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CHALLENGES AND PRECONDITIONS OF DIGITAL TRANSFORMATION IN FINANCIAL MANAGEMENT

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Abstract. Ukraine has all the necessary resources and infrastructure potential for effective implementation of digital transformation and transition to digitisation. However, there are difficulties that make it difficult to fully exploit this potential. One such problem is the lack of a unified system and mechanism that would allow companies to gradually transform and use European experience. The article aims to theoretically highlight approaches to digital transformation, which acts as a catalyst for innovation and efficiency in the financial sector, taking into account the risks and challenges of this process. The research focuses on analysing the challenges that arise during digital transformation, in particular identifying potential barriers to innovation and successful implementation of technological change. This approach enables companies to prepare to solve foreseeable problems and adapt to unforeseen changes in a volatile digital environment. The article assesses the level of readiness for digital transformation and identifies key technological barriers and opportunities. It finds that despite the existing infrastructure and resources for digitalisation in Ukraine, the lack of a coherent system and mechanism complicates the transformation process. The article deepens the understanding of issues related to cybersecurity and data confidentiality, highlighting the need for enhanced security measures for successful digital transformation. It highlights innovations in financial management through the implementation of fintech solutions, including the introduction of mobile applications and their impact on the financial sector, and examines challenges related to their development and monetisation. It is noted that there is significant room for effective innovation in the current fintech application market.

Keywords: digital transformation, information technology, financial technology, management, innovation, financial services.

Introduction

Analysing the challenges of digital transformation is a key step in identifying possible obstacles to innovation and the successful implementation of technological change. This approach allows companies not only to prepare for foreseeable problems but also to adapt to unforeseen changes in the digital environment. This contributes to the development of flexibility and resilience, which are important for ensuring business stability in the face of rapidly evolving information technology and changing market requirements.

Ensuring a deep understanding of these challenges is not only a preparation stage, but also a strategic step that allows organisations to identify and implement the most effective approaches and solutions. This, in turn, helps to optimise resources, increase productivity and open up new business opportunities. Thus, identifying and analysing digital transformation challenges is fundamental to achieving long-term success and meeting the ever-changing demands of the digital economy.

Main text

Global trends in financial technology are developing rapidly and have the potential to radically change many aspects of the financial industry. In recent years, the financial technology sector has been growing rapidly.



Currently, there are more than 26,000 financial technology companies operating globally, employing almost half a million people. Approximately one third of all banking clients use financial services from at least one non-traditional provider.

The financial technology industry is constantly evolving, responding to changes in consumer needs and implementing the latest technological solutions. Some of the latest developments in this area include digital banking solutions, blockchain-based payments, and financial services using artificial intelligence.

There is a trend towards the emergence of non-banking institutions that operate exclusively online and are focused on mobile users. They offer an easy and intuitive interface for opening accounts via mobile apps and provide an expanded range of financial services.

IoT is changing financial services by integrating sensors to collect data. For example, ATMs can detect customer queues, and contactless sensors facilitate micropayments.

Blockchain is opening up new horizons for financial technology, including cryptocurrencies and innovations such as NFT and DeFi. This technology offers many opportunities, although there are still many challenges to its wider use.

VR and AR technologies are impacting financial decisions by allowing users to trade stocks or currencies in immersive environments. These technologies are still evolving, but their potential is high.

RPA helps to automate repetitive tasks such as data entry, freeing up resources for more creative tasks and improving accuracy.

Voice control technologies, such as Siri or Google Assistant, allow users to make payments and transfers using voice commands.

Virtual cards allow consumers to make online transactions without using physical cards, simplifying the process of managing various financial accounts.

Biometric technologies, such as fingerprint scanners, are revolutionising authentication methods, increasing the security of financial transactions.

AI and machine learning are used for risk analysis, forecasting and automation. Robot advisors and automated trading are examples of their application. This model allows banks to integrate external APIs so that customers can pay bills and receive personalised financial offers.

Analysing the challenges faced when implementing financial technology (fintech) solutions is an important part of research in this segment. Let us consider the main difficulties that may arise when implementing fintech solutions (see Table 1).

Analysing the challenges in implementing fintech solutions is an important part of research in this area.

Regulatory restrictions. The financial sector is highly regulated, which can make it difficult to adopt new technologies due to regulatory restrictions and requirements.

Cybersecurity. The growth of digital transactions and data volumes creates cybersecurity threats. Companies must actively work to protect against cyberattacks and ensure the confidentiality of customer data.

Competition. The financial sector is competitive, and fintech companies must compete with traditional institutions. Effective marketing and product development strategies are essential to attract and retain customers.



Table 1. Challenges in implementing fintech solutions

Challenge	Description
Regulatory restrictions and requirements	The implementation of fintech solutions is complicated by regulatory restrictions and the need to comply with the law.
Competition in the fintech market	The fintech market is saturated with competitors, which requires the search for unique strategies and development.
Ensuring cyber security and data protection	The growing threat of cyber attacks requires a high level of cybersecurity and protection of confidential information.
High costs of development and implementation	The high costs of research and development of new technologies and their implementation can be burdensome.
Insufficient customer adoption of innovations	Some customers may not be ready to use new financial technologies and services.
Resilience to financial crises and economic fluctuations	Financial crises and economic fluctuations can affect the financial sector and fintech companies
Cooperation with traditional financial institutions	Establishing cooperation with traditional banks and financial institutions can be a challenge.
Problems with legalisation and compliance	Some aspects of fintech may require special permits and compliance with legal regulations.

Technical challenges. Developing and implementing fintech solutions can be technically challenging, including software development, data processing, and integration with existing systems.

Financial resources. Implementation of fintech solutions may require significant financial investments for research, development, marketing and deployment of new products.

Adaptation of users. The introduction of new technologies may require users to change their habits and ways of interacting with financial services.

Customer confidence. Ensuring customer confidence in the safety and reliability of fintech services requires companies to actively build trust and meet security standards.

Analysing these challenges helps companies better understand the complexities and opportunities of implementing fintech solutions and develop strategies for their successful market launch.

Many organisations face the challenge of a lagging or incompatible IT infrastructure, which can make it difficult to adopt the latest technologies. These limitations can include outdated hardware, inefficient software, and inadequate network architecture, making it difficult to integrate computing clouds, big data, or artificial intelligence. The development of technology infrastructure requires significant investment and detailed planning to ensure a smooth transition to more modern and efficient systems.



As dependence on digital technologies increases, so does the risk of cyberattacks, information leaks and other data security issues. Digital transformation opens up new attack vectors for cybercriminals, requiring companies to implement comprehensive security measures such as data encryption, two-factor authentication and systematic monitoring. In addition, organisations must comply with regulatory data privacy requirements, such as GDPR in Europe, which adds an additional layer of complexity to data management during digital transformation.

Ukraine has all the necessary resources and infrastructure potential to rapidly implement digital transformation and transition to digitalisation. However, existing challenges make it difficult to fully realise this potential. The absence of a unified system and mechanism that would allow companies to gradually transform and benefit from European experience is one of these challenges. Experts identify several key challenges that hinder the digitalisation process in Ukraine. According to the Digital Transformation Readiness study, the main obstacles to effective digital transformation include the lack of a clear digitalisation strategy and the lack of quality examples of digitalisation in the market. However, such problems are typical for the whole world, as they are accompanied by significant risks.

Ukraine faces a number of challenges in the context of digital transformation, including a lack of qualified personnel, high financial costs that may exceed the benefits of implementation, resistance to changes in business models, lack of understanding of the process of phased digital transformation, lack of investment, economic crises, and other factors. The survey of top management of large Ukrainian companies shows that the main obstacles are the lack of qualified specialists and financial barriers that slow down development in the context of Industry 4.0 and the digitalisation process (Figure 1).

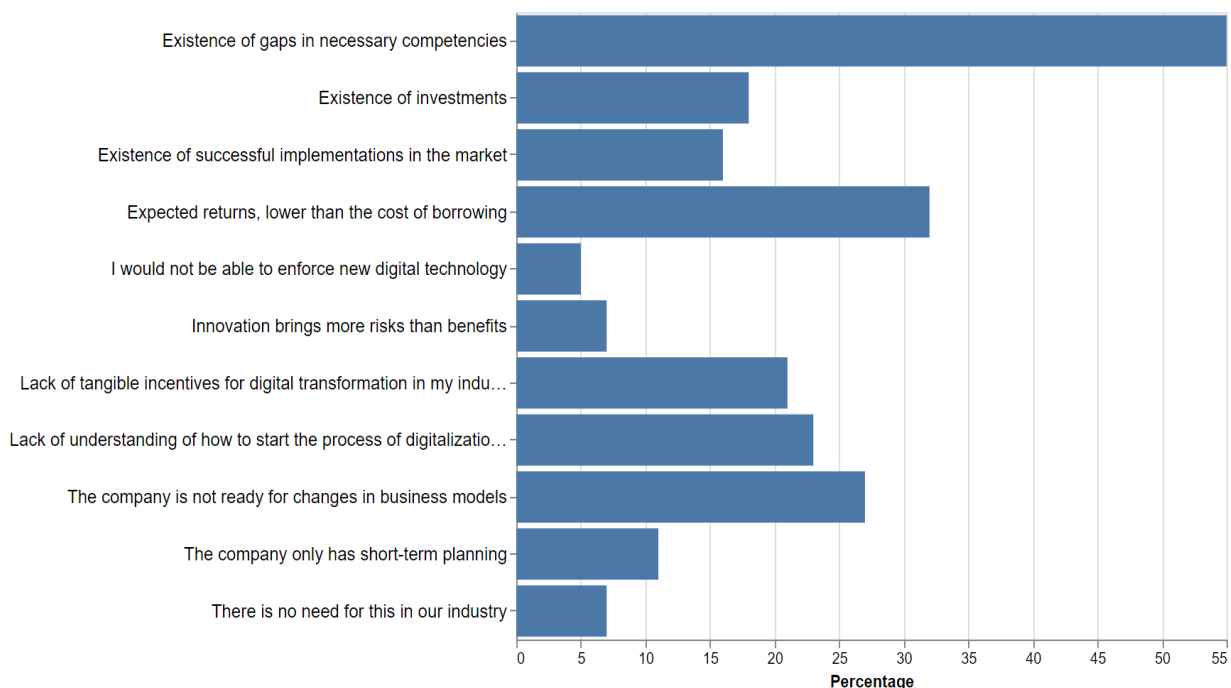


Figure 1 – Main obstacles to digital business transformation in Ukraine

Most financial institutions have already started to rethink their financial and



banking procedures. Modern banking approaches are moving away from the outdated models of traditional branches, providing digital banking around the clock. This need to innovate has spread rapidly among financial institutions, prompting the development of technologies that might have seemed unimaginable just a few decades ago. These innovations included money transfer services, automated savings and, eventually, online banking applications (Figure 2).

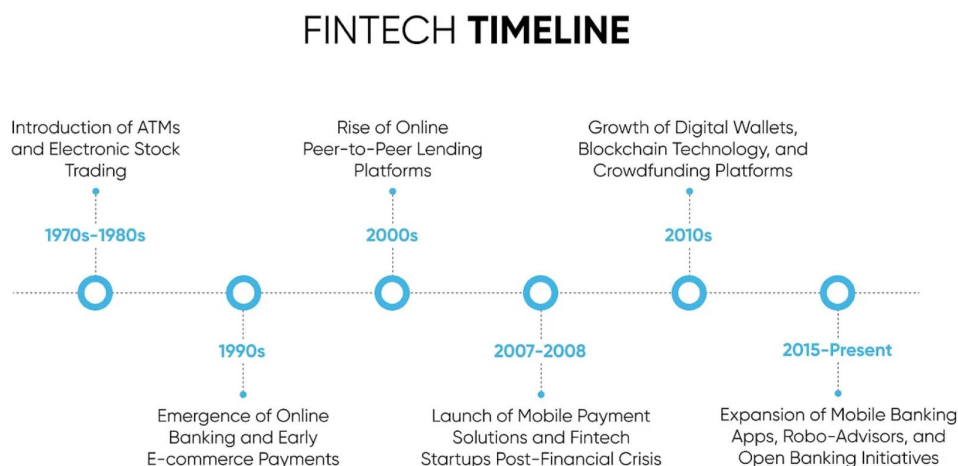


Figure 2 - Chronology of financial technology development

According to Statista, more than two-thirds of Americans (64.6%) actively used online banking services in 2023. A survey conducted by Chase Bank confirms the growing popularity of digital financial services, with the following results:

- Eight out of every ten customers prefer to manage their finances via mobile devices, avoiding traditional bank branches;
- Seven out of ten Chase users express confidence in the security and convenience of digital banking;
- Only a tiny number of respondents (10%) say they do not use digital banking because they are not used to the latest technology.

This data highlights that even companies that have not previously focused on the financial sector must now pay attention to developing their own fintech applications to remain competitive.

Banking apps have become an integral part of our daily lives, providing convenient access to financial management and financial transactions via smartphones. These apps support basic functions such as balance checking, money transfer, cheque scanning and mobile payments. In addition, they provide advanced financial services, including account alerts, budgeting tools, and the ability to apply for loans through the app, while ensuring a high level of security through biometric technology and two-factor authentication.

Figure 3 shows the types of apps in the fintech industry.

Payment apps are growing in popularity due to their convenience and security during transactions, enabling users to easily transfer funds to other individuals or businesses without the need for cash or plastic cards. In addition, they include additional features such as budgeting tools, loyalty programmes, and storage of payment information for future reference.

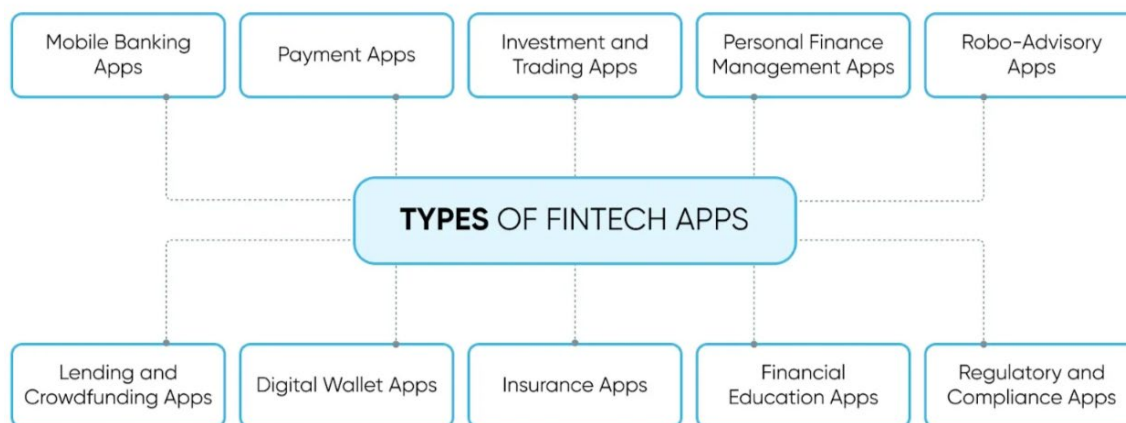


Figure 3 – Types of fintech apps

Investing and trading apps provide users with access to real-time market updates, investment management tools, and educational resources to enhance their financial knowledge.

Robo-advisors built into fintech apps offer not only monitoring of expenses and regular payments, but also personalised recommendations based on individual user behaviour, helping them to optimise their financial management. In this context, robotic advisors play a key role in supporting users in improving their financial planning, helping them avoid reckless spending and enjoy better service.

Mobile lending is rapidly gaining popularity due to the ease of obtaining loans. Users can easily apply for a loan via their smartphone, taking advantage of typically favourable terms and flexible repayment schedules. These apps are ideal for those in need of quick access to funds, offering a significantly faster application process than traditional banks. Some also provide additional features such as budgeting and financial counselling, making them convenient for financial management.

Digital wallets are applications that allow users to store their payment instruments, including credit and debit cards, loyalty cards and cryptocurrencies, securely on their devices. They allow you to make payments in stores and online, as well as manage your finances. Data protection is ensured through encryption and biometric authentication, while loyalty and budgeting apps facilitate ease of use.

Insurance apps have become an integral part of the financial environment, helping users manage their policies, file claims and view bills. Not only do they simplify transaction monitoring and risk assessment, but they also provide educational resources and tools to better understand insurance. These apps promote compliance by helping businesses reduce the risks associated with fraud and non-compliance, thereby improving the overall security of financial transactions.

To create an effective fintech app, you don't have to fill it with a lot of innovations. You can analyse competitors' offerings and offer solutions that are faster, smarter, more affordable, and more convenient.

Since fintech apps handle sensitive customer data, security should be a high priority. It is recommended to implement multi-factor authentication, which can include voice, face and fingerprint recognition for access. In addition, it is important to ensure that the app only displays the last digits of the card number, limiting failed login attempts and providing an extra layer of protection for sensitive customer information.



Fintech app development methods include:

- Embedded advertising. This approach can be applied as soon as your app gains popularity. It is important to find a balance so as not to interfere with the user experience, especially in fintech apps, but if you have a large audience, it can become a significant source of revenue.
- Subscription model. Users get access to all the features of your app by paying a monthly or annual subscription.
- In-app purchases. You can make basic features available for free by offering premium tools for in-app purchase.
- Transaction fees. If your app offers currency exchange or securities trading, you can earn commissions on every transaction made by users.
- Paid app. You can offer your app as a paid app from the very beginning, giving users full access to all its features after they purchase it.

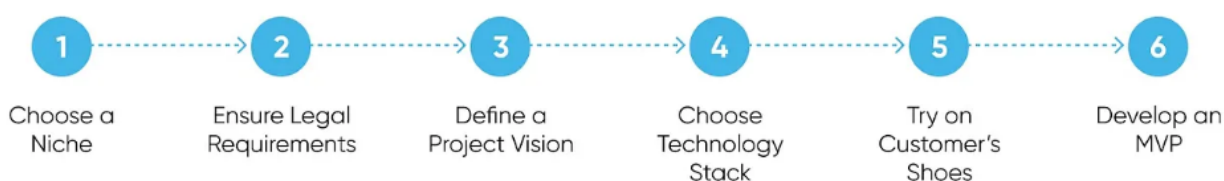


Figure 4 – Stages of product development

Creating a fintech application requires clear planning and strategy (Fig. 4). Here are the key steps to develop a fintech application:

1. The first step in developing a fintech application is to identify the specifics of the market. The choice of a niche depends on the needs and interests of the target audience. It is important to study the market and consider the possibility of implementing unique or advanced solutions.

2. The fintech sector is governed by many laws and regulatory requirements that may vary significantly from country to country or region to region. The application must comply with privacy protocols such as GDPR, e-commerce privacy policy, CCPA and other regulations in accordance with the territory of its use. The development of fintech applications requires compliance with PCI DSS, AML, KYC and other standards that ensure the security and reliability of financial transactions.

3. You need to clearly understand the purpose of the app - what problems it will solve and what functionality it will include. This vision should be backed up by in-depth market analysis and clear business goals that will help your team define and implement a competitive and user-centric product.

4. The choice of the technology stack for the development of a fintech application has a significant impact on the financial and time resources of the project. The options include native development, cross-platform development, and the creation of advanced web applications. Each approach has its own advantages and disadvantages that should be considered based on the specific goals and resources of the project. Native development, while providing maximum performance and speed on a particular platform, requires a lot of time and resources to develop for each platform separately, and has limited code portability. Cross-platform development saves time and resources by sharing code across platforms, but can result in reduced performance and limited



access to platform-specific features. Progressive web applications enable rapid development and deployment via web technologies, but have limited capabilities compared to native applications and depend on the quality and speed of the Internet connection.

The development of a fintech app requires taking into account the usability of the end user, as the main goal of such applications is to meet the needs of users. A key aspect is to ensure that even users with no programming experience can use the app with ease. It is also important to create an intuitive, transparent and aesthetically pleasing interface. The quality of the user interface and the experience of interacting with the application is of paramount importance, given that it is on par with security. It is important to ensure that all mandatory functions are available to the user on the main panel, avoiding overloading the application with excessive or unnecessary options. The user should be able to perform the necessary operations efficiently and easily in order to increase the convenience and satisfaction of using the fintech application.

The MVP (minimum viable product) is a simple version of the application that includes only the key components and functions sufficient for initial testing and attracting the attention of investors. The impressions and feedback from users at the MVP development stage will help identify potential shortcomings and provide guidance on what additional features should be implemented. The main goal is to collect real feedback that will serve as the basis for further improvements to the application (Figure 5).

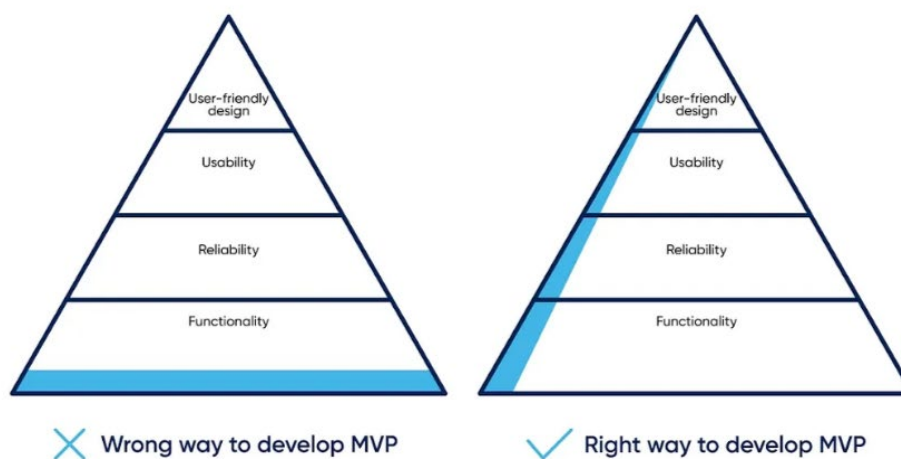


Figure 5 – Two approaches to developing a minimum viable product (MVP) for applications.

Thus, the current fintech app market has a lot of room for effective innovation. In some regions, there is a lack of sustainable fintech solutions, which makes the financial sector attractive for investment. Although developing such an app can be challenging, having an experienced team can help to solve these problems and implement promising ideas in an innovative financial environment.

While digital transformation is an important catalyst for innovation and efficiency in the financial sector, it also requires attention to the risks and challenges that accompany this process. Balanced technology adoption, transparent regulation, and



strategic planning are key to achieving resilience and competitiveness in the digital age.

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