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MODERN TRENDS IN THE DEVELOPMENT OF FINTECH AND BIG DATA IN UZBEKISTAN

Tuychieva Odina Nabievna

Docent of the Department of Economics
Fergana Polytechnic Institute
Fergana, Uzbekistan.

Abstract: *This article discusses the development of FinTech and Big Data in the financial sector. It is proved that the financial industry is rapidly moving towards data-based optimization, and organizations must respond to these changes in a timely manner. Financial and banking services are becoming more accessible, and the impact of technological innovations is very diverse. The problems of big data in finance are revealed.*

Keywords: *digital economy, big data, financial technologies, artificial intelligence, blockchain.*

СОВРЕМЕННЫЕ ТЕНДЕНЦИИ РАЗВИТИЯ FINTECH И BIG DATA В УЗБЕКИСТАНЕ

Тўйчиева Одина Набиевна

Доцент кафедры «Экономика»
Ферганский политехнический институт
г. Фергана, Узбекистан

Аннотация: *В данной статье рассмотрено развитие FinTech и Big Data в финансовой сфере. Доказано, что финансовая индустрия стремительно движется к оптимизации на основе данных, а организации должны своевременно реагировать на эти изменения. Финансовые и банковские услуги становятся более доступными, влияние технологических инноваций весьма разнообразно. Выявлены проблемы больших данных в финансах.*

Ключевые слова: *цифровая экономика, большие данные, финансовые технологии, искусственный интеллект, блок-чейн.*

Introduction

The term FinTech (hereinafter referred to as financial technology) refers to software and other modern technologies used by enterprises that provide automated and improved financial services. Rapid and innovative advances such as mobile payments have changed the way we manage our finances. Customers with technical knowledge, especially millennials, expect that money transfers, lending, credit management and investments will be easy, secure and scalable, ideally without the help of a person or a visit to the bank.

Big data is now called the new oil and the new gold for a reason — the most successful market players have achieved results due to access to resources. And if earlier it was primarily hydrocarbons or capital, today it is big data — the basis of any technology business.

The global ranking of the largest corporations in 2022 can be divided into two large segments: either technology giants or large companies that monopolized certain industries in the last century, be it finance or natural resource extraction, were in the top ten.

In conditions when technologies have become more accessible and widespread, it is easier than ever to create a startup based on big data, but it is more difficult than ever to lead it to success. This is especially true of fintech and telecom — relatively new industries, in which, however, experienced players with a long history have already settled.

It is not surprising that businesses in these areas often join forces. Telecom services help to connect new customers faster even in the most remote parts of the world with a low level of Internet penetration. And banking becomes an additional module that encourages users to abandon cash in favor of digital payments — this is especially important for regions where less than 50% of the population uses banking services.

Materials and methods

The article is interdisciplinary in nature and covers both economic (digital economy, globalization, investments in financial technologies) and technological aspects (cyber threats and attacks on the financial market and its participants) of the present and future position of the financial market of Uzbekistan in the digital economy. In the process of preparing the theoretical section of the scientific article, the author used general scientific methods (observation, comparison, measurement, analysis and synthesis, the method of logical reasoning), which allowed to reveal the conceptual apparatus, business models and the main stages of the formation of fintech as an independent market actor.

When conducting quantitative and qualitative studies of the state, structure and development of fintech as part of the national financial market of Uzbekistan, specific scientific methods (static analysis, expert assessments, graphical method) were used, separate foresight methods were used to assess future changes in the role and status of fintech in the digital economy.

The validity and reliability of the results of scientific research is ensured by the correctness and rigor of the construction of the logic and scheme of the study.

Literature and research review

The basic principle of the structure of the market economy states that if the client has a need, and the acting actors are not able to satisfy it, then a new participant should be expected.

Fintech as an independent actor of the financial market has a somewhat vague history, and the starting point of its formation is the subject of disputes among scientists studying economic theory. According to A. Lagna and M.N. Ravishankar (Lagna, A., Ravishankar, M.N.), the history of fintech begins with the discovery of a new way of transmitting information – radio and the subsequent invention of the

telephone and telegraph (XVIII century), which revolutionized the issue of information transmission and management decisions regarding financial assets: now the time for decision-making has been reduced from a few weeks (transfer of written correspondence by sea) to several hours (minutes), which became the starting point for increasing the efficiency of the organization of operations in the financial market (Lagna, Ravishankar, 2021).

According to D. Wojcik (Wójcik, 2021), real fintech was formed already in the XXI century and is associated with the development of the startup movement, when small innovative businesses began to occupy vacant niches in the financial market or form alternative banking tools and services for managing financial assets: in his opinion, the starting point can be considered 2005, when the Zopa P2P lending service was presented in the UK, which became the world's first non-bank aggregator for lending.

Analysis and results

Big data is often the main driver of growth for them — using a common infrastructure and databases, brands cover new audience segments faster, conduct successful expansion and increase performance.

One such example is the African fintech unicorn M—Pesa, created by the Kenyan mobile operator Safaricom. Using a ready-made telecom infrastructure and relying on knowledge about the habits and needs of the audience, the company offered a convenient payment tool — a money transfer system by phone number, which does not require a bank account.

The telecom market giants T-Mobile and Orange are also following this path, having launched their banking products - T—Mobile Money and OrangeBank. Both services rely on an ecosystem approach — for them, banking is not a separate business unit, but a component of a single ecosystem based on user data.

Competent work with big data helps ambitious startups to achieve success. For example, the fintech company Revolut with an estimate of more than \$33 billion relies on big data analysis. The company manages approximately 800 dashboards with a different set of data, and also provides users with access to personal analytics. Big data allows you to personalize the search in the app, and machine learning algorithms offer customers individual cashback programs based on their purchase history.

However, the use of big data is not limited to working with users — telecom and fintech companies can rely on big data when developing new markets, developing a business strategy, optimizing resources, hiring and reducing specialists.

Big data application scenarios

Most companies use big data simultaneously to solve several tasks, and in many industries the application scenarios are similar. But there are peculiarities.

For example, in telecom, the user's geo—location plays an important role - by analyzing this information, the company can update the infrastructure and amplify the signal in the areas of the greatest congestion of people. So, Vodafone creates three-dimensional maps of the terrain in Britain to assess the state of the network

and infrastructure, and then determines where it is worth optimizing and installing 5G towers.

An important role in working with big data in the telecom sphere is played by information about customers: what device they use, with whom they communicate and what functions they use more often, what traffic and how much they consume, how often and on what days they make calls, or prefer to send messages in messengers.

Thanks to this information, the company can build a more detailed map of the customer's journey (customer journey map) and determine which services and tariffs will be in demand. For this reason, many telecom companies acquire streaming services and platforms for the production of video or audio - so they can control both the distribution channel and the content.

In addition, big data helps to predict and prevent customer churn. For example, in Humans we use clustering of users with similar patterns of behavior — segmentation helps to introduce new functions and calculate tariff plans (number of minutes or gigabytes) that will definitely be in demand.

Since Humans is an ecosystem with telecom and banking functions, we take into account which set of options the client uses: only banking or only tariff, payments and marketplace, or all at once? This approach simplifies clustering and makes it possible to predict outflow with great accuracy.

If we understand from the sum of the user's actions that he is ready to refuse services, then we immediately recommend him a special offer or suggest how to change the tariff and choose more suitable functions. For example, if we see that a person often writes to Telegram and as a result overpays for gigabytes, we recommend him a package with unlimited access to the messenger.

This allows you to increase sales of additional options from 5% to 20-30% and at the same time add new options and tariff plans that are really interesting to users.

Big data also helps marketing. It was big data that led to the emergence and popularity of referral programs — analyzing the data, the company examines customer contacts, determines opinion leaders and decision-making factors.

The ecosystem approach gives us more information about the client — for example, payment analytics helps to find out which operator he prefers if for some reason he does not use the Humans tariffs. And vice versa — we understand in which cases a person uses tariff options, but turns to competitors for banking services. The ecosystem gives us more raw data from which to extract more useful insights.

In fintech, big data gives an even bigger picture about the user: companies analyze the profile of purchases and payments, average spending and account balance amounts, the frequency of transactions and deposits, as well as sources of funds accrual. You can enrich the client's portrait with data from other sources provided by large banks and credit organizations — for example, it can be information about the credit rating.

A detailed customer profile improves not only the user experience, but also helps to ensure security — knowing the patterns of human behavior, the company automatically recognizes anomalies, for example, unusual purchases or sudden large

expenses — this in turn helps to combat fraud. So, a transaction from an unusual location or a request to transfer a large amount to the account of a person who is not part of the user's social circle can be a signal that they want to deceive the client.

An example of a successful application of data analytics to retain customers and improve the consumer loyalty index (NPS) is the Chime neobank, which regularly collected feedback from users and used algorithms to analyze it by keywords. For example, the negative was often caused by the need to pay a commission for withdrawing money from an ATM. Chime introduced the point search function without commission — and the NPS instantly improved.

You can increase loyalty by making small point changes. For example, at Humans, we constantly analyze the geography of users and determine where it is best to place service points. They should be located in places where potential customers congregate — and in Uzbekistan it can be not only the city center, but also a large bazaar or a grocery chain that residents visit regularly. For example, we found out that one of our service points is located 10 meters from a large crowd of people, and this small distance affected attendance — it would seem 10 steps, but after the office shift, sales increased by 25%.

Features of big data development in Uzbekistan

In Uzbekistan, the big data analytics (BDA) market is in a phase of intensive development: since the level of penetration of big data technologies is still low, there is a huge potential for their implementation in the country. At the same time, some areas are still not covered: for example, due to the weak distribution of bank cards, it is difficult to collect information about consumer spending - and therefore it is difficult to build high—quality predictive models.

In the case of telecom, the market is growing faster as the pace of digitalization increases — for example, in 2021, the number of Internet users increased by almost a quarter compared to 2020. The more people use smartphones and the network, the more data companies collect about the digital habits of Uzbek citizens.

Big data is used in large banks in Uzbekistan: for example, TBC Bank uses a scoring model for debt collection, and Uzsanoatkurilishbank has implemented a data warehouse and a business analysis system into its work, with the help of which it became possible to accumulate and process data from various sources.

The more companies — both corporations and startups — begin to apply and analyze big data, the more effective analytics will be. In turn, other changes will follow — for example, an increase in the number of qualified data analysts, the development of technological know-how and infrastructure, both in telecom and in the banking sector.

The future of big data: risks and benefits

Despite the great potential of big data, data itself is not a panacea and not the key to success. It is important for a company not only to competently collect, analyze and cluster information, but also to learn how to extract real benefits from it.

Business often spends billions on BDA, but at the same time does not know how to measure the result of the implementation of analytics. As a result, the organization continues to accumulate information, build models and databases, but

practically does not benefit from them. Data accumulates, but does not work for success. The reason is the lack of a strategy and a clear understanding of the "why".

Another problem is technological barriers: many types of data are not yet amenable to collection and processing by existing methods, and in some cases the invoice is simply not enough — in Uzbekistan, for example, the banking system is only gaining momentum, and there is not enough information about consumer patterns yet.

Another difficulty is related to data exchange and involvement. Big data providers are reluctant to exchange information with each other, which makes it difficult to accumulate knowledge about consumer habits. The solution may be confidential computing technology, which, like blockchain technology, helps to exchange information as securely as possible using reliable cryptographic protocols.

Do not forget about ethics issues: the laws of most countries, including Uzbekistan, oblige companies to collect big data in an impersonal form. The problem is that laws often change — new regulations are introduced, and large technology platforms owned by Google, Apple and Meta are introducing new protocols and restrictions.

Conclusion

The development of culture, technology and a strong legal framework will allow companies to build a longer-term strategy, rather than adapt to constantly changing laws and trends.

The emergence of more advanced analytics tools — including neural networks — will open up new opportunities for customization of services. One of the promising areas is synthetic data: generated big data, which can be used to train models and databases. Such products are already used by large banks and insurance companies.

Another trend is the automation of the routine work of data analysts, which will allow them to focus on more complex and interesting tasks, as well as the democratization of big data — in particular, the development of cheaper and more accessible research tools. So in the future, not only corporations and successful startups, but also small companies will be able to benefit — and face risks when working with big data.

In order to take advantage of all the opportunities that the digital economy can provide, financial institutions and government agencies must increase and improve their digital services, such as:

- digital identification systems that allow citizens to have access to public, commercial and financial digital services;
- data protection regimes that distribute rights and obligations for access and exchange of consumer data;
- cybersecurity strategies that contribute to the mitigation of cyber security, risk mitigation and effective response to cyber attacks and recovery after them;
- open banking initiatives that allow banks to share customer data subject to consent with third parties, and initiatives to promote innovation that allow innovations in digital financial services that are interesting and profitable for the market.

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