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AN EMPIRICAL STUDY OF CUSTOMER SATISFACTION TOWARDS E-BANKING SERVICES IN DELHI

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A B S T R A C T

Digital solutions are a must for Gen Next banking. There has been a surge in tech-enabled digital payments marking a shift in the operations of banks vis-a-vis technology and customer behavioural patterns. The last two years have witnessed a significant rise in digital transactions from 40 billion in 2020 to 87 billion in 2021 in India. Given the increasing preference for contactless banking, banks need to understand their customers better. The purpose of the study is to gauge customer perception towards e-banking services. The study uses the following variables, namely, user interface, content, communication, responsiveness, customer support services, data protection and recommendation of banks to others to find out the relationship with the age of the customers. The questionnaire method is used for conducting the study with a sample size of 200 customers. The cross-tabulation statistical test is applied using SPSS software for data analysis. The study covers the post-pandemic period and chalks out the strategies to increase digitalization in the banking industry which is required for the sector to flourish. Key findings indicate that the banking industry's current framework needs to find secure solutions to reduce online crimes and e-banking fraud. Based on the findings, better instruments and mechanisms for e-banking services must be put in place. It is recommended to develop a customized user interface for e-banking applications, enforce cyber laws and regulations to curb e-banking frauds and assist customers by setting up in-house cyber redressal cells. Based on time constraints, the study is limited only to 200 customers and the findings rest on the opinion and perception of our chosen sample size.

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INTRODUCTION

The demand for digital financial services has increased manifold because of Covid-19 surpassing the limitations on physical interaction. Digital financial services are defined as financial services such as remittances, payments, and credit accessed through digital channels. According to Moody's, it makes imperative for banks to accelerate digitalization (Guterres, 2021). In the last three years, more than 300 million adults have gained access to banks accounts and saving accounts have increased by 13.3% in 2022. There is an increase in the usage of Unified Payment Interface in India from processing 17.9 million digital transactions per month in 2016 to 1.3 billion per month in 2020 (Sazonova, 2021).

Financial regulators forecast that the number of digital transactions would rise from an estimated 40 billion in 2020 to 87 billion in 2021 (Eriksson, 2021). There has been a rapid development in providing digital financial services by developing digital identification systems using Aadhar, increasing high-speed internet and smartphones. Digital payments, remittance, and lending have grown tremendously in the last few years. In 2017, more than 925 banks facilitated 106.75 million Government-to-Private payments with a total value of more than Rs. 44.14 billion through e-transactions (Chaimaa, 2021). The RBI Digital Payments Index for March 2019 and 2020 stood at 153.47 and 207.84 respectively indicating the growth of digital financial services in India (Guterres, 2021).

Limited research studies have been conducted to analyze the existing policies and regulations of e-banking services. This study covers the period post pandemic where considerably less number of studies have been undertaken on customer perception towards e-banking services. This study is innovative in itself. It chalks out the strategies to increase digitalization

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in banking industry which is required for the sector to flourish. The fundamental objective of the study is to analyze customer satisfaction towards e-banking services in Delhi, India. Further, it aims to find the relationship between age and customer perception variables- User interface, content, communication, responsiveness, customer support services, updates, high security and data protection, technical problems, and recommendation of banks to others. The present paper also explores the existing policies and regulations of e-banking services among merged private banks during 2000-2019.

The study is analytical in nature and a survey method was employed to collect data. Combinations of primary and secondary data were used in obtaining information. Structured questionnaire was drawn and administered which formed the basis of the analysis.

The paper is organized into six sections with review of literature following the introduction. The methodology of study is presented in section three while section four provides data analysis and discussion of findings. Section 5 is for conclusion and recommendations.

LITERATURE REVIEW

According to Nitsure (2003), the e-banking term encompasses and signifies the entire sphere of technology initiatives that takes place in the banking industry. It refers to the delivery of banking services through electronic channels such as mobile phones, computers, and laptops using the internet.

Evolution of E-banking in India

According to Singh (2020), technology plays a significant role in the transformation of the banking industry across the globe. Roy (2017) mentioned that there are various initiatives taken by the government of India to support digitalization in the banking industry, such as the Aadhar-enabled payment system. Shankar (2020) asserted that the only awareness among the customers would not influence their decision to shift towards e-banking services from the traditional banking system. Various factors influence the customer's decision to adopt a digital banking system, such as trust, technical issues, etc. Sardana (2018) concluded that there is a need for developing customized digital banking services to enhance customer experience.

The digital medium increases the level of financial inclusion globally from 51% in 2011 to 69% in 2017 (Singh et al., 2020). Some 91% of people are using digital payment system in high-income economies. In contrast, just 44% are using in developing economies which indicates lack of digital penetration (Khandelwal et al., 2013). Few challenges for digital penetration would include lack of infrastructure, lack of awareness, connectivity, among others.

E-banking Policies in India

Chakraborty (2015) asserted that the changing financial landscape that is more of digitalization brings new challenges for bank management, supervisory and regulatory authorities. Some of the risks encountered are as follows:

- **Regulatory risks:** According to Narware (2016), there is an absence of a license that is appropriate where the supervision is weak, and cooperation between the home supervisor and a virtual bank is not adequate. There is also an absence of guidelines to clarify the grey areas among the consumers to use the e-banking system appropriately.

- **Legal risk:** The E-banking system carries legal risks as the banks are expanding to increase the geographical scope of the services. Shankar (2020) states there are a lack of contact with the host country supervisor. It results in difficulty staying abreast of regulatory changes. However, virtual banks are unknowingly violating customer protection laws, including regulations on soliciting, data collection, and others. It exposes a loss through lawsuits or crimes which are not prosecuted due to jurisdictional disputes.

- **Reputational risk:** Nitsure (2003) asserted security breaches and disruptions lead to the damage of banks' regulations. The risks increase when there is an increase in e-delivery channels. If one customer faces any confidentiality issue, then it impacts on customer's confidence in the e-banking system. It requires an implementation of internal guidelines for bank supervisors for effective risk management.

- **Operational risk:** Narware (2016) explained that the availability of new technology had created an operational risk to the e-banking system. It raises security threats from outside and inside the system. It ensures that banks have appropriate practices to guarantee data confidentiality and system integrity. The management of heightened operational risks requires overall risk management and supervisors need to include operational risk in their soundness and safety evaluation.

Theoretical Framework

The Technology Acceptance Model

The technology adoption model is the foundation of various technology adoption and diffusion research, which is rooted in the theory of reasoned action. According to the author, there are two significant independent variables, including perceived usefulness and perceived ease of use (Granić al., 2019). These are the two factors that impact consumer’s attitudes towards using it, and it impacts behavioral intention. It reflects the use of technology in changing consumer’s behavior.

Institutional Intervention Theory

Dubey (2019) explains two dimensions that reflect the influence, including demand-pull and supply push forces in the context for actions to take place. The innovation adoption requires both supply push and demand pull, which comes from the supplier and demand generated from the users to develop innovation. These theories are used in various technology adoption studies, such as EDI adoption and ecommerce adoption.

Institutional Theory

The theory asserted that in societies, the organizational work is guided by the rational activities and rules which are originated as a system. Scott (2005) claims that there are three types of institutions, including normative, pressures-coercive and mimetic, which determine the technology adoption by the organization and individual.

- Coercive pressure exerted by the organizations on social actors to adopt the behavior, attitude, and practice as the later have resource dependency on the former.
- Normative pressure is exerted when the organization voluntarily imitates the behavior, attitude, and practices of other organization.
- Mimetic pressure is related to the conscious and voluntary copying of the behavior and practices of competitors and high-status actors.

MATERIALS AND METHODS

The present study uses mixed research methodology for analyzing customer satisfaction towards e-banking services. The combination of qualitative and quantitative data enables to provide insight into the customer perception and existing business policies. The combination of both types of data offset the weaknesses of each research method. It enables to determine the answers to unexpected findings of the research study (Baker, 2000).

Sampling Procedure

The study uses primary data to assess the perception of e-banking services. The sample size is 200 who are existing bank account holders (Appendix A). Questionnaire method is used to collect data which is created on Google forms. Random sampling method is used for data collection as it provides each sample an equal opportunity of being chosen. The study also draws data from secondary resources such as annual reports, research papers, and articles among others to explore policies and regulations of e-banking services.

Measurement Approaches

Data has been analyzed using SPSS (Schrepp, 2003). The cross-tabulation statistical test is applied to analyze the categorical data, including age, occupation, and sex. ANOVA statistical test is applied because it allows comparing the means of more than two groups using correlated group designs and one independent variable.

The study uses the following variables, namely, user interface, content, communication, responsiveness, customer support services, updates, high security and data protection, technical problems, and bank recommendation to analyze customer perception the relationship between the defined variables and age of the customers.

- User Interface: It refers to the point of human-computer interaction which allows to access e-banking services to the customers.
- Content: It is defined as the information available on the e-banking application.
- Communication: It explains the exchange of information among the customers and banks through emails, messages, and phone calls.
- Responsiveness: It defines the banks behavior to fulfil consumer needs through regular updates, maintain privacy of consumer data, and others.
- Customer support services: It describes the operational support provided by the banks to the consumers to resolve consumer queries such as last three transactions, bank account balance, and other queries.
- Data protection: It is defined as the process of safeguarding consumer's data against phishing, frauds, misusing consumer information, and others.
- Bank recommendation: It refers to the customer suggestion for using the same e-banking services based on their e-banking experience.

Research Hypothesis

Ho: There is no significant relationship between user interface, content, responsiveness, customer service, bank communication, updates, data protection, technical problems, bank recommendations towards e-banking service and age.

H1: There is a significant relationship between user interface, content, responsiveness, customer service, bank communication, updates, data protection, technical problems, bank recommendations towards e-banking service and age.

RESULTS

The current section analyzes the data and corroborates the findings. The customer perception towards e-banking services is analyzed based on factors, including user interface, content, communication, responsiveness, customer support services, updates, high security and data protection, technical problems, and recommendations to others.

Customer Perception Towards E-Banking Services

User Interface

Table 1. Cross tabulation-User Interface

Age	Very High complex user interface	Highly complex user interface	Complex user interface	Less complex User Interface	Simple User Interface	Total
18-25	0	0	2	23	16	41
26-35	0	3	6	16	19	44
36-45	0	5	6	23	13	47
46-55	1	7	9	1	0	18
Above 55	1	44	4	0	1	50
Total	2	59	27	63	49	200

The respondents between the age-group of 46-55 considered the e-banking services to have complex user interfaces as they are not much technology savvy while on the other hand consumers below 45 years find it less complex.

Bank Communication and Data Protection

Table 2. Cross tabulation-Bank communication

Age	Excellent	Good	Fair	Poor	Total
18-25	18	15	6	1	40
26-35	10	31	3	1	45
36-45	13	26	7	1	47
46-55	0	2	11	5	18
Above 55	2	0	16	32	50
Total	43	74	43	40	200

Table 3. Cross tabulation-Data Protection

Age	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Total
18-25	2	0	1	24	14	41
26-35	0	2	4	26	12	44
36-45	0	3	4	21	19	47
46-55	0	6	8	4	0	18
Above 55	5	35	9	0	1	50
Total	7	46	26	75	46	200

The respondents above 55 years of age perceived bank communication to be poor as they are not much familiar with e-banking services which includes paperless statements, digital transactions prone to scams and phishing attacks. On the other hand, the younger generation feels that bank communication is good.

The government of India has declared the right of privacy as a fundamental right under the framework of the right to life as per the Indian constitution. The online frauds increased to Rs. 155 crore in 2022 as compared to the frauds worth Rs. 119 crore in 2021 (Rao et al., 2022). The increase in online frauds discourages consumers to use e-banking services. The banks are legally obliged to protect consumer information to maintain confidentiality, integrity and security. It requires the banks to develop reliable security mechanisms for customer acquisition and retention.

The above set of respondents more or less agreed that their banks are providing sufficient safety and protection to curb e-banking frauds.

Content

Table 4. Cross tabulation-Content

Age	Missing information	Missing some information	Average information	Availability of information	Availability of all information	Total
18-25	2	0	4	19	16	41
26-35	0	2	6	19	17	44
36-45	1	5	6	23	12	47
46-55	1	7	6	4	0	18
Above 55	5	38	5	1	1	50
Total	9	52	27	66	46	200

The above cross-tabulation table shows that 33% respondents perceived that e-banking has the required information. 9.5% respondents below 35 years perceived that e-banking services have all the required information. Further, 19% respondents above 55 years perceived that some information is missing in e-banking services.

Responsiveness and Customer Service Support

Table 5. Cross tabulation-Responsiveness

Age	Highly responsive behavior	Responsive behavior	Irresponsible behavior	Highly irresponsible behavior	Total
18-25	14	25	2	0	41
26-35	10	32	2	0	44
36-45	11	29	6	1	47
46-55	0	7	11	0	18
Above 55	1	2	34	13	50
Total	36	95	55	14	200

Table 6. Cross tabulation-Customer Service Support

Age	Excellent	Good	Fair	Poor	Total
18-25	23	17	1	0	41
26-35	14	24	5	1	44
36-45	18	23	5	1	47
46-55	0	2	11	5	18
Above 55	1	3	10	36	50
Total	56	69	32	43	200

12.5% respondents of 18-25 years feel that their banks are responsive towards their e-banking need. Further, 34 respondents above 55 years perceived that e-banking services provided by their banks are not responsive enough and just 10 respondents below 45 years perceive the same.

Table 6 show that 23 respondents out of 41 respondents between the age group of 18-25 years rate excellent customer support service. Overall 28% respondents feel that the customer service support provided by their banks is excellent. Banks must improve on this aspect since this is a key attribute for customer acquisition and loyalty.

Bank Recommendation

Table 7. Cross tabulation-Bank Recommendation

Age	Yes	No	Maybe	Total
18-25	33	1	7	41
26-35	32	3	9	44
36-45	36	1	10	47
46-55	2	3	13	18
Above 55	2	31	17	50
Total	105	39	56	200

The consumer acquisition is significant to remain competitive in the banking industry. There is a direct relationship between consumer acquisition and business profitability. So, the banks should focuses on customer acquisition and retention for long run sustainability.

The above table shows that more than 50% respondents are satisfied with banking services and they are more likely to recommend others.

Table 8. ANOVA Table

		Sum of squares	df	Mean square	F	Sig
User Interface	Between Groups	168.341	4	42.085	74.852	.000
	Within Groups	109.639	195	.562		
	Total	277.980	199			
Content	Between Groups	150.203	4	37.551	49.118	.000
	Within Groups	149.077	195	.764		
	Total	299.280	199			
Responsiveness	Between Groups	70.455	4	17.614	52.439	.000
	Within Groups	65.500	195	.336		
	Total	135.955	199			
Customer service support	Between Groups	151.993	4		83.454	.000

	Within Groups	88.787	195		
	Total	240.780	199		
Bank communication	Between Groups	112.799	4	51.916	.000
	Within Groups	105.921	195		
	Total	218.720	199		
Data protection	Between Groups	154.145	4	62.792	.000
	Within Groups	119.675	195		
	Total	273.820	199		
Bank Recommendation	Between Groups	42.111	4	19.207	.000
	Within Groups	106.884	195		
	Total	148.995	199		

- **User interface:** The above chart has shown that the user interface significance value is .000, which is less than 0.05. Thus, the null hypothesis is rejected. It can be stated that the user interface experience among the customers is different.

- **Content:** The significant value is .000, which is less than 0.05. Thus, there is a relationship between customer age and content information experience.

- **Responsiveness:** The significant value is .000, which is less than 0.05. Thus, there is a relationship between customer age and customer perception towards responsiveness.

- **Bank communication:** The significant value is .000, which is less than 0.05. Thus, there is a relationship between customer age and customer perception towards updates.

- **Updates:** The significant value is .000, which is less than 0.05. Thus, there is a relationship between customer age and customer perception towards updates.

- **Data protection:** The significant value is .000, which is less than 0.05. Thus, there is a relationship between customer age and customer perception towards data protection.

- **Technical problems:** The significant value is .000, which is less than 0.05. Thus, there is a relationship between customer age and customer perception towards technical problems.

- **Bank recommendation:** The significant value is .000, which is less than 0.05. Thus, there is a relationship between customer age and customer perception towards bank recommendations.

- **Customer service support:** The significant value is .000, which is less than 0.05. Thus, there is a relationship between customer age and customer perception towards customer service support.

Thus, there is a significant relationship between the customer perception towards e-banking services and age.

Regulations of Digital Finance Services

The legal framework of the Indian Banking system is governed by the set of statutes as mentioned below:

- Indian Contract Act, 1872
- Indian Evidence Act, 1872
- Foreign Exchange Management Act, 1999
- The Reserve Bank of India (RBI) Act, 1934
- The Banking Regulation Act, 1949
- Information and Technology (IT) Act, 2000
- Negotiable Instruments Act, 1881
- Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act (SARFAESI) Act, 2002 (Ketterer, 2017).

A content analysis has been done to diagnose the issues in the existing e-banking framework. Following are the issues, the respective acts and the results thereof.

Theme	Codes	Results
Security and privacy risks	Provision of Indian penal code, 1860: • Section 383: Punishment of extortion • Section 379: Punishment of theft • Section 406: Punishment of criminal breach of trust • Section 471: Using as genuine a forged document • Section 417: Punishment of cheating ○ Section 506: Punishment of criminal intimidation (Rajput, 2020)	• Lack of statutory recognition of the legal statutes and imposing a penalty on the bank's authorities for its violation. • Absence of internal audit compulsion for maintaining transparency in e-banking system. • Absence of in-house cyber redressal cell for dealing with bank frauds
Legal issues	• Section 3(2) of the Information and Technology Act • Section 4 of the Information and Technology Act • Section 72 and section 79 of the Information and Technology Act	• Lack of cyber laws and regulations for curbing the e-banking frauds and cyber frauds in India. • Lack of biometric authentication compulsion
Authentication issues	• Cyber cells and ancillary authorities • Information and Technology Act, 2000	• Ineffective enforcement structure. • Lack of trained staff results in an increment in the cybercrimes in India. • Lack of separate provision for dealing with the authentication issues and securing the customer interest (Chaimaa et al., 2021).

According to Gupta (2006), the existing regulatory framework over banks needs to be extended to the e-banking system. The banks should design network and database administrator which defines the specific roles. There is an absence of security policy duty approved by the board of directors. Mhlanga (2020) further added that the banks should have separate Information Technology Division and Information System Security. The existing laws and regulations ensure security and confidentiality of customer information, protection against anticipated threats to the security and protection against authorized access to such information. Chaimaa (2021) states the Reserve Bank of India has created rules for e-money issued by non-banks to address the regulatory vacuum. The Information Technology Bill, 1999 and Electronic Commerce Bill, 1999 in India are created for addressing general issues such as secure electronic records and signatures, duties of certification authority, computer crime and data protection, the liability of network service provider, and duties of certification authority. These bills are promoted by the Government of India, which facilitate the introduction of Electronic Data Interchange in the commercial sector. The examination of bank secrecy and data privacy regulations in developing countries shows a patchwork of rules. These are issued by the agencies with overlapping oversight and jurisdiction. However, bank secrecy rules are not statutorily recognized, which is required for imposing a penalty on the bank regulations. Rajput (2020) mentioned that there is an absence of internal audit compulsion. Also, there is an absence of the compulsion for some concentrate measures which the banks should take to protect the e-banking services. Further, there is also a lack of in-house cyber grievance redressal cells for dealing with bank frauds individually.

DISCUSSIONS

The study finds that there is a significant relationship between customer perception towards e-banking services and age. People of age groups 18-25, 26-35, and 36-45 have a relatively positive perception towards e-banking services. They believe that the e-banking services have a simple user interface, effective communication, required content, responsive behavior, timely updates, no technical problem, and excellent customer service support. On the other hand, people of age groups 46-55 and above 55 years have relatively negative perception of e-banking service as they consider that the e-banking services are not safe and secure.

The data shows that interface experience among customers of different age groups is different. The significance value of content experience is 0.000, which shows that there is a relationship between customer age and content information experience**.** Similarly, there is a relationship between other attributes of e-banking services and age.

The existing legal framework of the banking industry is ineffective in minimizing cybercrimes and e-banking frauds. There is a lack of statutory recognition of the legal, statutes and imposing penalty on the bank authorities for its violations. Also, there is an absence of internal audit compulsion and in-house cyber redressal cells for dealing with bank frauds. The legal issues include lack of cyber laws and regulations for curbing e-banking frauds and lack of biometric authentication compulsion. The authentication issues include ineffective enforcement structure, untrained staff, and lack of separate

provisions to deal with the authentication issues and secure the customer interest. Thus, the banks must be more responsive towards the needs of the customers.

CONCLUSIONS

It can be concluded that the people of different age groups have different perceptions towards e-banking services. It is important to consider that there is a knowledge gap as certain sections of people are not much familiar with e-banking services. Thus, banks should focus on making this group of people aware of e-banking services. Also, there should be an implementation of a customized user-interface option to enhance customer experience. The communication, privacy and safety of data are also their key concerns. The customers above 45 years are more reluctant to use e-banking services as they believe that their data may not be secured. There is an absence of a structured legal framework for handling cyber-crimes in India. It is recommended to implement statutory recognition of legal statutes and impose a penalty on bank authorities for its violation. There should be a compulsion of internal audits to maintain transparency in the banking system. Further, an in-house cyber redressal cell should be created to handle bank frauds. The government of India should enforce cyber laws and regulations for curbing e-banking frauds and cyber frauds with the implementation of biometric authentication compulsion. Knowledge and education can change their perception of e-banking services. Apart from this, banks should also consider taking feedback from different group of people so that their needs can be identified. When the need is identified, e-banking services can be designed accordingly to meet their needs and change their perception towards e-banking services. Further, banks must consider an Artificial Intelligence techniques that combine technology and robust datasets which will ensure seamless services to the customers.

The present study is limited to only 200 respondents to determine consumers' perception of e-banking services in Delhi/NCR. Secondly, due to time constraints, it is limited to only Delhi only. Future study can be done at pan India level for analyzing the customer perception towards e-banking services among different states. In addition, comparative studies can also be done for analyzing the customer perception towards e-banking services among developed and developing nations.

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APPENDICES

Appendix A. List of Private Merged Banks

2019	**Bandhan Bank Ltd.**	**Gruh Finance Ltd. [Merged]**
2006	Federal Bank Ltd.	Ganesh Bank Of Kurundwad Ltd. [Merged]
2008	H D F C Bank Ltd.	Centurion Bank Of Punjab Ltd. [Merged]
2010	I C I C I Bank Ltd.	Bank Of Rajasthan Ltd. [Merged]
2018	I D F C First Bank Ltd.	Capital First Home Finance Ltd. [Merged]
2017	Indusind Bank Ltd.	Bharat Financial Inclusion Ltd. [Merged]
2001	Kotak Mahindra Bank Ltd.	Pannier Trading Co. Pvt. Ltd. [Merged]
2019	Lakshmi Vilas Bank Ltd. [Merged]	Indiabulls Commercial Credit Ltd.
2000	Royal Bank of Scotland N V	R B S Equities (India) Pvt. Ltd.
	Standard Chartered Bank –India	Standard Chartered Grindlays Bank Ltd.

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