



Cyber Security a way Forward Approach towards Resources Management of Banking sector in India

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ABSTRACT

India is witnessing of sound ecosystem of payment since date of incorporation of banking act 1949 forward steps towards consolidation of banking has taken place in nationalization era of banking. With effect from post economic reform inclusion of technology and software has become one of the key element of for our banking sector, with effect of foreign direct investment in public and private sector bank in India with in appropriate cap of banking sector under automated and approval route has created significant of information Technology in our banking system. With effect of increasing in technological infusion of software in Indian banking sector by virtue of legal compliances cash based system of banking in India has transformed in to digital ecosystem of banking itself, with effect of post demonetization in India reserve bank has also introduced provision relating to payment of soft bank in our banking system. Now a time there is various method of soft bank payment with forward and backward support of technology in payment banking sector such as national electronic fund transfers, real time gross settlement, debit and credit cards, point of sale, unified payments interface, and so on mode of digital payment in India make a significant role for development in banking sector.

KEY WORDS

Soft banking, Demonetization, New economic reform, Digital payment system, Cyber security.

INTRODUCTION

Banking sector is backbone of economy with effect of post economic reform information technology

has emerged as one of the significant element of banking over a period of time. Digital forensic is a sub set of digital forensic investigation which deals with collection of digital material of evidences and gathering information through such evidences further investigation is wider area which deals with store processed and analysis of digital evidences. Over a period of time banking industries in India has witnessed of large amount of cyber crimes and fraud in operation of business of organization and data base of banking system ,so one of the primary concerned during the process of auditing and accounting during forensic accounting and investigation in relation to audit and investigation is chain of custody of electronic evidences during procedure of investigation. Under the area of banking business operation fraud prevention and detection programmes are also shifted from traditional banking techniques to effective electronic and digital based methodologies. Study has shown there is decreasing the trend of amount of fraud involves in banking system but electronic transfer debit and credit card frauds have increased in significant manner. Forensic auditors and investigators need to specialized knowledge of applied digital chain of custody of electronic maintainability, integrity availability electronic evidences in detective preventive and corrective control in banking organization. E- banking and cyber securities is inclusive list but not limited to specific set of transaction and documents such as financial institution record, account opening document, business account related document, wire transfer records, electronic payment records, loan records, Debit and credit cards records, financial intelligence unit formed by the government, foreign nation treaties, applicability of processing and data input output methodologies etc. , in budget of last five financial years government also increased limit of audit for small business concern having 95% of receipt in non-cash mode. In short we can conclude new economic reform in era of 1991 has game changer effect as technological inclusion of effective software digital payment based system in banking sector with appropriate forward steps of compliance management and demonetization, which significantly transformed cash based payment system in to digital based payment in our economy.

Object of Study

- To analyse role of digital and cyber securities in banking sector of India.
- To analyse trends of frauds in banking sector over a period of study.
- To analyse role of digital and cyber securities in banking sector towards resources management.

Methodologies material and Data Analysis

Table 01: Sources of information in relation to cyber crime fraud forensic investigation process

Public records	Non-public records	Online data base searches	Social media	Information system and management policies	Accounts and departments records
Local records	Banking records	NEFT RTGS	Photo graphs	Level of internal control	Purchase accounting
Court records	Tax records	Software application	Life style sharing	Application of compliance system	Payroll accounting
Property records	Credit records of an individual	Process flow of system and sub system	Foreign and parties trip	Segregation of duties	Reporting in Financial statement
Business records	Credit records of business	Internet archives	Interconnectivity with suspected group	Server firewall IDS,IPS system	Loan and credit policies
Regulatory fillings	Credit card analysis	Server data base	Unusual behaviour	Biometric record	Regulators guidelines
Commercial fillings	Insurances and heath care premium and policies	Deep web and artificial intelligences techniques		Audit tools and software	Cash and electronic disbursement

Table 02: Types of frauds occurred in cyber digital words under operation of banking system

S.N	Types of Attack	Techniques and Methods	Possible Remedies
1	Botnets	Attack through compromised computers running software's, malicious codes such as worms, virus Trojan horses, denial of services to legitimate users.	Appropriate scanner, training programmes, suitable firewall system
2	Email spoofing	User of Email message considered it as originated sources but in real it is sent from other non-legitimate sources of message.	Proper employee training and awareness programme by organization
3	Man in middle attack	A man in middle connected their device during the transmission protocol between two legitimate devices.	One time password sends by organization, session end to connect after specific time of expiry.
4	Piggy backing	Unauthorised access in to technical domain by way of legitimate users.	Dead man Door, strong authorization.
5	Social engineering	Sending or explaining the confidence information over system and telephone medium by user to unauthorised person.	Appropriate training, employee awareness, programmes
6	Salami slicing	Small amount of money deducted from bank account of user to click unauthorised medium of system.	Immediate inform to appropriate personal.
7	Ransom ware	A hacker entered in to the system with system loopholes and demands a significant amount of money to release system back in courses.	Daily and appropriate data back up by organization.
8	Data dandling	A unauthorised malicious code insert in to the system by official person with malicious intent in to the system.	Strong authorization and input validation techniques.
9	Message modification	Capturing message and unauthorised alteration in message changes in sequences of message during the process of transmission.	Appropriate user awareness programme and solid segregation of duties between persons.

Table 03: Fraud cases in banking system during F.Y 2021-2024 rupees in Cr.

Group of banking/ institution	F.Y 2021-22		F.Y 2022-23		F.Y 2023-24	
	Amount of fraud	% of fraud	Amount of fraud	% of fraud	Amount of fraud	% of fraud
Public Sector Bank	32288	71.1	18750	71.8	10507	75.3
Private Sector Bank	10663	23.5	6159	23.6	3170	22.8
Foreign Bank	1206	2.7	292	1.1	154	1.1
Financial Institutions	1178	2.6	888	3.4	----	----

Small Finance Bank	30	0.1	31	0.1	64	0.5
Payment Bank	1	---	7	--	35	0.3
Local Area Bank	2	--	---	--	--	--
Total	45358	100	26127	100	13930	100

(Source: Annual Report RBI year 2023-24)

Data pattern from table number 03 reveal that public and private sector bank group has very significant share in amount of fraud an average of 90% over a period of last three financial years. Also noted there is decrease in trend of amount of fraud over the year.

Table 04: Amount of fraud under Area of operation rupees in Cr.

Area of operation	F.Y 2021-22		F.Y 2022-23		F.Y 2023-24	
	Amount of fraud	% of fraud	Amount of fraud	% of fraud	Amount of fraud	% of fraud
Advances	43272	95.4	24685	94.5	11772	84.50
Off –balance sheet	1077	2.4	285	1.1	256	1.80
Forex Transaction	7	--	12	--	38	0.30
Card/ Internet	155	0.3	277	1.1	1457	10.40
Deposits	493	1.1	258	1	240	1.70
Inter Branch Account	2	--	-	--	10	0.10
Cash	--	--	159	0.6	78	0.60
Cheque / DD, etc.	93	0.2	25	0.1	42	0.30
Clearing Accounts	158	0.4	3	-	2	--
Others	100	0.2	423	1.6	35	0.30
Total	45358	100.0	26127	100.0	13930	100.00

(Source: Annual Report RBI year 2023-24)

Table 05: Common control and techniques used in banking sector data validation by forensic Auditors and Investigators

S.N	Applied control	Explanation	Remark
1	Sequence check	Cheque in sequences of particular item of documents invoices, etc.	Loan document from 2007 to 2047 observed if anyone is missing or duplicate.
2	Limit check	Amount of transaction reported to appropriate personnel if exceeds by specific limit.	Pay roll department person has payment limit of 10,00000 but paid in exceeds by authority.
3	Range check	Payment of concerned person beyond specified range of limit.	Purchase department has authority of payment between 25, 00000 to27, 50000 but paid beyond that.
4	Validity check	Whether data are valid in predetermine criteria set by organization.	Marital status of customer married or unmarried.
5	Check digit	Numeric value set by the system the system on the basis of pre calculated methodologies.	Total of account number should be twenty digits.

6	Reasonableness check	Based on transaction made by department or items warning shown by system	Payment of more than 10,0000000 in single transaction.
7	Completeness check	Whether data inserted in to the system is fit or not with system criteria	Field should not be zero value must be inserted on it.
8	Pre and post imaging	Picture of data processing before and after transaction.	Image of pre and post transaction before and after processing of payment.
9	Run to Run total	Total numbers of transaction in particular time of processing by system under individual and consolidated manner.	Sequence and amount of processing with no. counts under loan disbursement schemes.

(Sources: Primary Data)

Cyber Securities Benefit

Industry	Customer
Operational efficiency	More information
Risk management	Easy access to services
New solutions	Convenience
Transparency	Faster grievance redressed
Customer reach and satisfaction	
Unique identity	
Financial inclusion	

Operational Efficiency

- Straight-through processing.
- Transformation of service channels.
- Collaborative channel management strategy.
- Branchless banking correspondent.
- Business correspondents.

Governance & Risk Management

- Enterprise risk management.
- Real-time executive dashboards.
- Real-Time Security management.
- Risk-based authentication.
- Mobile phone-based banking application.
- Social media support.

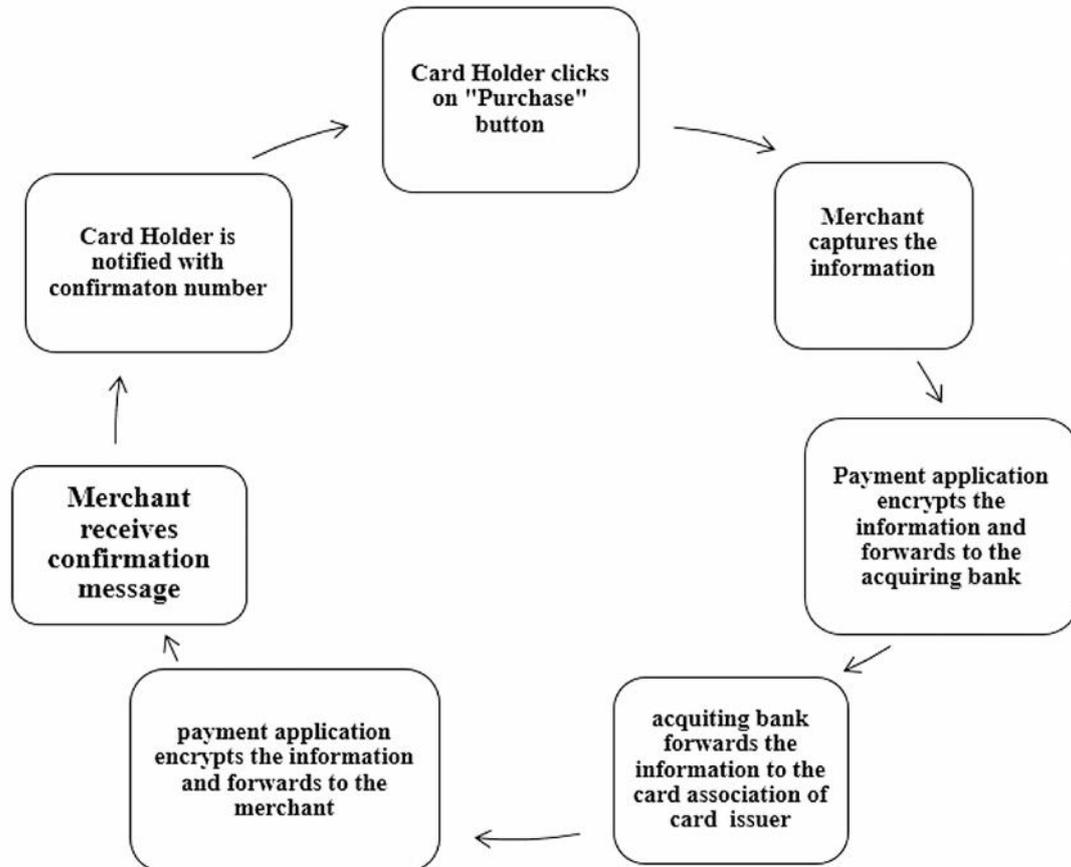
Regulatory/Compliance

- IFRS.
- UID readiness.
- Data flow automation.
- Customer analytics.

- Efficient customer data management.
- Data protection Act.
- Cross boarder court of law.
- Indian companies regulation.
- SEBI regulation.

Banking Regulation

Matrix 01: Internal control applied by organization and fraud behaviour analysis



E-Banking in transaction cycle in recent banking sector in India

Data Analysis

Data has reveal that there is decrease in amount of fraud involved over period of study also there is trend in fraud of more than 90% is occur under the schemes of advances reported by the bank on average basis. There is tend in amount of increment in credit card transaction over a period of study which is the highest in the year of 2023-2024 share of cheques and demand draft has down tend of fraud over the year due to emergence of significant usage of information technologies in banking sector over period of time

CONCLUSION

Banking is one of the significant parts of our financial eco system which represent significant back bone of economic system. Better cyber securities and techniques in banking shall useful for customer worthiness in to the system. Level of information system and nature of transaction is one of the great back bone for corrective, detective and compliance based system for whole trasaction.

Suggested Measurement of Cyber Securities in India

- Internal control applied by banking system could be based on risk classification and risk assessment analysis performed by internal and external experts and stakeholders.
- Risk may be classified as inherent risk, detection risk, control risk, audit risk, residual risk and information technologies failure risk.
- An organization would like to minimized residual risk though application of after implied all kind of internal control in the system of banking operation.
- On the basis of significance risk analysis their impact and materiality of items to the organization various preventive detective and corrective risk instruments are applied in to the system.
- Control may be compliances, internal checking, internal auditing, information system control and auditing, fraud and risk assessment programmes by banking organizations
- Legal and compliance related control reporting to concerned authority is also one of the significant areas of fraud investigation and detection techniques.
- Control area of information applied by organization for prevention and detection may be biometric scanning, firewall deployment, intrusion prevention and detection software, audit and accounting software, secure shell, back up procedure and so on as per requirement of organization.

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