Library Progress International *Print version ISSN 0970 1052*
Vol.44 No. 3, Jul-Dec 2024: P.1620-1627 *Online version ISSN 2320 317X*

Original Article *Available online at www.bpasjournals.com*

Evaluation of a Broader Comprehensive Technique used by Consumers by the use of Online Banking

[1]Sarath Babu Dodda, [2]Dr. R.V.Palanivel, [3]Shah Md Safiul Hoque, [4]Dr Ravindra A. Kayande, [5]Dr.Ankitha Sharma

[1]Software Engineer,
Central Michigan University, USA,
sbabudodda009@gmail.com ORCID: 0009-0008-2960-2378
[2]Professor, Faculty of Economics and Business Administration, Berlin School of Business and Innovation, Germany,
drpalanivelrv@gmail.com, ORCID: 0000-0002-0395-9060
[3]Assistant Professor, Faculty of Business, Sohar University, Oman
shoque@su.edu.om
ORCID: 0000-0001-5859-0742
[4]Associate Professor,School of Ports, Terminal Management, Logistics & Supply Chain Management, Symbiosis Skills and Professional University, Pune, Maharashtra, India,
ravi.kayande@gmail.com
[5] Assistant Professor Mittal School of Business, Lovely Professional University, Punjab, India,
ankitasharma36934@gmai.com

How to cite this article: Sarath Babu Dodda, R.V.Palanivel, Shah Md Safiul Hoque, Ravindra A. Kayande, Ankitha Sharma (2024) Securing the Supply Chain: Leveraging IoT and Blockchain for Financial Risk Management, 44(3), 1620-1627.

Abstract:
The needs and limitations of security create impediments to the flow of supplies and distribution, both physically and logically. These "barriers," which are the result of political or perceived enhanced security needs, impair the company's ability to respond quickly and its financial and operational success. One of the key challenges for the management of supply chains is integrating the security factor into the administrative strategy, structure, and operations [1]. SCS entails taking precautions to prevent illegal goods from accessing the supply chain as well as items from exiting it. The risk to a supply chain is represented by this potential "disruption of flows between organizations" [2]. Formally speaking, supply chain risk may be defined as the distribution's volatility, value, and likelihood of supply chain outputs [3]. SCS is therefore a part of an organization's entire risk management plan. Even though supply chain risk management (SCS) is the specific subject of this study, it's crucial to place the topic of SCS within the broader framework of supply chain security management [4].

Keywords—Online banking, technologies, factors, consumer satisfaction, consumer behavior.

INTRODUCTION

Customers can conduct payment-transactions electronically through online banking, an innovative e-banking

service, without having to visit a physical infrastructure. India is not an exception to how technological advancement has greatly affected other industries, including banking. The expansion of online banking has also been encouraged by the 1990s globalisation of the economy of India. In order to put proposals for banking reforms into practice, the Government of India has stressed the importance of internet banking for the banking industry [1]. Customers can monitor their own transactions and take advantage of online banking services, most notably e-commerce, with a great deal of autonomy. However, a growing number of additional resources, like e-government, can also be accessed online [2]. With just a mouse click, users of internet banking can access a variety of banking transactions, expanding their reach beyond regional or national boundaries.

Customers want banks to provide them with more advanced and easy products and services because they lead busy lifestyles. Information technology is now essential for creating new instruments and procedures that draw in and keep clients. Electronic and communications networks are used by banks to provide their clients with goods and services [3]. Customers can access their bank accounts using web browsers, mobile phones, and personal computers thanks to online banking, which has become more popular due to the World Wide Web and the increase in number of internet users [4]. Technical management, electronic trust, electronic loyalty, consumers' satisfaction with online personalisation, privacy concerns, digital trust, and inclination for the adoption of technology are factors that impact online banking services [5]. Robust online banking services are essential to the operation of banks and the provision of client support. Nevertheless, no research has looked at how customers would like to use online banking services in the future [6]. Any online banking system has two basic phases: the registration phase and the login phase as shown in Fig. 1. Every bank has essentially the same structure for the registration process. There are two security levels for the login phase. The user's ID and transactions password come first, followed by more advanced systems like e-tokens, grid based authorization cards, QR- Codes, biometric systems, authentication queries, and one-time passwords (OTP) [7]. All of these security precautions are meant to protect clients' bank accounts from those who belong to the black hat community.

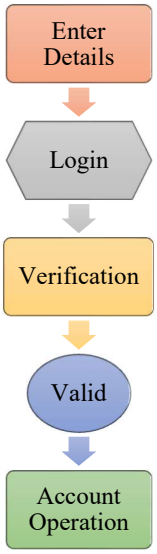

Fig. 1 Online banking systems

Skilled fraudulent hackers have the ability to alter online monetary organisations' computer networks, disseminate malicious viruses, damage data, and lower the working efficiency of database structures, all of which can lead to the vulnerability of sensitive financial data. Therefore, banks use high-level username and password authentication systems in order to protect against such types of attacks.

II THEORETICAL FRAMEWO

People cannot be protected from internet attacks by technology alone, thus human behaviour is essential. People

may be the most important factor in protecting information, even yet they are often considered the weakest link in information security. For this reason, a socio-technical or behavioural approach is preferable. Using survey data from 1200 users in the Netherlands, the study performed in [8] creates a precautionary online behaviour model is based on protective motivation theory and other behavioural models. The findings indicate that protection motivation is predicted by threat and coping evaluation, with response efficiency and self-efficacy comprising the most significant predictors of taking preventative measures. The results can be applied to enhance security consciousness, training, and educational initiatives for secure online banking. The study in [9] focuses on online banking users in Saudi Arabia, Jordan and Egypt in order to investigate the widespread digital technology use in non-industrialized countries. The acceptability of mobile banking services by Indian internet banking customers is investigated in this study [10]. The model was put to the test with 420 Indian online financial institution customers, and the results showed that these variables had a big influence on the customers' behavioural intention to use mobile banking.

The idea of "website features" is presented in [11] as a possible influence on the uptake of technology, especially in electronic banking. The goal of this framework is to further the concept of marketing in online settings. Social cognitive theory is used in [12] to investigate the factors influencing the intentions of users to adopt online banking. With the use of standardised questionnaires, bank clients in Ghana were surveyed. The findings demonstrated the considerable importance of social aspects, trust, lifestyle compatibility, as well as online customer service on users' intents to use internet banking. But convenience of usage didn't. The paper offers suggestions for additional investigation. With regard to demonetization expertise, accessibility, rank in society, and practicality, [13] suggests a model to comprehend Indian consumers' attitudes regarding online banking. It offers elements for the model and examines well-known models of consumer behaviour, allowing academics to apply measuring scales. The reasons why customers switch from online to mobile banking are examined in [14]. The findings indicate that while perceived behaviour control discourages consumers from switching, relative attitudes and subjective criteria encourage them to do so. Mobile banking is better in other dimensions, while internet banking is better in compatibility with an application self-worth, resource availability, and technological circumstances. Using the Technological Acceptance Model (TAM) and Theory of Planned Behaviour (TPB) [15] investigates the variables influencing Tunisian bank customers' adoption of Internet banking. It makes use of factors like perceived utility, security, privacy, ease of use, security, privacy, self-efficacy, government support, technical support, mental state, socially acceptable management of behaviour and intention to utilize Internet banking. The findings imply that in order to promote adoption, banks should enhance infrastructure, security, and privacy. The report also recommends concentrating on customers who own home computers, have internet connection, and have completed college. E-banking is being used by the banking sector to give consumers faster and more dependable services. Customer satisfaction is still a top priority, though. Cloud computing, confidentiality, e-learning, and overall quality of service are found to be important elements that impact customer satisfaction with electronic banking. With SMART PLS 3.2, the research model of [16] which was based on data from a questionnaire was examined.

III FACTORS INFLUENCING ONLINE BANKING ADOPTION

In recent years, online banking has developed into a lucrative e-commerce application. Nevertheless, the success and resistance variables that facilitate clients' adoption of online banking are the subject of little empirical research. The benefits of internet banking are examined in [21], and perceived advantage is included as a contributing element. The Technological Acceptance Model (TAM) and the Theory of Planned Behaviour, or TPB, model are combined, and five risk factors—performance, financial, security/privacy, time risk, and social—are integrated in order to explain why users want to use online banking services. It takes perceived advantage into account as well. The results show that monetary risk and privacy or security risk have an adverse effect on internet banking usage that is but advantage, attitude, usability and perception show a positive impact.

A. Technological Factors

Significant technical advancements have made the banking industry the foundation of any nation's economy. Customers enjoy using the web for everyday and business purposes in the current era of web-based technologies. The newest technology advancement in financial services is internet banking, which gives users online access to

their financial records and activities. The widespread use of online banking across various nations attests to the superiority of online services over traditional ones. As their acceptance is increased by tech entrepreneurs the Asian nations are becoming more and more active in online banking services. Due to the convenience and ease of doing transactions online, internet banking has grown, which has led banks to invest in the IT industry in order to keep consumers [22]. 580 clients of conventional and Islamic banks in Jordan were the target audience of [23], which sought to determine how these services affected their use of technology. Data was gathered using a survey questionnaire instrument and a quantitative research approach. The findings demonstrated that social standing, perceived utility, a perception of simplicity and ease of use all had a substantial impact on how both banks used technology. With an emphasis on consumer intentions to use online banking, brand image, customer service, and website design, [24] examines the difficulties Pakistan's banking sector faces in integrating technology. The findings imply that these elements influence adoption, which helps policymakers comprehend these elements. Online banking has grown significantly in the banking sector in Saudi Arabia, and technology is essential to provide top-notch service. In order to assess the impact of these quality gaps on consumer happiness and willingness, [25] examines three stages of customer engagement and five online banking quality gaps. Important factors include gaps in human engagement, technical expertise, service reliability, technology, and human interaction. The relationship between customer happiness and technology progress is examined in [26]. A survey instrument was created to evaluate the aspects of service quality and satisfaction. Clients of Indian banks provided the data. With SPSS 21.0, the one- dimensional, validity, and reliability of the model were examined.

B. Psychological Factors

With a focus on potential moderators, [27] investigates the correlation among customer purchasing behavior and risk perception. A negative association was discovered through a review and meta-analysis of 33 studies, with European and American consumers showing the largest correlation. The survey also discovered that internet buying channels and developed nations had a greater detrimental influence on consumers' purchasing decisions. The association was also influenced by variables like country development level, purchase channel, and geographic location. The study conducted in [28] looks at how mobile banking adoption is affected by variables like performance advantages, social impact, projected adaptability, perceived security, perceived simplicity of use, and hedonic incentive. 251 individuals' responses to a standardized questionnaire were gathered as data. The findings offer valuable perspectives for financial institutions and mobile application developers to improve client satisfaction and experience. The study conducted in [29] investigates at the relationship between customers' satisfaction with electronic services and their level of technological readiness. There were 410 responders from 24 branches of private banks. The findings demonstrated that through high-quality self-service, technological preparedness dramatically increases consumer happiness. Perceived value was found to be important in the study, while trust was not. Online banking is made possible by mobile banking services, yet use of these services has not increased significantly in India. According to [30] that used the technology acceptance model (TAM) components, consumer awareness, perceived risk, perceived utility, perceived ease of use, and perceived trust all had a major impact on the adoption of m-banking in India. Regression analysis was utilized in the study to test the framework on a sample of 311 mobile banking users. With the use of e-banking and m-banking, [31] attempts to create an expanded technology acceptance model (TAM) for Islamic bank clients. It looks at how close relationships with customers can boost contentment and loyalty. Multivariate analysis and self-administered surveys are used in the study. Results indicate that parameters such as perceived utility, simplicity of use, risk, trust, sharia compliance, and satisfaction are all strongly impacted by customer intimacy, which in turn affects loyalty.

C. Social and Cultural Factors

The study conducted in [32] uses social networking platforms (SNPs) to provide a model of social influence for Internet banking adoption. It finds variables that may have an impact on IBA between conventional and Islamic banks in a favourable or negative way. The study makes use of data from thirty respondents and a social constructivism methodology. Key antecedents of social influence include social reviews, expertise, consensus, responsibilities, and opinions, according to the findings. Respondents did, however, voice worries regarding privacy in Islamic banking. Social cognitive theory is used in [33] to investigate the factors influencing the intentions of users to adopt online banking. With the use of standardized questionnaires, bank clients in Ghana were surveyed. The findings demonstrated the considerable importance of social aspects, trust, lifestyle compatibility, and

electronic customer services on customers' intents to use internet banking. But convenience of usage didn't. According to [34], in order to develop a competitive edge and foster mutual partnerships, banks should comprehend the online privacy concerns of their consumers, segment them, and create customized sales methods. There are disparities in the ways that Australian and Asian millennial customers perceive trust, confidence, responsibility, and exchange, according to a qualitative study that involved 30 interviews. The authors suggest a consumer-centered sales approach that is founded on national culture theory and the power-dependency paradigm and emphasizes cooperation, communication, control, and consolidation. The study in [35] investigates how consumers' opinions of mobile banking may be influenced by national cultures. Responses from Egyptian, American, and Egyptian customers are contrasted. The findings provide light on how national culture can affect consumers' attitudes and plans regarding mobile banking and can be used to inform future studies. Table 1 provides summary of factors influencing online banking.

Table 1 Influence of different factors on online banking

Study Ref.	Country/Region	Factor Type	Key Findings	Implications for Banks	Suggestions for Improvement
[22]	Asian Nations	Technological	Investment in IT for consumer convenience leads to increased online banking usage.	Enhance IT infrastructure	Invest in secure and user-friendly online platforms.
[23]	Jordan	Technological	Social status, perceived utility, ease of use impact technology adoption.	Understand customer demographics	Tailor banking services to meet diverse customer needs.
[24]	Pakistan	Technological	Integration challenges; importance of consumer intentions, brand, service, design.	Address technological barriers	Improve customer service and website usability.
[25]	Saudi Arabia	Technological	Quality gaps in customer engagement stages affect satisfaction.	Assess and enhance service quality	Identify and bridge quality gaps in online services.
[26]	India	Technological	Link between customer satisfaction and technological advancements.	Leverage technology for better service	Implement advanced technology solutions.
[27]	Europe, USA	Psychological	Negative correlation between risk perception and purchasing behavior.	Mitigate consumer risk perception	Enhance security measures and communicate them to customers.
[28]	Not specified	Psychological	Factors affecting mobile banking adoption include performance and security.	Cater to consumer expectations	Improve app performance and security features.
[29]	Not specified	Psychological	Technological readiness increases satisfaction; perceived value is important.	Boost technological infrastructure	Provide high-quality self-service options.
[30]	India	Psychological	Awareness, risk, utility, ease of use, and trust affect m-banking adoption.	Increase consumer awareness	Conduct educational campaigns on m-banking benefits

					and security.
[31]	Not specified	Psychological	Customer intimacy impacts loyalty and satisfaction in Islamic banking.	Foster closer customer relationships	Develop personalized banking experiences.
[32]	Not specified	Social & Cultural	Social networking influences Internet banking adoption; privacy concerns in Islamic banking.	Address privacy and social influence	Enhance privacy measures and leverage social media.
[33]	Ghana	Social & Cultural	Social aspects, trust, lifestyle compatibility influence online banking intentions.	Cultivate a trustworthy image	Provide culturally compatible services and improve trust.
[34]	Australia, Asia	Social & Cultural	Cultural differences in trust, confidence, responsibility, exchange.	Understand cultural nuances	Customize approaches based on cultural insights.
[35]	Egypt, USA	Social & Cultural	National culture affects mobile banking attitudes and intentions.	Adapt to cultural expectations	Tailor mobile banking services to fit cultural preferences.

IV. CONCLUSION

The evaluation of online banking usage among consumers reveals significant insights into technological, psychological, and social-cultural factors driving adoption and satisfaction. Technological factors such as IT infrastructure, service quality, and ease of use have been identified as critical in enhancing user experience and adoption rates, particularly in regions like Jordan, Pakistan, Saudi Arabia, and India. Psychological factors, including risk perception, technological readiness, and perceived value, play a substantial role in shaping consumer behaviour towards online and mobile banking, especially in developed countries and among Indian consumers. Social and cultural factors, including the influence of social networking and national culture, have been found to impact online banking intentions and preferences, as evidenced by studies conducted in Ghana, Australia, Asia, and Egypt. The

emergence of FinTech and digital innovations presents both challenges and opportunities for traditional banking institutions, necessitating a strategic re-evaluation of service delivery models to improve customer retention and satisfaction. This study underscores the importance of a multidimensional approach in understanding and enhancing the consumer online banking experience, advocating for continuous improvement in technological infrastructure, security measures, and personalized services to meet the diverse needs and expectations of global consumers.

REFERENCES

[1] Banu, A. M., Mohamed, N. S., & Parayitam, S. “Online banking and customer satisfaction: evidence from India”. Asia-Pacific Journal of Management Research and Innovation, vol. 15, no. 1-2, pp. 68-80, 2019.

[2] Ismail, L. B., & Alawamleh, M. “The Impact of Online Banking of Customer Satisfaction in Jordan”. Journal of Organisational Studies & Innovation, vol. 4, no. 2, 2017.

[3] Dharmavaram, V., & Nittala, R. “Service quality and customer satisfaction in online banking”. International Journal of Online Marketing (IJOM), vol. 8, no. 2, pp. 45-56, 2018.

[4] Sadeghi, T., & Heidarzadeh Hanzaee, K. “Customer satisfaction factors (CSFs) with online banking services in an Islamic country: IR Iran”. Journal of Islamic Marketing, vol. 1, no. 3, pp. 249-267, 2010.

[5] Salem, M. Z., Baidoun, S., & Walsh, G. (2019). "Factors affecting Palestinian customers' use of online banking services". International Journal of Bank Marketing, vol. 37, no. 2, pp. 426-451, 2019.
[6] Dauda, S. Y., & Lee, J. "Technology adoption: A conjoint analysis of consumers ′preference on future online banking services". Information Systems, vol. 53, pp. 1-15, 2015.
[7] Pakojwar, S., & Uke, N. J. "Security in online banking services-A comparative study". International Journal of Innovative Research in Science, Engineering and Technology, vol. 3, no. 10, pp. 16850-16857, 2014.
[8] Jansen, J., & Van Schaik, P. "Testing a model of precautionary online behaviour: The case of online banking". Computers in Human Behavior, vol. 87, pp. 371-383, 2018.
[9] Al-Qeisi, K., & Hegazy, A. "Consumer online behaviour: A perspective on Internet banking usage in three non-western countries". Procedia economics and finance, vol. 23, pp. 386-390, 2015.
[10] Singh, S., & Srivastava, R. K. "Understanding the intention to use mobile banking by existing online banking customers: an empirical study". Journal of Financial Services Marketing, vol. 25, no. 3-4, pp. 86-96, 2020.
[11] Alhudaithy, A. I., & Kitchen, P. J.. "Rethinking models of technology adoption for internet banking: The role of website features". Journal of Financial Services Marketing, vol. 14, pp. 56-69, 2009.
[12] Boateng, H., Adam, D. R., Okoe, A. F., & Anning-Dorson, T. "Assessing the determinants of internet banking adoption intentions: A social cognitive theory perspective". Computers in Human Behavior, vol. 65, pp. 468-478, 2016.
[13] Kumar, P. K., & Pasha, M. A. "A study to propose a model for consumers' attitude towards online banking after recent demonetization in India". Saudi Journal of Business and Management Studies, vol. 2, no. 1, pp. 1-3, 2017.
[14] Yu, C. S. "Consumer switching behavior from online banking to mobile banking". International Journal of Cyber Society and Education, vol. 7, no. 1, pp. 1-28, 2014.
[15] Nasri, W., & Charfeddine, L. "Factors affecting the adoption of Internet banking in Tunisia: An integration theory of acceptance model and theory of planned behaviour . The journal of high technology management research, vol. 23, no. 1, pp. 1-14, 2012.
[16] Li, F., Lu, H., Hou, M., Cui, K., & Darbandi, M.. "Customer satisfaction with bank services: The role of cloud services, security, e-learning and service quality". Technology in Society, vol. 64, pp. 101487, 2021.
[17] Kaur, S., & Arora, S. "Role of perceived risk in online banking and its impact on behavioral intention: trust as a moderator". Journal of Asia Business Studies, vol. 15, no. 1, pp. 1-30, 2020.
[18] Khatoon, S., Zhengliang, X., & Hussain, H. "The Mediating Effect of customer satisfaction on the relationship between Electronic banking service quality and customer Purchase intention: Evidence from the Qatar banking sector". Sage Open, vol. 10, no. 2, pp. 2158244020935887, 2020.
[19] Islam, J. U., Shahid, S., Rasool, A., Rahman, Z., Khan, I., & Rather, R. A. "Impact of website attributes on customer engagement in banking: a solicitation of stimulus-organism-response theory". International Journal of Bank Marketing, vol. 38, no. 6, pp. 1279-1303, 2020.
[20] Talwar, S., Talwar, M., Kaur, P., & Dhir, A. "Consumers' resistance to digital innovations: A systematic review and framework development". Australasian Marketing Journal (AMJ), vol. 28, no. 4, pp. 286-299, 2020.
[21] Ming-Chi Lee, Factors influencing the adoption of internet banking: An integration of TAM and TPB with perceived risk and perceived benefit, Electronic Commerce Research and Applications, vol. 8, no. 3, pp. 130-141, ISSN 1567-4223, 2009. https://doi.org/10.1016/j.elerap.2008.11.006.
[22] Arif, I., Aslam, W., & Hwang, Y. "Barriers in adoption of internet banking: A structural equation modeling-Neural network approach". Technology in Society, vol. 61, pp. 101231, 2020.
[23] Hailat, K., Jarah, B., Al-Jarrah, M., & Almatarneh, Z. "The impact of electronic banking services on the use of technology by customers of conventional and Islamic banks in Jordan". International Journal of Data and Network Science, vol. 7, no. 2, pp. 737-744, 2023.
[24] Rahi, S., Ghani, M. A., & Ngah, A. H. "Factors propelling the adoption of internet banking: the role of e-customer service, website design, brand image and customer satisfaction". International Journal of Business Information Systems, vol. 33, no. 4, pp. 549-569, 2020.

[25] Abualsauod, E. H., & Othman, A. M. "A study of the effects of online banking quality gaps on customers' perception in Saudi Arabia". Journal of King Saud University-Engineering Sciences, vol. 32, no. 8, pp. 536-542, 2020.

[26] Mahajan, R. "Advancements in Technology and Customer's Satisfaction with online banking services". Turkish Journal of Computer and Mathematics Education (TURCOMAT), vol. 12, no. 10, pp. 2314-2319, 2021.

[27] Li, Z., Sha, Y., Song, X., Yang, K., ZHao, K., Jiang, Z., & Zhang, Q. "Impact of risk perception on customer purchase behavior: a meta-analysis". Journal of Business & Industrial Marketing, vol. 35, no. 1, pp. 76-96, 2020.

[28] Bhatt, V. "An empirical study to evaluate factors affecting customer satisfaction on the adoption of Mobile Banking Track: Financial Management". Turkish Journal of Computer and Mathematics Education (TURCOMAT), vol. 12, no. 10, pp. 5354-5373, 2021.

[29] Pooya, A., Abed Khorasani, M., & Gholamian Ghouzhdi, S. "Investigating the effect of perceived quality of self-service banking on customer satisfaction". International Journal of Islamic and Middle Eastern Finance and Management, vol. 13, no. 2, pp. 263-280, 2020.

[30] Tiwari, P., Tiwari, S. K., & Gupta, A. "Examining the impact of customers' awareness, risk and trust in m-banking adoption". FIIB Business Review, vol. 10, no. 4, pp. 413-423, 2021.

[31] Khan, A. P., Khan, S., & Xiang, I. A. R. "Factors influencing consumer intentions to adopt online banking in Malaysia". Business & Economic Review, vol. 9, no. 2, pp. 101-134, 2017.

[32] Naeem, M. "Developing the antecedents of social influence for Internet banking adoption through social networking platforms: evidence from conventional and Islamic banks". Asia Pacific Journal of Marketing and Logistics, vol. 33, no. 1, pp. 185-204, 2020.

[33] Boateng, H., Adam, D. R., Okoe, A. F., & Anning-Dorson, T. "Assessing the determinants of internet banking adoption intentions: A social cognitive theory perspective". Computers in Human Behavior, vol. 65, pp. 468-478, 2016.

[34] Liyanaarachchi, G., Deshpande, S., & Weaven, S. "Online banking and privacy: Redesigning sales strategy through social exchange". International Journal of Bank Marketing, vol. 39, no. 6, pp. 955-983, 2021.

[35] Hassan, H. E., & Wood, V. R. "Does country culture influence consumers' perceptions toward mobile banking? A comparison between Egypt and the United States". Telematics and Informatics, vol. 46, pp. 101312, 2020.