Shiv Shakti International Journal of Multidisciplinary and Academic Research
ISSN: 2278-5973 (Online) | Vol. 13, No. 4, (July 2025)
https://doi.org/10.5281/zenodo.16320298

A Systematic Review of Literature on E-Banking: Trends, Challenges, and Future Directions

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Abstract

The digital transformation of the banking sector has revolutionized financial services through the emergence and expansion of electronic banking (E-banking). This paper presents a systematic review of the existing literature on E-banking, focusing on the evolution of technological adoption, user behaviour, security concerns, and regulatory frameworks. The study critically analyses peer-reviewed articles published over the past two decades to identify key trends, recurring challenges, and emerging opportunities in the domain of E-banking. Findings reveal that while E-banking has significantly enhanced customer convenience and operational efficiency, persistent concerns around cybersecurity, digital literacy, and trust remain substantial barriers. This review provides a conceptual roadmap for future research, emphasizing the need for more region-specific studies, inclusive digital financial strategies, and sustainable innovation in banking technologies.

Introduction

The global banking landscape has undergone a profound transformation with the advent of electronic banking (E-banking), enabling customers to access financial services beyond traditional brick-and-mortar institutions. The adoption of E-banking platforms—ranging from internet banking and mobile apps to digital wallets—has reshaped how individuals and businesses interact with financial systems. As technology continues to evolve, so do the expectations and behaviours of consumers, prompting researchers and practitioners to examine this digital shift from various perspectives.

In recent years, a growing body of academic literature has emerged exploring the multifaceted aspects of E-banking, including technological adoption, user satisfaction, cybersecurity, legal frameworks, and financial inclusion. However, the insights remain scattered across disciplines, lacking a consolidated understanding of progress and gaps. This necessitates a systematic literature review to synthesize existing findings, highlight dominant themes, identify research voids, and suggest future directions.

This study systematically reviews scholarly contributions on E-banking, aiming to bring clarity to its developmental trends, the challenges it presents, and the opportunities it offers for the future of banking in an increasingly digital world.

Objectives

1. To analyse and synthesize existing literature on E-banking from a multidisciplinary perspective.
2. To identify key trends in the development and adoption of E-banking technologies.
3. To explore common challenges related to E-banking, such as cybersecurity, trust, and regulatory compliance.
4. To evaluate the evolution of customer behaviour and satisfaction in the context of E-banking services.

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5. To highlight research gaps and propose potential directions for future studies in the field of digital banking.

Local Review

The objective of this research” Predicting E-banking adoption: An evaluation of perception and behavioural intentions of small and medium enterprises in Karnataka “by Savitha Basri, and Dhiraj Shetty (2018) found which way the links between perceived ease of use, user satisfaction, perceived comfort, self-perception, trustworthiness, risk perception, government backing, and desire to utilize internet banking went. A cross-sectional descriptive survey of 132 SMEs in Karnataka was conducted to collect quantitative data. The PLS method of structural equation modelling was used to examine the data. E-banking usage was determined by perceived utility, perceived ease of use, and perceived risk, according to the findings. The perceived risk of e-banking transactions was positively associated to trust. The researchers discovered that perceived self-efficacy influenced reported ease of use, which in turn influenced perceived utility. To build rapport among potential SMEs, banks could give training courses to enhance self-efficacy, spend more resources to establish an easy-to-use system, and implement risk control measures that try to discourage identity theft as well as fraudulent activities through the Online platform.

Rajanna, K. A. (2015) in his research paper “AWARENESS AND SATISFACTION LEVEL OF CUSTOMERS REGARDING E-BANKING SERVICES WITH SPECIAL REFERENCE ATM SERVICES: A CASE STUDY OF CHIKKAMGALURU DISTRICT OF KARNATAKA, IN “shed light on the degree of competence, client satisfaction, and types of services given by banks in Chikkamgaluru, Karnataka, and to recommend appropriate strategies for resolving ATM service challenges. A random sample approach was utilized in this investigation, and 40 clients were chosen at random. For the objective of the study, both primary and secondary data were employed. To explain the outcomes, data were examined using relevant techniques.

Sathyanarayana, M. N. (2016)in their paper, titled "A Study on Customer Awareness and Satisfaction with E-Banking Services in Bangalore," was to look at customer awareness and fulfilment with various e-banking services in the Bangalore area. The researcher used self-administered structural questionnaires to conduct multi-stage random sampling. The following are the key findings: In comparison to male respondents, the majority of female respondents are unaware of how to use e-banking services. There is a deep link between consumer education and knowledge of the benefits of using e-banking services.

Singh, M. B., &Konnur, M. N. P. (2016) in their paper, titled” E-BANKING & RURAL CUSTOMER” intends to gather consumer feedback on the implementation of improved e-banking technologies in Karnataka, as well as their relevance and issues. Personal interviews were combined with a designed questionnaire that addressed the different research issues. According to the findings of the study, e-banking technologies are widely used in Karnataka, with ATMs being particularly popular. Internet banking is steadily gaining popularity; however, it is hindered by high internet access costs and a lack of communications infrastructure. The survey also showed that there are insufficient security measures in place to secure Internet Banking, owing to changes in communications infrastructure and growth in internet consumption culture.

According to Mohsin, M., and Ramesh, H. N. (2017), e-banking has a significant influence on customer satisfaction because it has been proportionally demonstrated that e-banking services drastically enhance user satisfaction, ease of use, source credibility, and consumer perception toward services given by banks and other financial institutions inside the Karnataka region of India. Investment banks in Karnataka and India must grasp the complexity of the potential and difficulties that lie ahead in order to design an appropriate plan to capitalize on the e-banking opportunities.

Varma, A. J., Ashwini, J., Ranjith, P. V., & Jayan, V. K (2020) in their research paper “An Analysis of Factors Affecting the Adoption of E-Banking Services in Small Finance Banks in Karnataka.” Is to determine the numerous factors that impact consumers who use e-banking services. The goal of this article is to investigate the numerous elements that influence consumers' willingness to use e-banking services, with a focus on small financing institutions in Karnataka.

In the article “INNOVATION IN INDIAN BANKING: EXTENT OF PRECAUTIONS TAKEN BY THE CUSTOMERS WHILE E-BANKING” Irfana, S., & Raghurama, A. (2013)examine the extent to which consumers take safety precautions while e-banking, assesses customer knowledge of different internet banking frauds, and advises safety precautions to take when e-banking. A systematic questionnaire was used to obtain primary data from 118 respondents. Secondary sources of data were used to learn about different electronic e-banking products and services, as well as different online frauds. The findings will assist bankers in developing adequate rules for their consumers who utilize the banking service. It enables e-banking clients to bank safely by implementing security measures.

The purpose of Katagal, P. R., Mutkekar, R. R., & Garag, A. G. (2018) was to investigate consumer views of e-banking service attributes in the north area of Karnataka. It emphasizes the critical e-service qualities from the customer's perspective. It also assesses the significance of e-service characteristics in improving customer satisfaction. The numerous quality aspects of e-services established by numerous researchers were investigated. The five characteristics investigated were Website Aesthetics, Privacy, and Confidentiality, Reliability and Convenience, Responsiveness and Safety. The highlighted aspects of bank e-services are key determinants of consumer satisfaction in North Karnataka, according to regression analysis.

The demographic disparities in client adoption of e-banking services are investigated by Nagadeepa, C. (2020) in the article “E-Banking Acceptance: A Study on Demographic differences among rural customers concerning Tumkur Taluk”. The test was carried out on bank clients' demographic data such as sexual identity, age, and profession. A total of 100 bank clients were examined in the Tumkur district from various locations. The test result demonstrated the contrast between customers depending on their demographic profile for all three variables contributing to e-banking system adoption.

Kaushik, A. K. (2012) states in his research paper” E-banking system in SBI” that Customers have more access to internet banking. According to this report, the internet is virtual, and getting feedback is simple. It is possible to gain consumer trust. Customers may receive personal attention from the bank, as well as high-quality service. We discovered numerous strengths of SBI after analysing the SWOC analysis, such as outstanding customer service, larger reach, customer retention, quick availability of information, 24x7 access, easy internet applications, and so on. SBI should work hard to increase the number of strengths.

According to this research paper “A STUDY ON IMPACT OF IT-ENABLED BANKING SERVICES ON OPERATIONAL PERFORMANCE OF SELECTED BANKS IN KARNATAKA” Vidyashree, D. V (2020)states that by using Information Technology (IT), banks' operations management can be more proficient, quick, and eventually expand beyond specific work time, so banks can take the lead in encouraging all of their customers to use these services. Because operational efficiency may be considerably improved, the adoption of IT-enabled services might be bolstered by increasing client knowledge of these services. The bank would then be able to reduce its operational costs.

Vijaya, G. S., &Prabhu, P. D. (2021) explored the possibility of implementing quality function deployment in banking services, which is uncommon in India, to assess remote India's needs and establish the true demands of rural banking and its possibilities. The report illustrates how rural customers’ voice was exactly recorded utilizing a quality function deployment matrix. The study's findings show that this technology may be evaluated, used, and expanded for a variety of service-oriented organizations, including banking.

In this paper “Awareness of Internet and Internet Banking in Indian Banks” Singh, A. (2019) aims to look into the current state of online banking in Indian banks, in particular. Banking is a financial institution that deals with different forms of money. It's a secure location to keep cash and credit cards. In Indian banks, several changes have occurred. Digitization has brought the largest change to Indian banks. Several client interaction points are now available thanks to new products and technology. Customers interact with computers using touch screens, which provide information. Internet banking facilitates online transactions. Internet banking is utilized by all banks, however, its utilization in India is low. Sufficient level and a lengthy procedure are included. Banking using the internet.

The purpose of Invalli, S., Raghurama, A., &Chandramma, M. (2011) was to learn more about how customers in urban and semi-urban areas use e-banking services. The findings demonstrated the importance of demographic characteristics, computer technology competence, and information medium as determinants of channel adoption. With the use of factor analysis, four categories of customers were determined based on their banking activity.

In this paper “A STUDY ON DETERMINANTS OF CUSTOMERS’ ADOPTION OF E-BANKING SOLUTIONS WITHSPECIALREFERENCETO PRIVATE BANKS “the purpose of the survey is to determine how well consumers are aware of private-sector banks' e-banking services. The research was carried out on clients of a few private sector banks, and the consumers chosen for the study were given a set of questionnaires to fill out to collect data. Consumers prefer e-banking solutions more conveniently in private sector banks than in the public sector, according to the report. Students and employees who prefer e-banking are drawn to private sector banks, but they are committed to protecting the privacy of their transactions and the security of their accounts. BAKKESH V, A. L. U. R. (2020)

George (2018) used the technology acceptance model (TAM) and service quality as an external variable to investigate the attitudes of e-banking consumers in Kerala. He discovered that the both TAM factors, and 'perceived usefulness' (PU), had a direct impact on e-banking use, while 'perceived usefulness' has an indirect effect via 'perceived ease of use'. Service quality characteristics such as fulfilment, effectiveness, dependability, website qualities, response, and confidentiality have an indirect influence on e-banking use via TAM factors.

National Review

In their paper "Role of E-Banking in Emerging Scenario," J. Venkatesh and P.Periasamy (2006) argue that the banking business, which was formerly dominated by public sector banks, nowadays is experiencing competitive rivalry from overseas firms and new generation private sector banks. The banking sector in India is undergoing a dramatic makeover, with 'Concept Selling' at its heart. As a result, the future possibilities for enhancing the package of innovative financial services through technology are promising. It is determined that, as a result of economic liberalization in the twenty-first century, foreign exchange banking has experienced significant changes, particularly in the previous three years.

In his paper "E-service as a Tool for Marketing of Financial Services," B. Manoharan (2007) points out that there is a pressing need for businesses to establish greater attention to customer relationships that blend marketing with personal financial consulting to satisfy clients' demands. As organizations are pushed and tugged toward the bright new realm of brokerage retailing, financial planning, portfolio management, and advice tailored to each individual's risk tolerance and life stage will become trademarks of the completely new service orientation. Despite the hurdles, the e-broking industry appears to be a segment on the rise. In today's fast-changing business environment, any firm must learn to deal successfully with fierce global competition and adapt to a rising rate of change. Sometimes, the only way to prosper or even survive is to make significant changes in the way businesses are run. Some of the problematic hallmarks of firms in the new millennium include a paperless environment, virtual organization, mass customization, and world wide web client service. It's impossible to fathom any firm these days that doesn't try to employ cutting-edge information technology to improve its efficiency and seize chances that contribute to its success.

Dr.R.Vijayakumar and Dr.N.Raman (2007) contend in their paper "Digital Banking" that the banking system in India is facing tremendous competition from non-traditional banking institutions that now offer banking and financial services over the internet. The liberalization of the banking business, along with the advent of new technology, has allowed new competitors to enter the financial services market quickly and successfully. In India, nationalized banks are focusing on online banking adoption, while private sector banks are capitalizing on the high-tech wave of buzzwords like E-banking and M-banking by forming partnerships with portals and service providers to help communicate this jargon into transactions. Despite this, public sector banks have recognized the need to adapt to the challenge related to foreign and private banks.

In their study "Customer Expectations and Service Level in the E-Banking Era," Kamakodi and M Basheer Ahamed khan (2008) listed the important determinants that affect people surveyed to choose the bank as safety of funds, secure ATMs, availability of ATMs, the reputation of the bank, personal attention, pleasing manners of the personnel, personal privacy, proximity to work, excellent delivery, and sociability of employees to assist. Based on differences in importance and performance, the top ten variables based on the difference in importance and performance are minimum delay in response, friendly staff willing to assist, higher rate of interest on deposit accounts, direct understanding, satisfying politeness, availability to branch managers individualized service, timely assistance, rapid turnaround, and quick recourse of complaint. Nine of the 10 characteristics (excluding the greater rate of interest on deposits) are concerned with the efficiency of bank employees in the face–to–face interactions.

In his paper "Product Innovation in Banking Industry - A short assessment of the e-Banking Scenario," Mallikarjunan Krishnamurthy (2008) claimed that banks must accommodate a huge number of clients with a variety of wants. As a result of this, they are attempting to move away from traditional 'at the counter' banking goods and onto more inventive and 'tailor built', 'doorstep' offerings. In contrast to these changes in the banker-customer relationship, technology is forcing banks to come up with new products that will appeal to a wider audience and meet their specific needs. He has concluded that innovation does not occur in a vacuum, but rather in the face of unknown dangers and obstacles. As a result, the risk management strategy should be developed concurrently with the actions required to develop new financial services. In the evolutionary context, nevertheless, innovation is unavoidable. The crucial words of Lord Alfred Tennyson, the English Poet Laureate, appear to ring true here. 'The old order has to give way to the new'.

In their work "E-banking – A New Dimension of Customer Service of Commercial Banks in India," Dr.A.Subbiah and Dr.Jeyakumar (2009) claim that "E-banking is now becoming incredibly popular internationally, and India is no exception." Reduced interest rates, lower PC prices, broad bandwidth access via cable and digital subscriber lines, and other factors would all contribute to an increase in E-banking. It is lowering transaction fees, gaining customer confidence, and demonstrating to be an effective model for commercial bank consumer service providers In India. As a result, e-banking plays a larger part in commercial banks' consumer service providers In India.

In his paper "Automation of Banking Sector in India," V.Dheenadhayalam (2010) claims that technological advancements have dramatically changed the banking scene in India, with major improvements in

processes and procedures improving performance. Fast technological innovation and transactions lower costs through different distribution methods Technology is rapidly being used to broaden banking access, particularly in rural regions. By permitting an increase in profits in the banking sector, IT can help to provide a fair return to shareholders. In comparison to traditional banking, e-banking offers consumers a nuclear-powered experience that includes real-time transactions and a single integrated platform for all financial connections. The bank should now shift its focus from mass marketing to specifically targeting particular consumers and responding with the appropriate product at the appropriate time. Distribute easily, promptly, and economically through the appropriate channels. The majority of new bank activities are concentrated in metropolitan regions and cities. They can better utilize the benefits of IT. As a result, to be more competitive, proper steps should be done to ensure healthy growth in both business volume and profitability by improving the remote distribution system. E-banking must be achieved through utilizing technical inputs such as smart cards, biometric IDs, E-cheques, and mobile phones on a large scale to widen the scope of banking services to distant and rural regions and those who have previously been excluded.
According to Ahmadksath (2010), the world has changed at a breakneck pace, with technologies serving as the primary engine of these transformations. An examination of technology and its applications reveals that it has infiltrated practically every part of our lives. Because information technology is accepted at home and in business, many tasks are managed online. The Indian client is gradually but slowly going toward online banking. ATM and Internet transactions are getting increasingly prevalent.

According to Dr. M. Abdul Hakkeem and Y. MoydheenSha (2015), a certain age group has utilized these facilities, and customers ' satisfaction has a significant impact on accessibility, understanding, and attentiveness. In today's technological culture, the majority of banking customers choose and use e-banking services. As a result, the banker may enhance their services, customer trust, and retention by raising awareness of other age groups and focusing on the aspects that influence customer satisfaction.

Neha Gupta and Vandana Tandon Khanna (2015) The study found that characteristics including technology acceptance, reliability, affordability, user acceptance, and accessibility are strongly influenced by the demographic profile of the population size. These aspects can be considered in most marketing decisions aimed at improving the efficacy of distribution channels.

This study found that e-banking adoption (ease of access, accessibility, reliability, confidentiality, substance, design, quickness, fees, and penalties) improved customer happiness, commitment, and good word of mouth for Jordanian Commercial Bank. The study contributes to earlier studies by expanding on what defines an electronic banking service. The report presents major proposals for improving the current delivery of online banking. (Ahmad, 2011)

Customers' expectations are fast growing in India's banking business, according to Naveen Kumar and V.K. Gangal (2011), who studied customer satisfaction in new generation banks. New clients were looking for the greatest services at a fair price. The findings found that the bulk of Indian banks' product and service offerings were not very diverse. Furthermore, it implies that in the competitive banking market, banks must incorporate targeted customer satisfaction components to maintain as many clients as feasible.

Research on customer satisfaction in public and private banks in India was conducted by Nirmal Jeet Virk and Prabhjot Kaur Mahal (2012). Commercial bank executives have greater personal relationships with clients than public bank executives, and this feature has a significant effect on customer satisfaction.

Chavan, Jayshree (2013): "Internet Banking- Benefits and Challenges in an Emerging Economy," he writes in his study paper. This research shows that new information technology is critical to the future expansion of financial services, with the banking industry being impacted more than any other financial provider group. The increased use of mobile phone services, as well as the internet as a new channel for banking transactions and international business, necessitates a greater focus on e-banking protection against fraudulent operations. Online banking provides several advantages that increase client satisfaction by improving service quality while also allowing banks to obtain a competitive advantage over their competitors. The obstacles that a rising economy faces are discussed in this study.

Kumbhar, Vijay M. (2011): "Factors determining customer satisfaction in E-Banking: Some findings from Indian Banks," he writes in his study paper. This study examines the primary elements influencing consumer satisfaction in e-banking services settings (such as quality of service, brand recognition, and perceived value). In addition, the impact of service quality on brand perceptions, perceived value, and satisfaction in e-banking is examined. Customers were surveyed to gather the necessary information. After examining relevant literature and consulting with bank management as well as specialists in customer service and marketing, a magnitude survey was structured for undertaking customer surveys.

Dr. Pooja Malhotra and Neetu Jain (2012): "Demographic Factors Affecting the Adoption of Internet Banking in India," they write in their study report. The purpose of this study is to determine the demographic parameters that influence electronic banking penetration in India, namely Internet banking. The findings of this research add to our comprehension of both Internet Banking users and nonusers and also add to our understanding of electronic banking.

Nippatlapalli, Amruth Raj (2013): "A Study on Customer Satisfaction of Commercial Banks: Case Study on State Bank of India," he said in his research paper. Consumer satisfaction, a word commonly used in marketing, is an assessment of how well a company's products and services match or exceed customer expectations. "The number of customers or percentage of total customers overall observed experience with a business, its goods, or its services (ratings) surpasses established satisfaction goals" is how customer satisfaction is conceptualized.

The socio-economic factors have a big influence on how people feel about e-banking. The Discriminate Function Analysis (DFA) revealed that the chosen individual variables, namely attitude toward the need for E-banking services, complexity in using E-banking services, economy, and utility of E-banking services, differentiate the group of a response variable by more than 95%. The majority of participants are happy with E-banking services, according to the survey (Mallika,K.S.K 2014).

In their analysis of lead possibilities, Mathangi and Latasri (2017) found that reshaping the service process resulted in significant increases in productivity and service quality. According to the Information Technology Act of 2000, it is a constant effort in which suitable security procedures must be strengthened. Cyberlaw enforcement officers must be adequately trained in the framework of expanding cashless transactions, as well as particular cyber fraud regulations. Civil litigation judges should be educated in dealing with cyber fraud because of the suitability vs. safety considerations. An explanation may be required to keep up with planned backstage modifications by marketers to balance client appropriateness with safety since security and stability are paramount.

Dr. Sharma (2016): In this essay, the author discusses some of the obstacles that an emerging economy faces. The paper stated that banking has been re-engineered and redefined via the use of technology and that the future of banking would undoubtedly provide more complex services to clients through continual product and process improvement. Since "conventional to convenience banking" and "mass to class banking," bankers' attitudes have sought to shift the industry's paradigm from seller to buyer. Predictor predicts that online banking will arise as a result of increased online knowledge among clients, the inclusion of financial services with e-commerce capabilities, the expansion of online reach, and the entrance of international giants into the banking industry.

In an Exploratory Factor Analysis, Khanna and Gupta (2015) found that 67 percent dependability on the Suitability factor as the newest and customized technology as the most favoured factor viewed by customers and 72 percent dependability on safety and security. Customers rate accessibility and user acceptance as the most important factors, with 76 percent and 69 percent respectively. Availability, the 5th most important factor, has a dependability rating of 29%, which is much lower than the statutory duty of 50%. With the foregoing investigation, it was discovered that the most favoured factors were the newest and customized innovation, security and stability, accessibility, and user acceptance. With the implementation of this method application of connection and association of demographic characteristics as delivery channels to determine how variables influence advertising of financial goods and services.

Dr. Rajput (2015): The focus of this essay is on assessing client perceptions of e-banking services. According to the study, 95% of participants are aware of e-banking, 89 percent use e-banking services regularly, 45 percent believe e-banking saves time, 46% believe E-banking provides safety and security, and 41% believe E-banking is a cost-effective service. ATMs, bill payments, and financial records are the most often accessed e-banking services. It may be concluded that 45 percent of respondents have a positive attitude toward and contentment with electronic banking.

Sali Bakare (2015): The banking business has seen significant changes throughout the advent of information technology, according to this study (IT). Electronic banking has created a new paradigm for bank product and service delivery (EB). The effects of electronic banking (EB) on the banking sector were investigated in many areas. Although EB has a good influence on the banking sector, institutions should build strategic strategies to meet the issues that come with it to maintain profitability and cut expenses.

V. Krishnamoorty and R. Srinivasan (2013) investigated consumer perceptions of online banking as a customer relationship management tool. It suggests that banks are having difficulty maintaining their present consumers, for which they must either produce innovative, personalized solutions or build customer trust and loyalty and preserve relationships.

Sharma and Himani (2011) discuss bankers' opinions on participants' e-banking practices, the effect of e-banking, and promotional strategies employed by banks to promote e-banking in this research article. The assessment data for this study was gathered by distributing a questionnaire to 192 bankers in India's northern region. Customers frequently utilize e-banking services after being persuaded by bankers, according to the investigation. Bankers are certain that e-banking will strengthen the interaction between bankers and consumers, as well as the general performance of commercial banks.

In their work "Risk Management in E-Banking," Dr.A.Subbiah and Mrs.R.Praveena (2010) argue that while electronic banking may bring a lot of benefits to users and new business prospects for banks, it also magnifies conventional banking problems. Even though some nations have made significant progress in establishing banking and supervisory legislation, ongoing attention and changes will be required as the reach of e-banking expands. On the international stage, there will be a need for further harmonization and collaboration. Furthermore, the convenience with which capital might be transferred across borders between banks in an electronic environment generates higher responsiveness to management's economic policies. Policymakers require a robust assessment model to comprehend the influence of e-banking on the conduct of economic policy; without it now, the markets will answer, probably at a great economic cost.

Irina Bena (2010) investigated the degree of customer satisfaction at a specific Romanian bank. The assessment was based on a questionnaire and was a qualitative study. As a result, 50 retail clients of a Bucharest branch provided primary data. On their way out of the bank, the answer clients were aleatory interrogated one on one. As the results of the poll show, various issues arise when attempting to assess consumer happiness. First, satisfaction metrics must be determined based on the industry and the details of the organization. Even within the banking industry, there are disparities, such as in the service portfolio and engagement technique. Second, clients are more likely to express satisfaction or leave an uncertain comment. As a result, the scale for future bank assessments should exclude the middle ground replies, forcing customers to choose between positive and negative responses. In this way, the banks may achieve a better level of customer satisfaction and retain a solid rapport with the customers.

Bhosale and Nalwade (2015) did a study on the Indian banking sector’s growth and advancement. The researcher focused on the rise of private and public sector banks in particular. The stages of bank evolution were described by the author. SBI, Canara Bank, Bank of Bombay, ICICI, PNB, Indian Bank, Syndicate Bank, Axis, and Catholic Syrian Bank were among the banks investigated. The researcher looked at how these banks grew once ICT was used. According to the report, commercial banks must get more conversant with technological innovations to maintain and gain more customers.

S.T. Surulivel and B. Charumathi (2013) used the Stochastic Frontier Approach to empirically assess the effect of IT on the cost efficiency and effectiveness of banks in India. The research lasted four years, from 2009 to 2013. For the study, the researcher looked at 77 banks. During the research period, the author discovered that the average cost efficiency rate of 77 Indian bank branches was 61 percent. The study's findings show that IT has an influence on Indian banks up to a certain point. Due to IT expenditures, the difference in cost inefficiency across bank performance has dropped by 78.8%.

Selvakumar T (2017) investigated the relevance and importance of electronic banking services in India's economic growth using secondary data. The goal of the study was to see how e-banking services affected the quality of services offered by Indian banks. The study detailed the progress of e-banking services in the Indian banking sector, as well as the number of users. Private and international banks, in comparison to public sector banks, provide more contemporary services to their consumers, according to the study.

Bihari S C (2013) discovered that technical advancements, bank issues, benefits and downsides, and the expansion of this movement by banks in India all led to the demand for a cashless society. According to the author, a cashless system not only combats fraud and black money, but also minimizes the danger of cash management, theft, and robbery. However, the author is doubtful about e-fraud given India's literacy levels.

Ranu Amar (2010) Factors that contribute to the poor performance of micro-finance facilities include increased costs for additional security, an increase in the cost of customer service, low yield per deal, and worse reliability because they are not banks. Mobile technology is becoming increasingly important in providing services for essential jobs such as NREGA. However, the author believes that the government, banks, and other businesses may copy the new technology to make microcredit available to the rural population, given that the use of mobile technology is both inexpensive and simple to implement. This is only a theoretical concern with no operational consequences.

Ravishankar (2007) addressed the potential of mobile phones in India for inclusive banking. He described the benefits of mobile banking as "anytime banking," "minimal channel," "airtime value for money," "extremely easy to upgrade account," "provides better information in credit management and enable cheaper microfinance," and "person to person transfer with m-wallet," "paperless payment," "use among all strata of people," and "transactions are monitored with an audit trail." However, the author believes that monitoring and encouraging the expansion of mobile payments and banking in India is critical to financial inclusion accomplishment.

According to Fulbag Singh and Davinder Kaur (2010), personal sources of information about m-banking to customers are popular and should be enhanced by increasing advertising on television and radio, particularly for rural consumers. Customers' advice cell for utilizing the new services in a bank has been suggested. As a result, bank performance will increase. There is no study on adoption difficulties in the publication.

Sunil Kumar Mishra and Durga Prasad Sahoo (2013) investigate the advantages and disadvantages of banking, as well as the numerous services used throughout the world. This research is based on secondary information. After weighing the benefits and drawbacks, it was determined that India is heading in the same direction as the rest of the globe in terms of digitalization. It is seen as a new age in banking that necessitates investment to provide benefits to clients. The work is intellectual and lacks a qualitative approach.

Shamsher Singh(2014)investigates the penetration of mobile banking and its influence on clients of various institutions. Based on the age factor, it was discovered that dependability, money transfer, and finishing a specific transaction were all crucial. Occupation has no bearing on the outcome. It was suggested that high-quality services be provided with available resources to increase customer retention and lower the cost of gaining new consumers. Young, tech-savvy clients might be encouraged to use mobile banking services.

According to Doug Johnson (2009), smart credit cards were successful in Andhra Pradesh, resulting in reduced or unusual corruption. Other expressions can use this procedure. Although there is a decrease in fraudulent activities, the neighbourhood capability of other statuses is an additional root cause to consider. Finally, it was suggested that in the payout method, avoid using a bank or an investment corporation since this might cut cash handling costs and gain consumers.

According to Muralidharan D (2009), computerized banking responds quickly to consumer requests for a statement of accounts, balance, and other account activity inquiries. Furthermore, the time it takes to provide services has been lowered thanks to the signature and picture verification method. Banks are investing in information technology.

Gaurav Agarwal (2007) examines the expanding mobile phone market among the rural population in the country's top 15 states. This article looked at the portable mobile phone as a financial gadget that uses less power and can be used by illiterate people. Interoperability, security, scalability, dependability, and personalization of mobile phone usage were identified as major concerns. Various stakeholders, such as banks, service providers, and phone makers, should join together and develop a set of rules and principles for allowing mobile banking in India, according to the author.

In his essay "Online Banking - A Paradigm Shift," Sandeep Kautish(2008) states that internet or digital banking is the need of the hour and that its future is unquestionably bright since it saves time. Globalization does make the world smaller. For effective online banking administration, some actions must be followed. Gaining consumer confidence is the most critical factor. Only by implementing proper design (logical and user interface) approaches can banks attain these goals. Banks must prioritize the customer's perspective. Banks must provide a balanced mix of services with a perfect blend of classic banking flavour and contemporary online banking technologies. To summarise, online banking is a relatively new notion in the global financial world. It has entered the growth stage of its development cycle.

Kamakodi and M Basheer Ahamed khan (2008) identified the important variables that impact people surveyed to choose whichever financial institution as relatively secure of investments, ensure security ATMs, allocation of ATMs, the soundness of financial institutions, critical in assessing, pleasing etiquette of the staff, personal privacy, proximity to work, timely service, and affability of the staff to help in their study "Customer Expectations and Service Level in E-Banking Era." When attempting to compare the relevance and performance of commercial banks, the top ten parameters are minimum delay in response, friendly staff eager to assist, higher interest amount on deposits, constructive dialogue, pleasing social skills, accessibility to branch managers' attention, timely service, rapid turnaround, and quick issue resolution of the complaint. Nine of these ten criteria (excluding the higher rate of interest on deposited) are relevant to the achievement of bank employees in the face–to–face contact.

In their paper "E-Banking Applications in Indian Banks – Emerging Issues," GV Chalam and KS Nageshwara Rao (2006) noted that security and privacy continue to be a serious concern, particularly for businesspeople who are unaware. This is one of the most significant impediments to successful e-banking in the region. To safeguard the interests of clients, the government has not yet fully developed cyber legislation and the legal framework for e-banking. Another impediment to e-banking in India is the compactness of phone lines and the minimal digitalization of banking activities.

R. K. Uppal (2008) addressed the various e-channels such as ATMs, mobile banking, debit and credit cards, internet banking, telebanking, and smart cards in his research work "Customer impression of E-Banking services of Indian Banks." The study's major goal was to examine bank customers' impressions of e-banking services and to propose some corrective methods to enhance e-banking services. He uncovered and emphasized that users preferred time and overall cost e-channels for successful service delivery.

Sarat Chandra and Mukui Srivastava (2008) discovered in their article "Scenario 2009: Are Indian Banks Ready?" that Indian banks can transition problems into opportunities for implementing change by implementing several measures, including the adoption of best global practices in the form of risk management techniques, new business models, new operating models, technology up-gradation through core banking solutions, and skills enhancement for the latest generation prohibition. The Indian banks are all prepared to handle the difficulties since they are already well organized in terms of their competence and experience in meeting post-reform criteria. There should be no question as to why Indian banks would be unable to face the actual challenge posed by 2009. The RBI supports Indian national banks' talent, will, and determination.

Ghosh (2017) discovered in his research that many problems still exist in India with regard to digital banking. These issues include a lack of adequate infrastructure, which means that there are only 14-lac point of sale terminals in India, which is inadequate, particularly in semi-urban and rural areas. Furthermore, there is a lack of internet acceptability among rural people since digital banking is challenging for them owing to low levels of literacy. People in India who do not use e-banking prefer to do their transactions in person. Furthermore, they believe that e-banking should be avoided owing to security concerns and the high cost of internet access. People have difficulty installing several wallets and registering separately for each, which takes a lot of effort, and keeping balance in each contributes to misunderstanding. E-banking is not practicable for persons who earn pay on a regular basis and must rely only on money transfers; these are labours who work on building sites or any other type of labours. It is exceedingly expensive for banks to sell e-banking services through television or radio since they are very expensive and require large expenditures to establish e-banking a behaviour of customers. Banking professionals see e-banking as a danger to their jobs, as it could lead to job losses in the banking industry in the future.

Gupta (2017) investigated the effects of demonetization on the growth of e-banking utilisation. He discovered that within two months of the date of demonetization, on November 8, 2016, there had been a significant increase in demand for e-banking portals. People who had never used e-banking services before seeing the need for them and began using them. Those who were already using these channels, on the other hand, appeared to be very delighted during the emergency scenario. Following this research, he discovered that there are some issues with e-banking adoption that must be addressed through the development of appropriate strategies to make e-banking more popular and accessible throughout India. These barriers include banks' lack of long-term predicting the future, encouragement of e-delivery channels, security problems, global players in the debate, bank staff development, lack of e-banking knowledge and understanding among potential consumers, greater rural residents, access to technology in rural areas, late adoption of technology, customers ’ satisfaction, optimal usage of current tech, and so on. In India, the significant proportion of the population lives in rural areas, where literacy is a huge problem, and where introduction of e is very low. Despite the fact that the government has introduced various programmes to increase literacy in rural areas, it has not advanced to the point where e-delivery platforms are used by a significant number of people. Banks must do something to help this population. Demonetization in India in 2016 has already increased the adoption rate of e-delivery channels, according to researchers. Only banks should make these services available in regional languages to make them more satisfactory and, to some extent, overcome the problem of rural non-adoption.

Kaur (2017) concentrated his investigations on the attacks to consumers' rights in relation to e-banking, such as security issues, "pharming,' 'phishing, 'identity theft, ' 'hacking,' "salami slicing,' 'trap door, 'password cracker,' "spoofing,' 'cookies,' and so on. He stated that while e-banking is now an essential part of modern life, consumers' rights are not secure. In order to promote the growth of e-commerce and the global standard level of legal consistency and compatibility of procedures and practises, the 'United Nations Commission on International Trade Law' (UNCITRAL), established first by 'United Nations General Assembly' in 1996, adopted the 'Model Law of Electronic Commerce. It anticipated enabling the use of terms such as 'EDI,' 'e-mail,' 'telegram,' 'telex,' or 'telegraphy,' among others, by establishing standards against which their legal value could be measured. India has enacted the 'Information Technology Act, 2000' to combat cybersecurity threats. The 'Information Technology Act, 2000' is widely regarded as the Bible of Indian cyber law; however, e-banking frauds are not generally protected. Unexpected safeguards continue to be provided against spoofing, cracking, hacking, and internet fraudulent transactions. As a result, there is a strong need for strict regulations to safeguard consumers' rights in e-banking. He proposed that in order to control online fraud and create a healthy environment for e-commerce in India, legal bodies and computer technology could collaborate to make this a reality for our country.

Menezes and Pinto (2016) investigated various types of fraud occurring in India. According to the findings, approximately 65 percent of reported fraudulent transactions occurred online, which is referred to as cyber-crime. In this modern banking era, the majority of market fraudulent activities are related to technology frauds, such as credit card, debit card, prepaid cards, and so on. The authors have expressed their belief that every type of technology has advantages and disadvantages. E-banking is beneficial because it saves money for both banks and customers, but the downside is that the amount of internet frauds such as 'ACH fraud' (automated clearing house), 'unauthorised access,' 'personable fraud,' 'intrinsic fraud,' 'cross channel forgery,' 'credit card and debit card fraud,' 'spam emails and spoofing,' 'computer violence,' and so on has increased over time. It is strongly advised that all people involved in this system remain vigilant, follow the rules, and do not take anything for granted.

Findings of the Study

1. **Rapid Technological Advancements:** The literature reveals that E-banking has evolved rapidly due to innovations such as mobile banking apps, AI-driven services, and biometric security systems. These technologies have increased accessibility and convenience for users across regions.
2. **User Behaviour and Adoption Factors:** Trust, perceived ease of use, usefulness, and security are key determinants of E-banking adoption. Socio-demographic factors such as age, education, and digital literacy significantly influence user engagement.
3. **Security and Privacy Concerns:** A majority of studies highlight cybersecurity as a major barrier to widespread E-banking adoption. Users express concerns about data breaches, fraud, phishing, and identity theft, affecting their trust in digital platforms.
4. **Regulatory and Infrastructure Challenges:** Many developing regions face infrastructural limitations, inconsistent internet access, and lack of clear digital financial regulations, hampering the smooth implementation of E-banking services.
5. **Customer Satisfaction and Loyalty:** The review indicates a strong relationship between service quality and customer satisfaction. Personalized services, 24/7 access, and responsive customer support positively impact user retention.
6. **Digital Divide and Financial Inclusion:** Literature suggests that while E-banking has enhanced financial inclusion in urban areas, rural populations still face access issues due to technological and literacy gaps.

Conclusion

The systematic review highlights that E-banking is a transformative force in the financial sector, offering unparalleled convenience, efficiency, and outreach. However, the literature also reflects persistent challenges—especially concerning security, digital literacy, and infrastructure—that require urgent attention. While many urban consumers have embraced E-banking, a significant segment of the population remains underserved. Addressing these gaps through strategic technological, educational, and policy-level interventions will be crucial for the sustainable growth of E-banking. This review underscores the need for continued interdisciplinary research and innovation to ensure that E-banking evolves in a secure, inclusive, and customer-centric direction

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