

**S.F. Alikulova\*, Z.A. Bigeldieva, B. S. Kulbay**

\*Master's student, M. Auezov South Kazakhstan University, Shymkent, Kazakhstan

PhD, docent, M.Auezov South Kazakhstan University, Shymkent, Kazakhstan

PhD, docent, M.Auezov South Kazakhstan University, Shymkent, Kazakhstan

\*Corresponding Author's Email: [alikulovaslana@gmail.com](mailto:alikulovaslana@gmail.com)

## **DIGITALIZATION OF FINANCIAL CALCULATIONS AS A TOOL TO INCREASE THE PROFITABILITY OF AN ENTERPRISE UNDER THE INFLUENCE OF EXTERNAL AND INTERNAL FACTORS**

### **Abstract**

The article examines the potential of digitalization of financial settlements as a key tool for solving this problem. The influence of fintech solutions implementation on the efficiency of financial flow management is studied in the context of adaptation to external and internal challenges. Special attention is paid to the analysis of macroeconomic indicators of digitalization of the economy of the Republic of Kazakhstan, including the dynamics of non-cash payments, Internet penetration, and online banking adoption. Based on statistical data a correlation is revealed between the level of digitalization of settlements and the reduction of transaction costs. It is established that the digitalization of financial processes acts not only as a means of optimization but also as a driver for increasing transparency and the quality of managerial decisions, which ultimately leads to increased profitability and sustainability of enterprises.

**Key words:** digitalization, financial technologies, enterprise profitability, digital economy, Republic of Kazakhstan.

### **Introduction**

The global economy is currently going through a phase where digital technologies are being actively adopted, yet at the same time, uncertainty is running high due to geopolitical shifts, post-pandemic aftershocks, and market volatility. Under these conditions, classic financial management methods that rely on manual data entry and disconnected information sources no longer deliver the necessary speed or accuracy. As a result, digitalization is becoming not just a way to improve efficiency but a prerequisite for business survival and sustainable growth. Digital transformation matters especially in the area of financial settlements, which form the operational backbone of any company. [1] Still, many enterprises (particularly small and medium-sized ones) underestimate how much digitalizing finance can directly boost profits. They tend to view it as a cost burden rather than a strategic tool for cutting expenses and improving control. For Kazakhstan, where the state program "Digital Kazakhstan" is being implemented studying this issue has considerable practical value [2]. Understanding exactly how digitalization of financial settlements translates into financial outcomes would help businesses make smarter decisions about digital transformation, and would allow the state to fine-tune its support policies more effectively.

The aim of this study is to analyze the channels through which digitalization of financial settlements drives higher enterprise profitability, and based on that analysis, to develop practical recommendations for improving business performance under the influence of external and internal factors. To reach this goal the following tasks were set: to organize existing theoretical views on how digital technologies affect a company's financial results; to assess the current level of digitalization in Kazakhstan's financial sector; to identify correlations between the adoption of digital financial tools and key profitability indicators; and to determine the main external and internal factors at play. The object of the research is the financial and economic activity of enterprises undergoing digital transformation, while the subject is the set of economic relationships that emerge as financial

settlements become digitalized and that ultimately impact profitability. The study starts from the hypothesis that digitalization of financial settlements leads to a sustained increase in profitability by reducing transaction and operating costs, as well as by speeding up management decisions – and that this effect becomes stronger when adverse external circumstances are present.

The methodological foundation includes economic and comparative analysis, statistical data processing a systems approach and situation analysis. Theoretical grounding comes from the work of both foreign and local scholars in digital economy and financial management – especially E. Brynjolfsson, D. Tapscott, and M. Porter [4] – along with analytical materials from international organizations. The research uses data from the Bureau of National Statistics of the Republic of Kazakhstan and the National Bank of Kazakhstan and analytical reports from the OECD and the World Bank covering the period 2020–2024 [2].

### **Research methods**

The methodological basis of the research is a combination of general scientific and specialized methods for studying economic processes. The theoretical foundation rests on the fundamental works of foreign and domestic researchers in the digital economy and financial management – specifically the contributions of E. Brynjolfsson, D. Tapscott, M. Porter, as well as analytical materials from the OECD and the World Bank [4].

The following specific methods were used:

1. Economic analysis – to assess how digital technologies change an enterprise's cost structure.
2. Comparative analysis – to compare traditional and digital models of financial settlements.
3. Statistical analysis – to process and interpret data on the growth of digital financial infrastructure in Kazakhstan.
4. A systems approach – to treat of object as a set of interconnected elements.
5. Situation analysis – to simulate realistic conditions under which enterprises shift to digital computing.

The empirical data comes from official statistics of the Bureau of National Statistics of the Republic of Kazakhstan, analytical reports from the National Bank on payment system development and international organizations' reports for 2020–2024. Statistical data was processed using grouping, comparison, and table visualization to identify key trends in the country's digital financial services.

To measure the impact of digitalization on enterprise efficiency quantitatively the study used a comparative analysis of operating indicators before and after digital technology adoption, along with the author's own method for calculating the total economic effect – which includes reduced direct transaction costs, lower operating expenses, and indirect income from improved liquidity.

### **Research results and discussion of scientific results**

An enterprise's profitability, as a resulting efficiency metric, depends on many factors. Traditionally, these are split into external ones (macroeconomic conditions, market dynamics, regulatory environment) and internal ones (operational efficiency, labor productivity, quality of management). Digitalization of financial settlements mainly affects the internal factors by improving their quality through a specific mechanism. That mechanism can be described as a sequence: technology adoption leads to process optimization, which then cuts costs and speeds up turnover, which in turn directly increases profit. The main areas where this plays out are: automation of collection and reduction of payment processing time along with lower transaction costs (by ditching paper workflows); lower operational risks and fewer errors (by removing the human factor from settlements, reconciliations, and postings); higher liquidity and better cash flow control (thanks to real-time treasury monitoring tools); and faster decision-making (due to instant access to up-to-date data on payment statuses with counterparties).

In recent years, Kazakhstan has seen steady positive trends in its digital financial infrastructure.

[1] The main indicator of digitalization depth – the share of non-cash payments in total transaction

volume – has grown significantly. According to the National Bank of Kazakhstan, this figure rose sharply, especially after the pandemic, as shown in Table 1.

Table 1 – The main indicators of digitalization of financial services in the Republic of Kazakhstan for 2020-2024.

Indicator	2020	2021	2022	2023	2024 (estimation)
The share of non-cash payments in the total volume (%)	67	75	82	86	89
The level of Internet penetration (% of us)	81	85	89	92	93
Active online banking users (million people)	12	17	21	24	26
The number of non-cash transactions (billion tenge)	38	52	78	109	145

Source: created by the Author according to the data of the National Bank of the Republic of Kazakhstan and the Bureau of National Statistics.

From the data presented, the share of non-cash payments went from 67% in 2020 to 89% by 2024 – a 20-percentage-point increase. Over the same period, internet penetration rose from 81% to 93%, and the number of active online banking users jumped from 12 million to 26 million. In value terms, the volume of non-cash transactions almost quadrupled: from 38 billion tenge in 2020 to an estimated 145 billion tenge in 2024. These figures show that the growth of non-cash payments is outpacing the growth of internet access. That suggests not just wider internet availability but a genuine shift in the financial behavior of both individuals and businesses – an active move toward digital interaction channels. This trend creates favorable conditions for enterprises, pushing them to digitalize their own financial processes.

At the micro level, adopting these digital tools changes a company's cost structure. This can be clearly seen by comparing the traditional settlement model with the digital one. As shown in Table 2 the differences are significant and touch most aspects of daily operations.

Table 2 – Comparative analysis of the operational efficiency of the enterprise in the transition to digital financial calculations.

Indicator	The traditional model	A model with digital calculations
Incoming payment processing time	From several hours to 1-2 days (manual unloading from the client's bank, reconciliation with the statement)	Instantly (CRM and bank integration via API)
Closing time of the business day/month	3-5 business days (reconciliation of acts, error detection)	1 day (automatic reconciliation, electronic document management)
The cost of processing a single payment	High (cashier's work, collection, paper)	Low (fixed bank or acquiring commission)
The risk of cash gaps	High	Low (online balance monitoring)

Source: compiled by the author.

Under the traditional model, processing an incoming payment takes anywhere from a few hours to one or two days, because someone has to manually download data from the bank-client system and then reconcile it with the payroll. In the digital model, this happens instantly thanks to integration between the CRM system and banking services via API – which directly accelerates the turnover of accounts receivable [5]. The time needed to close the operating day or month, drops from three to five working days (required to match invoices and find errors) to just one day with automatic reconciliation and electronic document flow – meaning a major reduction in accounting labor costs. The cost of processing a single payment falls from a high level (including cashier work, collection fees and paper documents) to a much lower level (just a fixed bank commission or acquiring fee) cutting operating costs directly. Finally, because account balances can be tracked online, the risk of a cash gap is significantly reduced; boosting the company's overall financial stability.

The economic effect of digitalizing financial settlements for a typical enterprise can be expressed as a formula where the change in profit comes from three main components: lower direct transaction costs (savings on collection and bank commissions by using cheaper channels); lower operating costs (time freed up for employees to focus on higher-value tasks); and indirect income from improved liquidity (for example by investing temporarily free funds or avoiding late-payment penalties identified through online monitoring). This multi-component approach to evaluating digitalization captures not only the obvious gains but also the hidden drivers of profitability growth [6].

The scientific novelty of this study lies in developing an integrated method for assessing how digitalization of financial settlements affects enterprise profitability adapted specifically to the conditions of Kazakhstan's developing economy [7]. Unlike existing research that focuses on macroeconomic trends or technical descriptions of tools, this study proposes and tests a model linking micro-level efficiency indicators (like cost reductions) with macro-level digitalization indicators (like the share of non-cash payments). In addition, the study identifies non-price factors that drive profitability – such as better financial control and transparency, which lower reputational and fraud risks – and clarifies the role of external factors (pandemics, government programs) as catalysts that speed up digitalization of financial processes in Kazakhstani companies.

### **Conclusion**

The study confirms the original hypothesis: digitalization of financial settlements is an effective tool for increasing enterprise profitability. The result comes not only from obvious transaction savings but also from qualitatively better financial management and a reduction in various types of risk [9]. Analysis of Kazakhstan's macroeconomic indicators shows that the country has a functioning digital infrastructure and, a high level of readiness among both the population and businesses to use advanced financial technologies – which creates favorable conditions for further digitalization of corporate finance. Based on the analysis, several practical recommendations can be made. Enterprises should aim for end-to-end integration of financial modules – connecting ERP and CRM systems with banking services via APIs – rather than implementing isolated digital tools [8]. They should actively use big data analytics to forecast cash flows based on digital transaction histories. And they should run regular training sessions for financial and managerial staff on how to work with new digital tools to unlock their full potential. As digital technologies continue to evolve – especially with the introduction of the digital tenge and the development of open banking – financial processes will undergo even deeper transformation [10]. That, in turn, will boost the competitiveness and resilience of Kazakhstani enterprises in the face of both external and internal economic pressures.

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**С. Ф.Аликулова\*, З.А.Бигельдиева, Б.С.Құлбай**

\*Магистрант, [alikulovaslan@gmail.com](mailto:alikulovaslan@gmail.com), М. Әуезов атындағы Оңтүстік Қазақстан университеті, Шымкент, Қазақстан

PhD, доцент, [zarenavip@mail.ru](mailto:zarenavip@mail.ru), М. Әуезов атындағы Оңтүстік Қазақстан университеті, Шымкент, Қазақстан

PhD, доцент, [bauka.ks@mail.ru](mailto:bauka.ks@mail.ru), М. Әуезов атындағы Оңтүстік Қазақстан университеті, Шымкент, Қазақстан

## **ҚАРЖЫЛЫҚ ЕСЕПТЕУЛЕРДІ ЦИФРЛАНДЫРУ СЫРТҚЫ ЖӘНЕ ІШКІ ФАКТОРЛАРДЫҢ ӘСЕРІНЕН КӘСІПОРЫННЫҢ КІРІСТІЛІГІН АРТТЫРУ ҚҰРАЛЫ РЕТІНДЕ**

### **Түйін**

Мақалада осы мәселені шешудің негізгі құралы ретінде қаржылық есеп айырысуларды цифрландыру әлеуеті қарастырылған. Финтех шешімдерін енгізудің қаржы ағындарын басқарудың тиімділігіне әсері сыртқы және ішкі сын-қатерлерге бейімделу жағдайында зерттеледі. Қазақстан республикасының экономикасын цифрландырудың макроэкономикалық көрсеткіштерін, оның ішінде қолма-қол ақшасыз төлемдердің динамикасын, Интернеттің енуін, интернет-банкингтің енгізілуін талдауға ерекше көңіл бөлінеді. Статистикалық мәліметтер негізінде есеп айырысуларды цифрландыру деңгейі мен транзакциялық шығындардың төмендеуі арасындағы корреляция анықталады. Қаржылық процестерді цифрландыру оңтайландыру құралы ретінде ғана емес, сонымен бірге басқарушылық шешімдердің ашықтығы мен сапасын арттырудың драйвері ретінде де әрекет ететіні анықталды, бұл сайып келгенде кәсіпорындардың кірістілігі мен тұрақтылығының артуына әкеледі.

**Кілттік сөздер:** цифрландыру, қаржылық технологиялар, кәсіпорынның табыстылығы, цифрлық экономика, Қазақстан Республикасы.

**С.Ф.Аликулова\*, З.А.Бигельдиева, Б.С.Кулбай**

\*Магистрант, [alikulovaslana@gmail.com](mailto:alikulovaslana@gmail.com), Южно-Казахстанский университет им. М. Ауэзова,  
Шымкент, Казахстан

PhD, доцент, [zarenavip@mail.ru](mailto:zarenavip@mail.ru), Южно-Казахстанский университет им. М. Ауэзова, Шымкент,  
Казахстан.

PhD, доцент, [bauka.ks@mail.ru](mailto:bauka.ks@mail.ru), Южно-Казахстанский университет им. М. Ауэзова, Шымкент,  
Казахстан

## **ЦИФРОВИЗАЦИЯ ФИНАНСОВЫХ РАСЧЕТОВ КАК ИНСТРУМЕНТ ПОВЫШЕНИЯ ПРИБЫЛЬНОСТИ ПРЕДПРИЯТИЯ ПОД ВОЗДЕЙСТВИЕМ ВНЕШНИХ И ВНУТРЕННИХ ФАКТОРОВ**

### **Аннотация**

В статье рассматривается потенциал цифровизации финансовых расчетов как ключевого инструмента решения этой задачи. Исследуется влияние внедрения финтех-решений на эффективность управления финансовыми потоками в контексте адаптации к внешним и внутренним вызовам. Особое внимание уделено анализу макроэкономических показателей цифровизации экономики Республики Казахстан, включая динамику безналичных платежей, интернет-проникновения и проникновения онлайн-банкинга. На основе статистических данных выявлена корреляция между уровнем цифровизации расчетов и снижением транзакционных издержек. Установлено, что цифровизация финансовых процессов выступает не только средством оптимизации, но и драйвером повышения прозрачности и качества управленческих решений, что в конечном итоге ведет к росту доходности и устойчивости предприятий.

**Ключевые слова:** цифровизация, финансовые технологии, прибыльность предприятия, цифровая экономика, Республика Казахстан.