CHALLENGES OF DIGITAL BANKING DEVELOPMENT IN THE CONTEXT OF LATEST BANKING TECHNOLOGIES

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Abstract

This study examines the multifaceted factors that influence the adoption and advancement of digital banking in the context of rapid technological evolution and shifting consumer expectations. Drawing on an extensive review of recent scholarly and industry sources, the research examines the intersection of technological, psychological, and socio-demographic factors that shape user behaviour. Key variables identified include perceived ease of use, perceived usefulness, trust, and cybersecurity concerns—factors consistently shown to affect adoption rates across diverse user segments. Furthermore, social influence, age, education, income level, and digital literacy emerge as significant moderators. Beyond the user-centric perspective, institutional strategies such as platform customization, integration of artificial intelligence, open banking infrastructure, and ESG-driven (Environmental, Social, Governance) financial products are examined for their role in enhancing operational efficiency and customer engagement. The research underscores the critical importance of building resilient cybersecurity frameworks to mitigate evolving threats such as data breaches, malware, and AI-targeted attacks. Additionally, global comparative data from the 2025 TABInsights ranking of the top 100 digital banks offers empirical support for trends in profitability, market expansion, and regional differentiation. The findings suggest that future competitiveness in digital banking hinges not only on technological innovation but also on aligning services with user values and regulatory expectations. Recommendations are provided for researchers and practitioners to guide future developments in the field.

Keywords: Digital banking, profitability, fintech, cybersecurity, market capitalization, innovation.

ԹՎԱՅԻՆ ԲԱՆԿԵՐԻ ԶԱՐԳԱՑՄԱՆ ՄԱՐՏԱՀՐԱՎԵՐՆԵՐԸ ԲԱՆԿԱՅԻՆ ՆՈՐԱԳՈՒՅՆ ՏԵԽՆՈԼՈԳԻԱՆԵՐԻ ՀԱՄԱՏԵՔՍՏՈՒՄ

ՀԱՅԿ ՍԱՐԳՍՅԱՆ

Հայաստանի պետական տնտեսագիտական համալսարանի
ֆինանսական շուկաներ և ինստիտուտներ ամբիոնի դասախոս,
տնտեսագիտության թեկնածու

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Համառոտագիր

Այս հետազոտությունը նպատակ ունի վերլուծել թվային բանկինգի ընդունման և զարգացման վրա ազդեցություն ունեցող բազմաչափ գործոնները՝ արագ տեխնոլոգիական առաջընթացի և փոխվող սպառողական ակնկալիքների համատեքստում: Հիմք ընդունելով վերջին գիտական և ոլորտային աղբյուրների համակցված վերլուծությունը՝ ուսումնասիրությունը կենտրոնանում է այն փոխազդեցությունների վրա, որոնք ձևավորում են օգտատերերի վարքը թվային ֆինանսական ծառայությունների կիրառման գործընթացում: Գլխավոր գործոնների թվում առանձնանում են ընկալվող հարմարավետությունը, օգտակարությունը, վստահությունը և կիբերանվտանգության հետ կապված մտահոգությունները: Նշված գործոնները վճռորոշ դեր ունեն տարբեր սոցիալ-տնտեսական խմբերի համար: Բացի այդ, սոցիալական ազդեցությունը, տարիքային, կրթական, եկամտային մակարդակն ու թվային գրագիտությունը կարևոր միջնորդող գործոններ են: Ուսումնասիրվել են նաև ինստիտուցիոնալ գործելակերպերը, ներառյալ հարթակների անհատականացումը, արհեստական բանականության կիրառումը, բաց բանկային (open banking) ենթակառուցվածքների ներդրումը և ESG սկզբունքներով առաջնորդվող ֆինանսական ապրանքների զարգացումը՝ հաճախորդների ներգրավվածության և գործառնական արդյունավետության բարձրացման նպատակով: Հատուկ ուշադրություն է դարձվել կիբեռսպառնալիքների աճին՝ շեշտադրելով կայուն և ճկուն պաշտպանական համակարգերի անհրաժեշտությունը: TABInsights-ի 2025 թ. վարկանիշային տվյալները ծառայել են որպես էմպիրիկ հիմք՝ թվային բանկերի շահութաբերության, շուկայի ընդլայնման և տարածաշրջանային տարբերակների վերլուծության համար: Արդյունքները ցույց են տալիս, որ թվային բանկերի մրցունակության ապագան կախված է ոչ միայն տեխնոլոգիական նորարարությունից, այլև սպառողների արժեքների և կանոնակարգային պահանջների հետ համահունչ ծառայությունների ձևավորումից:

Բանալի բառեր՝ թվային բանկինգ, շահութաբերություն, ֆինտեխ,

կիբեռանվտանգություն, շուկայական կապիտալիզացիա, նորարարություն:

Introduction

Digital banking has rapidly transformed the financial services industry, marking a significant shift from traditional, branch-based banking to more efficient, tech-driven solutions. The proliferation of online and mobile banking platforms has made financial services more accessible and user-friendly, catering to the growing demand for convenience, speed, and cost efficiency. As Saharawat (2024) highlights, digital banking offers a variety of essential services, including account management, fund transfers, loan applications, and digital wallets, all accessible through smartphones and computers. This has not only streamlined banking operations but also promoted financial inclusion by providing services to previously underserved populations, particularly in developing regions. The evolution of digital banking has been facilitated by key technological innovations such as artificial intelligence, blockchain, and machine learning, which enhance decision-making, security, and customer service. Neobanks and internet-only banks are prime examples of the sector's adaptability, offering tailored, user-centric financial solutions that challenge the traditional banking model. However, despite these advancements, digital banking faces several challenges. These include cybersecurity threats, regulatory complexities, and the increasing demand for banks to deliver personalized, customer-focused services. Moreover, the rise of green banking, which integrates Environmental, Social, and Governance principles, demonstrates the growing importance of sustainability in shaping digital banking practices.

This paper explores the emerging trends, challenges, and opportunities in digital banking, with a focus on technological advancements, cybersecurity, regulatory frameworks, and customer-centric innovations that are shaping the future of financial services globally.

Research methods

This research adopts a mixed-methods approach, integrating qualitative content analysis with quantitative secondary data evaluation. Academic literature, industry reports (e.g., TABInsights, McKinsey, PwC), and empirical rankings were systematically reviewed to assess digital banking trends, shifts in market capitalisation, and user adoption factors. A comparative framework was applied to evaluate digital banks' performance across dimensions such as profitability, funding structure, asset growth, and regional distribution. The study also incorporated macroeconomic indicators (e.g., interest rate shifts) and regulatory developments (e.g., CBDC pilots) to contextualize strategic responses. This methodological design enables a multidimensional

understanding of the evolving global digital banking ecosystem.

Theoretical and methodological bases

Digital banking has emerged as a pivotal innovation in the financial sector, enabling customers to access a range of banking services through digital interfaces. According to Saharawat (2024), digital banking encompasses online and mobile banking platforms that offer essential features such as account management, fund transfers, loan applications, and digital wallets. This paradigm shift from traditional to digital infrastructures not only increases operational efficiency and reduces costs but also broadens financial inclusion by reaching underserved populations. Various types, such as neobanks and internet-only banks, illustrate the adaptability of digital banking to diverse user needs. Ultimately, digital banking aligns financial services with technological advancement, redefining consumer interaction with banks (Saharawat, 2024).

According to Das, Patnaik, and Satpathy (2024), digital banking adoption is shaped by a combination of technological, psychological, and socio-demographic factors. Their literature review identifies perceived ease of use, perceived usefulness, trust, and security concerns as primary determinants. Furthermore, social influence, along with individual characteristics such as age, education level, and income, significantly impacts user behavior. The authors emphasize that while digital infrastructure is foundational, users' perceptions and contextual factors are equally vital. Their study underscores the importance of a holistic, multidimensional approach to fostering digital banking adoption in the context of rapid technological advancement and changing consumer expectations (Das et. al, 2024, pp. 592–616).

Waliullah et al. (2025) conduct a systematic review of literature addressing how cybersecurity threats affect digital banking adoption and growth. The study identifies key risks—such as data breaches, identity theft, and malware—that hinder user trust and adoption. The authors argue that enhancing cybersecurity infrastructure, increasing public awareness, and implementing regulatory protections are essential for fostering secure digital financial services. Their findings emphasise the balance between technological advancement and safeguarding user confidence in digital banking (Waliullah et al., 2025).

Indriasari, Prabowo, Gaol, and Purwandari (2022) explore the challenges, emerging technological trends, and future research directions in digital banking. They discuss how digital banking is transforming traditional financial services, driven by innovations such as blockchain, artificial intelligence, and mobile technologies. The paper highlights challenges like cybersecurity risks, regulatory issues, and the digital divide. Furthermore, the authors emphasize the need for future research in areas such as customer experience, digital

inclusion, and the integration of new technologies in banking systems. Their work provides a comprehensive framework for understanding the evolution of digital banking (Indriasari et al., 2022).

Mohanty, Singh, and Mohanty (2023) present a systematic literature review examining customer satisfaction in digital banking. The study identifies key factors influencing satisfaction, including service quality, perceived usefulness, perceived risk, performance expectancy, and effort expectancy. Utilising Structural Equation Modelling (SEM) with data from 222 banking customers in Northern India, the authors find that reliability, tangibility, and responsiveness significantly impact customer satisfaction. The research underscores the importance of aligning digital banking services with customer expectations to enhance satisfaction and retention. The study contributes to understanding the dynamics of customer satisfaction in the evolving digital banking landscape (Mohanty et al., 2023, pp. 48–71).

Chauhan, Akhtar, and Gupta (2022) conducted a structured literature review to examine the impact of digital banking on customer experience and its subsequent effect on financial performance. Analyzing 88 studies published between 2001 and 2021, the authors identified key determinants of customer experience: functional clues (e.g., trust, convenience), mechanical clues (e.g., website design, usability), and humanic clues (e.g., complaint handling). They propose an integrative framework linking digital banking factors, CE, customer satisfaction, loyalty, and financial performance. The study highlights the role of gamification in enhancing CE and offers strategic insights for banks aiming to improve online customer engagement (Chauhan et al., 2022m pp. 1–20).

Jalani and Easwaramoorthy (2024) explore the factors that influence the adoption and usage of mobile banking applications among Malaysian consumers. The study systematically identifies critical determinants, including security concerns, service quality, technological factors, and convenience, that affect consumer behaviour in relation to mobile banking. Employing a quantitative approach, the researchers utilized an online survey with 152 participants to collect data, which were subsequently analyzed using correlation analysis and multinomial logistic regression. The findings emphasize the importance of security and convenience in fostering greater engagement with mobile banking services (Jalani et al., 2024).

Stefanelli, Manta, and Toma (2022) investigate the strategic response of European banks to the digital transformation within the financial sector, particularly focusing on the adoption of open banking and application programming interfaces (APIs). The study examines how these technological innovations alter the dynamics of customer relationships and the overall role of banks in the broader financial ecosystem. By analyzing the implications of open banking, the paper explores the shifting boundaries of traditional banking

services and the evolving landscape of financial interactions (Stefaneli et al., 2022).

Kovacevic, Radenkovic, and Nikolic (2024) investigate the dual aspects of artificial intelligence integration within the banking sector, focusing on both its transformative potential and associated cybersecurity risks. The study highlights how machine learning enhances decision-making, fraud detection, and customer service automation. However, it also addresses emerging threats such as adversarial attacks, including data poisoning and evasion tactics, which exploit vulnerabilities in AI models. The authors advocate for the development of secure, resilient, and trustworthy AI systems to mitigate these risks and ensure the safe deployment of AI technologies in financial institutions (Kovacevic et. al, 2024).

Kshetri et al. (2023) conduct a comprehensive review of emerging cyber threats, specifically cryptojacking and ransomware attacks, within the banking industry. The study examines the evolving tactics employed by cybercriminals, highlighting the financial motivations and sophisticated techniques that underpin these threats. The authors examine the challenges faced by financial institutions in mitigating such risks and emphasize the necessity for proactive cybersecurity measures. Additionally, the paper introduces a Digital Forensics and Incident Response approach, advocating for its integration into current cyber threat hunting processes to effectively counteract these malicious activities (Kshetri et al., 2023).

The article "Shaping the Future: 7 Digital Technology Trends Reshaping Banking and Financial Services in 2023" outlines seven pivotal digital technology trends influencing the banking and financial services industry. These include the evolution of mobile applications, the impact of wearable devices, and the rise of embedded finance. The piece discusses how these innovations are transforming customer experiences, enhancing service accessibility, and driving the digital transformation of financial institutions. By integrating these technologies, banks aim to improve operational efficiency and meet the evolving expectations of consumers in a digital-first landscape (4 Sight Holdings, 2023).

The article "Top 10 Banking Technology Trends in 2023" by Axiom Groupe outlines ten pivotal technological advancements shaping the banking sector. These include the integration of artificial intelligence for enhanced customer service and fraud detection, the adoption of open banking through application programming interfaces to foster collaboration with non-banking financial companies, and the implementation of blockchain technology to ensure secure and transparent transactions. Additionally, the article discusses the rise of hyper-personalised banking experiences, the utilisation of the Internet of Things (IoT) for real-time data collection, and the emphasis on cybersecurity measures to protect sensitive financial information. The piece also highlights

the growing trend of neobanking, the automation of banking processes through robotic process automation, and the exploration of quantum computing for complex financial modeling. These trends collectively signify a transformative shift towards more efficient, secure, and customer-centric banking services (Axiom Groupe, 2023).

According to Setiawan and Prakoso (2024), digital banking adoption demonstrates a nuanced relationship with bank performance in Indonesia. While it exhibits a negative effect on return on assets, it enhances operational efficiency. The authors argue that bank size significantly moderates these outcomes, with larger banks being better equipped to optimize digital banking implementation. These findings underscore the importance of institutional scale and strategic alignment in maximizing the benefits of digital transformation in the financial sector (Setiawan et al., 2024m pp. 196–207).

According to Poon, Wibowo, and Tang (2024), this study develops a comprehensive framework for clustering FinTech based on technology, business models, and stakeholder perspectives. It synthesizes over 100 studies to classify FinTech into various clusters, providing a holistic view of the FinTech ecosystem. The authors emphasize the importance of understanding these classifications for both academic research and practical application in the rapidly evolving digital finance sector (Poon et al., 2024).

Asamoah and Osei (2024) explore the factors influencing users' intention to continue using digital banking services. Their study reveals that perceived self-efficacy, usefulness, and ease of use significantly affect users' continued usage intentions. The authors argue that user experience plays a critical role in sustaining digital banking adoption, underscoring the importance of improving service quality to retain customers (Asamoah et al., 2024, pp. 3332–3342).

According to Coelho, Figueiredo, and Valério (2025), their report provides a comprehensive overview of key regulatory and non-regulatory developments in the fintech sector during the fourth quarter of 2024. The report covers various aspects, including decentralized finance (DeFi), digital assets, stablecoins, and central bank digital currencies (CBDCs). It also examines the metaverse, artificial intelligence, and related technologies such as robotics and quantum computing. The authors emphasize the importance of understanding these developments to navigate the evolving landscape of digital finance and technology (Coelho et al., 2025).

Results

Deloitte's (2024) report assesses the digital maturity of banks across 44 countries, analyzing 1,005 functionalities in areas such as account opening, customer onboarding, everyday banking, and non-banking services. The study identifies two primary strategies among leading banks: enhancing customer

experience through intuitive design and expanding functionalities to create comprehensive "super applications." The findings highlight the importance of both user-centric design and functional breadth in achieving digital banking excellence (Deloitte's, 2024).

Murrar, Asfour, and Paz (2024) examine the relationship between banking sector development and economic growth using advanced statistical modeling techniques. The study finds that investments and loans have a significant negative correlation with bank capital, whereas deposits have a positive impact on bank capital. Additionally, bank capital is significantly related to various components of GDP, including private consumption, gross investment, and net exports, highlighting the critical role of the banking sector in economic development during the digital transformation era (Murrar et al., 2024, pp. 335–353).

KPMG (2024) suggests that Germany's fintech market showed resilience in 2024, particularly with an 81% increase in corporate venture capital investments. This stability is attributed to favourable regulatory frameworks, such as the EU AI Act, which provide clarity for fintech operations. The report indicates that while global investments declined, the German market's focus on AI-driven solutions and embedded finance continues to attract significant interest (KPMG, 2024).

BDO (2024) reports a 19% growth in German fintech investments in H1 2024, highlighting a shift towards niche markets and partnerships between fintechs and traditional financial institutions. The study also notes significant interest in AI, blockchain, and embedded finance, despite a more cautious investment climate in Europe (BDO, 2024).

As McKinsey & Company (2024) suggests, the lower-value cross-border payments market, which represents a substantial portion of the global payments sector, is increasingly being dominated by nontraditional players such as fintechs and money transfer operators. According to their analysis, these players have captured up to 65% of the market share in regions like Asia, a significant portion of the $2 trillion global market. The report asserts that to counter this shift, traditional banks must modernize their infrastructure, integrate real-time processing capabilities, and enhance customer experience through transparent pricing and user-friendly interfaces. These measures are essential to regain competitive advantage and secure a share of this growing market, projected to account for nearly 40% of total global cross-border payment revenue in 2025 (McKinsey & Company, 2024).

The 2023 PwC Digital Banking Survey, focusing on Southeast Asia, reveals that while over 70% of banks in the region have established clear digital strategies, a significant implementation gap remains, with more than 80% of banks falling short of achieving their digitalisation objectives. The

primary drivers of digital transformation are enhancing customer experience (68%) and improving operational efficiency (56%). Challenges such as ineffective implementation (62%) and cybersecurity threats (59%) are hindering progress. To overcome these issues, banks are focusing on modernising their technology architectures, adopting cloud solutions, and upskilling their workforce; however, concerns regarding cloud security and regulatory compliance still impede adoption in countries like Thailand (PwC, 2023).

The 2025 Global Digital Bank Rankings by TABInsights highlight the rapid growth and increasing profitability of digital-only banks worldwide. Brazil's Nubank leads the list, followed by ING Group's retail arm and China's WeBank. These top 100 digital banks collectively held $2.4 trillion in assets, $2 trillion in deposits, and $78 billion in revenue by the end of FY2023. Notably, 61% of these banks reported full-year profitability, a significant increase from 48% in 2024. The average time to reach profitability has decreased to two years, indicating improved operational efficiency. Despite this progress, the global break-even ratio remains below 25%, with interest income being the primary revenue source. The rankings assess over 160 banks across five key dimensions: customer base, market/product coverage, profitability, asset and deposit growth, and funding. The Asia Pacific region accounts for 47% of the top 100, Europe 30%, and North America 10%.

According to TABInsights (2025), digital banks have shown strong growth in assets, users, and profitability, with Nubank (Brazil), ING's retail division, and China's WeBank leading global performance. These top 100 digital banks, selected from over 400, operate independently from traditional banks, emphasizing fully virtual customer experiences. By FY2023, they managed $2.4 trillion in assets, $2 trillion in deposits, and $78 billion in revenue. The compound annual growth rate (CAGR) for assets, loans, deposits, and revenue from FY2021 to FY2023 stood at 7%, 8%, 7%, and 18%, respectively, signaling sustained momentum (Kapfer and Weng, 2025)

Rank 2025	Rank 2024	Digital Bank	Country/ Headquarter	Year of launch	Customer	Coverage	Financials	Balance Sheet	Funding	Final Score
		Total Scores Achievable			30.0	10.0	30.0	20.0	10.0	100.0
1	5	Nubank	*Brazil*	*2014*	21.0	6.5	16.3	10.0	5.3	60.1
2	3	ING (Global)	*Netherlands*	*1991*	5.9	10.0	17.8	19.1	5.3	59.0
3	1	WeBank	*China*	*2015*	20.8	5.0	14.3	13.6	2.0	55.8
4	4	KakaoBank	*South Korea*	*2017*	18.8	5.0	5.5	16.4	6.0	55.6
5	7	T-Bank	*Russia*	*2007*	19.6	4.5	15.7	12.7	1.3	53.8
6	2	Ally Bank	*US*	*2009*	5.8	5.5	16.3	20.0	6.0	53.6
7	8	ING	*Germany*	*<2000*	4.8	5.5	19.6	18.2	3.3	51.2
8	9	MYBank	*China*	*2015*	16.2	2.0	13.0	16.4	2.0	50.6
9	13	Toss Bank	*South Korea*	*2021*	16.3	2.0	13.0	11.8	3.3	46.7
10	6	Su Merchants Bank	*China*	*2017*	16.2	4.0	13.0	13.8	2.0	48.8

Source: TABInsights

Figure 1. World's top 10 digital banks (2025)
Source: TABInsights

According to Kapfer and Weng (2025), the *TABInsights World's Top 100 Digital Banks Ranking 2025* demonstrates the global expansion and operational maturity of digital-only banks. These banks, evaluated across 42 markets, were ranked based on a multidimensional scorecard that emphasises customer engagement, profitability, growth in deposits and assets, product reach, and funding strength—rather than sheer size. A new metric, "funding as a percentage of total assets," was included to better reflect financial sustainability. Among the top 100 banks, 47 are based in Asia Pacific, 30 in Europe, and 10 in North America. For comparative performance analysis, this study highlights the top 30 digital banks, which include market leaders such as Nubank, ING, and WeBank. A visual line chart has been constructed to illustrate the relative performance of these banks, offering insight into their digital maturity and regional competitive advantage.

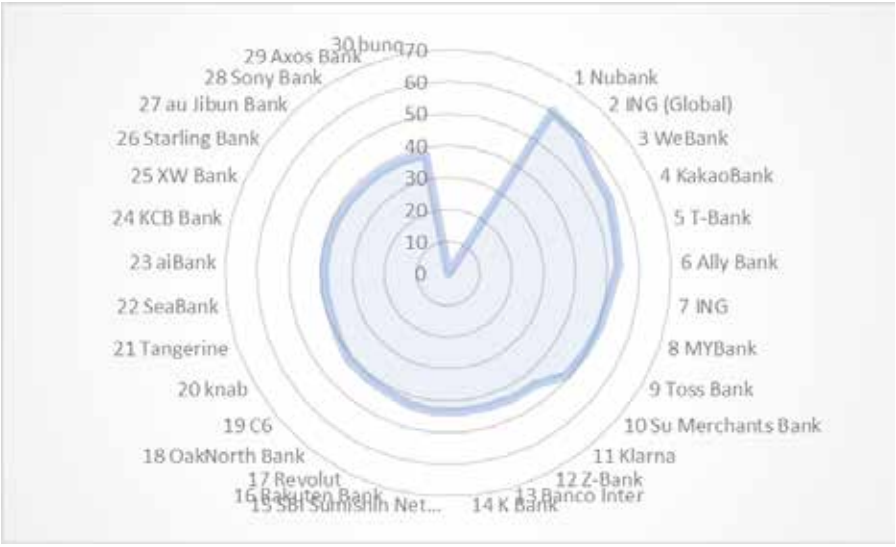

Figure 2. World's top 10 digital banks (2025)
Source: TABInsights

According to Fintech News Singapore (2025), the top digital banks in Asia for 2025 include Maya (Philippines), Kakaobank (South Korea), and ANEXT Bank (Singapore). Maya, a digital bank in the Philippines, has achieved significant growth, reaching a deposit base of ₱25 billion from 2.3 million clients by August 2023. Kakaobank, established in South Korea in 2016, had 21.8 million customers as of March 2023 and offers a range of banking and financial services. ANEXT Bank, a digital wholesale bank in Singapore, has been recognized for its excellence in digital banking innovation, customer growth, and financial performance. These banks exemplify the rapid expansion and innovation within the digital banking sector across Asia (Fintech News Singapore, 2025).

Figure 3. Top Digital Banks in Asia According to *The Banker* (2025)
Source: Fintech News Singapore. (2025, February 11)

The "Project mBridge" initiative, a collaboration between the central banks of Hong Kong, UAE, and Thailand, has significantly improved cross-border CBDC transaction settlement times, reducing them from 2–5 days to mere seconds. As of mid-2024, the project reached its minimum viable product (MVP) stage. Additionally, the future of digital banking emphasises customisation, moving away from generic interfaces and rigid product bundles to enable customers to personalise their banking experiences. Furthermore, green banking integrates Environmental, Social, and Governance principles, offering sustainable products and carbon tracking tools to align financial choices with customers' values.

In Q4 2024, the combined market capitalisation of the top 25 global banks surged by 27.1% year-on-year, reaching $4.6 trillion, according to GlobalData (2025). This growth was largely attributed to the U.S. Federal Reserve's interest rate cuts, which positively influenced investor sentiment and stock prices. JPMorgan Chase led the rankings, with a 37.2% increase in market capitalisation, reaching $674.9 billion, while Bank of America saw a 26.6% rise. In Asia, the Industrial and Commercial Bank of China (ICBC) experienced a 37.8% growth, reaching $328.2 billion. Other notable performers included Goldman Sachs, which posted a 42.9% increase, and ICICI Bank, which rose by 25.8%. Despite the overall positive performance, TD Bank experienced a significant decline of 20.1% due to regulatory challenges and missed financial targets. This robust growth underscores the resilience of major banks amidst global economic uncertainties, highlighting the profound impact of monetary policy decisions (Blakey, 2025).

Figure 4. Top 25 Global Banks by Market Cap, Q4 2024
Source: GlobalData intelligence Center and Stock Exchanges

This performance contrasts with the increasing pressure on digital banks to maintain profitability and operational efficiency in the face of competitive market dynamics and rising cybersecurity threats. Digital banks, while benefitting from technological advancements and operational agility, must also confront challenges in scalability, regulatory compliance, and consumer expectations for personalized services. In particular, the move towards highly customizable banking experiences, alongside growing demands for secure, green banking solutions, suggests that future innovation must balance both profitability and sustainability (Poon et al., 2024). Thus, as traditional financial institutions continue to flourish, digital banks must focus on adapting to market trends, ensuring robust cybersecurity, and aligning with global regulatory frameworks to secure long-term success in the evolving financial landscape.

Conclusions

This study highlights the rapid evolution and multifaceted nature of digital banking, emphasizing the critical role of technological advancements, regulatory frameworks, and customer-centric innovations in shaping its future. The findings suggest that while traditional banks continue to thrive, digital banking presents a formidable challenge and opportunity for growth, especially as customer expectations for personalized, efficient, and secure

services continue to rise. The integration of technologies such as artificial intelligence, blockchain, and mobile applications has led to enhanced customer experiences and operational efficiencies, providing banks with new tools to maintain a competitive edge in an increasingly digital-first financial landscape.

However, the research also underscores the significant challenges that digital banks face, particularly regarding cybersecurity threats and regulatory compliance. Cybersecurity risks, including data breaches, identity theft, and cyberattacks, are major concerns that can undermine user trust and slow down adoption rates. To address these challenges, the development of robust cybersecurity infrastructures, clear regulations, and consumer education is essential for building trust and encouraging widespread adoption.

Moreover, the study highlights the importance of adapting digital banking platforms to meet the evolving demands of diverse consumer segments. Factors such as ease of use, perceived usefulness, and service reliability play a crucial role in driving adoption. Additionally, the increasing focus on green banking, sustainability, and ESG (Environmental, Social, and Governance) factors reflects the growing consumer demand for socially responsible financial products and services.

Ultimately, for digital banks to succeed in a competitive and fast-evolving market, they must strike a balance between technological innovation, customer satisfaction, and regulatory adherence. The future of digital banking depends not only on embracing new technologies but also on understanding the shifting dynamics of customer behavior and global financial regulations. As digital banking continues to grow, financial institutions must prioritize security, customer engagement, and regulatory compliance to remain competitive and resilient in the long term.

References

1. Asamoah, C. A., & Osei, D. (2024). Digital Transformation in the Banking Sector: Evaluating Continuance Usage Intention. Proceedings of the International Conference on Business Excellence, 18(1), 3332-3342. *https://*doi.org/10.2478/picbe-2024-0272
2. Axiom Groupe. (2023). Top 10 banking technology trends in 2023. Axiom Groupe. Retrieved May 3, 2025, from *https://www.*axiomgroupe.com/articles/3710-top-10-banking-technology-trends-in-2023.html
3. BDO. (2024). BDO report: German FinTech sector 2023/2024. BDO. Retrieved May 3, 2025, from *https://www.*bdo.de/en-gb/insights/updates/branchencenter/fintech-2023-2024
4. Blakey, D. (2025, January 13). Top 25 global banks post 27% increase in market cap in 2024, reveals GlobalData. Private Banker International. *https://www.* privatebankerinternational.com/news/top-25-global-banks-post-27-per-cent-rise-in-market-cap-in-2024/?cf-view. Retrieved May 5, 2025.
5. Chauhan, S., Akhtar, A., & Gupta, A. (2022). *Customer experience in digital banking: A review and future research directions*. *International Journal of Quality and Service Sciences*, 14(2), 1-20. *https://*doi.org/10.1108/ijqss-02-2021-0027

6. Coelho, D. P., Figueiredo, A. J., & Valério, J. P. (2025). Fintech Q4 2024 review — A report on key regulatory and non-regulatory developments. arXiv. Retrieved May 3, 2025, from *https://www*.researchgate.net/publication/388453541_Fintech_Q4_2024_Review_-_A_report_on_key_regulatory_and_non-regulatory_developments
7. Das, D., Patnaik, B. C. M., & Satpathy, I. (2024). Factors affecting Digital Banking adoption: A review of Literature. Journal of the Oriental Institute, 73(2), 592-616. Retrieved May 2, 2025, from *https://*journaloi.com/index.php/JOI/article/view/170
8. Deloitte. (2024). Digital banking maturity 2024. Deloitte. Retrieved May 3, 2025, from *https://www*.deloitte.com/ce/en/industries/financial-services/research/digital-banking-maturity-2024.html
9. Fintech News Singapore. (2025, February 11). Top digital banks in Asia 2025. FintechNewsSG. Retrieved May 5, 2025, from *https://*fintechnews.sg/109204/digital-banking-news-singapore/top-digital-banks-asia-2025/
10. Indriasari, E., Prabowo, H., Gaol, F. L., & Purwandari, B. (2022). Digital banking: Challenges, emerging technology trends, and future research agenda. International Journal of E-Business Research, 18(1). *https://*doi.org/10.4018/IJEBR.309398
11. Jalani, S. N. b. M., & Easwaramoorthy, S. V. (2024). Factors Influencing the Usage Of Mobile Banking Apps Among Malaysian Consumers. arXiv. Retrieved May 2, 2025, from *https://*arxiv.org/abs/2411.16689
12. Kapfer, C., & Weng, W. (2025, February 21). Digital banks maintain growth momentum, with 61% of the top 100 reporting full year profitability. TABInsights. *https://*tabinsights.com/article/digital-banks-maintain-growth-momentum-with-61-of-the-top-100-reporting-full-year-profitability
13. Kshetri, N., Rahman, M. M., Sayeed, S. A., & Sultana, I. (2023). cryptoRAN: A review on cryptojacking and ransomware attacks with respect to the banking industry—Threats, challenges, and problems. arXiv. Retrieved May 3, 2025, from *https://*arxiv.org/abs/2311.14783
14. Kovacevic, A., Radenkovic, S. D., & Nikolic, D. (2024). Artificial intelligence and cybersecurity in the banking sector: Opportunities and risks. arXiv. Retrieved May 3, 2025, from *https://*arxiv.org/abs/2412.04495
15. KPMG. (2024). Pulse of Fintech H1 2024: Stabilization amid global challenges. KPMG. Retrieved May 3, 2025, from *https://*kpmg.com/de/en/home/insights/2024/08/pulse-of-fintech-h1-24-latest-trends-in-the-german-fintech-market.html
16. McKinsey & Company. (2024). How Banks Can Win Back the Lower-Value Cross-Border Payments Business. Retrieved May 3, 2025, from *https://www*.mckinsey.com/industries/financial-services/our-insights/banking-matters/how-banks-can-win-back-lower-value-cross-border-payments-business
17. Mohanty, S., Singh, S., & Mohanty, J. (2023). A systematic literature review of customer satisfaction on digital banking. In Handbook of Research on the Interplay Between Service Quality and Customer Delight (pp. 48-71). IGI Global. *https://*doi.org/10.4018/978-1-6684-5853-2.ch003
18. Murrar, A., Asfour, B., & Paz, V. (2024). Banking sector and economic growth in the digital transformation era: Insights from maximum likelihood and Bayesian structural equation modeling. Asian Journal of Economics and Banking, 8(3), 335-353. *https://*doi.org/10.1108/AJEB-12-2023-0122
19. Saharawat, V. (2024, October 12). What is digital banking: Features, types, and benefits. PW Skills. Retrieved May 5, 2025, from *https://*pwskills.com/blog/digital-banking/
20. 4 Sight Holdings. (2023). Shaping the future: 7 digital technology trends reshaping banking and financial services in 2023. 4 Sight Holdings. Retrieved May 3, 2025, from *https://*4sight.cloud/clusters/channel-partner/blog/shaping-the-future-7-digital-

technology-trends-reshaping-banking-and-financial-services-in-2023

21. Poon, P.-L., Wibowo, S., & Tang, S.-F. (2024). A FinTech clustering framework: Technology, model, and stakeholder perspectives. arXiv. Retrieved May 3, 2025, from *https://*arxiv.org/abs/2412.05285
22. PwC. (2023, August 3). Digital banking survey 2023: Southeast Asia landscape. PwC. Retrieved May 3, 2025, from *https://www.*pwc.com/gx/en/services/consulting/south-east-asia-consulting/digital-banking-survey-southeast-asia.html
23. Setiawan, R., & Prakoso, L. (2024). Digital banking adoption, bank size, and bank performance in Indonesia. Jurnal Ekonomi dan Bisnis Airlangga, 34(2), 196–207. *https://*doi.org/10.20473/jeba.V34I22024.196-207
24. Stefanelli, V., Manta, F., & Toma, P. (2022). Digital financial services and open banking innovation: Are banks becoming invisible? Journal of Strategic and International Studies. *https://*doi.org/10.1177/09721509231151491.
25. Waliullah, M., George, M. H., Hasan, M. T., Alam, M. K., Munira, M. S. K., & Siddiqui, N. A. (2025). Assessing the influence of cybersecurity threats and risks on the adoption and growth of digital banking: A systematic literature review. arXiv. Retrieved May 2, 2025, from *https://*arxiv.org/pdf/2503.22710

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