

Scientometric Mapping of Mobile Banking Adoption: A Bibliometrix-Driven Investigation

Arun Kumar¹, Prof. Sunil Kumar², Prof. Rashmi Bansal³

¹School of Management Studies, IGNOU

Email - karun5632020@gmail.com

²Dean Faculty of Management, South Asian University

Email - sunil.kumar@sau.int

³School of Management Studies, IGNOU

Email - rashmibansal@ignou.ac.in

Received :12th July

Revised :15th October

Accepted:10th December

Abstract

This study conducts a scientometric analysis of mobile banking research to map its intellectual structure, dominant themes, and emerging directions. Using Bibliometrix, the objective is to identify how scholarship on mobile banking has evolved and which conceptual areas have shaped its development. The analysis reveals strong research concentration around technology adoption models, user behavior, trust, and digital financial services, indicating that mobile banking has become a central topic within technology-enabled finance. Results also show increasing global contributions and the growing influence of foundational theories such as TAM and UTAUT in explaining adoption patterns. The thematic patterns and clustering further suggest a shift toward more integrated, security-driven, and user-centric perspectives. Overall, the study offers valuable theoretical and practical implications by clarifying the key drivers of mobile banking research and highlighting emerging opportunities for future exploration in digital financial ecosystems.

Keywords: Mobile Banking, Scientometric Mapping, Adoption, Bibliometrix

1. Introduction

Mobile banking has become an essential component of today's digital financial ecosystem, offering users the ability to conduct transactions, manage accounts, and access banking services seamlessly through mobile devices (Anene & Okeji, 2021). Its convenience, speed, and real-time accessibility have fundamentally changed customer expectations, shifting the banking landscape from branch-centric operations to mobile-first platforms (King, 2010). As technology continues to advance, mobile banking is increasingly integrated with AI-driven support, biometric security, digital wallets, and personalized financial tools, making it a cornerstone of modern financial behavior (Kim et al., 2009).

Mobile banking has undergone a rapid global transformation, growing from basic SMS-based services in the late 1990s to a dominant digital financial platform with over 2.8 billion users and US\$ 1.82 trillion in transactions in 2024 (Market Research Report, 2025). The shift from WAP-based menus to advanced smartphone applications around

2007–2010 marked a major breakthrough, enabling real-time payments, fund transfers, and digital account management (Prasad, 2021). Worldwide adoption surged from 100 million users in 2010 to more than 2.5 billion in 2024, driven by improved security, internet accessibility, and evolving consumer preferences (Mohammed et al., 2025). In India, the mobile banking market reached US\$ 3,679.9 billion in 2023 and is expected to grow at 20.4% annually, supported by rising smartphone penetration and the transformative impact of UPI. Mobile wallet payments are projected to exceed US\$ 6.4 trillion by 2028, and over 14,000 crore mobile-based transactions were recorded in 2023–24 alone (Market Research Report, 2025). The COVID-19 pandemic further accelerated this shift, pushing consumers toward contactless digital banking. With advancements such as AI-driven assistance, biometric security, and integrated financial tools, mobile banking is becoming smarter and more personalized (Tatineni, 2022). Experts predict that by 2030, nearly 70% of global banking interactions

will occur through mobile devices, solidifying its central role in the future of finance.

The rapid global expansion of mobile banking adoption is driven by rising smartphone penetration, improved internet connectivity, and the growing popularity of digital payment systems. Countries such as India have witnessed a significant surge in mobile-based transactions due to transformative initiatives like UPI, digital identity systems, and government-led financial inclusion programs (Abiodun et al., 2021). Despite the remarkable growth, the mobile banking ecosystem remains complex, shaped by evolving consumer preferences, emerging fintech innovations, and varying levels of trust and digital literacy across regions (Tatineni, 2022). Understanding how research in this field has evolved is essential for capturing the multidimensional nature of mobile banking adoption.

However, existing literature on mobile banking adoption is fragmented, dispersed across disciplines such as technology acceptance, consumer behavior, fintech, cybersecurity, and digital service quality. While several reviews exist, few studies systematically examine the scientific evolution, intellectual structure, knowledge clusters, and thematic advancements of the field through a quantitative, evidence-based scientometric approach. There is limited understanding of how research themes have shifted over time, which countries and authors dominate the field, and what emerging areas are shaping the future discourse. This gap highlights the need for a comprehensive science-mapping analysis to consolidate existing knowledge and reveal new research directions.

To bridge this gap, the present study conducts a Biblioshiny-driven scientometric investigation using 1,060 research papers retrieved from Scopus. Using the bibliometrix package in R, the study analyzes keyword co-occurrence patterns, word clouds, scientific production details, bibliographic coupling, and thematic evolution over time (Ghorbani, 2024). This methodology provides a robust, data-driven understanding of the conceptual structure and research dynamics of mobile banking adoption, ensuring methodological rigor, transparency, and reproducibility. This research is significant as it synthesizes two decades of global scholarship, identifies influential contributors,

reveals conceptual clusters, and uncovers emerging themes that shape the future of mobile banking research. The study's findings have important implications: they help researchers identify knowledge gaps and future research opportunities; assist banks and fintech firms in understanding behavioral trends and innovation trajectories; and support policymakers in designing evidence-based digital financial strategies. Ultimately, this scientometric mapping contributes to a clearer, more structured understanding of mobile banking adoption and its evolving global discourse.

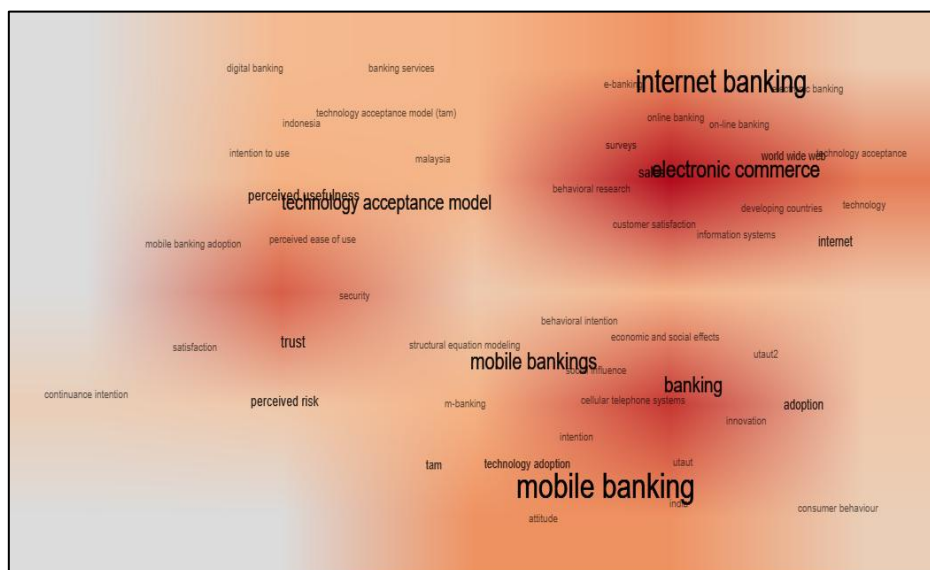
2. Methodology

This study adopts a quantitative scientometric research design to examine the intellectual landscape and developmental patterns of mobile banking adoption research. The search strategy employed the Boolean query: TITLE ("mobile bank*" OR "m bank*" OR "electronic banking" OR "digital banking" OR "internet banking" OR "online banking") AND ("Adopt*" OR "accept*" OR "intent*"), ensuring the inclusion of studies focused on mobile banking adoption and related acceptance behaviours. A total of 1,060 peer-reviewed research papers were extracted from the Scopus database, selected for its comprehensive coverage of high-quality scientific publications (Tatineni, 2022). Scopus was chosen because it is one of the largest and most reliable abstract and citation databases, offering high-quality, peer-reviewed global research coverage essential for robust and comprehensive scientometric analysis (Dhingra & Abhishek, 2024).

The bibliometric analysis was conducted using Biblioshiny, the web-based interface of the bibliometrix package in R, enabling advanced visualization and science-mapping techniques (Muñoz et al., 2020). Bibliometric analysis was conducted using Biblioshiny because it provides an intuitive, interactive, and comprehensive platform for performing advanced scientometric computations and visualizations without requiring extensive coding, ensuring accuracy, transparency, and efficiency in mapping research trends and scholarly networks (Ghorbani, 2024). The study applied multiple analytical procedures, including scientific production analysis, bibliographic mapping, keyword co-occurrence analysis, word cloud visualization, and thematic evolution mapping to identify dominant themes and intellectual

56

Figure 2: Keyword Occurrence



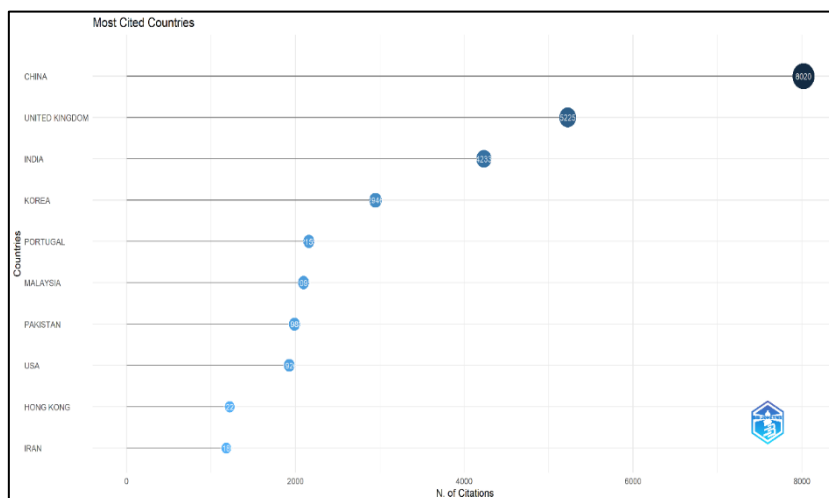
Source: Software Output (R)

3.2 Most Cited Countries

The analysis of the most-cited countries highlights clear global research leadership in the domain of mobile banking and related digital financial technologies. China emerges as the most influential contributor, with the highest citation count of 8,020, indicating its strong research productivity and international impact (e.g., Mensah & Khan, 2024; Yi et al., 2021). The United Kingdom (e.g., Frimpong et al., 2020; Hanif & Lallie, 2021) and India (e.g., Chawla & Joshi, 2018; Rekha et al., 2020) follow with substantial citation levels of 5,225 and 4,233

respectively, reflecting their established academic presence and active engagement in digital finance scholarship. Korea, Portugal, Malaysia, Pakistan, and the USA show moderate citation performance, suggesting steady but comparatively smaller contributions to the field. Meanwhile, Hong Kong and Iran appear with lower citation counts, representing emerging or smaller research communities. Overall, the distribution of citations suggests that research in mobile banking is geographically diverse but led primarily by Asian and Western countries with strong technological and academic ecosystems, as shown through Figure 3.

Figure 3: Most Cited Countries



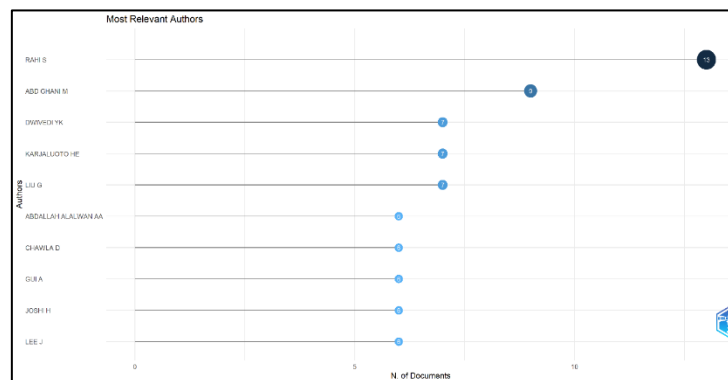
Source: Software Output (R)

3.3 Most Relevant Authors

The visualization of the most relevant authors highlights the key contributors shaping the research landscape in mobile banking and digital financial services. Rahi S stands out prominently as the most productive scholar, with 13 published documents—significantly higher than other authors—indicating a

strong and sustained focus in this domain (e.g., Rahi et al., 2019, 2021). Following Rahi & Abd Ghani M contributes 9 documents, showing considerable influence (e.g., Rahi & Abd Ghani, 2019, 2021). Several other authors, also play an essential role in expanding the theoretical and empirical foundations of mobile banking research, shown in Figure 4.

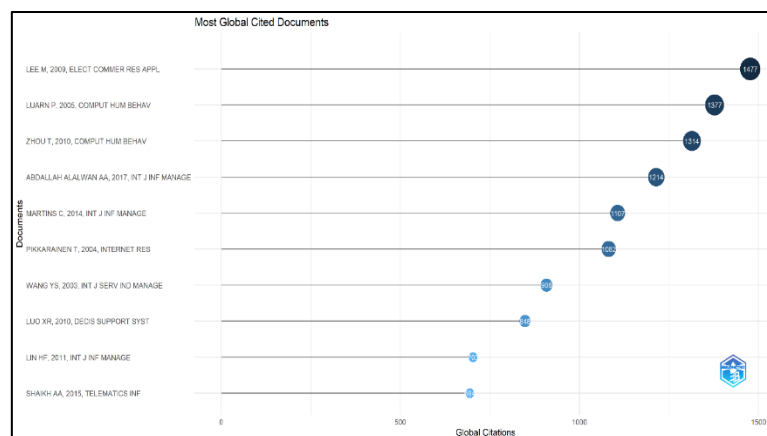
Figure 4: Most Relevant Authors



Source: Software Output (R)

3.4 Most Cited Documents

Figure 5: Most Cited Documents



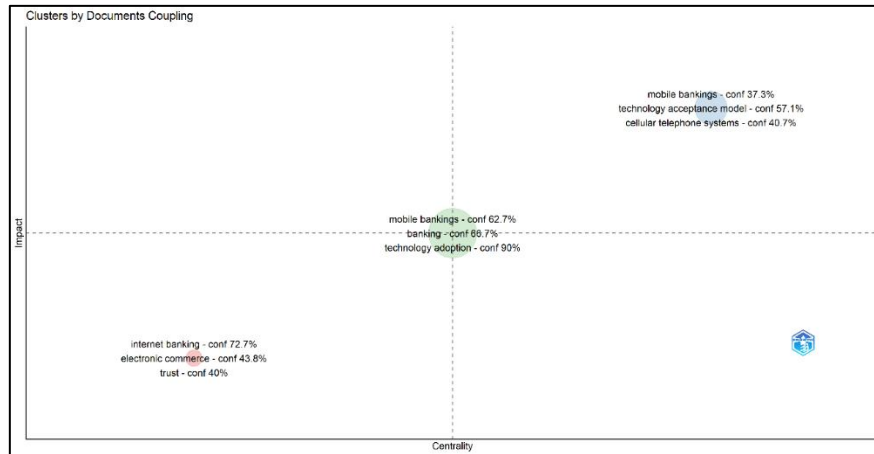
Source: Software Output (R)

The Figure 5 highlights the most globally cited documents in mobile banking research, showing a clear concentration of influence among a few seminal works. Lee (2009) leads with the highest citations (1477), followed closely by Lai & Li (2005) with 1377 citations and Zhou et al. (2010) with 1314 citations.

with 1314 citations, indicating their foundational impact on the field. Other highly cited studies, such as Baabdullah et al. (2019); Vejačka (2014), also demonstrate strong scholarly relevance. Overall, the chart emphasizes that a small group of publications has significantly shaped global understanding and advancements in mobile banking adoption.

3.5 Bibliographic Coupling

Figure 6: Bibliographic Coupling



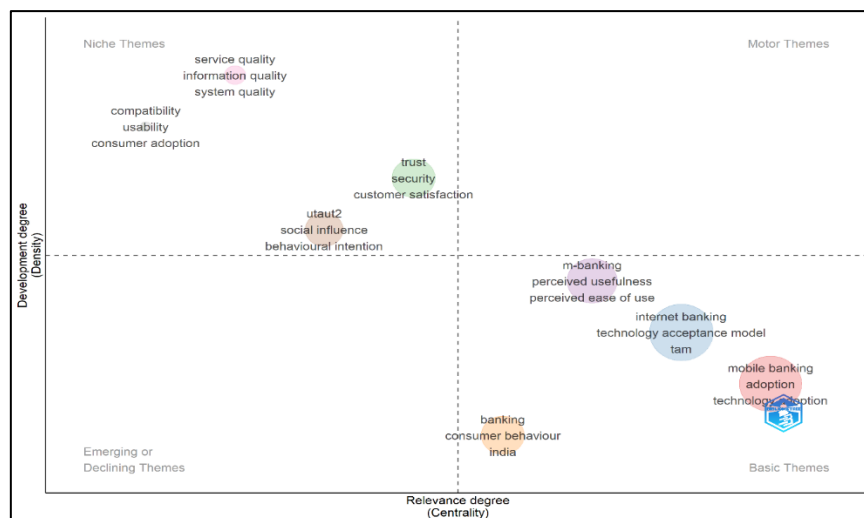
Source: Software Output (R)

The bibliographic coupling map illustrates how research themes in mobile and electronic banking are interconnected based on shared references, revealing three distinct thematic clusters (Ghorbani, 2024). The central cluster—featuring mobile banking, banking, and technology adoption—shows high centrality and moderate impact, indicating that these topics serve as core foundations linking most documents in the field (e.g., Chotitumtara & Namahoot, 2025; Riasat et al., 2025). A second cluster positioned on the right includes mobile banking, technology acceptance model, and cellular

telephone systems, reflecting strong conceptual alignment around technology-driven adoption frameworks (e.g., Albashrawi & Motiwalla, 2019; Hamidi & Safareeyeh, 2019). Meanwhile, the lower-left cluster, which includes internet banking, electronic commerce, and trust, shows relatively high impact but lower centrality, suggesting these themes are influential yet more specialized. Overall, the coupling analysis highlights how different strands of digital banking research converge, with technology adoption and mobile banking remaining the most structurally central areas within the scholarly network, shown in Figure 6.

3.6 Thematic Analysis

Figure 7: Thematic Map



Source: Software Output (R)

The thematic map illustrates the conceptual structure of mobile banking research by positioning themes based on their centrality (relevance) and density (development) (Muñoz et al., 2020). Basic and highly influential themes—such as mobile banking, technology adoption, internet banking, and the technology acceptance model (TAM)—appear in the lower-right quadrant, indicating their foundational role in the literature despite moderate development (e.g., Chotitumtara & Namahoot, 2025; Riasat et al., 2025). Motor themes like perceived usefulness, ease of use, and m-banking occupy the upper-right quadrant, showing that they are both well-developed and strongly connected, driving current research momentum (e.g., Abdalla et al., 2025; Kusairi et al., 2025). Niche themes—including service quality, information quality, system quality, and consumer adoption—fall in the upper-left quadrant, reflecting specialized yet mature areas with limited influence on the broader field (e.g., Sulistyowati et al., 2025; Zhou et al., 2021). Emerging or declining themes, such as consumer behaviour and India, appear in the lower-left quadrant, suggesting limited development and weaker relevance within the overall research structure. Overall, the map reveals a robust core centred around technology acceptance and mobile banking adoption, supported by evolving behavioural and service-quality dimensions, depicted using Figure 7.

4. Theoretical and Practical Implications

This study carries significant theoretical implications by mapping the intellectual structure and evolution of mobile banking research through scientometric techniques. The analysis reinforces the dominance of foundational theories such as the Technology Acceptance Model (TAM) (Davis, 1989) and UTAUT (Venkatesh, 2012), showing their continued relevance in explaining user behaviour across countries. At the same time, the emergence of themes like information quality, system quality, security, and customer satisfaction indicates how traditional adoption theories are expanding to incorporate multidimensional factors that shape digital financial behaviour. By identifying core, niche, and emerging themes, the study provides scholars with a clearer understanding of underexplored areas and future research opportunities, contributing to a more refined and comprehensive theoretical framework for mobile

banking adoption. Practically, the findings offer valuable insights for banks, fintech developers, and policymakers. The prominence of keywords such as trust, perceived usefulness, ease of use, and security underscores the need for financial institutions to prioritize user-friendly interfaces, robust security systems, and enhanced digital experiences to boost adoption. Developers can use these insights to improve system quality, reduce technical barriers, and ensure application reliability, while policymakers can strengthen digital financial regulations and promote digital literacy to address concerns related to risk and privacy. Additionally, the identification of leading countries and influential authors in mobile banking research helps institutions and practitioners understand global trends and forge meaningful collaborations. Overall, the study provides a research-driven foundation that can support better design, policy formulation, and strategic decisions in the evolving landscape of mobile banking.

5. Conclusion

This study demonstrates that mobile banking has evolved into a core component of the global financial landscape, reshaping the way individuals' access and manage financial services. The scientometric analysis reveals a steady growth in research interest, driven by advancements in technology, increasing digital literacy, and rising consumer expectations for fast, seamless, and secure financial solutions. The transition from traditional banking channels to mobile platforms reflects a broader shift toward digital empowerment and real-time service delivery. With cutting-edge technologies such as artificial intelligence, blockchain, biometric authentication, and cloud computing being integrated into mobile banking systems, the sector is poised for even greater levels of automation, personalization, and security. As adoption rates continue to accelerate worldwide—including in emerging markets like India—mobile banking is expected to play a crucial role in promoting financial inclusion, strengthening customer trust, and building a more connected and efficient digital financial ecosystem. This study therefore provides a timely foundation for future research and strategic innovation in the rapidly expanding domain of mobile banking.

Disclosure statements

Competing interest - All authors certify that they have no competing interests.

Funding Statement— This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Declaration of Generative AI

No generative artificial intelligence (AI) and AI-assisted technologies in the writing process have been used.

REFERENCES

1. Abandu, J., Oyo, B., Malinga, G. M., & Mugonola, B. (2025). Adoption of mobile banking among agri-entrepreneurs in northern Uganda: Do socioeconomic factors matter? *Food and Humanity*, 5. <https://doi.org/10.1016/j.foohum.2025.100830>
2. Abdalla, R. A., Ayyash, M. M., & Alkhateeb, M. A. A. (2025). Predicting the intention to adopt mobile banking in Palestine: an extension of TAM with gamification, perceived mobility, and perceived enjoyment. *International Journal of Electronic Business*, 20(3), 245–268. <https://doi.org/10.1504/IJEB.2025.147263>
3. Abiodun, D., Hamzat, L., & Bamidele, A. (2021). Advancing financial literacy through behavioral analytics and custom digital tools for inclusive economic empowerment. *Int J Eng Technol Res Manag*, 5(10), 130.
4. Albashrawi, M., & Motiwalla, L. F. (2019). Privacy and Personalization in Continued Usage Intention of Mobile Banking: An Integrative Perspective. *Information Systems Frontiers*, 21(5), 1031–1043. <https://doi.org/10.1007/s10796-017-9814-7>
5. Anene, I. A., & Okeji, C. C. (2021). Awareness, acceptance and usage of mobile banking services by academic librarians in Nigeria. *Library Philosophy and Practice (e-Journal)*, 4986, 1–28.
6. Baabdullah, A. M. A., Abdallah Alalwan, A. A., Rana, N. P., Patil, P. P., & Dwivedi, Y. K. (2019). An integrated model for m-banking adoption in Saudi Arabia. *International Journal of Bank Marketing*, 37(2), 452–478. <https://doi.org/10.1108/IJBM-07-2018-0183>
7. Chawla, D., & Joshi, H. (2018). The Moderating Effect of Demographic Variables on Mobile Banking Adoption: An Empirical Investigation. *Global Business Review*, 19(3_suppl), S90–S113. <https://doi.org/10.1177/0972150918757883>
8. Chotitumtara, A., & Namahoot, K. S. (2025). The Risk Suitable Online Banking Adoption Model for Elderly Individuals in Thailand. *International Journal of Engineering Trends and Technology*, 73(3), 517–530. <https://doi.org/10.14445/22315381/IJETT-V73I3P136>
9. Davis, F. D. (1989). Technology acceptance model: TAM. *Al-Suqri, MN, Al-Aufi, AS: Information Seeking Behavior and Technology Adoption*, 205–219.
10. Dhingra, Sanjay, A. (2024). Metaverse adoption: a systematic literature review and roadmap for future research. *Global Knowledge, Memory and Communication*. <https://doi.org/10.1108/GKMC-08-2023-0287>
11. Farah, M. F., Hasni, M. J. S., & Abbas, A. K. (2018). Mobile-banking adoption: empirical evidence from the banking sector in Pakistan. *International Journal of Bank Marketing*, 36(7), 1386–1413.
12. Frimpong, K., Al-Shuridah, O. M., Wilson, A. M., & Sarpong, F. A. A. (2020). A cross-national investigation of trait antecedents of mobile-banking adoption. *Thunderbird International Business Review*, 62(4), 411–424. <https://doi.org/10.1002/tie.22132>
13. Ghorbani, B. D. (2024). Bibliometrix: Science mapping analysis with R Biblioshiny based on Web of Science in applied linguistics. In *A scientometrics research perspective in applied linguistics* (pp. 197–234). Springer.
14. Hamidi, H. (Hojatollah), & Safareeyeh, M. (2019). A model to analyze the effect of mobile banking adoption on customer interaction and satisfaction: A case study of m-banking in Iran. *Telematics and Informatics*, 38, 166–181. <https://doi.org/10.1016/j.tele.2018.09.008>
15. Hanif, Y., & Lallie, H. S. (2021). Security factors on the intention to use mobile banking applications in the UK older generation (55+). A mixed-method study using modified UTAUT and MTAM - with perceived cyber security, risk, and trust. *Technology in Society*, 67. <https://doi.org/10.1016/j.techsoc.2021.101693>
16. Kim, G., Shin, B., & Lee, H. G. (2009). Understanding dynamics between initial trust and usage intentions of mobile banking. *Information Systems Journal*, 19(3), 283–311.
17. King, B. (2010). *Bank 2.0: How customer behaviour and technology will change the future of financial services*. Brett King.
18. Kusairi, K., Sukmawati, A., As, N., & Rahman, M. S. (2025). Predicting M-banking adoption: the moderating role of age in technology acceptance. *Cogent Business and Management*, 12(1). <https://doi.org/10.1080/23311975.2025.2547964>
19. Lai, V. S. K., & Li, H. (2005). Technology acceptance model for internet banking: An invariance analysis. *Information and Management*, 42(2), 373–386. <https://doi.org/10.1016/j.im.2004.01.007>
20. Lee, M.-C. (2009). Factors influencing the adoption of internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. *Electronic Commerce*

- Research and Applications*, 8(3), 130–141.
21. Market Research Report. (2025). Mobile Banking Market Analysis 2025-2035: Digital Transformation & Growth Trends. In *Market Business Insights*. <https://www.marketbusinessinsights.com/mobile-banking-market>
22. Mensah, I. K., & Khan, M. K. (2024). Unified Theory of Acceptance and Use of Technology (UTAUT) Model: Factors Influencing Mobile Banking Services' Adoption in China. *SAGE Open*, 14(1). <https://doi.org/10.1177/21582440241234230>
23. Mohammed, U., Yakubu, I. N., & Salifu, M. (2025). Exploring New Regulatory Approaches to Access and Equity. *Financial Regulation, Governance, and Stability: Building an Inclusive and Resilient Financial Future*.
24. Moral-Muñoz, J. A., Herrera-Viedma, E., Santisteban-Espejo, A., & Cobo, M. J. (2020). Software tools for conducting bibliometric analysis in science: An up-to-date review. *Profesional de La Información*, 29(1).
25. Prasad, E. S. (2021). *The future of money: How the digital revolution is transforming currencies and finance*. Harvard University Press.
26. Rahi, S., & Abd Ghani, M. (2019). Integration of expectation confirmation theory and self-determination theory in internet banking continuance intention. *Journal of Science and Technology Policy Management*, 10(3), 533–550. <https://doi.org/10.1108/JSTPM-06-2018-0057>
27. Rahi, S., & Abd Ghani, M. (2021). Examining internet banking user's continuance intention through the lens of technology continuance theory and task technology fit model. *Digital Policy, Regulation and Governance*, 23(5), 456–474. <https://doi.org/10.1108/DPRG-11-2020-0168>
28. Rahi, S., Othman Mansour, M. M., Alharafsheh, M., & Alghizzawi, M. (2021). The post-adoption behavior of internet banking users through the eyes of self-determination theory and expectation confirmation model. *Journal of Enterprise Information Management*, 34(6), 1874–1892. <https://doi.org/10.1108/JEIM-04-2020-0156>
29. Rekha, I. S., Basri, S., & Kavitha, T. C. (2020). Acceptance of internet banking: Comparing six theoretical models. *Indian Journal of Finance*, 14(3), 7–21. <https://doi.org/10.17010/ijf/2020/v14i3/151073>
30. Riasat, I., Hussain Shah, M. H., & Gönül, S. S. (2025). Strengthening Cybersecurity Resilience: An Investigation of Customers' Adoption of Emerging Security Tools in Mobile Banking Apps. *Computers*, 14(4). <https://doi.org/10.3390/computers14040129>
31. Singh, D., Malik, G., & Kaur, A. (2025). Revolutionizing Digital Banking: Understanding Determinants and Barriers of Neo-Banking Adoption Through the Lens of Behavioral Reasoning Theory. *Journal of Public Affairs*, 25(3). <https://doi.org/10.1002/pa.70055>
32. Sulistyowati, W. A., Alrajawy, I., Isaac, O., & Khalid, A. A. (2025). Examining the intention to use mobile banking: an expansion of the unified theory of acceptance and use of technology with information quality. *International Journal of Business Information Systems*, 50(1), 48–68. <https://doi.org/10.1504/IJBIS.2025.148500>
33. Tatineni, S. (2022). Customer authentication in mobile banking-MLOps practices and AI-driven biometric authentication systems. *Journal of Economics & Management Research*, 3(4), 1–5.
34. Vejačka, M. (2014). Customer acceptance of electronic banking: Evidence from Slovakia. *Journal of Applied Economic Sciences*, 9(3), 514–522.
35. Venkatesh, V. (2012). *Consumer Acceptance and Use of Information Technology : Extending the Unified Theory*. 36(1), 157–178.
36. Vilarinhos, D. T., Mariano, A. M., Ramirez-Correa, P. E., Santos, M. R., & Gomes, M. M. F. M. F. (2021). *The impact of user experience on adopting mobile banking applications and moderating age*. 2560–2562.
37. Yi, G., Zainuddin, N. M. M., & Abu Bakar, N. A. (2021). Conceptual model on internet banking acceptance in China with social network influence. *International Journal on Informatics Visualization*, 5(2), 177–186. <https://doi.org/10.30630/joiv.5.2.403>
38. Zhou, Q., Lim, F. J., Yu, H., Xu, G., Ren, X., Liu, D., Wang, X., Mai, X., & Xu, H. (2021). A study on factors affecting service quality and loyalty intention in mobile banking. *Journal of Retailing and Consumer Services*, 60, 102424.
39. Zhou, T., Lu, Y. Bin, & Wang, B. (2010). Integrating TTF and UTAUT to explain mobile banking user adoption. *Computers in Human Behavior*, 26(4), 760–767. <https://doi.org/10.1016/j.chb.2010.01.013>