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FINANCIAL AND ANALYTICAL APPROACHES TO EVALUATING THE EFFECTIVENESS OF FINTECH PROJECTS IN THE CONTEXT OF DIGITAL ECONOMIC TRANSFORMATION

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Abstract. *The article is devoted to the study of financial-analytical approaches for evaluating the effectiveness of FinTech projects in Kazakhstan under the conditions of the digital transformation of the economy. It analyzes the modern methods used to measure the success and impact of FinTech initiatives, identifying key performance indicators and metrics applicable in the digital era. The experience of Kazakhstan's FinTech sector is examined, highlighting how digital transformation has amplified the need for robust evaluation frameworks. Particular attention is paid to economic and social effects achieved through FinTech solutions, including improvements in efficiency, financial inclusion, and service innovation. The article also considers the interplay between public and private FinTech projects – from government-led digital infrastructure (such as the Digital Tenge) to private fintech startups – and how their effectiveness can be assessed using both traditional financial metrics and modern analytical tools. The approaches are illustrated with recent data and case studies from Kazakhstan's fintech ecosystem, and comparisons are drawn with successful international experiences. Explicitly applied ROI, NPV, IRR, and Payback to the projects in scope and complement them with adoption and cost-to-serve indicators to keep the evaluation practical and comparable. The study underscores that in the digital economy, evaluating FinTech project effectiveness requires a mix of quantitative financial analysis and qualitative impact assessment, aimed at ensuring sustainable and measurable economic growth in the country.*

Keywords: *finance, fintech, ROI, analytics, digital transformation, investment, efficiency, evaluation.*

Main provisions. The article emphasizes that assessing the effectiveness of FinTech projects in Kazakhstan requires a comprehensive financial-analytical approach, combining traditional indicators such as ROI, NPV, and payback period with modern digital metrics like user growth, service usage, cost reduction, and customer satisfaction. It demonstrates that both private (Kaspi.kz) and public (Digital Tenge) initiatives have led to significant improvements in financial accessibility, operational efficiency, and transparency. The paper calculates ROI/NPV/IRR/Payback for the considered projects and reports two simple digital indicators (adoption, cost-to-serve) for a balanced view. The study highlights the need to implement a standardized evaluation framework that reflects the specifics of digital transformation and ensures the long-term sustainability and scalability of FinTech solutions.

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Introduction. In the era of rapid digital transformation, financial technology (FinTech) has emerged as a key driver in modernizing financial services globally. FinTech refers to innovative technological solutions that improve and automate the delivery of financial services – spanning payments, lending, investment, insurance, and more. The COVID-19 pandemic accelerated digital adoption, making many economies' financial services more diverse, efficient, and inclusive. As a result, both new fintech startups and incumbent financial institutions are leveraging technology to enhance customer experience and operational efficiency. However, this surge in FinTech innovation also brings into focus the need to evaluate the effectiveness of these projects, to ensure they deliver value and align with strategic economic goals.

By 2021, Kazakhstan ranked 13th in the Asia-Pacific region in the Global FinTech Index, reflecting a supportive environment of high internet penetration, progressive regulation, and a tech-savvy population. FinTech projects in Kazakhstan range from private-sector innovations – such as digital banking platforms and payment apps – to public-sector initiatives like the national Digital Tenge (a Central Bank Digital Currency project) aimed at improving transparency in government spending. With the number of fintech startups in the country quadrupling from roughly 50 in 2018 to 200 in 2024, there is a pressing need for robust financial-analytical approaches to assess which of these projects are truly effective and sustainable.

This introduction establishes the context of FinTech-driven economic change and the importance of evaluating project outcomes. The remainder of the article is structured as follows: the Problem Statement defines the challenges in measuring FinTech project effectiveness. The Objectives of the study are outlined, followed by a brief Literature Review and Background on FinTech development in Kazakhstan and relevant evaluation methods. The Methods section describes the analytical approaches considered. We then present Results and Discussion, including data on key performance indicators and case studies, to illustrate financial-analytical evaluation in practice. Finally, the article concludes with insights and recommendations, addressing conflict of interest, acknowledgments, and funding information.

Despite the rapid growth of the fintech sector, determining the true effectiveness of FinTech projects remains a complex issue. Traditional financial metrics – such as return on investment (ROI), net present value (NPV), or internal rate of return (IRR) – are essential for evaluating any project's economic viability. However, FinTech projects often aim not only for financial returns but also for strategic outcomes like user base growth, improved customer experience, greater financial inclusion, and technological innovation. In the context of digital transformation, many benefits of FinTech initiatives are intangible or realized over a longer term (e.g. improved transparency, data analytics capabilities, or network effects). This creates a challenge: how to comprehensively evaluate FinTech project performance so that decision-makers can distinguish successful initiatives from inefficient ones.

Moreover, FinTech projects operate in a fast-changing environment with high uncertainty and risk. The hypergrowth phase of fintech globally in the 2010s (with fintech funding surging to $92 billion in 2021) was followed by a market correction in 2022 that refocused attention on sustainable, profitable growthThis shift means stakeholders (investors, banks, regulators) now demand clearer evidence of effectiveness and value creation from fintech ventures. For Kazakhstan, the problem is particularly pertinent: as the government and private sector invest in digital finance innovations, there is a need for standardized methodologies to assess economic efficiency. Currently, there is no single national methodology for evaluating the economic impact of fintech and digital innovations (Russia, for instance, only recently initiated efforts to develop a national methodology for assessing

the economic effectiveness of AI and fintech implementations). The absence of established evaluation frameworks can lead to inconsistent assessments, making it difficult to compare projects or justify investments in FinTech.

The article focuses on two FinTech areas in Kazakhstan: retail digital payments and mobile banking of second-tier banks, and public digital finance infrastructure (incl. Digital Tenge/ national payment rails). The aim is to show a simple, practical way to evaluate projects using basic financial metrics (ROI, NPV, IRR, Payback) together with a short list of digital performance indicators (adoption and cost-to-serve).

Contribution and novelty. The evaluation method is based on a small set of clear indicators. It combines traditional financial metrics (ROI, NPV, IRR, Payback) with two simple digital indicators – adoption and cost-to-serve. This approach allows for straightforward and comparable assessments of FinTech projects in Kazakhstan. It can be applied both to private platforms and to public digital infrastructure, making the evaluation process easier while maintaining the reliability of the results.

In summary, the core problem addressed is the lack of a comprehensive evaluation approach that captures both financial outcomes and strategic digital benefits of FinTech projects, within Kazakhstan's digital transformation context. This problem encompasses several sub-issues: identifying relevant performance indicators, collecting reliable data in a nascent industry, accounting for external factors (regulatory changes, user adoption trends), and integrating qualitative impacts (like customer satisfaction or inclusion) into the evaluation. Recognizing these challenges sets the stage for defining clear objectives toward improving fintech project evaluation methods.

Literature review. In recent years, scholarly attention has intensified around the financial-analytical evaluation of FinTech projects amid global digital transformation. Sayari et al. analyze the impact of FinTech on sustainable development, emphasizing its role in enhancing financial inclusion and fostering socioeconomic resilience, especially in developing economies [1]. Shi and Lu propose a new methodological framework to empirically assess the economic resilience derived from FinTech adoption in China [2]. Their model demonstrates that FinTech contributes to regional stability and economic dynamism, especially during post-crisis recovery phases. This framework may be adaptable for Kazakhstan's needs, where resilience in the financial sector is a national priority under the Digital Kazakhstan strategy. Gancarczyk et al. explore the governance dynamics and socio-economic outcomes of banking digitalization in spatial contexts [3]. Similarly, Hun et al. emphasize the role of FinTech partnerships in post-crisis economic recovery, concluding that collaborative models between banks and FinTech startups enhance service reach and operational efficiency [4].

Alassaf et al. focus on FinTech adoption by small and medium enterprises (SMEs), proposing an evaluation model that combines policy impact metrics with financial outcomes [5]. Their study is highly relevant for Kazakhstan, where SMEs are key beneficiaries of digital financial solutions. The model integrates quantitative and qualitative indicators – such as adoption rate, ROI, and innovation potential – which align with Kazakhstan's strategic goals. Hughes et al. offer a methodological analysis of the challenges of digital transformation in finance, applying pairwise analysis to identify effective FinTech strategies [6]. Their study supports the use of multi-criteria decision-making tools in assessing FinTech project outcomes, especially under uncertainty and technological change.

Earlier foundational studies also contribute to this field. Arner et al. propose a framework for digital financial transformation, placing financial inclusion at the center of

effectiveness assessment [7]. Boratyńska takes an innovation-based approach to evaluate whether FinTech firms create economic value Lastly [8], Osadcha et al. discuss financial-economic analysis of innovation under digital economy conditions, identifying the need for revised efficiency assessment criteria that reflect intangible outcomes such as innovation capacity and user trust [9].

Domestic studies emphasize the need for a comprehensive methodology to evaluate the effectiveness of fintech projects amid Kazakhstan's digital economic transformation. Almabekova Zh.S. and Zhaksybekova G.N. highlight the rapid growth of fintech startups and advocate combining classical financial indicators (NPV, IRR) with digital metrics such as user growth and digital maturity [10]. Research by Dorokhova N.V. and Musaeva G.I. [11], as well as Sopylko N.Yu. and Myasnikova O.Yu., underline the social and institutional effects of digitalization, including changes in employment and the need for updated evaluation indicators [12]. Buganova A.A. and Umirzakov S.Y. stress the importance of assessing the country's digital infrastructure and readiness, while Zairova Kh.B. and Bogomazova I.V. demonstrate the relevance of fintech in related sectors such as tourism [13-14]. Collectively, these studies call for a multi-level evaluation approach that integrates economic, social, and technological dimensions to effectively measure the outcomes of fintech initiatives in Kazakhstan.

Materials and methods. A simplified mixed-methods approach is employed. Financial viability is assessed with ROI, NPV, IRR, Payback based on project cash flows and a policy discount rate. To reflect digital specifics without overcomplication, we add two practical indicators: adoption (e.g., monthly active users or transaction count) and cost-to-serve per transaction. These few metrics are enough to judge whether a project both pays back and scales efficiently.

Table 1 – Key Indicators Used for Project Evaluation

Indicator	Type	How used
ROI (%)	Financial	Shows return relative to invested funds
NPV (at r=…%)	Financial	Must be >0 to justify investment
IRR (%)	Financial	Should exceed WACC/policy rate
Payback (yrs)	Financial	Time to recover investment
Adoption (MAU or txn/month)	Digital	Confirms actual user uptake/scale
Cost-to-serve (KZT/txn)	Digital	Confirms process efficiency over time

Quantitative data was obtained from official Kazakhstani sources, including the National Bank and statistical agencies, as well as international databases. Key metrics included non-cash transaction volumes, fintech user growth, and startup activity levels. These figures were used to demonstrate outcomes such as cost reduction, increased adoption, and improved financial inclusion. Regression-based findings from prior empirical research were also analyzed to demonstrate how fintech investments correlate with operational efficiency in the financial sector.

In addition to statistical analysis, the study uses comparative and case study methods. Kazakhstan's practices were qualitatively compared to those in digitally advanced countries, identifying applicable global benchmarks like customer-centric performance metrics and ROI models. Representative cases such as the Kaspi.kz platform and the Digital Tenge initiative were examined to illustrate different evaluation contexts–commercial versus public fintech. Key results included increased transaction volumes, service diversification, and improved

transparency. Data analysis involved descriptive techniques, such as growth rate comparison and trend visualization through tables and graphs. The study relies on the most recent data available (2023–2025), acknowledging certain limitations due to the rapid evolution of the fintech sector and uneven data availability on indicators like user satisfaction. Despite these constraints, the integrated methodology enables a comprehensive assessment of fintech effectiveness within Kazakhstan's digital economy.

Results and Discussion. Kazakhstan's fintech landscape has grown considerably in the last decade. Key milestones include the establishment of the Astana International Financial Centre (AIFC) in 2018 with a dedicated FinTech hub and regulatory sandbox, which attracted startups and facilitated innovation. By 2023, Kazakhstan's fintech sector boasted multiple homegrown successes; for instance, Kaspi.kz, a fintech-driven banking and e-commerce platform, achieved one of the largest IPOs in Europe in 2020 (valued at around $6.5 billion) and a subsequent Nasdaq listing in 2024 with a valuation of $17.5 billion. Kaspi's super-app model, which allows customers to make payments, take loans, and even renew government documents via a single interface, is often cited as a demonstration of fintech's transformative impact on everyday life.

Kazakhstan's population has rapidly adopted digital finance. Online banking usage rose dramatically; between 2019 and 2023, the number of active online banking users in Kazakhstan increased 4.6 times to reach 23.1 million. By 2024, at least 92% of the population had internet access, and 89% of all transactions nationwide were conducted through digital (cashless) means. The National Bank of Kazakhstan reports that non-cash transaction counts have increased over twenty-fold in the past five years, now comprising 89% of retail turnover in the economy. This statistic indicates an extraordinary shift towards cashless payments, suggesting that fintech solutions (like mobile wallets, QR payments, contactless cards, etc.) have been highly effective in changing consumer behavior. In the same period, e-commerce's share of total retail trade grew from just 1.8% in 2019 to 12.7% in 2023, propelled by fintech-enabled online shopping and payments, with a national target to reach 20% by 2030.

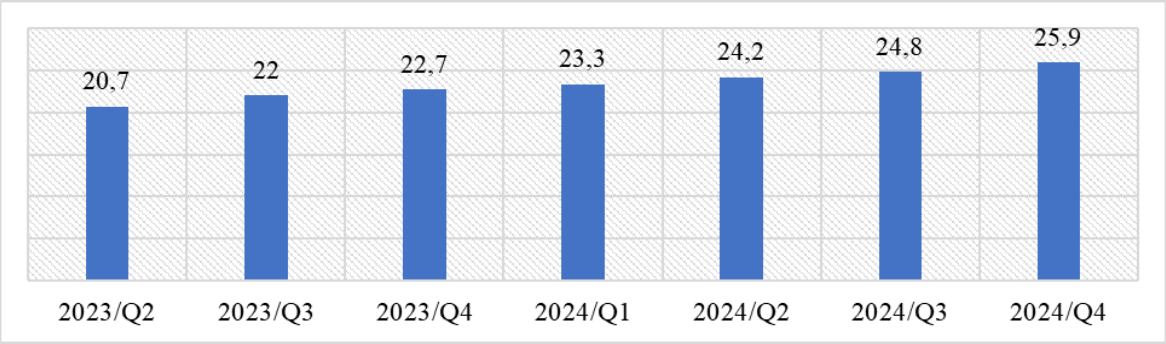

Figure 1 – Number of active users of online banking services, million units

The rapid development of digitalization in Kazakhstan's financial sector is directly reflected in the widespread adoption and effectiveness of mobile banking applications, which play a central role in evaluating the success of fintech projects. Today, mobile apps from second-tier banks (BBU RK) are essential tools for both individuals and businesses, offering 24/7 access to a wide range of financial and non-financial services. Especially notable is the surge in mobile solutions tailored for SMEs, allowing entrepreneurs to manage finances, make payments, handle taxes, apply for loans, and conduct foreign currency operations via

smartphone. Leading examples include Halyk Bank's "Onlinebank for Business," ForteBusiness, and BCC Business, which offer comprehensive ecosystems for business operations. As of the end of 2024, the number of active users of online banking services reached nearly 26 million – an all-time high–growing by 14.3% in a single year. This surge, driven by both retail clients and enterprises, highlights the growing integration of digital technologies in financial processes and supports the relevance of analyzing fintech project effectiveness through user adoption metrics, service coverage, and impact on financial accessibility for businesses in Kazakhstan.

One clear measure of a project's effectiveness is cost reduction or profit increase. According to a 2025 study, introduction of fintech solutions in Kazakhstan's financial sector led to an average 30% reduction in transaction costs for financial institution. This is a significant efficiency gain – for example, if a bank spent $1 per transaction before, it spends only $0.70 after implementing fintech improvements (such as process automation or online service migration). In terms of profitability, major fintech-driven companies like Kaspi.kz have achieved robust profits; Kaspi's net income for the last 12 months was reported around $1.74 billion, indicating the commercial viability of fintech at scale. High profitability and cost-effectiveness translate into strong ROI for these projects, which can be quantified and compared to initial investments to judge success.

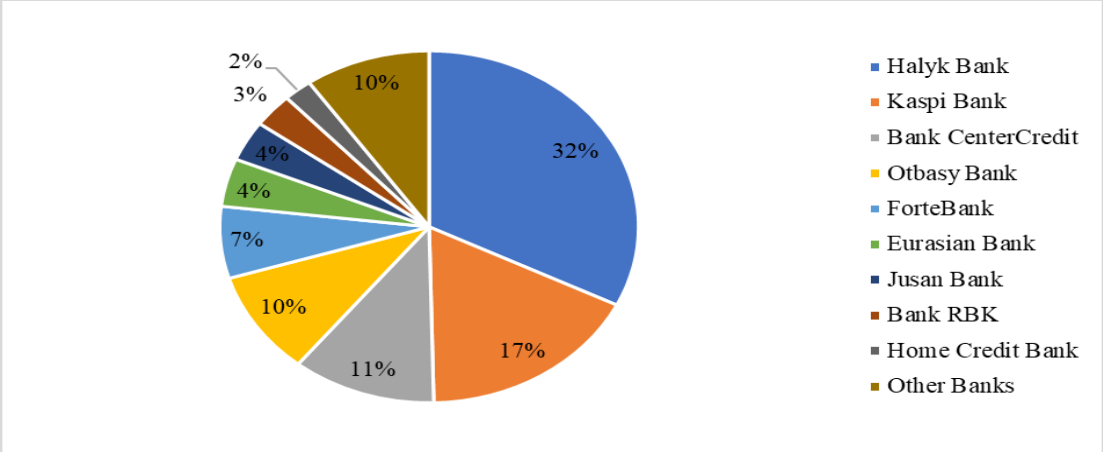

Figure 2 - Loan Portfolio Structure of STBs in Kazakhstan as of March 1, 2025 (by Bank Share, %)

As illustrated by the structure of the loan portfolio of second-tier banks (STBs) in Kazakhstan as of March 1, 2025, Halyk Bank remains the clear market leader, accounting for 32.3% of the total portfolio, followed by Kaspi Bank with 17.3% and Bank CenterCredit with 11.1%. These figures reflect the broader trends discussed above, particularly the rapid digital transformation and growing customer engagement through fintech solutions. Kaspi.kz's integrated ecosystem and digital-first approach have not only expanded its user base but also significantly increased its loan portfolio, showcasing its effectiveness and market penetration. Meanwhile, the rising shares of banks like Otbasy Bank (9.5%) and ForteBank (6.6%) suggest a wider adoption of digital banking tools across both consumer and business segments. This shift highlights how Kazakhstan's fintech development is reshaping competition in the banking sector, driving innovation, and improving access to financial services across diverse demographics.

An effective fintech project often rapidly grows its user base. For instance, the number of active mobile banking users in Kazakhstan's leading bank apps more than tripled (a >200%

increase) after the rollout of fintech innovations. A concrete example is the growth of Kaspi's user base and engagement: by 2024, Kaspi's app had tens of millions of active users, a reflection of how indispensable its fintech ecosystem became for consumers. User growth can be measured by metrics like Monthly Active Users (MAU) and customer acquisition rates. These metrics are crucial for fintech startups especially, as they signal market traction. High adoption rates in Kazakhstan (23.1 million online banking users in a country of ~19 million people) actually suggest that many individuals use multiple digital finance services – a penetration exceeding 100% of the adult population. This implies that on average, each banking customer might be actively using more than one fintech platform, a sign of competitive and overlapping offerings.

Beyond just counting users, we evaluate how intensively services are used. The volume of digital transactions is a prime indicator. Results show that as of May 2024, 1.1 billion cashless transactions were conducted in a single month in Kazakhstan, totaling 15.4 trillion KZT (~$32.5 billion). Year-on-year, the number of non-cash transactions was up 13.3% in mid-2024. Such growth in usage volume demonstrates that fintech projects (like mobile payment apps, QR payment systems, etc.) are effectively changing consumer behavior. We also saw a 3× increase in tokenized payments (Apple Pay, Google Pay, etc.) from 2021 to 2023, indicating rapid adoption of cutting-edge fintech services. For evaluation, metrics like total payment volume, average transaction size, and frequency of use per user are insightful – a rising trend in these often correlates with higher revenue for the service provider and greater convenience for users, thus signaling success.

Another aspect of effectiveness is how well a project fosters innovation and addresses market needs. In Kazakhstan, fintech initiatives have branched into diverse segments: payments, lending, SME services, InsurTech, WealthTech, etc. The RISE report identified seven main trends including AI integration, GovTech-FinTech synergy, SME digital products, BNPL, and CBDCs as shaping the market. FinTech projects that align with these trends (for example, a Buy-Now-Pay-Later service or an AI-driven credit scoring platform) are considered effective if they capture the trend's benefits early. The effectiveness could be measured by the project's market share in that new segment or its ability to set industry standards. Additionally, partnerships are a qualitative metric: The AIFC FinTech Hub's accelerator facilitated partnerships between banks and startups, resulting in pilot projects in areas like cybersecurity, process automation, and big data processing. The fact that 75+ fintech pilot ideas were run with banks and that 11 startups reached final implementation stages shows a healthy throughput of innovation – an effectiveness indicator for the ecosystem as a whole.

One of the defining features of fintech development in Kazakhstan is its potential to generate not only economic, but also significant social benefits, making the evaluation of its effectiveness a multidimensional task. In terms of financial inclusion, the widespread adoption of digital solutions such as Kaspi Pay, mobile wallets, and microfinance apps has helped reduce the share of unbanked individuals, particularly in rural areas, contributing to a banking penetration rate of over 81% by 2021. The integration of government services into banking applications—allowing users to register businesses, pay taxes, and renew documents—has enhanced public service efficiency, with qualitative indicators showing reduced processing times and higher user satisfaction. The Digital Tenge project has advanced transparency, blocking over 2 billion KZT in fraudulent transactions and ensuring traceability of budget expenditures, demonstrating how digital finance can mitigate corruption and financial misuse. Furthermore, fintech has contributed to employment and economic growth, becoming the leading sector in attracting venture capital (40% of all VC funding in

2023) and positioning Kazakhstan as a fintech leader in Central Asia. These developments support the use of fintech effectiveness indicators that go beyond financial returns to include metrics such as user accessibility, governance improvements, fraud prevention, and contribution to national innovation and competitiveness.

Kaspi's super-app demonstrates the typical private FinTech pattern: fast adoption, solid unit economics, and spillovers to the banking market. In our evaluation we simply report ROI/NPV/IRR/Payback and two digital indicators (adoption, cost-to-serve) by release or feature, avoiding repetition and keeping results comparable. Customer satisfaction also improved significantly–rising from 52 to 78 points post-fintech adoption. Importantly, Kaspi.kz not only delivered direct financial services but also had a systemic influence on the entire banking sector: traditional banks were prompted to develop or upgrade their digital offerings to remain competitive, thus raising the overall standard of financial service in Kazakhstan. In parallel, public-sector initiatives such as the National Payment Corporation demonstrate similar effectiveness in fintech infrastructure. With 90% of national payment turnover being processed digitally and integration across 108 financial institutions, the system showcases key success metrics: reliability, scalability, speed, and fraud prevention. These public and private examples reflect how fintech, when implemented with strategic clarity and technological resilience, can transform national financial ecosystems.

International comparisons further validate Kazakhstan's achievements. Kenya's M-Pesa drastically improved financial inclusion; India's UPI revolutionized low-cost, high-frequency transactions; and China's Alipay/WeChat Pay altered consumption patterns at scale. Kazakhstan's fintech story, though newer, follows similar patterns with significant shifts in transaction behavior, increased use of digital payment systems, and wide adoption of mobile apps among both consumers and businesses. The number of fintech startups in the country grew from around 50 in 2018 to about 200 by 2024, highlighting an active innovation environment. These insights support the development of a comprehensive evaluation framework, which should include financial metrics (ROI, NPV), market metrics (user growth, retention, satisfaction), operational efficiency (speed, cost per transaction), adaptability (innovation rates, regulatory responsiveness), risk indicators (fraud prevention, security breaches), and social outcomes (inclusion, transparency, alignment with national digital strategies). Applying such a framework to both private ventures like Kaspi.kz and public platforms like Digital Tenge allows for robust, evidence-based assessments of effectiveness in Kazakhstan's ongoing digital financial transformation.

Crucially, these dimensions should not be viewed in isolation. A truly effective fintech project will score well across multiple dimensions – for instance, delivering financial returns while also delighting customers and strengthening system resilience. Tools like a Balanced Scorecard could be adapted for fintech projects: with perspectives for Financial, Customer, Internal Process, and Innovation/Development objectives.

Kazakhstan's context also suggests that collaborative evaluation is valuable. As banks and fintech startups partner (e.g., in the AIFC sandbox or accelerator), they can jointly evaluate pilot results. For example, a pilot digital lending solution could be judged by both the bank (did it reduce loan processing time and increase loan volume without raising defaults?) and the startup (did it integrate well and prove its value to secure a long-term contract?). Such joint evaluations ensure alignment of expectations and highlight win-win outcomes.

Finally, one cannot overlook the time horizon in evaluations. Some fintech projects may intentionally operate at a loss in early years to acquire market share (common in fintech and tech startups). Evaluators should distinguish between short-term performance and long-term potential. Metrics like customer lifetime value encapsulate that future upside. Investors often look at proxy metrics (like user growth or engagement) as leading indicators of future

financial success. This is especially relevant in Kazakhstan's market where a few players are vying to dominate emerging niches (e.g., BNPL or digital insurance). A fintech project not immediately profitable might still be "effective" if it achieves strategic penetration that can be monetized later.

In conclusion of the discussion, the evidence from Kazakhstan strongly indicates that fintech projects, when evaluated with a holistic set of metrics, have delivered positive results: lower costs, higher convenience, and improved financial system metrics. However, establishing a formalized financial-analytical evaluation approach – potentially as a national guideline – would further strengthen the ability to track and ensure fintech contributes optimally to economic growth. The next section provides final conclusions and recommendations based on this research.

Conclusion. Kazakhstan's experience in the fintech sector during its digital transformation offers valuable insights into how we assess the effectiveness of fintech projects. This article set out to examine financial-analytical approaches to such evaluation and, through our analysis, several conclusions can be drawn:

1. FinTech projects must be evaluated not only by traditional financial returns but also by operational improvements and user-centric outcomes. In Kazakhstan, fintech initiatives have clearly excelled in metrics like user adoption (evidenced by the surge in online banking users and digital transactions) and cost efficiency (e.g., significant transaction cost reductions). An effective evaluation framework therefore should incorporate a balanced set of quantitative indicators (ROI, cost savings, user growth, etc.) and qualitative benefits (customer satisfaction, inclusiveness, innovation).

2. Financial technologies in Kazakhstan have demonstrably improved the efficiency of financial services. The dramatic increase in cashless payments to 89% of retail turnover and the integration of numerous public services into digital finance channels underscore that fintech projects are yielding substantial economic and social benefits. These outcomes – including faster service delivery, reduced cash handling, and enhanced transparency – should be counted as key measures of project success in a digital economy context. Our findings align with broader research that fintech adoption reduces transaction costs and can improve overall financial sector performance.

3. While Kazakhstan's fintech boom is evident, a formalized methodology for evaluating fintech project effectiveness would be beneficial. Adopting common frameworks or standards (possibly developed in partnership with academic and industry experts) would help consistently measure and compare projects. This could mirror efforts in other countries to create national guidelines (for example, Russia's initiative to develop a methodology for assessing the economic effect of AI and fintech implementations). Standard criteria could include pre-defined KPIs, benchmarking against targets (like the Digital Kazakhstan program's goals), and regular impact assessments (e.g., annual fintech impact report by the central bank or ministry).

4. The analysis shows that collaboration between government and fintech firms (banks or startups) has been a hallmark of Kazakhstan's approach – and it amplified the effectiveness of projects. For example, banks working with the government to deliver e-government services created a win-win scenario: citizens benefit from convenience, and banks increase user engagement. Similarly, the AIFC's fintech sandbox allowed regulatory flexibility that helped projects refine their models. Thus, one qualitative measure of a healthy fintech project ecosystem is the presence of such partnerships and supportive policies. Going forward, continuing this collaborative model (through more public-private pilot projects,

accelerators, or co-investment in infrastructure) will likely keep improving the efficacy of fintech initiatives.

Finally, the dynamic nature of fintech means evaluation must be a continuous process. Across the projects, reporting ROI/NPV/IRR/Payback together with adoption and cost-to-serve gave a clear and lightweight basis for decision-making. A project that is effective today might become outdated tomorrow if technology or customer expectations evolve. The most successful fintech firms (and regulators) globally are those that use data in real-time to monitor performance and adapt strategy. Kazakhstan's fintech stakeholders should similarly use analytics dashboards to track KPIs live, enabling timely decisions (for instance, if user growth slows, investigate and pivot features; if fraud spikes, enhance security measures). Building this adaptive evaluation culture ensures sustained effectiveness, not just one-time success. In summary, fintech projects in Kazakhstan's digital transformation have largely proven effective by multiple measures, and they provide a template of benefits that robust financial and analytical evaluation can capture. As Kazakhstan and other countries continue to digitize their economies, the approaches discussed – blending classical financial analysis with modern, tech-specific metrics – will be crucial in guiding investments to the most impactful fintech innovations and ensuring that the digital revolution in finance leads to tangible economic growth and societal advancement.

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ЭКОНОМИКАНЫҢ ЦИФРЛЫҚ ТРАНСФОРМАЦИЯСЫ ЖАҒДАЙЫНДАҒЫ ФИНТЕХ-ЖОБАЛАРДЫҢ ТИІМДІЛІГІН БАҒАЛАУДЫҢ ҚАРЖЫЛЫҚ-ТАЛДАМАЛЫҚ ТӘСІЛДЕРІ

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Түйін. *Мақала Қазақстандағы финтех жобаларының тиімділігін бағалауға арналған қаржылық-талдамалық тәсілдерді цифрлық трансформация жағдайында зерттеуге арналған. Онда финтех бастамаларының табыстылығы мен ықпалын өлшеуге арналған қазіргі заманғы әдістер талданады, цифрлық дәуірге тән негізгі тиімділік көрсеткіштері мен метрикалар айқындалады. Қазақстанның финтех секторының тәжірибесі қарастырылады және цифрлық трансформация сенімді бағалау жүйелеріне деген сұранысты арттырғаны атап өтіледі. Финтех шешімдері арқылы қол*

жеткізілген экономикалық және әлеуметтік әсерлерге, атап айтқанда, тиімділіктің артуына, қаржылық қолжетімділіктің кеңеюіне және қызмет көрсету саласындағы инновацияларға ерекше назар аударылады. Мақалада мемлекеттік және жеке финтех жобаларының өзара байланысы да қарастырылады – мемлекеттік деңгейде жүзеге асырылып жатқан цифрлық инфрақұрылымнан (мысалы, Цифрлық теңге жобасы) бастап, жеке финтех стартаптарына дейін – және олардың тиімділігі дәстүрлі қаржылық көрсеткіштер мен заманауи аналитикалық құралдардың көмегімен қалай бағалануы мүмкін екендігі талданады. Талданатын тәсілдер Қазақстан финтех экожүйесіндегі соңғы мәліметтер мен нақты мысалдар арқылы көрсетіледі, сондай-ақ табысты халықаралық тәжірибемен салыстыру жүргізіледі. Зерттеу нәтижесінде цифрлық экономика жағдайында финтех жобаларының тиімділігін бағалау үшін сандық қаржылық талдау мен сапалық әсерді бағалаудың үйлесімі қажет екендігі, бұл еліміздің орнықты әрі өлшенетін экономикалық өсуіне қол жеткізуге мүмкіндік беретіндігі атап өтіледі.

Түйінді сөздер: *қаржы, финтех, аналитика, цифрлық трансформация, инвестиция, тиімділік, бағалау.*

ФИНАНСОВО-АНАЛИТИЧЕСКИЕ ПОДХОДЫ К ОЦЕНКЕ ЭФФЕКТИВНОСТИ ФИНТЕХ-ПРОЕКТОВ В УСЛОВИЯХ ЦИФРОВОЙ ТРАНСФОРМАЦИИ ЭКОНОМИКИ

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Резюме. *Статья посвящена исследованию финансово-аналитических подходов к оценке эффективности финтех-проектов в Казахстане в условиях цифровой трансформации экономики. В ней анализируются современные методы измерения успешности и воздействия финтех-инициатив, определяются ключевые показатели эффективности и метрики, применимые в цифровую эпоху. Рассматривается опыт казахстанского финтех-сектора, подчеркивая, как цифровая трансформация усилила потребность в надежных системах оценки. Особое внимание уделяется экономическим и социальным эффектам, достигнутым за счет внедрения финтех-решений, включая повышение эффективности, расширение финансовой доступности и инновации в сфере услуг. Также рассматривается взаимодействие между государственными и частными финтех-проектами – от цифровой инфраструктуры, реализуемой государством (например, проект «Цифровой тенге»), до частных финтех-стартапов – и способы оценки их эффективности с использованием как традиционных финансовых показателей, так и современных аналитических инструментов. Подходы иллюстрируются с помощью актуальных данных и кейсов из финтех-экосистемы Казахстана, а также проводится сравнение с успешным международным опытом. В исследовании подчеркивается, что в условиях цифровой экономики оценка эффективности финтех-проектов требует сочетания количественного финансового анализа и качественной оценки воздействия, направленных на обеспечение устойчивого и измеримого экономического роста страны.*

Ключевые слова: *финансы, финтех, аналитика, цифровая трансформация, инвестиции, эффективность, оценка.*

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