Improving banking efficiency through digital transformation: A viewpoint on BCC bank

Sofya Gassanova*

KIMEP University, Kazakhstan

email: Sofya.Gassanova@kimep.kz

*Correspondence: Sofya.Gassanova@kimep.kz

Abstract

This study investigates the impact of digital transformation on banking efficiency, using BCC Bank as a case study. As digital technologies such as artificial intelligence, blockchain, big data become integral to the financial sector, banks are compelled to revise their traditional business models to maintain competitiveness and operational effectiveness. The research highlights how digital transformation optimizes internal processes, enhances customer service, and contributes to sustainable growth. Using qualitative methods, including interviews with bank employees and IT experts. This study identifies the key results and obstacles that BCC Bank faced during the digital transition. The results obtained will contribute to a broader understanding of digital banking trends in Kazakhstan and provide practical information on managing technological changes in the financial sector.

***Keywords*:** Digital transformation; banking efficiency; Kazakhstan; BCC Bank; fintech; blockchain; digital banking; operational optimization; customer experience

1. Background

With the rapid development of digital technologies, the banking sector is facing the need to transform traditional business models and operational processes. Digital transformation has become an integral part of banks' strategic development and an essential factor in improving their efficiency. It covers a wide range of changes, from automating internal processes and implementing innovative solutions to rethinking customer engagement and data management. The transition to digital technologies allows banks to optimize costs, speed up transaction processing, improve service levels, and adapt to changing customer needs. At the same time, digital transformation opens up new opportunities for sustainable growth, increased competitiveness, and financial inclusion. A growing body of research demonstrates that digital technologies—such as artificial intelligence, blockchain, robotic process automation, and big data analytics—serve as catalysts not just for cost reduction and faster service delivery, but also for enabling entirely new business models and customer engagement strategies (Shanti, Avianto, & Wibowo, 2022, p. 548; Batchu, 2024, p. 2). The integration of advanced technologies—artificial intelligence, robotic process automation, and blockchain—has redefined the mechanics of banking, enabling lower marginal costs, faster decision-making, and more adaptive organizational structures (Jia & Liu, 2024, p. 3). Digitalization has a direct impact on banking efficiency by reducing transaction costs, speeding up processes, improving the accuracy of data analysis and customer experience (Kulumbetova, Maulina, & Asanova, 2021). Using the example of banks in Kazakhstan, it is possible to trace how digital transformation contributes to the growth of online transactions, investments in the IT sector and the number of users of digital services. For example, a study by Sikakebike and Nurbatsin (2024) showed that digitalization directly affects the profitability and capital efficiency of second-tier banks, as well as forms a new model of relationships with customers and partners.

Nevertheless, there are challenges on the path of digital transformation of the banking sector: the need to adapt the legislative framework, ensure cybersecurity, modernize the IT infrastructure, and train staff to work in new conditions (Kulumbetova et al., 2021). In addition, the digital environment creates new risks, including data leakage, cyber-attacks, and abuse in the field of remote financial services (Martynenko et al., 2023). One of the common issues found in the digital transformation of banks is the gap between what institutions plan to achieve and what they actually implement. Many banks start with ambitious strategies, especially after the pandemic pushed digitalization to the forefront, but often struggle to move beyond initial enthusiasm. The process can slow down due to scattered execution, weak communication between departments, or the absence of clear feedback systems. To overcome this, banks are encouraged to adopt a dual approach—digitalizing services where it makes sense while still offering human support for more complex or sensitive interactions. At the same time, integrating technologies like artificial intelligence and blockchain isn’t just about adopting new tools; it requires strong cybersecurity,

well-coordinated teams, and professionals with the right expertise. Unfortunately, these areas are still underdeveloped in many banks.

Across most sources, a shared consensus exists regarding the positive correlation between digitalization and operational efficiency**. For i**nstance, Tran et al. (2023) analyzed the performance of digital banking across developing countries and reported substantial improvements in deposit mobilization and lending effectiveness attributed to online transaction platforms and automation. Their findings suggest that banks integrating digital transaction systems benefit from increased revenue and faster customer service, particularly when aligned with strategic IT investment and management support (Tran, Le, & Phan, 2023). Similarly, Nurjanah et al. (2020) emphasize that digital transformation reduces processing delays, improves scalability, and simplifies service delivery by shifting from manual operations to digital channels. This reflects a structural outcome: banking processes move toward leaner, more flexible, and customer-responsive models. However, they also warn that technical performance is only one side of the transformation**,** and ignoring human and systemic factors may undermine efficiency in the long term. This is echoed in Porfírio et al. (2024), who argue that organizational flexibility, digital literacy of employees, and stakeholder alignment are equally critical for sustaining the benefits of digital transformation. In their analysis they found that institutions with robust internal change management structures saw greater gains in efficiency**,** while those focused solely on technology adoption without employee integration experienced disruption and lower productivity.

2. Divergence in Human-Centric and Tech-Driven Narratives

A major point of divergence among scholars lies in the treatment of employees and organizational culture**.** Reddy (2024) provides a human-centered view, highlighting that while automation has reduced repetitive workloads, it has also altered employee engagement, induced stress, and raised demand for new digital competencies**.** His study underlines that for banks to unlock the full potential of digitalization, they must prioritize psychological safety, invest in upskilling programs, and reframe roles to balance machine efficiency with human creativity. In contrast, Tsindeliani et al. (2022) focus primarily on regulatory frameworks and digital compliance mechanisms, giving less attention to internal transformation. While they correctly identify legal bottlenecks and prudential concerns, their top-down perspective omits the role of organizational readiness and internal innovation culture.

2.1 Geographic Gaps: Kazakhstan in Context

Urazova (2021) provides a contextualized view of Kazakhstan, revealing that while fintech penetration remains lower than in China or Russia, the demand for mobile and seamless banking solutions is rapidly accelerating**.** She observes that local banks, including BCC Bank, are now compelled to adopt digital payment ecosystems such as biometric ID systems and cardless mobile transfers to retain market share. However, there remains a clear gap between consumer demand

and banking infrastructure readiness**,** especially outside major urban centers. This insight aligns with the findings of Kydyrbekuly et al. (2022), who show how the integration of cashless operations into the lifestyle of Kazakhstani consumers during the COVID-19 pandemic accelerated the shift in user habits. However, the study also reveals uneven adoption across demographics**,** with younger users quickly embracing mobile apps, while older populations remain underbanked and digitally excluded.

3. Conclusion

BCC Bank's digital transformation should be seen not as a simple tech upgrade but as a strategic overhaul integrating IT systems, staff development, and agile governance. To avoid stagnation, the bank must invest in employee training and adaptive leadership to support digital workflows. It should also tailor services to its diverse clientele—offering mobile tools for tech-savvy users, simplified interfaces for seniors, and hybrid models for less-digitized regions. Ultimately, the focus must be on practical, secure solutions that enhance readiness and user experience, not just technological growth. For BCC Bank, digital transformation must be viewed not as a mere technological upgrade but as a comprehensive strategic shift that tightly integrates IT infrastructure, personnel development, and agile governance. Without addressing these structural interdependencies, any initial efficiency gains risk stagnation or reversal. A sustainable transformation demands that the bank prioritize employee engagement through digital literacy programs and adaptive leadership practices, ensuring that staff are both prepared and motivated to operate within new digital workflows. Furthermore, BCC Bank must recognize the demographic and infrastructural diversity within its client base and implement segmented strategies—such as mobile-first tools for tech-savvy users, simplified platforms for senior customers, and hybrid service models for less-digitized regions. In doing so, the bank's digital strategy must focus not on technological expansion for its own sake, but on solutions grounded in operational readiness, user experience, and secure, clearly defined use cases. While digital transformation is widely acknowledged as a key driver of banking efficiency, its long-term effectiveness hinges on how well it is aligned with institutional culture, market realities, and regulatory environments. Successful transformation depends not only on the technologies adopted, but on how—and for whom—they are implemented. For BCC Bank, this means adopting a holistic and inclusive approach that bridges strategy with execution, ambition with practicality, and innovation with resilience.

References

Adewumi, A., Ewim, S. E., Sam-Bulya, N. J., & Ajani, O. B. (2024). Advancing business performance through data-driven process automation: A case study of digital transformation in the banking sector. International Journal of Multidisciplinary Research Updates, 8(2), 12–22. https://doi.org/10.53430/ijmru.2024.8.2.0049

Batchu, R. K. (2024). Digital transformation in banking: Navigating the technological frontier. *Highly Cited Journal*, *7*(7), 1–20.

Dewasiri, N. J., Karunarathne, K. S. S. N., Menon, S., Jayarathne, P. G. S. A., & Rathnasiri, M. S. H. (2023). Fusion of artificial intelligence and blockchain in the banking industry: Current application, adoption, and future challenges. In Transformation for Sustainable Business and Management Practices: Exploring the Spectrum of Industry 5.0 (pp. 293–307). Emerald Publishing Limited. https://doi.org/10.1108/978-1-80262-277-520231021

Jia, K., & Liu, X. (2024). Bank digital transformation, bank competitiveness and systemic risk. *Frontiers in Physics*, *11*, Article 1297912. https://doi.org/10.3389/fphy.2023.1297912

Kydyrbekuly, K., Orynbekova, A., & Aitbek, D. (2022). *How cashless operations integrated into consumer lifestyle in Kazakhstan as a new habit* (Bachelor's thesis). International School of Economics, Nur-Sultan.

Nurjanah, S., Shalshabilla, V., & Wulan Dari, A. T. W. (2021). Digital transformation in the banking industry: Challenges and opportunities. *International Journal of Accounting, Management and Economics*, *1*(1), 64–71. Retrieved from https://ijame.id

Porfírio, J. A., Felício, J. A., & Carrilho, T. (2024). Factors affecting digital transformation in banking. *Journal of Business Research, 171*, 114393. https://doi.org/10.1016/j.jbusres.2023.114393

Reddy, D. H. (2024). Impact of digital transformation in the banking industry on employee engagement. Journal of Global Management Perspectives, 1(1), 7–15.

Shanti, R., Avianto, W., & Wibowo, W. A. (2022). A systematic review on banking digital transformation. Jurnal Administrare: Jurnal Pemikiran Ilmiah dan Pendidikan Administrasi Perkantoran, 9(2), 543–552. https://www.researchgate.net/publication/367983771_A_Systematic_Review_on_Banking_Digital_Transformation

Tran, P. T. T., Le, T. T. H., & Phan, N. H. T. (2023). Digital transformation of the banking industry in developing countries. *International Journal of Professional Business Review*, *8*(5), 1–24. https://doi.org/10.26668/businessreview/2023.v8i5.1503

Tsindeliani, I. A., Proshunin, M. M., Sadovskaya, T. D., Popkova, Z. G., Davydova, M. A., & Babayan, O. A. (2022). Digital transformation of the banking system in the context of sustainable development. *Journal of Money Laundering Control, 25*(1), 165–180. https://doi.org/10.1108/JMLC-02-2021-0011

Urazova, N. (2021). Digital transformation of the banking sector in Kazakhstan. In *Актуальные проблемы гуманитарных наук: Всероссийская научно-практическая конференция (Actual problems of the Humanities: All-Russian Scientific and Practical Conference)* (pp. 226–229). Нижневартовск, 20 февраля 2021. American Free University Kazakhstan.