bank and Barclays Bank.

Data Collection

The present study is of analytical and exploratory in nature. Accordingly, the use is made of primary as well as secondary data. The primary data are collected with the help of pre-tested structured questionnaire from the respondents (banks' officials) of selected banks on five point Likert Scale *i.e.* Strongly Disagree (SD), Disagree (A), Neutral (N), Agree (A), and Strongly Agree (SA). A sample of 375 respondents is taken from the various branches of the selected banks (125 respondents from each group). After examination, 107 questionnaires from public sector banks, 104 from private sector banks and 100 from foreign banks were found complete and used for further analysis. Besides questionnaires, interviews and discussion techniques were also used to unveil the information. On the other hand, the secondary data were collected mainly from RBI Monthly Bulletins, IBA Bulletins, Economic and Political Weekly, Bank Management, Professional Banker; and newspapers like The Economic Times, The Financial Express and The Hindu were also referred.

Data Analysis

The collected data were analyzed through descriptive statistical techniques like frequency distribution, percentage, mean, mode, standard deviation. For coding and analyzing the data, weights are assigned in order of importance i.e. 1 to Strongly Disagree (SD), 2 to Disagree (A), 3 to Neutral, 4 to Agree (A), and 5 to Strongly Agree (SA). To examine the bankers' viewpoints towards factors responsible for e-banking risks, their potential impacts, and the risk management measures taken by the selected banks; ANOVA technique was employed to test the hypotheses and validate the results. The analysis is in conformity with the objectives of the study and the hypotheses formulated. The collected data are analyzed through PASW 18.0 version.

Results and Discussions

(A) Factors Leading to Risk of Obsolescence of System

The various factors leading to the risk of obsolescence of the system in selected banks are given in Table 1 (a) and 1(b).

Public Sector Banks

Delay in processing of transactions (Mean = 4.15, S.D. = 0.775) is found as the most important factor leading to the obsolescence of the system in these banks as per the responses of 63 respondents (58.9 per cent). Disruptions in processing of transactions (Mean = 3.94, S.D. = 0.811) is considered as the second important factor by 65 respondents (60.7 per cent). On the other hand, deficiencies in the data integrity system (Mean = 3.6, S.D. = 0.96) and deficiencies in the system (Mean = 3.6, S.D. = 0.811) are found as the last two important factors as per the opinion of 51 respondents (47.7 per cent) and 38 respondents (35.5 per cent) respectively.

Table 1 (a): Factors Leading to Risk of Obsolescence of System

| Statements | N/P | Public Sector Banks | | | | | Private Sector Banks | | | | | Foreign Banks | | | | |
|---|-----|---------------------|------|------|------|------|----------------------|-----|------|------|------|---------------|------|------|------|------|
| | | SD | D | I | A | SA | SD | D | I | A | SA | SD | D | I | A | SA |
| Delay in processing of transactions | N | 2 | 2 | 7 | 63 | 33 | 5 | 5 | 10 | 70 | 14 | 4 | 7 | 26 | 48 | 15 |
| | % | 1.9 | 1.9 | 6.5 | 58.9 | 30.8 | 4.8 | 4.8 | 9.6 | 67.3 | 13.5 | 4.0 | 7.0 | 26.0 | 48.0 | 15.0 |
| Disruptions in processing of transactions | N | 2 | 4 | 14 | 65 | 22 | 4 | 4 | 24 | 57 | 15 | 2 | 11 | 11 | 61 | 15 |
| | % | 1.9 | 3.7 | 13.1 | 60.7 | 20.6 | 3.8 | 3.8 | 23.1 | 54.8 | 14.4 | 2.0 | 11.0 | 11.0 | 61.0 | 15.0 |
| Deficiencies in | N | 2 | 10 | 37 | 38 | 20 | 5 | 9 | 34 | 43 | 13 | 6 | 6 | 19 | 46 | 23 |
| | % | 1.9 | 10.5 | 37.7 | 38.9 | 20.6 | 5.3 | 9.5 | 34.7 | 43.4 | 13.1 | 6.3 | 6.3 | 19.0 | 46.3 | 23.0 |

| | | | | | | | | | | | | | | | | |
|------------------------------------|---|-----|-----|------|------|------|-----|-----|------|------|------|-----|------|------|------|------|
| the system | % | 1.9 | 9.3 | 34.6 | 35.5 | 18.7 | 4.8 | 8.7 | 32.7 | 41.3 | 12.5 | 6.0 | 6.0 | 19.0 | 46.0 | 23.0 |
| Deficiencies in the data integrity | N | 2 | 5 | 38 | 51 | 11 | 7 | 4 | 41 | 46 | 6 | 4 | 15 | 19 | 48 | 14 |
| | % | 1.9 | 4.7 | 35.5 | 47.7 | 10.3 | 6.7 | 3.8 | 39.4 | 44.2 | 5.8 | 4.0 | 15.0 | 19.0 | 48.0 | 14.0 |

Note: N/P = Number of Respondents/Percent

Source: Survey

Table 1 (b): Factors Leading to Risk of Obsolescence of System

| Statements | Public Sector Banks | | | Private Sector Banks | | | Foreign Banks | | | ANOVA | |
|---|---------------------|------|-------|----------------------|------|-------|---------------|------|-------|--------------|-------|
| | N | Mean | S.D. | N | Mean | S.D. | N | Mean | S.D. | F (df=2,308) | Sig. |
| Delay in processing of transactions | 107 | 4.15 | 0.775 | 104 | 3.8 | 0.907 | 100 | 3.63 | 0.96 | 9.414 | .000* |
| Disruptions in processing of transactions | 107 | 3.94 | 0.811 | 104 | 3.72 | 0.897 | 100 | 3.76 | 0.911 | 1.961 | .142 |
| Deficiencies in the system | 107 | 3.6 | 0.96 | 104 | 3.48 | 0.985 | 100 | 3.74 | 1.07 | 1.700 | .184 |
| Deficiency in the data integrity | 107 | 3.6 | 0.811 | 104 | 3.38 | 0.917 | 100 | 3.53 | 1.039 | 1.461 | .234 |

Note: N = Number of Respondents, S.D. = Standard Deviation, * Significant at 0.05 level of significance

Source: Survey

Private Sector Banks

Delay in processing of transactions (Mean = 3.8, S.D. = 0.907) is viewed by 70 respondents (67.3 per cent) as the most important factor leading to the obsolescence of the system. Disruptions in processing of transactions (Mean = 3.72, S.D. = 0.897) is considered the second important factor as per the responses of 57 respondents (54.8 per cent). On the other hand, deficiencies in the system (Mean = 3.6, S.D. = 0.811) and deficiency in the data integrity system (Mean = 3.6, S.D. = 0.96) are considered as the least important factors by 43 respondents (41.3 per cent) and 46 respondents (44.2 per cent) respectively.

Foreign Banks

Disruptions in processing of transactions (Mean = 3.76, S.D. = 0.911) is viewed by 61 respondents (61.0 per cent) as the most important factor leading to the obsolescence of the system. Deficiencies in the system (Mean = 3.74, S.D. = 1.07) is found as the second important factor as per the responses of 46 respondents (46.0 per cent). On the other hand, delays in processing of transactions (Mean = 3.63, S.D. = 0.96) and deficiencies in the data integrity system (Mean = 3.53, S.D. = 1.039) are considered as the last two important factors as per the opinion of 48 respondents (48.0 per cent).

The results of ANOVA in Table 1 (b) show that there is a significant difference among the bankers' viewpoint towards delays in processing of transactions ($p=0.00$, $df=2$, 308) at 0.05 level of significance. Therefore, the null hypothesis (H_{01}) is rejected.

(B) Potential Impacts of Risk of Obsolescence of System

The potential impacts of risk of obsolescence of system on the performance of selected banks are given in Table 2 (a) and 2 (b).

Public Sector Banks

Adverse public reactions (Mean = 4.23, S.D. = 0.842) is viewed as the most potential impact on these banks as per the responses of 50 respondents (46.7 per cent). Possible legal repercussions as law suits could result from erroneous transactions (Mean = 3.87, S.D. = 0.891) is considered as the next potential impact by 60 respondents (56.1 per cent). However, the costs associated with resolving customers' problems (Mean = 3.78, S.D. = 0.993) is found as the next potential impact as viewed by 41 respondents (38.5 per cent).

Table 2 (a): Potential Impacts of Obsolescence of the System on Banks

| Statements | N/P | Public Sector Banks | | | | | Private Sector Banks | | | | | Foreign Banks | | | | |
|--|-----|---------------------|-----|------|------|------|----------------------|-----|------|------|------|---------------|------|------|------|------|
| | | SD | D | I | A | SA | SD | D | I | A | SA | SD | D | I | A | SA |
| Adverse public reactions | N | 0 | 8 | 4 | 50 | 45 | 1 | 4 | 11 | 60 | 28 | 2 | 8 | 20 | 47 | 23 |
| | % | 0 | 7.5 | 3.7 | 46.7 | 42.1 | 1.0 | 3.8 | 10.6 | 57.7 | 26.9 | 2.0 | 8.0 | 20.0 | 47.0 | 23.0 |
| Possible legal repercussions as law suits could result from erroneous transactions | N | 3 | 5 | 17 | 60 | 22 | 0 | 5 | 13 | 76 | 10 | 1 | 12 | 9 | 62 | 16 |
| | % | 2.8 | 4.7 | 15.9 | 56.1 | 20.6 | 0 | 4.8 | 12.5 | 73.1 | 9.6 | 1.0 | 12.0 | 9.0 | 62.0 | 16.0 |
| Costs associated with resolving customer problems | N | 4 | 4 | 31 | 41 | 27 | 1 | 3 | 41 | 54 | 5 | 6 | 11 | 22 | 49 | 12 |
| | % | 3.7 | 3.7 | 29.0 | 38.3 | 25.2 | 1.0 | 2.9 | 39.4 | 51.9 | 4.8 | 6.0 | 11.0 | 22.0 | 49.0 | 12.0 |

Note: N/P = Number of Respondents/Per cent

Source: Survey

Table 2 (b): Potential Impacts of Obsolescence of the System on Banks

| Particulars | Public Sector Banks | | | Private Sector Banks | | | Foreign Banks | | | ANOVA | |
|--|---------------------|------|-------|----------------------|------|-------|---------------|------|-------|--------------|-------|
| | N | Mean | S.D. | N | Mean | S.D. | N | Mean | S.D. | F (df=2,308) | Sig. |
| Adverse public reactions | 107 | 4.23 | 0.842 | 104 | 4.06 | 0.786 | 100 | 3.81 | 0.95 | 6.299 | .002* |
| Possible legal repercussions as law suits could result from erroneous transactions | 107 | 3.87 | 0.891 | 104 | 3.88 | 0.634 | 100 | 3.8 | 0.888 | .268 | .765 |

| | | | | | | | | | | | |
|---|-----|------|-------|-----|------|-------|-----|-----|------|-------|------|
| Costs associated with resolving customer problems | 107 | 3.78 | 0.993 | 104 | 3.57 | 0.679 | 100 | 3.5 | 1.04 | 2.568 | .078 |
|---|-----|------|-------|-----|------|-------|-----|-----|------|-------|------|

Note: N = Number of Respondents, S.D. = Standard Deviation, * Significant at 0.05 level of significance

Source: Survey

Private Sector Banks

Adverse public reactions (Mean = 4.06, S.D. = 0.786) is viewed as the most potential impact on the private sector banks as per the responses of 60 respondents (57.7 per cent). Possible legal repercussions as law suits could result from erroneous transactions (Mean = 3.88, S.D. = 0.634) is considered as the next potential impact by 76 respondents (73.1 per cent). However, the costs associated with resolving customers' problems (Mean = 3.57, S.D. = 0.679) is found as the next potential impact by 54 respondents (51.9 per cent).

Foreign Banks

Adverse public reactions (Mean = 3.81, S.D. = 0.95) is found as the most potential impact on these banks as per the responses of 47 respondents (47.0 per cent). Possible legal repercussions as law suits could result from erroneous transactions (Mean = 3.8, S.D. = 0.888) is considered as the next potential impact by 62 respondents (62.0 per cent). On the other hand, the costs associated with resolving customers' problems (Mean = 3.5, S.D. = 1.04) is found as the next potential impact by 49 respondents (49.0 per cent).

The results of ANOVA in Table 2 (b) show that there is a significant difference among the bankers' viewpoint towards adverse public reactions ($p=0.002$, $df=2$, 308) at 0.05 level of significance. Therefore, the null hypothesis (H_{02}) is rejected.

(C) Risk Management Measures to Overcome Risk of Obsolescence of System

The risk management measures to overcome the risk of obsolescence of the system in selected banks are presented in Table 3 (a) and 3 (b).

Public Sector Banks

Regular review of capabilities of existing hardware (Mean = 4.46, S.D. = 0.73) is viewed by 60 respondents (56.1 per cent) as the top most adopting measure in public sector banks. Regular review of capabilities of existing software (Mean = 4.36, S.D. = 0.804) is considered as the next most adopting measure as per the opinion of 54 respondents (50.5 per cent). However, installation of accountability system that assigns responsibility for updates to equipment (Mean = 4.15, S.D. = 0.81) is considered as the third important measure as viewed by 55 respondents

(51.4 per cent). Installation of accountability system that assigns responsibility for updates to system (Mean = 4.14, S.D. = 0.841) is found as the next adopting measure as per the responses of 51 respondents (47.7 per cent) in public sector banks.

Table 3 (a): Risk Management Measures to Overcome Risk of Obsolescence of System

| Statements | N/P | Public Sector Banks | | | | | Private Sector Banks | | | | | Foreign Banks | | | | |
|--|-----|---------------------|-----|-----|------|------|----------------------|-----|------|------|------|---------------|------|------|------|------|
| | | SD | D | I | A | SA | SD | D | I | A | SA | SD | D | I | A | SA |
| Regular review of capabilities of existing hardware | N | 0 | 4 | 3 | 40 | 60 | 1 | 3 | 4 | 30 | 66 | 1 | 10 | 5 | 54 | 30 |
| | % | 0 | 3.7 | 2.8 | 37.4 | 56.1 | 1.0 | 2.9 | 3.8 | 28.8 | 63.5 | 1.0 | 10.0 | 5.0 | 54.0 | 30.0 |
| Regular review of capabilities of existing software | N | 0 | 6 | 4 | 43 | 54 | 0 | 1 | 6 | 33 | 64 | 1 | 8 | 10 | 46 | 35 |
| | % | 0 | 5.6 | 3.7 | 40.2 | 50.5 | 0 | 1.0 | 5.8 | 31.7 | 61.5 | 1.0 | 8.0 | 10.0 | 46.0 | 35.0 |
| Installation of accountability system that assigns responsibility for updates to system | N | 0 | 7 | 10 | 51 | 39 | 0 | 5 | 13 | 45 | 41 | 9 | 7 | 17 | 39 | 28 |
| | % | 0 | 6.5 | 9.3 | 47.7 | 36.4 | 0 | 4.8 | 12.5 | 43.3 | 39.4 | 9.0 | 7.0 | 17.0 | 39.0 | 28.0 |
| Installation of accountability system that assigns responsibility for updates to equipment | N | 1 | 4 | 10 | 55 | 37 | 5 | 3 | 5 | 49 | 42 | 5 | 9 | 20 | 44 | 22 |
| | % | .9 | 3.7 | 9.3 | 51.4 | 34.6 | 4.8 | 2.9 | 4.8 | 47.1 | 40.4 | 5.0 | 9.0 | 20.0 | 44.0 | 22.0 |

Note: N/P = Number of Respondents/Percent

Source: Survey

Table 3 (b): Risk Management Measures to overcome Risk of Obsolescence of the System

| Particulars | Public Sector Banks | | | Private Sector Banks | | | Foreign Banks | | | ANOVA | |
|--|---------------------|------|-------|----------------------|------|-------|---------------|------|-------|--------------|-------|
| | N | Mean | S.D. | N | Mean | S.D. | N | Mean | S.D. | F (df=2,308) | Sig. |
| Regular review of capabilities of existing hardware | 107 | 4.46 | 0.73 | 104 | 4.51 | 0.788 | 100 | 4.02 | 0.921 | 11.077 | .000* |
| Regular review of capabilities of existing software | 107 | 4.36 | 0.804 | 104 | 4.54 | 0.652 | 100 | 4.06 | 0.93 | 9.221 | .000* |
| Installation of accountability system that assigns responsibility for updates to system | 107 | 4.14 | 0.841 | 104 | 4.17 | 0.83 | 100 | 3.7 | 1.21 | 7.515 | .001* |
| Installation of accountability system that assigns responsibility for updates to equipment | 107 | 4.15 | 0.81 | 104 | 4.15 | 0.993 | 100 | 3.69 | 1.07 | 7.827 | .000* |

Note: N = Number of Respondents, S.D. = Standard Deviation, * Significant at 0.05 level of significance

Source: Survey

Private Sector Banks

Regular review of capabilities of existing software (Mean = 4.54, S.D. = 0.652) is viewed as the top most adopting measure by 64 respondents (61.5 per cent) in these banks. Regular review of capabilities of existing hardware (Mean = 4.51, S.D. = 0.788) is considered as the next most adopting measure by 66 respondents (63.5 per cent). However, the installation of accountability system that assigns responsibility for updates to system (Mean = 4.17, S.D. = 0.83) is found as the third important measure as per the responses of 45 respondents (43.3 per cent), whereas the installation of accountability system that assigns responsibility for updates to equipment (Mean = 4.15, S.D. = 0.993) is found as the next adopting measure by 49 respondents (47.1 per cent) in private sector banks.

Foreign Banks

Regular review of capabilities of existing software (Mean = 4.06, S.D. = 0.93) is viewed as the most adopting measure as per the responses of 46 respondents (46.0 per cent). Regular review of capabilities of existing hardware (Mean = 4.02, S.D. = 0.921) is considered as the next most adopting measure by 54 respondents (54.0 per cent). However, the installation of accountability system that assigns responsibility for updates to system (Mean = 3.7, S.D. = 1.21) is found as the third important measure as per the responses of 39 respondents (39.0 per cent), whereas the installation of accountability system that assigns responsibility for updates to equipment (Mean = 3.69, S.D. = 1.07) is viewed as the last adopting measure as per the responses of 44 respondents (44.0 per cent) in foreign banks.

The results of ANOVA in Table 3 (b) show that there is a significant difference among the bankers' viewpoint towards regular review of capabilities of existing hardware ($p=0.00$, $df=2$, 308), regular review of capabilities of existing software ($p=0.00$, $df=2$, 308), installation of accountability system that assigns responsibility for updates to system ($p=0.001$, $df=2$, 308) and installation of accountability system that assigns responsibility for updates to equipment ($p=0.00$, $df=2$, 308) at 0.05 level of significance. Therefore, the null hypothesis (H_{03}) is rejected.

Conclusion

To sum up, delay in processing of transactions is found as the most important factor leading to the obsolescence of the system followed by disruptions in processing transaction in public and

private sector banks, whereas disruptions in processing transactions is viewed as the most important factor leading to the obsolescence of the system followed by deficiencies in the system and delays in processing transactions in foreign banks. On the other hand, adverse public reactions is viewed as the most potential impact on these banks followed by possible legal repercussions as law suits could result from erroneous transactions and costs associated with resolving customers' problems. Further, regular review of capabilities of existing software is viewed as the most adopting measure followed by regular review of capabilities of existing hardware, installation of accountability system that assigns responsibility for updates to equipment/system in the selected banks under study.

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