ОСОБЛИВОСТІ РОЗВИТКУ СВІТОВОГО ГОСПОДАРСТВА ТА МЕВ

УДК 338.439.02

MODERN FINTECH BUSINESS MODELSOF INDUSTRY 4.0

СУЧАСНІ ФІНТЕХ БІЗНЕС-МОДЕЛІ ІНДУСТРІЇ 4.0

Stupnytskyy O.
PhD in Economics, Professor of the Department of International Business Educational and Scientific Institute of International Relations, Taras Shevchenko National University of Kyiv,
E-mail: a.stupnitsky@ukr.net,
ORCID: https://orcid.org/0000-0002-5508-5625

Bilous A.
PhD in Economics, Assistant Professor of the Department of International Finance Educational and Scientific Institute of International Relations, Taras Shevchenko National University of Kyiv,
E-mail: bilousartem@ukr.net,
ORCID: https://orcid.org/0009-0004-8602-1562

Ступницький О. І.
Кандидат економічних наук, професор кафедри міжнародного бізнесу ННІ Інституту міжнародних відносин Київського національного університету імені Тараса Шевченка,
e-mail: a.stupnitsky@ukr.net,
ORCID: https://orcid.org/0000-0002-5508-5625

Білоус А. О.
Кандидат економічних наук, асистент кафедри міжнародних фінансів ННІ Інституту міжнародних відносин Київського національного університету імені Тараса Шевченка,
e-mail: bilousartem@ukr.net,
ORCID: https://orcid.org/0009-0004-8602-1562

Abstract. *This article is devoted to the current aspects of the development of global payment systems and mechanisms based on artificial intelligence, blockchain, BigData, etc. The article analyzes the relevance of implementing alternative payment models not only due to convenience for consumers, but also due to the possibility of reducing payment processing costs for business structures. The study examines innovations related to the use of robo-advisors, which are part of a broader approach to digitization in the fintech industry, which today makes access to asset management much more efficient and less costly. It is emphasized that the significantly lower commissions provided by robo-advisors in their offers contribute to greater accessibility of investment services for a wide range of market agents. The article establishes that the advantages of crowdfunding models are the democratization of finance, the rapid involvement of millions of users in financing specific projects, and the ability to provide small investors with access to opportunities that were previously unavailable to the startup and real estate sectors. It has been researched that if crowdfunding campaigns and their platforms want to compete with banks, venture capitalists, and other reputable financial institutions, they must implement a robust infrastructure and ongoing monitoring, effective credit scoring methods, or rigorous verification tools.*

Key words: *fintech, business model, digital payment solutions, alternative payment systems, robo-advisor, crowdfunding, credit algorithm, artificial intelligence.*

Анотація. *Стаття присвячена актуальним аспектам розвитку глобальних платіжних систем і механізмів на основі штучного інтелекту, блокчейну, BigDataтощо. У статті аналізується актуальність впровадження альтернативних платіжних моделей не лише*

через зручність для споживачів, а й через можливістьзменшити витрати на обробку платежів для бізнес-структур.У дослідженнірозглядаються інновації, пов'язані із використанням роботів-консультантів, які є частиною більш ширшого підходу до оцифрування у фінтех-галузі, що сьогодні робить доступ до управління активами значно ефективнішим і менш витратним. Акцентується,що значно нижчі комісії, що надають у своїх пропозиціях роботи-консультанти, сприяють більшій доступності інвестиційних послуг для широкого спектру ринкових агентів.У статті встановлено, що перевагами краудфандингових моделей є демократизація фінансів, швидке залучення мільйонів користувачів до фінансування конкретних проектів і здатність надавати дрібним інвесторам доступ до можливостей, які раніше були недоступні сферам стартапів і нерухомості. Досліджено, що якщо краудфандингові кампанії та їх платформи хочуть конкурувати з банками, венчурними інвесторами та іншими авторитетними фінансовими організаціями, вони повинні впроваджувати міцну інфраструктуру та постійний контроль, ефективні методи кредитного скорингу або суворі інструменти перевірки.

Ключові слова: *фінтех, бізнес-модель, цифрові платіжні рішення, альтернативні платіжні системи, робот-консультант, краудфандинг, кредитний алгоритм, штучний інтелект.*

Introduction. Over the past decade, the global FinTech sector has emerged as a powerful transformative force in financial services, driven by digital innovation and unique platform services and content. The global FinTech market is projected to grow from $215.3 billion in 2022 to approximately $751.5 billion by 2032, at a compound annual growth rate (CAGR) of 18.5% from 2023 to 2032 [*CMI Consulting LLC, 2024*]. The global FinTech investment market is projected to grow at an average annual growth rate of 13.11% (2023 to 2027) to reach a total value of $5.27 trillion by 2027 [*McKinsey & Company, 2023*]. The development of cognitive automation technologies and the ever-growing set of online and application-based services are currently the most important factors contributing to the development of the global fintech industry market. It is characterized by high scalability and focus on digital interfaces (primarily mobile applications) in contrast to traditional banking platforms, and its individual areas of development include, in particular, alternative payment systems, social trading, fintech lending, personal finance management, factoring, crowdfunding, robo-consultants, BigData/AI/ML/blockchain technologies, venture financing, cryptocurrencies, and others. In these areas, on the one hand, fintech companies are constantly improving their business models in the context of simplicity and accessibility for real and potential consumers, and actively attracting customers to alternative payment methods for services. This contributes to reducing costs and increasing market monetization and liquidity, profitability based on innovative fintech solutions and increasing competitiveness. On the other hand, there is a growing combination of related technologies and financial services, which leads to a gradual blurring of traditional boundaries between market sectors and even individual industries, modification of the financial environment due to changing approaches to interaction with traditional and new financial products. That is, by introducing innovative fintech business models into various segments of the financial market, companies are adapting to the high-tech markets of modern Industry 4.0.

The purpose of the article is to study the features of the transformation of business models of the modern fintech industry in the context of the digitalization of the global ecosystem and the formation of new concepts of business development.

Literature review. In recent years, the number of works by foreign economists devoted to the issues of the fintech industry in general and its individual segments in particular has increased [*Rubini, 2019; Brown, 2020;* ***Chishti*** *et al., 2020; Sieber & Guibaud, 2022*]. The relevance of fintech problems has led to a high interest in this topic among Ukrainian scientists in recent years. Thus, the authors study the theoretical aspects of fintech, its advantages and risks [*Smahlo, 2023; Babenko, Vovk & Marchenko, 2024*], current trends in the fintech industry and the volume of global

investments in various fintech sectors [*Stavers'ka, Lysak & Prykhod'ko, 2023*], and also analyze the domestic fintech ecosystem in the context of its insufficient development and propose a number of measures to improve its condition [*Obushnyy, Arabadzhy & Kostikova, 2023*]. However, the dynamism, versatility and globality of the development of modern fintech technologies necessitates further research in this area in the context of the transformation of business models, hybrid approaches, platform thinking and algorithmic management based on BigData, AI and ML.

Main results of the research.

1.Alternative payment models of the modern fintech industry.

Alternative payment models (APM) play a key role in the modern financial industry, transforming the way financial transactions are made and providing consumers with more convenient and secure payment options. In fact, they are new financial tools and technologies that allow payments to be made outside of traditional banking channels and credit cards. These include digital wallets, mobile payment applications, biometric payment systems, online lending, mobile banking, as well as platforms that allow money transfers via *QR* codes or contactless technologies. They have become an important part of the modern financial environment, providing consumers with convenient and flexible payment options that meet the requirements of the digital age. For example, Worldpay reports a projected growth in the use of digital wallets from 15% in 2023 to 31% by 2027, while debit transactions at points of sale are expected to decline from 28% in 2023 to 23% in 2027 [*Imarc, 2024*]. In 2024 alone, the global financial market processed digital payments worth $11.55 trillion (China has the highest cumulative transaction value – $3.74 trillion) [*Duarte, 2024*].

The relevance of implementing APM is due not only to convenience for consumers, but also to the possibility of reducing payment processing costs for business structures. First, they significantly reduce transaction times and simplify access to financial services, especially for those who do not have bank accounts. Second, they often offer lower or no fees compared to banking systems. Third, such solutions provide better integration with other digital services, such as e-commerce and mobile applications. At the same time, although traditional banks remain important due to their reliability, regulatory mechanisms and the ability to provide a wide range of financial services, these innovations lead to the loss of market share, as more and more customers prefer fast and affordable payment solutions without the involvement of traditional financial institutions. This forces them to review their business models and implement new technologies in order to remain competitive in a rapidly changing financial environment. According to *Ginger research*, in 2024, 51.7% (2020 – 44.5%) of all payment transactions were made via alternative payment methods in physical retail outlets and in the online environment, which is a significant challenge for traditional banking institutions. Given these statistics, alternative payment methods have now become a traditional choice for both consumers and companies, which has a positive impact on conversion and sales [*Interkassa, 2024*].

The APM market is currently represented by a number of powerful players that use innovative business models to provide financial services. *PayPal,* as one of the most well-known in the online payments industry, offers solutions for both e-commerce and interpersonal transfers thanks to its development strategy through strategic partnerships. Having created a powerful team of specialists (*Elon Musk's X.com, Peter Thiel's Confinity* and *Roelof Botha's Sequoia Capital*), the company moved from using the main payment service on the eBay platform to its own independent business model. Today, it operates on the basis of payment solutions for mobile applications, e-commerce websites, electronic money transfer services and cross-border transfers through international platforms. The key advantages of *PayPal* are, firstly, the implementation of protection for buyers and sellers, which has ensured a high level of user trust; secondly, the linking of consumer accounts to a bank account or credit card, which allows for direct transactions; third, the availability of alternative payment methods, including using a *PayPal* debit card for purchases or withdrawing cash from ATMs; fourth, compensation for the full purchase price along with shipping costs if the product has not been delivered or is significantly different from the seller's description; fifth, access to the standard functionality of the platform, however, each of the three main categories of users

(private customers, business customers and partners and developers) has specific capabilities and limitations. *PayPal* currently accounts for 59% of the total number of alternative payments, followed by *MyBank* with 25%, and *Klarna's Sofort* occupies 3% of the total number of charges using methods other than credit cards [*Rolfe, 2023*].

Another market leader is *AntFinancial* (a subsidiary of *Alibaba*), which operates the *Alipay* platform and offers users not only the ability to make payments, but also a wide range of financial services, such as investments, asset management and lending. *Alipay* is integrated with *Alibaba's* e-commerce platform, which provides the platform with a stable flow of users through mobile payments, which is especially important for businesses that sometimes cannot invest in expensive *POS* terminals and have only accepted cash. For example, in China, with a population of $1.37 billion, more than half of the population has access to the Internet, and more than 99% use mobile devices. Taking advantage of this, *Alipay* uses a wide range of financial services in its *Alipay Wallet* mobile application. All transactions between consumers and entrepreneurs are carried out on a *P2P* basis without additional fees, and small and medium-sized businesses in China use a simple payment mechanism by printing unique *QR* codes leading to their electronic wallet and showing them to customers [*Celestin & Sujatha, 2024*]. The *WeChat Pay* payment service of the Chinese technology company Tencent combines a messenger (messaging), a social network and many services, including mobile payments (payment for purchases and travel in transport, money transfers) with differentiation of services for users under 18 and over 60 [*Abis, Pia & Limbu, 2025*].

The business model of the Dutch fintech company *Adyen* is based on a single global payment platform that provides all stages of transaction processing: from payment initiation to its authorization and settlements. It provides the capabilities of comprehensive payment solutions, changing the traditional model of payment processing services, offering services for both online businesses and physical points of sale, which allows companies to easily integrate mobile and contactless payments. Its main functions are: a) organization of customer-oriented workflows that combine product development, technical support and sales, helping the company to constantly improve its platform; b) cooperation with large international companies, in particular through a partnership with *Microsoft Dynamics 365*, which allows it to provide payment services to a wide range of customers; c) risk management to prevent fraud, process payments, communicate between customers' and merchants' banks, and conduct final settlements [*Harris, Douglas & James, 2022*].

PayPal, Adyen and *Alipay* systems objectively change, on the one hand, traditional banking models related to account management, payments and financial advice. On the other hand, making important financial decisions and Personal Finance Management (PFM) services, which help users better understand their financial habits, analyze expenses and plan their budget more effectively.
The business model of the Swedish company *Klarna* is based on: 1) providing consumers with flexible financial options that allow them to buy goods now and pay for them later (deferred payments in e-commerce), 2) the absence of interest or commissions for standard payment options (only the seller pays them for the transaction, and it consists of a fixed and variable part), 3) methods of purchasing in installments and forms of crediting. Its model has become especially popular among young people who appreciate the possibility of flexible financial solutions without traditional banking services, increasing the conversion rate of visitors to buyers in online stores by 30% when using *Klarna* payment services [*Dragt, 2018*].

A key trend in the fintech sector is the use of AI and BigData analytics in payment solutions, which allows financial companies to more effectively assess user behavior, predict their needs, and offer personalized financial services. For example, *Alipay* uses big data-based algorithms to ensure transaction security and analyze user creditworthiness. AI is also used to detect fraudulent transactions in real time and optimize payment processing processes. Platforms such as *Klarna* use machine learning (ML) algorithms to assess risks and provide flexible credit solutions to consumers during online shopping. This not only meets the modern needs of consumers, but also provides a significant increase in the efficiency and security of financial transactions, opening up new opportunities for businesses to create competitive financial services that meet the requirements of

the modern digital market [*Cao, Yang & Yu, 2021; Alcazar, Leyton-Ortega & Perdomo-Ortiz, 2020*].

Financing startups in the payments industry largely depends on the support of venture capital, which plays a key role in the development of fintech companies. Investors see significant potential in the APM sector due to the rapid growth of e-commerce, the spread of mobile technologies and changing consumer habits. Venture capital allows startups to raise funds to develop innovative solutions, expand their customer base, enter new markets and integrate advanced technologies such as AI and BigData. Since traditional banking institutions are often constrained by regulatory requirements and conservative approaches to financing, venture funds are becoming the main sources of financing for fintech companies. Examples of large investments in the APM sector demonstrate the active interest of venture investors in this segment. One of the most notable examples is *AntFinancial*, which raised over $14 billion in a single financing round, which became a record for the fintech sector. Western companies are also demonstrating similar successes. *PayPal*, still in its early stages of development, raised over $200 million in five rounds of funding before going public. Stripe, one of the most successful payment processing companies, raised $600 million in venture capital in a single funding round in 2020, giving it a multi-billion dollar market valuation.

An important aspect of attracting venture capital is the ability of startups to demonstrate innovative business models and the prospect of scaling. For example, according to *Market Data Forecast*, in 2024, about 30,000 fintech startups were launched in the global fintech industry and digital payments totaling $11.55 trillion were made. [*Market Data Forecast, 2024*] Companies such as *Klarna*, which specializes in deferred payments, and *Adyen*, which offers a single platform for processing electronic payments, have received significant support from investors due to their unique solutions and growing demand for their services. Active financing of fintech companies highlights the importance of innovation in the payments sector and their ability to transform traditional financial services. However, despite the fact that fintech companies attract billions in venture capital, their funding is still relatively small compared to the multi-billion dollar technology budgets of traditional banks. While big banks have the theoretical ability to replicate, acquire, or outperform fintech companies, in practice many fintech companies have established innovation leadership that makes them difficult to replace. *PayPal* is an example of how you can consolidate your market position without letting banks regain lost share.

Innovative solutions to modern payment technologies often face three important challenges. First, there is a lack of appropriate infrastructure, which slows down the pace of new innovations. Many new payment methods require additional hardware or software that may not yet be widely available to both consumers and merchants. Second, there is trust and acceptance by consumers – they need to feel confident with any new technology before they trust it enough to use it regularly. If there are security or privacy issues associated with using a particular service (e-commerce site hacking; data leaks), then consumer adoption of the new service will also suffer. Third, there is technological integration – if one company develops an innovative product and another cannot integrate it into its existing systems easily enough (or at all), then there will be little incentive to adopt that product [*Payomatix, 2023*]. These problems need to be addressed, especially in the context of the fact that, according to the forecast, the total value of transactions in the global digital payments market in 2025 will reach $20.37 trillion US dollars and will grow annually (CAGR 2025-2029) by 15.90%, which will lead to a projected total of $36.75 trillion US dollars by 2029. At the same time, the largest segment of the market is mobile POS payments with a projected total value of transactions of $12.56 trillion US dollars in 2025 [*Statista, 2025*].

Indeed, APMs have significantly transformed the financial industry, offering consumers and businesses convenient and secure options for making transactions through mobile technology, e-commerce, and biometrics. Payment platforms (such as *PayPal, Alipay, WeChat Pay, Adyen*, and *Klarna*) are actively using innovative business models and technologies that allow both to ensure a high level of transaction efficiency and security, and to facilitate the integration of financial services with other digital services (reducing costs, increasing the speed of payment processing, and

increasing the availability of financial services to a wider range of consumers). Mobile payments, peer-to-peer payments, digital wallets, blockchain-based payments, contactless payments, and biometric authentication are just some of the fintech innovations that have revolutionized the payments industry. Fintech companies will play an increasingly important role in the payments industry as consumers continue to demand more seamless and integrated payments. As the payments landscape evolves, fintech firms will become increasingly important in driving innovation and shaping the future of payments. While these innovations carry risks, the benefits they bring are too significant to ignore [*Chaklader, Gupta & Panigrahi, 2023*].

2.Robo-Advisorsas a model of cognitive automation of fintech services

Innovations related to the use of robo-advisors (RAs) are indeed part of a broader approach to digitization in the fintech industry, which today makes access to asset management much more efficient and less expensive. First of all, we are talking about significantly lower commissions provided by robo-advisors in their offers, which contributes to greater accessibility of investment services for a wide range of market agents. In addition, traditional financial advice is associated with high minimum investment requirements and costs, which makes it impossible to work with small and medium-sized businesses and investors operating with small amounts of capital. The growth of interest in robo-advisors occurs in parallel with the ongoing transformation of the financial ecosystem through financial technologies. Thus, the global robo-consulting market is projected to grow at a 19.2% CAGR from 2021 to 2028 due to the increasing demand for low-cost investment solutions and the development of digital wealth management [*CEO Review, 2023*].

Until now, there have been a number of traditional asset management strategies, each of which has its own advantages and certain disadvantages. Thus, the most commonly used model was the "natural" model, when financial analysts make decisions about various investments based on their own experience, market research, individual outsourced consultations, active portfolio management and personalized strategies for each client. However, access to such "traditional" services is very limited due to their high cost and minimum capital requirements for many potential investors. Today, in contrast to the traditional approach, automated RAs have appeared, which completely replace human analytics with algorithmic models. Services such as *Betterment* or *Wealthfront* provide clients with ready-made investment solutions based on mathematical models, risk analysis and historical data. They offer low commissions, minimum initial capital requirements and ease of use, which makes them attractive to a wide range of users. Therefore, currently fully automated platforms are suitable for passive investing, where the main goal is stable long-term growth without constant investor intervention.

A separate category is hybrid models that combine algorithmic asset management with human advice – a balance between the efficiency offered by technology and automation and the experience that most investors prefer. For example, the Vanguard Personal Advisor Services model uses algorithms to generate basic investment strategies and personal financial advisors for clients who can help with more complex issues such as tax planning or managing retirement savings. A variation of this model is the "self-service model for experienced investors", whose services provide a platform for asset management, but without automated recommendations or advice. At the same time, it is attractive to those investors who have enough knowledge and want to have full control over their investments without additional consulting or management costs [*Vanguard Personal Advisor Review, 2025*]. That is, users can make decisions independently, using available analytical tools and dashboards.

Thus, the modern RA market, on the one hand, is heterogeneous and offers different options for different investors with different experience, financial capabilities and expectations from asset management. Some models rely on full automation and accessibility, others retain elements of personalized service, and some offer the platform only as a tool for independent work. Regardless of which approach is considered, all of the above models indicate the growing role of technology in providing financial advice and a slow but sure revision of traditional ways of managing one's own capital. On the other hand, it is represented by companies with quite different business models and

strategic focuses: some are focused on full automation of the investment process, others combine algorithmic solutions with human management, and still others try to find a balance between efficiency and an individual approach.

The most prominent representatives in this segment are *Betterment* and *Wealthfront*, which were among the first to offer fully automated investment management. Today, their services include: a) situational analysis of the client's financial situation, which combines robo-advice with personal financial planning b) assessment of the acceptable level of risk, c) portfolio formation based on passive investment strategies (minimizing costs and automatic portfolio balancing), d) intuitive interfaces that allow their clients to easily monitor their assets without in-depth knowledge of financial markets. *Betterment* and *Wealthfront* use optimization models based on modern portfolio theory, developed by Harry Markowitz, which minimizes risks at a certain level of profitability that investors expect. At the same time, RAs automatically perform operations related to finding the optimal balance of assets and portfolio rebalancing, which eliminates human errors and emotional decisions, which often do a disservice to long-term investments [*Suknanan, 2023*]. Other companies, such as *Personal Capital* and *Scalable Capital*, not only help clients build an investment portfolio, but also provide comprehensive financial advice, including retirement planning, taxes, and cost optimization. Complex risk management algorithms are used to create more adaptive portfolios depending on market conditions (dynamic asset allocation, which adjusts depending on the volatility of financial markets). This allows clients not only to minimize risks, but also to obtain more stable results in the long term, and also makes these platforms attractive to those who plan to take advantage of the technological advantages of automated solutions, but at the same time do not abandon the traditional approach to financial management. *Schwab Intelligent Portfolios* positions itself as the "lowest cost of service company", offering clients free portfolio management without additional traditional fees. It receives income from other financial mechanisms, such as margin accounts and interest income from held monetary assets, which makes it attractive to investors looking for affordable ways to manage their finances without additional costs [*Yakal, 2022*].

Thus, the RA market is represented by companies with quite different business models and approaches to organizing work - some focus on full automation of processes, others combine algorithmic solutions with human participation, and still others offer special models focused either on risk management or on cost reduction. That is, automated investment management can no longer be considered a homogeneous sphere, but is developing in different directions, based on the needs of different categories of investors.

Analysis of financial data using a system of complex BigData, AI and ML algorithms forms investment portfolios and, finally, issues recommendations that were previously carried out directly by financial consultants-staff of companies. In addition to financial accessibility, the advantage of RA is also the speed and efficiency of data processing (in the case of human consultants, there are limitations in their cognitive abilities and the number of clients they can serve). Human advisors, like investors themselves, can be guided by emotions, be prone to making unreasonable financial decisions due to feelings of panic, greed and other psychological states. An automated investment advisor based on AI and ML, firstly, works according to logical algorithms that allow you to adhere to an investment strategy without emotional pressure, which contributes to reducing risks and stable growth of assets in the long term. Secondly, it quickly analyzes significant amounts of financial information in real time and makes adjustments to the corporate portfolio in accordance with changes in the market. This is very important in the conditions of high dynamics and unpredictability of the modern financial market. Thirdly, it performs a powerful function - personalization of investment approaches based on analysis of user behavior, risk level, financial goals and other parameters. That is, a personalized investment portfolio is created, according to which each client receives the most relevant recommendations, which increases the efficiency of asset management. Therefore, their convenience and efficiency at a relatively low cost create demand from almost all segments of consumers and segments of the population, especially young people who are accustomed to digital technologies.

Indeed, RAs use complex algorithms that analyze macroeconomic indicators, the client's risk level and his financial goals to create an optimal portfolio. By their nature, most RAs invest passively in a diversified portfolio – they do not try to outperform the market through active management, but instead seek to replicate its dynamics, reducing the influence of the human factor on decision-making. However, an important question remains – how can the algorithm respond to non-standard market situations, since in traditional financial markets there are periods of crisis, high volatility or turbulence, when historical data and mathematical models may not be effective enough. In such cases, human advisors can be flexible, changing their strategy in accordance with changed circumstances, while RAs are limited by algorithmic frameworks. For example, during the COVID-19 pandemic, many human advisors changed their clients' portfolios to prevent massive losses, while some algorithmic systems continued to implement their original strategy, resulting in colossal losses for investors.

Based on AI data analysis algorithms, robo-advisors a) analyze and manage huge amounts of client data, b) adapt to a changing environment faster than human advisors, identifying human errors, and c) provide investors with suggestions for management strategies and the best investment alternatives to achieve their goals [*Una, Verma, et al., 2023*]. At the same time, robotic process automation is especially in demand among novice investors who do not have access to traditional advice, as alternative investment tools have significantly reduced the input load for investors and allowed almost anyone to earn money, even with little money. By collecting and processing data on clients' cash accounts, credit accounts, and investments, AI allows fintech companies using robo-advisors to monitor the financial condition of their clients and offer them more effective individualized services. By interacting with clients directly through chatbots and self-learning applications, AI-based robo-advisors generate context-sensitive content to help users navigate investment opportunities and make complex financial decisions. It is no surprise that the global AI market in fintech is a rapidly growing industry today, with a total value forecast to reach $26.7 billion by 2026, maintaining a compound annual growth rate (CAGR) of 23.17% from 2021 to 2026 [*Grinberg, 2024*]. In addition, modern chatbots retain the context of previous interactions with users, synthesizing the most effective and useful responses based on past input. In turn, ML models learn various factors to identify potential fraudsters, which significantly reduces the investigation workload.

Thus, the effectiveness of RAs largely depends on their ability to adhere to systematic, logically based investment strategies. That is, they work effectively in stable market conditions, ensuring low commissions and reducing the risk associated with the human factor. However, in times of instability, they may be less effective than experienced financial advisors who are able to adapt strategies to changing conditions. However, AI and ML contribute to the growth of their adaptability at such a pace that they determine them even more competitive than traditional asset management.

In general, in modern conditions, the methodology [*Barile, Secundo & Bussoli, 2024*] is often used to analyze the business models of fintech companies, which, firstly, covers the key aspects of their activities, main types of operations, resources, value proposition, relationships with customers and partners, sales channels, audience segments, cost structure and sources of income. A deep understanding of these components allows for a systematic assessment of fintech companies, predict their growth potential and ensure sustainable development. Global technology giants such as *Google, Apple, Facebook* and *Amazon (GAFA)*, as well as their Chinese counterparts *Alibaba, Baidu* and *Tencent*, are actively expanding their presence in the financial services sector. Using huge user bases, powerful analytical capabilities and digital platforms, they offer payment services, digital wallets and credit solutions. For example, *Amazon* is actively operating in the financial sector through *Amazon Pay, Amazon Cash* and *Amazon Lending*, offering customers convenient financial services integrated into the e-commerce ecosystem.

Secondly, it allows you to systematize the key elements of their activities and understand how they create, deliver and monetize their value proposition. Among the key elements of such a business model, the main component is the value proposition - automated, accessible, inexpensive

investment management. The client is provided with an algorithmic approach to investing, reducing costs by eliminating the human factor and allowing even entities without deep knowledge of financial markets and with minimal investments to receive quality service.

The channels of interaction with clients are mobile applications and web platforms - an intuitive interface and ease of use, and RAs are integrated with bank accounts and other financial services for convenient balance replenishment, portfolio status review, real-time reports, and provision of additional personalized recommendations based on the client's financial goals, which increases his involvement and trust in the service. The key resources for RAs are BigData, AI and ML algorithms, on which their activities are based and thanks to which market data is analyzed, calculations necessary for optimal asset allocation strategies are performed, and portfolio rebalancing is carried out automatically [*Khanna, Jha, 2024*]. As for sources of income, most RAs rely on monthly and annual commissions in the amount of 0.25-0.50% of the amount of assets under management, auxiliary financial products, premium consulting, lending secured by an investment portfolio, or tax optimization services.

Thus, the *Business Model Canvas* methodology based on the use of RAs, thanks to an advanced combination of technologies, innovative pricing and process automation, allows companies to attract new categories of investors and effectively compete with traditional financial advisors. But this requires significant investments in technological infrastructure, constant improvement of algorithms that meet user expectations, and adaptation to the requirements of financial regulators regarding the transparency of investment decisions, protection of personal data of their clients and liability in case of market losses. The latter is due to the peculiarities of regulation of the RA market in different countries: in the USA, RAs are registered by the Securities and Exchange Commission and fall under the Investment Advisers Act, and in the EU they are governed by the Markets in Financial Instruments Directive and MiFID II (there are also additional requirements: mandatory insurance of investment accounts, transparency standards for decision-making algorithms, etc.) [*Martins, Ashofteh, 2023*]. Therefore, changes in financial regulation, further development of artificial intelligence and new customer expectations will be crucial elements for the success of the RA market in the coming years.

Most fintech companies developing and implementing RA are technology startups that use venture capital (venture funds, private investors and strategic partners) and require significant investments at the initial stages of development and further scaling. Thus, investments in the RA market in the US are currently several times higher than in the EU, due to a better structured venture capital market and greater openness of investors to fintech startups. This is typical, for example, for *Betterment* and *Wealthfront*, two leading automated platforms from the US, which have raised hundreds of millions of dollars in numerous rounds of financing from venture capital funds such as *Benchmark Capital* and *Greylock Partners*. The advantage of financing this area in the US is that there are no serious "gaps" (time gaps) between different rounds in which investments were made at the early stages of the companies' development, which allows for accelerated building of the platform, attracting the first customers and, finally, testing its business model. Thus, American startups attract new investments every 12-18 months, which allows them to scale faster and enter new markets (currently in the EU it sometimes takes 2-3 years), which allows US fintech companies to stay ahead of Europe in the competition [*Piehlmaier, 2022*].

Evaluating the business models of AI-based RAs and the integration of new technologies into robo-advisory services is an important condition for investors who determine how profitable and, ultimately, sustainable this business model will be. The main indicator for fintech companies is the ratio of the value of the enterprise to assets under management, and since the activities of RAs depend solely on the number of clients and relevant investments, this ratio allows us to assess the effectiveness of the business model and provides an idea of its growth potential. The profit models of fintech companies are directly related to, firstly, the total amount of assets under management (higher market value due to a more stable income stream), unlike traditional financial companies, where the amount of income can be higher due to advisory services, premium products and higher-quality financial instruments. Secondly, by scaling the customer base, customer retention rates,

service differentiation, platform value, and diversification of revenue sources, which reduces business risks.

Over the past decade, RAs have demonstrated dynamic growth rates and have become a significant part of the modern financial market, but whether they have become a full-fledged replacement for a real financial advisor is still an unanswered question. On the one hand, the advantages are absolutely obvious: very low commission, accessibility for a really wide range of investors, automatic portfolio management, absolute absence of an emotional component in making any decisions. On the other hand, traditional financial advisors will not be completely replaced by RAs despite all the advantages - automated advisors are not an ideal solution. The transformation of their role includes some auxiliary support of the human factor, which adds expert judgment and analytics to automated processes. Automated RAs have certain limitations, especially in cases where the client needs a comprehensive financial plan or a personalized strategy that takes into account specific life circumstances, tax planning or inheritance law (in some situations, a human advisor can offer a more flexible approach than an algorithm that operates according to certain parameters) [*Aw, Leong et al., 2023*]. Today, the financial market is getting used to a new reality - automation of fintech processes using RA and human experience complement each other, providing clients with greater choice and flexibility in choosing investment approaches. The medium-term future of the market is likely to be the coexistence and integration of both approaches and meeting the needs of both categories of clients, and in the long term, achievements in the field of BigData, AI and ML will increase the adaptability of RA to increasingly complex financial tasks, which will expand their impact on the market. Successful business models will be those that can attract customers as much as possible at minimal costs, automate and personalize offers and financial solutions, and offer more services to maximize profitability.

3.The crowdfunding model as a modern alternative to traditional lending methods.

Crowdfunding, as an alternative to traditional lending methods for personal and commercial purposes, helps to balance supply and demand by connecting investors and project organizers through online platforms. It replaces the need for a single large investor, spreading risks over a larger base by mobilizing a large number of participants, each of whom contributes small amounts. Today, the concept of crowdfunding is developing in different areas based on different models and platforms, stimulating technological innovations in the context of: a) creating channels for communication; b) competitive selection and creditworthiness verification; c) reducing information asymmetry and risks for all parties to financial transactions. This has led to the emergence of five main models: crowd investment, crowd lending, crowd real estate financing, crowd rewards and crowd philanthropy. Each of them uses different operational and regulatory approaches, but they all have a common idea - attracting a large number of market actors who support a particular project or business.

The size of the crowdfunding market has been growing rapidly in recent years. In the period 2024-2025 alone, it will grow from $17.7 billion USD to $20.4 billion USD at a compound annual growth rate (CAGR) of 15.5%, driven by the need to finance startups and small businesses, easier access to global capital, support for creative projects, and the development of crowdfunding for social purposes [*BRC, 2025*]. Overall, in 2024, out of the $67 billion USD raised through digital models, market lending accounted for $32.5 billion USD, and crowdlending accounted for $32.3 billion USD [*Belley, 2025*]. The crowdfunding market is segmented by type (equity crowdfunding, debt crowdfunding, others) and service platform type (open, managed), as well as by sub-segments (startup crowdfunding, real estate crowdfunding, venture capital crowdfunding, peer-to-peer lending (*P2P*), invoice financing, real estate debt crowdfunding, reward-based crowdfunding, donation-based crowdfunding, hybrid crowdfunding).

Review of the most important segments and subsegments that are developing most intensively in modern conditions is provided below.

Equity-based crowdfunding (crowdinvesting) is particularly popular among startups, as crowdfunding platforms are seen as a way to reach private and institutional backers, as these companies are often overlooked by venture capitalists or unable to obtain financing through

traditional means. Investors typically provide loans with a profit-sharing or equity interest, but often do not have ownership or access to the profits from capital growth. Neighborhood platforms use a selection process that requires assessment and analysis, as well as business plans, with legal agreements being signed and capital being committed to the project once an investment threshold is reached. Overhead costs are lower than in traditional venture capital raising channels, as this strategy focuses on online trading. In addition, the most well-known crowdfunding platforms often have a wide network and robust verification mechanisms [*Cerpentier, Vanacker, Paeleman & Bringmann, 2022*].

AngelList, which has raised over $1 billion for thousands of startups since its inception in 2010, is a great example of equity-based crowdfunding. After starting out as a site to make the venture capital market more open, AngelList has evolved into a platform that provides a variety of services, such as job searching and product discovery through Product Hunt (acquiredcompany). Its unique features include, first, allowing accredited investors to create or join marketplace syndicates led by qualified "business angels" with minimal management costs. Second, it earns mainly from a percentage of funded projects rather than collecting large fees, meaning that the software processes that ensure the platform's scalability reduce the impact of unsuccessful startups. Third, it does not suffer significant losses if certain projects fail, as the main income comes from successful projects. This suggests that platforms focused on technology development may employ different risk and revenue models than traditional venture capital firms, which receive management and performance fees [*Halim, 2024*].

Lending-based crowdfunding operates as a digital lending marketplace, typically connecting borrowers and lenders seeking financing on the condition that the bank is excluded from the lending scheme. This often results in lower costs and better interest rates for each party. In some cases, crowdlending platforms often bring in a partner bank to comply with regulatory requirements – while the platform does not bear the direct risk of default, it does not hold the loan on its balance sheet (instead, it receives a fee for managing payments and matching lenders and borrowers). While banks retain the strong position of traditional lenders (especially in terms of risk management expertise and large borrowers who receive cheaper loans), crowdlending platforms typically have lower funding costs and balance supply and demand in the financial market. Whether crowd-lending platforms can improve their risk management systems enough to significantly reduce interest rates and default losses depends on when crowd-lending dominates traditional banking services [*Moysidou & Hausberg, 2020; Vrontis, Christofi, Battisti & Graziano, 2021*].

Donation-based crowdfunding is a model used by charities and other non-profit organizations to implement social projects (funding without the expectation of profit). Because the donation-based model is largely based on an emotional connection between the donor and the campaign goal, it is sometimes called fan funding. Platforms that use this model often charge low transaction fees, which are partially covered by voluntary contributions from donors. Because donors often look for evidence that their spending (money) is being used ethically and effectively, charitable sites (such as betterplace.org) prioritize trust, transparency, and a sense of community [*Tafesse, 2021*].

Reward-based crowdfunding is a model that offers individuals who contribute to projects (from artworks to technological developments) monetary or material rewards. Participants benefit from early access to the product, exclusive editions of works, or personal thanks from the project authors, and the success of platforms based on this basis largely depends on convincing storytelling, as well as the ability of the project author to attract sponsors. This model allows creative people and small teams to test ideas and determine the level of interest in advance. For example, the principle of the Kickstarter platform is "all or nothing", that is, the project must receive the necessary funds within a certain period of time or receive nothing. At the same time, the platform itself plans and finances effective marketing, receiving payment only if the campaign reaches its goal, carries out verification procedures, rejecting a significant part of potential campaigns to maintain quality and user trust [*Hoque, 2024*].

Real estate crowdfunding model combines the principles of crowdfunding with real estate investments, modifying the activities of traditional real estate entities/companies, which in most cases are based on a combination of equity, subordinated and senior debt. The ability to invest in real estate online allows individuals to participate in projects that were previously owned by institutional companies, creating special platforms for consolidating financial resources from different investors, without granting ownership of the real estate itself, in order to reduce legal and financial problems. In the US and EU member states, the share of the real estate crowdfunding market is still insignificant compared to the overall real estate financing market, but investors are attracted by low entry barriers, openness and the opportunity to benefit from undervalued or small real estate assets that institutional players may not notice. For example, Fundrise selects only a small number of projects and uses marketing based on "*Modern Portfolio Theory 2.0*" to help bring private real estate into the asset allocation of the average investor. For both accredited and non-accredited investors, the platform has created *eREITs* and *eFunds* to keep entry costs manageable. However, its success has been based on so-called niche real estate deals worth up to a million dollars, where large funds and institutional investors tend not to compete [*Coakley, Lazos & Liñares-Zegarra, 2021*].

Although the crowdfunding model based on lending and equity has the potential to have a greater impact on traditional financial systems (than one based on donations and rewards), its competitive advantages over traditional banks remain low maintenance costs, customer relationships through platforms, and greater underwriting capabilities. As for the real estate crowdfunding model as part of a wide range of real estate financing, it demonstrates effectiveness in certain markets due to: a) the interest of private investors in low-cost real estate investments; b) ensuring transparency and careful monitoring of projects; c) rapid adaptation to changes in legislation. Platforms corresponding to these models are already becoming a powerful player in segments of the financial market, which were historically dominated by banks, large institutional investors, and specialized funds [*Galkiewicz & Galkiewicz, 2024*].

In general, crowdfunding is considered one of the first segments to gain popularity in the modern fintech ecosystem, but it does not attract the same interest from venture capital as alternative payment systems, RA or other advanced fintech solutions. The growth dynamics of this segment of the fintech market depends on, firstly, the level of maturity and competitiveness of platforms and the efficiency of their monetization; secondly, the successful use of technological advantages and digital tools such as BigData algorithms, AI, ML and investor interest in financing new crowdfunding projects. The advantages of crowdfunding models include the democratization of finance, the creation of communities (attracting millions of users in a matter of days to collaborate on specific projects) and the ability to provide small investors with access to opportunities that were previously unavailable to the startup and real estate sectors. Today, if crowdfunding campaigns and their platforms want to compete with banks, venture capitalists, and other reputable financial institutions, they must implement a robust infrastructure and ongoing oversight (in addition to public trust), effective credit scoring methods, or rigorous verification tools. While crowdfunding will not replace bank loans in the near future, these approaches demonstrate how creative and adaptable the crowdfunding alternative financing model can be, provided it meets demand, technological capabilities, and a favorable regulatory environment [*Baber & Fanea-Ivanovici, 2024*].

Conclusion. Today, a fundamental change in the relationship between traditional banks and fintech companies is taking place in the modern financial market. The banking sector, in the context of increased regulatory control and saturation with dominant players, faces three strategic options: cooperation with fintech companies, their acquisition or development of their own solutions. As the analysis shows, banks more often choose cooperation or independent development of fintech products. Fintech companies, working according to the same rules as traditional banks, demonstrate a stable growth in the number of transactions, and the volume of financing and acquisitions in the fintech industry remained quite high, sometimes indicating unstable business models. Consolidation of the fintech sector in the segment of alternative ways of offering financial services remains an

effective tool for expanding the client base even in conditions of high market competition. This is due to the synergistic effect of the strategic advantages of fintech companies due to, firstly, their deeper integration into financial ecosystems; secondly, the effectiveness of using business models based on the latest BigData, AI and ML technologies; thirdly, the growing interest from venture investors, which only strengthens the role of fintech in the transformation of the financial industry. At the same time, areas such as social trading and crowdfunding may remain niche, and blockchain-based fintech projects still need time to establish themselves in the market, other fintech segments (alternative fintech lending, RC, crowdfunding, cryptocurrencies) have shown obvious success and met the initial expectations of investors and clients/consumers.

The future development of the fintech industry will depend on the balance between technological innovation, demand for financial services, and financial regulation, which will determine how fintech companies will integrate into the global financial ecosystem. Even against the backdrop of the rapid growth of the global fintech sector within the modern global financial market (currently led by China, followed by the US and Europe) and the active development of financial technologies, the scale of integration of large technology corporations (such as *Amazon, Google*, and *Facebook*) into the banking sector remains uncertain. However, despite progress in understanding the business models of fintech industries, it remains difficult to determine which companies will become market leaders. In the long term, the financial industry is likely to evolve into a hybrid ecosystem, where fintech companies and traditional banks will coexist and complement each other. Each of these sectors will play an important role in the evolution of the global financial market, ensuring a balance between innovation and stability.

References.

1. CMI Consulting LLC. Global Fintech Technologies Market 2024–2033. [Electronic resource]. – Available at: https://www.custommarketinsights.com/report/fintech-technologies-market/
2. McKinsey & Company. (n.d.). Fintechs: A new paradigm of growth. [Electronic resource]. – Available at: https://www.mckinsey.com/industries/financial-services/our-insights/fintechs-a-new-paradigm-of-growth
3. Rubini A. (2019) Fintech founders: inspiring tales from the entrepreneurs that are changing finance. – De Gruyter – 598 p.
4. Brown S. (2020) The innovation ultimatum: six strategic technologies that will reshape every business in the 2020s. – Wiley – 320 p.
5. **Chishti** S., **Craddock** T., **Courtneidge** R., **Zachariadis** M. (2020) The PAYTECH Book: The Payment Technology Handbook for Investors, Entrepreneurs, and FinTech Visionaries. – Wiley – 256 p.
6. Sieber S., Guibaud S. (2022) Embedded Finance: When Payments Become An Experience. – Wiley – 256 p.
7. Smahlo O. V. (2023) Suchasnyy stan rozvytku rynku finansovykh tekhnolohiy. Tsyfrova ekonomika ta ekonomichna bezpeka, 6(06), s. 17–21. [Smaglo O.V.(2023) Current state of development of the financial technology market. *Digital Economy and Economic Security*, 6(06), p. 17–21]. [Electronic resource]. – Available at: http://www.dees.iei.od.ua/index.php/journal/article/view/161/141 [In Ukraine]
8. Babenko, A., Vovk, YE., Marchenko, B. (2024). Faktory ta vyklyky rozvytku fintech–industriyi. Ekonomika ta suspil′stvo, (61). [Babenko, A., Vovk, E., Marchenko, B. (2024) Factors and challenges of the development of the fintech industry. *Economy and Society*, (61).] [Electronic resource]. – Available at: https://economyandsociety.in.ua/index.php/journal/article/view/3876/3796 [In Ukraine]
9. Stavers′ka T., Lysak H., Prykhod′ko V. (2023) Fintekh i mabutnye finansovykh posluh: innovatsiyi u finansovomu sektori. Ekonomika. Finansy. Pravo, 10, 74-79. [Staverska T., Lysak G., Prykhodko V. (2023) Fintech and the future of financial services: innovations in the financial sector. *Economics.Finance.Law*, 10, 74-79.] [In Ukraine]

10. Obushnyy S. M., Arabadzhy K. V., Kostikova K. O. (2023) Finansovi tekhnolohiyi v Ukrayini: shlyakh do innovatsiy ta stabil′nosti. Yevropeys′kyy naukovyy zhurnal Ekonomichnykh ta Finansovykh innovatsiy, 1(11), 59–72 [Obushny S.M., Arabadzhi K.V., Kostikova K.O.(2023) Financial technologies in Ukraine: the path to innovation and stability. *European Scientific Journal of Economic and Financial Innovations*, 1(11), 59–72]. [Electronic resource]. – Available at: https://elibrary.kubg.edu.ua/id/eprint/45395/ [In Ukraine]
11. Imarc. Fintech Market Size, Share, Trends and Forecast by Deployment Mode, Technology, Application, End User, and Region, 2025-2033. [Electronic resource]. – Available at: https://www.imarcgroup.com/fintech-market
12. Duarte F. Fintech Market Size & Future Growth (2025-2029). [Electronic resource]. – Available at:https://explodingtopics.com/blog/fintech-market
13. Interkassa. Alternative Payment Methods and Their Relevance for Business. [Electronic resource]. – Available at: https://www.linkedin.com/pulse/alternative-payment-methods-relevance-business-interkassa-4e8vf
14. Rolfe A. (2023) Digital and alternative payment trends worldwide. [Electronic resource]. – Available at: https://www.paymentscardsandmobile.com/digital-and-alternative-payment-trends-worldwide/
15. Celestin M., Sujatha S. (2024) Understanding the shift to digital payments and its impact on consumer preferences: the role of fintech in shaping the future of payments. *International Journal of Advanced Nrands in Engineering Science and Technology*, 9(2), 66-73.
16. Abis, D., Pia, P.Limbu, Y. (2025) FinTech and consumers: a systematic review and integrative framework. *Management Decision*, 63(1), 49-75.
17. Harris, P., Douglas, R., & James, S. (2022). The Pitfalls of Integrating Digital Payment Systems in Traditional Retail Environments. *Technology and Business Journal*, 45(4), 201-220.
18. Dragt B. Alternative Payment Methods Are Taking Over Global Online Businesses. [Electronic resource]. – Available at: https://www.fintechweekly.com/magazine/articles/alternative-payment-methods-are-taking-over-global-online-businesses
19. Cao, L., Yang, Q., & Yu, P. S. (2021). Data science and AI in FinTech: An overview. *International Journal of Data Science and Analytics*, *12*(2), 81-99.
20. Alcazar J, Leyton-Ortega V, Perdomo-Ortiz A (2020) Classical versus quantum models in machine learning: insights from a finance application. *Machine Learning: Science and Technology*, 1(3), 35-62.
21. Market Data Forecast. (2024). Fintech Market Reports. [Electronic resource]. – Available at: https://www.marketdataforecast.com/market-reports/fintech-market
22. Payomatix. Fintech Innovation in the Payments Industry in 2023. [Electronic resource]. – Available at: https://www.linkedin.com/pulse/fintech-innovation-payments-industry-2023-payomatix
23. Statista: Digital Payments – Worldwide. [Electronic resource]. – Available at: https://www.statista.com/outlook/fmo/digital-payments/worldwide
24. Chaklader, B., Gupta, B., Panigrahi, P. (2023) Analyzing the progress of FINTECH-companies and their integration with new technologies for innovation and entrepreneurship. *Journal of Business Research*, 161, 113-147.
25. CEO Review (2023). Global Fintech Market Size Share & Analysis. [Electronic resource]. – Available at: https://www.ceo-review.com/global-fintech-market-size-share-analysis/
26. Vanguard Personal Advisor Review 2025. [Electronic resource]. – Available at: https://www.nerdwallet.com/reviews/investing/advisors/vanguard-personal-advisor-services
27. Suknanan J. (2023) Wealthfront vs. Betterment: Which is the best robo-advisor? [Electronic resource]. – Available at: https://www.cnbc.com/select/wealthfront-vs-betterment/
28. Yakal K. (2022) Personal Capital Review. [Electronic resource]. – Available at: https://www.pcmag.com/reviews/personal-capital
29. Una, G., Verma, M., et al. Fintech Payments in Public Financial Management: Benefits and Risks. IMF Working Paper No. 23/20, International Monetary Fund, Washington, DC. 2023.

[Electronic resource]. – Available at: https://www.imf.org/en/Publications/WP/Issues/2023/02/03/Fintech-Payments-in-Public-Financial-Management-Benefits-and-Risks-529100
30. Grinberg D. The Hottest Fintech Trends For 2025. [Electronic resource]. – Available at:https://www.techmagic.co/blog/fintech-trends
31. Barile, D., Secundo, G., Bussoli, C. (2024) Business Model Canvas. Exploring artificial intelligence robo-advisor in banking industry: a platform model. Management Decision, 19(2), 44-61.
32. Khanna P., Jha S. (2024) AI-Based Digital Product 'Robo-Advisory' for Financial Investors. [Electronic resource]. – Available at: https://journals.sagepub.com/doi/10.1177/09722629241298399
33. Martins M. N., Ashofteh A. (2023) A Systematic Review on Robo-Advisors in Fintech. [Electronic resource]. – Available at: https://www.researchgate.net/publication/375423764_A_Systematic_Review_on_Robot-Advisors_in_Fintech
34. Piehlmaier, D. M. (2022) Overconfidence and the adoption of robo-advice: Why overconfident investors drive the expansion of automated financial advice. *Financial Innovation*, 8(1), 1-24.
35. Aw, E. C. X., Leong, L. Y., Hew, J. J., Rana, N. P., Tan, T. M., & Jee, T. W. (2023). Counteracting dark sides of robo-advisors: justice, privacy and intrusion considerations. *International Journal of Bank Marketing*, 42(1), 133-151.
36. BRC. Crowdfunding Global Market Report 2025. [Electronic resource]. – Available at:https://www.thebusinessresearchcompany.com/report/crowdfunding-global-market-report
37. Belley B. (2025) 2024 Investment Crowdfunding: Trends, Stats, and Platform Rankings. [Electronic resource]. – Available at: https://kingscrowd.com/2024-investment-crowdfunding-trends-stats-and-platform-rankings/
38. Cerpentier, M., Vanacker, T., Paeleman, I., & Bringmann, K. (2022). Equity crowdfunding, market timing, and firm capital structure. *The Journal of Technology Transfer*, 47(6), 1766-1793.
39. Halim A. M. (2024) Does crowdfunding contribute to digital financial inclusion? *Research in Globalization*, 9. [Electronic resource]. – Available at: https://www.sciencedirect.com/science/article/pii/S2590051X24000479
40. Moysidou, K., &Hausberg, J. P. (2020) In crowdfunding we trust: A trust-building model in lending crowdfunding. *Journal of Small Business Management*, 58(3), 511-543.
41. Vrontis, D., Christofi, M., Battisti, E., Graziano, E. A. (2021). Intellectual capital, knowledge sharing and equity crowdfunding. *Journal of Intellectual Capital*, 22(1), 95-121.
42. Tafesse, W. (2021). Communicating crowdfunding campaigns: How message strategy, vivid media use and product type influence campaign success. *Journal of Business Research*, 127, 252-263.
43. Hoque, M.M. (2024) Crowdfunding for innovation: a comprehensive empirical review. *Future Business Journal*, 102. [Electronic resource]. – Available at: https://fbj.springeropen.com/articles/10.1186/s43093-024-00387-5
44. Coakley, J., Lazos, A., &Liñares-Zegarra, J. (2021). Strategic entrepreneurial choice between competing crowdfunding platforms. *The Journal of Technology Transfer*, 1–31.
45. Galkiewicz, D., &Galkiewicz, M. (2024). Funding and overfunding phenomena in crowdfunding: relevance of platform choice and varying industry dynamics. *Applied Finance Letters*, 13, 28-47.
46. Baber, H. & Fanea-Ivanovici, M. (2024) Fifteen years of crowdfunding – a bibliometric analysis, *Technology Analysis & Strategic Management*, 36(6), p. 1248-1262.