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TRANSFORMATION OF FINANCIAL INTERMEDIATION IN THE CONTEXT OF SPREAD OF DIGITAL TRENDS

Abstract. The article defines the essence, principles, transformation of functions and elements of financial intermediation management as the central institution of economic growth in the context of spread of digital trends. While considering the evolution of the concept of the business model of banks as financial intermediaries, the authors have revealed the principles of functioning of their adaptive business model in the conditions of proliferation of digitalization processes, wherein a customer-oriented sales approach, effective innovation development, and organizational flexibility became the main principles. To implement the adaptation business model, a system of transformation measures aiming at creating the main banking product, customer service technology, non-banking services has been substantiated. It has been proved that the evolutionary progress and the processes of digitalization led to the need of banks, based on the adaptive business model, to create an ecosystem as an effective integration market strategy that provides functional openness through any interface, the ability to create innovative products, interaction at the level of clients and institutions to increase cost, strengthening financial sustainability and increasing competitiveness. Modern tendencies concerning the transformation of the essence of an insurer as a subject of financial intermediation, principles and approaches of insurance of new types of assets and risks have been systematized; reactions to the spread of digital technologies and support of digital trends in the insurance market have been revealed; the need to change the insurers business model has been justified.

Keywords: innovation, financial innovation, financial intermediation, digital economy, FinTech, InsurTech.

Introduction. The globalization of economic relations, the limited resource base, and competition lead to the search for new principles for the effective management of financial intermediation development. The features of the latter are determined by the factors of the macroeconomic environment, namely, political, economic and institutional conditions, legislative regulation, financial infrastructure and level of its innovativeness.

Innovative development of financial intermediation has recently been influenced by the spread of digital trends, the main among which is FinTech. In particular, in 2018, FinTech received a record-high $ 41 billion for development, 78% up from the previous year, and over the period 2013-2018, funding increased by 61% on average. A significant segment of FinTech is consumer lending – almost $ 4 billion, which is 2.5 times the financing of the business lending segment ($ 1.5 billion). In the consumer lending segment, FinTech-companies offer consumers new ways to obtain personal loans and assess credit risks (P2P lending, microfinance, big data analytics, and consumer credit services) [1]. Other actively developing areas of financial intermediation digitalization are payment systems, investment management [3], financial trading, digital banking, and insurance [2].

At the same time, the innovative activity of financial intermediaries is depended on the concept of modern informatization [4] and digitalization as strategic priorities, implementation of the digital technologies in economy allowing the state, business, and society to interact effectively [5]. It is also related to the ability of financial intermediaries to introduce innovative financial services and the consumer demand for them, their level of financial literacy, awareness and experience with financial market instruments and their use.

This implies an increase in the target complexity of financial intermediation, where customer orientation, personalization and maximization of financial services customer satisfaction are added to traditional functions.

Methods of research. The issue of financial intermediation research is quite broad. In this aspect, the methodological basis for the development of the financial intermediation industry is formed by works of F. Allen, B. Bernanke, A. Berger, S. Freeman, G. Gorton, E. White, T.S. Campbell, R. Levine et al. Understanding the essence and current problems of financial intermediation is based not only on the theoretical and methodological basis, but also on solid empirical research, which is dedicated to determining the role of financial intermediaries in economic growth, violations of financial stability, the emergence of crisis phenomena, and the complexity of state regulation. But today the direction of financial innovations and financial technologies (FinTech) is unambiguously distinguished. They have attracted attention as drivers of innovative changes in traditional financial services and opened up a wide debate among regulators, financial market participants, consumers and scientists. The FinTech financing transformation processes are discussed with respect to the changes in internal business processes, the management of product and service promotion channels, financial analytics, the impact on the financial sector, competition, financial stability, regulatory organization (Alt and Puschmann [6], Davies et al. [7], Marjanovic and Murthy [8], S. Bunea, B. Kogan, A.-G. Kund [9]); T. Philippon [10], Gomber et al. [11], Pousttchi and Dehnert [12].

In the study of the problem aspects of financial intermediation, most researchers use two main approaches – a historical and evolutionary one, and a process one – in identifying the essence and role of FinTech in developing financial infrastructure, providing financial resources of the real sector of the economy, revealing various aspects of financial intermediation, financial sustainability of the intermediaries, their competition and interaction. The authors use the dialectic method, scientific generalization, as well as the institutional, systemic and analytical approaches for studying the functional features of modern digital technologies and assessing their potential, generalizing the practice of developing and introducing financial intermediaries of developed countries in order to determine the possibility of its further implementation.

The objective of the work is to study the principles of modern financial intermediation, identify strategic challenges and threats, and analyze the impact of digital technologies on the operational and functional activities of financial intermediaries, to substantiate the institutional, functional and social transformations of financial intermediation in a context of digital trends strengthening, and deepening of financial integration and convergence.

Results.

1. Basic principles of modern financial intermediation. Financial intermediation is the main institution of economic growth of the world national economies. Financial intermediation in the broadest sense is understood as a type of production activity in which an institutional unit assumes an obligation to acquire financial assets through participation in financial transactions in the market, and in the narrow sense, it means performing intermediary functions in the distribution of financial products or services. Today, we can state the disruption of stability of the structure of financial intermediation, the basis of which has long been formed by insurance companies, commercial banks, investment and pension funds, as financial conglomerates are forming, and high-tech companies of FinTech are entering the financial market, and their market activity has increased by 41% over the past five years.

Stability and success of financial intermediaries in the market can only be ensured by the efficient management of the flow of financial resources. Its main goals are to improve the quality of financial assets and perform intermediary functions, to ensure the optimal allocation of resources in the economy, and to generate profits. Achieving this is not possible without creating an integral and effective management system based on innovation, requiring a rethinking of organizational, procedural and other aspects of the activities of financial intermediaries. Herewith, the management process should be considered at the level of interdependence of objectives, division of responsibilities and powers with cost and performance management (table 1).

Practice shows that each stage of economic development corresponds to the forms of financial intermediation, which allow to understand its main motives. Thus, there is now a new stage in the expansion of financial intermediation, due to the dynamic development of modern digital technologies and the

Table 1 –The basic elements of financial intermediary activities management

Management	Elements of management	Directions in realization
Cost management	Attracting resources	Identifying customer needs
	Use of resources	Improving the quality of products and services
	Degree of profitability	Interest rate policy, liquidity management, risk management (forming reserves on financial instruments according to IFRS 9), financial security
Performance management	Technical capabilities	Stimulating the development of advanced technologies and products
	Accounting and control	Use of the accounting and reporting methodology according to IFRS for control purposes
	Analysis of results	Analysis of performance of planned results, management of deviations
	Personnel	Education, qualifications, competencies

emergence of such a phenomenon as FinTech, namely a new financial intermediary in the face of high-tech companies in the financial services market.

Taking into account the speed of change in the format of financial intermediation and the functioning of the financial services market with the involvement of FinTech, traditional financial intermediaries are trying to transform their business models for future development. The following principles are driving for them: 1) innovative modernization as a method of overcoming negative effects of crisis phenomena, increasing competition and disintermediation in the financial market; 2) the strategic priority which means the relevance of digital technologies introduction to the strategic priorities of financial intermediaries as development institutions; 3) strategic partnership – digitalization in the financial sector provides for deepening of financial integration on the basis of public-private partnership; 4) transparency of policy in the transparency and reliability of digital technologies; 5) personalization – the study of values and individual demand, the provision of personalized needs to take into account behavioral aspects of consumers in financial intermediation; 6) fair, reliable regulation – a moderate approach to regulatory controls, taking into account situational uncertainty, and self-regulation; 7) optimal balance of interests and risks – the will and capacity at the permissible risks of potentially negative effects to obtain the maximum positive effect of financial intermediation through the use of digital technologies.

2. The evolution of the concept of the business model of banks as financial intermediaries in the context of digitalization. Bank-centered financial systems in most countries determine the priorities, significance, universality, specialization and responsibility of banks as financial intermediaries. A business model reflects the business logic of the activities of a bank as a financial intermediary and evidence of its institutional positioning, creation of added value, generation of profit, own development and social value. However, the constancy of business models does not allow to respond promptly to changing market conditions, to fully use its own advantages of the existing customer base, established and diversified traditional channels of marketing of the banking product, access to funding sources and experience in organizing activities within regulatory constraints.

In recent years, the situation has changed fundamentally due to the emergence of FinTech, its high level of innovation and the use of the opportunity to enter the market of financial intermediation, guided by and using imbalances on the characteristics of the product offer of traditional participants and real needs and expectations of customers. The threat of losing market positions pushed banks to transform the business model and set up strategically mutually beneficial cooperation with FinTech-companies, that is, the construction of a business model adapted to the requirements and conditions of digitization. In such a business model, two subsystems can be distinguished: 1) work with clients, focused on the formation of the most qualitative client experience and its new value; 2) internal model of bank operation. This division defines the obligation of digital optimization of the mechanism of interaction with customers, creation of personalized banking products; provision of internal business processes of a bank; identification and understanding of customer needs (table 2).

The implementation of the principles laid down in the adaptation business model of a bank for further transformation into an ecosystem is carried out through the introduction of digital solutions (table 3).

Table 2 – Principles of functioning of the adaptation business model of a bank

Principle	Characteristics of properties
Client-oriented approach in implementing the product	greater personalization; instant interaction with the client in real time; accessible, transparent, reliable information about the bank; active actions of the bank, based on a deep understanding of client demands
Effective innovation development	reliable and effective IT support of the bank; continuous introduction of innovations; use of cloud technologies
Organizational flexibility	implementation of end-to-end internal processes; perception of the database as a separate asset; a deep understanding of the client and providing suggestions and prompts in real time; introduction of digital culture; organization of internal communication aimed at innovations in product development

Table 3 – Transformation directions of the adaptation business model of a bank

Direction	Transformation measures
The main banking product	developing end-to-end principles for digital products and services; implementing cross-products; advising clients on financial issues; providing product comparisons
Customer service technology	developing digital channels of interaction between the bank and the client; ensuring the highest level of privacy and customer data protection; monitoring client's impressions; Internet of Things; integration with social networks
Non-banking services	deep integration with non-banking services; partnership with non-banking institutions by opening an API and implementing joint projects

At the same time, non-traditional financial intermediaries seize the market and strengthen their own positions. They build business based on platforms and ecosystems, the fundamental difference of which is that the former are the online gateway or the integration layer between the back office systems of the bank and all its front-offices of interaction with customers, and the latter form an environment of effective interaction between banks, non-bank financial institutions and consumers around financial innovation to ensure the synergistic effect of their use and spread, as well as evolutionary development [13].

For example, for a product-oriented ecosystem, the goal is the value, that is offered through the product integrated with another, where the latter is used as the basic user interface. That is, the integration concept of the ecosystem is an effective market strategy, functional openness through any interface, the ability to create innovative products, and provide interoperability at the level of clients and institutions. If we consider the ecosystem at the bank level, then it can be noted that it is formed taking into account the existing business model and objective adaptation aspects, at the same time conceptually changing their logic, functional and technological paradigm (table 4).

Table 4 – The evolution of the concept of the business model of a bank

The traditional business model of a bank	The adaptation business model of the bank	Ecosystem
Satisfactory level of process automation	Digital end-to-end processes	Effective use of the API
Product implementation in service centers	Digital sales channels	The only digital channel for selling a multi-component product
Satisfactory level of service flexibility	Flexible and adaptive service	Deep integration with related services
Implementation of the product under generally defined conditions	Sales personalization	Extended personalization of multi-component product sales

The business model of Sberbank is illustrative as a client-centric ecosystem, when the bank becomes a platform for interaction in the "bank-client" relationship not only in the range of financial intermediary products and services, but also in the "society-client" and "bank-client-public-private partnership" relations. Digital technologies such as Open API (Open Application Programming Interface), Machine Learning, Big Data, Virtual reality technology, Artificial Intelligence, etc. are a unique gateway for this

kind of interaction and integration of financial and non-financial services. In this aspect, the adoption by the EU of the updating of the Payment Services Directive (PSD2) is essential to ensure an open architecture of financial services. It promotes consumer protection, regulates and clearly defines the interactions of financial intermediaries with regard to financial data and their accessibility for both banks and FinTech through the API.

In contrast, Ukrainian PrivatBank became the first bank in the world to open a public API that is currently used by almost 5,000 partners, including those outside Ukraine. The API allows transfers between bank cards, payments to cards of any bank of Ukraine and an international bank, purchase of Skype vouchers, selected face value, replenishment of mobile communication, sale of tickets for sports and leisure activities, etc.

Consequently, an ecosystem is the respond to the challenges of digitalization, which integrates business factors to increase value, strengthen financial sustainability and enhance competitiveness.

3. InsureTech is a new vector of insurance activity transformation. Digitalization processes are accompanied by the emergence of new types of risks, the complexity of which is due to the impossibility of quantification, the lack of relevant information on sources and causes of their occurrence, the effects of the impact and the size of potential losses for economic agents and financial intermediaries. This marked the emergence of InsurTech as an innovation of market players using information technology to provide solutions specific to the insurance industry [14].

The current trends in InsurTech should be considered from the point of view of transforming the insurer's essence as a subject of financial intermediation, the principles and approaches of insurance of new types of assets, the response to the proliferation of digital technologies in the insurance market and the need to change the business model.

In the context of the proliferation of digitalization processes, we are witnessing the transformation of the essence of an insurance company, namely: 1) a business entity – an insurance company that provides services connected with the protection of property interests of legal entities and citizens in case of an insurance event; 2) an institutional investor that attracts insurers' funds for further placement in income-earning assets, including digital ones; 3) an issuer developing share or debt securities, may be involved in the ICO mechanism, also when creating InsurTech; 4) a participant in information exchange – a miner; 5) a depositary user, namely, keeping his own funds in Bitcoin Wallets; 6) a participant in the sale and purchase of digital assets on special exchanges. Traditional functions of insurance intermediation acquire new features, and their implementation requires a balanced approach to achieving a compromise between income generation, redistribution of risks and compensation for losses.

Insurance companies act as active institutional investors, operate in the regulatory field and take into account legislative constraints. In investing activities, they must take into account investment risks and risks of investing in certain types of assets. Cryptographic assets and a growing demand for their insurance became something new in the practice of insurers. However, to date, digital assets do not refer to assets determined by the authorized body, which may be represented by insurance reserves. However, there is no direct prohibition on investing in free reserves in cryptographic assets. Therefore, the insurer decides on the expediency of placing funds in these assets, taking on the risk of possible losses from reducing their value and not receiving investment income. However, we note that the subjective nature of such a risk prevails over its objective nature, because it is speculative in content and not subject to insurance.

Thus, the emergence of cryptoassets as a new type of financial asset, and the development of the huge cryptocurrency market, on the one hand, lead to the need to insure cryptographic assets on deposit accounts, transactions and hedging risks of changing market conditions for the participant, and on the other hand, to the emergence of threats and new manifestations of financial risks for the insurer.

In particular, the latter are as follows: 1) credit – failure to fulfill contractual obligations by the counterparty of the insurer (issuer of cryptographic assets); 2) market – fluctuations in the value of assets; informational asymmetry, etc .; 3) operational – weaknesses in management, imperfection of the processes of information collection and processing, low level of control and reliability of technologies, errors and unauthorized personnel actions (internal fraud), etc.; 4) underwriting – lack of information for actuarial calculations; 5) investment – changes in market conditions. Among the needed mechanisms and means of reducing risk, there are schemes of insurance and service for insurance bonds through smart contracts, ratings of issuers, the model of scoring evaluation of ISO projects, the escrow mechanism, adapted risk management and reinsurance practices, etc.

Foreign practice demonstrates the integration of cryptocurrency exchange, digital investment platforms and international insurance brokers for risk insurance and insurance coverage, subject to legislative resolution. The spread of a new type of insurance, namely cyber insurance [15], is due to the need to provide institutional investors with reliable protection and safe storage of cryptographic assets on digital investment platforms, taking into account the growth and consequences of cyber attacks and cyber fraud. In particular, the participation of the insurance giants Lloyd's of London (Great Britain), Allianz (Germany), Hanwha Insurance (South Korea) indicates the promise of direct insurance of cryptographic asset safety services and guarantee of compensation for losses caused by cracking cryptocurrency exchanges.

At the same time, insurance companies are directly exposed to cyber-risk (internal and external), since they have significant amounts of information [16]. Violations of cyber resistance can lead to serious waste and losses, including the reputation and trust of society. In this connection, such actions are gaining importance in the insurance sector: by the regulator – the strengthening of control and supervision of common standards, and by insurers – the implementation of policies, procedures and technologies for ensuring cyber-stability on the basis of public-private partnership [17].

Digital technologies are objectively spread on the insurance market (table 5).

When solving the issue of integrating radical innovations, insurance companies make decisions about changing traditional business models, the development of which is extremely difficult to predict. Now, there is obviously a process of financial and technological integration of large international insurance companies and independent FinTech companies (Axel Springer, Plug and Play, Allianz, Startupbootcamp), that is, the desire to become the leaders in digital insurance. Other market participants may gradually be crowed out or become a small part of the market as a result of retaining the right to own customer data. The competition, which is currently gaining momentum, can gradually decrease as traditional insurers lose domination, and an integrated market is being formed. The information asymmetry will decrease, but will not be completely leveled.

Table 5 – Financial intermediary support for digital trends in the insurance market

Trend	Characteristic	Insurance companies which implemented the trend
Omni-channel	integration of various online and offline customer-centric communications channels into a single environment, self-service applications	Progressive Insurance (USA) Allianz Italy Intact Financial Corporation (Canada)
Virtual Digital Assistant, Chatbot	consulting financial assistance, purchase of insurance policy, preparation of an insurance offer	Lemonade (USA) PolicyPal (Singapore)
Big Data	financial analytics based on large amounts of information for market segmentation and personalization, fraud reduction, new driver discovery and improvement of claims settlement processes	John Hancock Financial, American Family Insurance, Nationwide Insurance (USA)
Digital signature, remote identification	transition to a digital form of insurance policy, ensuring mobility and efficiency, increase in productivity, cost reductions; behavioral biometrics	DAS Spain, Donegal Insurance Group, Gainsco Auto Insurance, American National (USA)
Blockchain	distributed data access, cost reductions, increased trust in online products, digital policies, smart contracts and claims administration	Ping An Insurance Group (China), American International Group (USA), AXA Group (France), Allianz (Germany)
Artificial Intelligence Technologies, AI	automation of insurance processes, portfolio management, credit analysis, machine learning for fraud prevention, underwriting and settlement of losses, risk assessment	Allianz (Germany) Mitsui Sumitomo (Japan) Lemonade (USA)
Internet of Things, IoT	new sources of information through the means of biometric monitoring, sensors of object control and geolocation systems, new opportunities in medical, personal and auto insurance	Munich Re (Germany) Progressive Insurance, Liberty Mutual Insurance, John Hancock Financial (USA)

Source: compiled on the basis of [18-22].

Ukrainian insurance companies have an interesting attitude regarding the support of digital trends. Today, InsurTech technology capabilities on the Ukrainian insurance market are represented by the following startups: CIVILKIN – a web service and mobile application for the selection, purchase and management of insurance policies, EWA – SaaS insurance platform, Alfa Protection – a service for protection in the field of e-commerce, INSART – an insurance broker, which provides customer advisory services on risk and financial management [23].

Thus, with almost 300 insurance companies, a significant IT potential, more than 100 thousand specialists, the attraction of direct investments in InsurTech startups, for example, $ 3.8 billion in 2016, Ukrainian insurance companies have a unique opportunity to use digital technologies for overcoming the technological lag behind banks and raise the market of insurance services, coping with increasing competitive challenges, improving the efficiency of key insurance processes, enhancing customer loyalty and interest.

Discussion of results and conclusion. The further development of financial intermediation determines further study of modern practice of its transformation under the influence of digital trends in order to resolve such urgent issues:

1. Strategic management of financial intermediaries' innovative activity at macro and macro levels in the following priority directions:

- improvement of legal support and regulation of financial market participants' activities in order to ensure financial stability;
- improvement of legislation in the field of financial services consumers' rights protection;
- expansion of financial infrastructure due to financial integration of financial intermediaries (banking and non-banking institutions) with the aim to expand the spectrum and to increase the level of accessibility and quality of financial services;
- transformation of philosophy, principles, structure of organizational and economic mechanism and business models of financial intermediation for the formation of effective high-tech institutions with innovative strategies and customer-oriented ecosystems domination.

2. Deepening of client-oriented approach by using modern digital technologies (Big Data, AI, IOT, blockchain, machine learning and etc.) for the formation of new financial services based on a personalized approach and segmentation of target consumer categories.

3. Monitoring and assessing the economic and social influence of digitalization on financial intermediation, welfare and quality of life in society.

The real economy and dynamic changes in the financial market require a highly effective financial integration of traditional financial intermediaries and FinTech-companies, which should receive institutional and regulatory support, thus forming powerful financial intermediation and maintaining financial stability. This will be facilitated by innovative openness and activity, informational transparency of financial intermediaries due to modern digital technologies, taking additional measures to protect consumers of financial services and standardizing the latter, forming consortia in the "science-education-financial intermediation-state-public" system of relations.

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САНДЫҚ ТРЕНДТЕРДІ ТАРАТУ БАРЫСЫНДА ҚАРЖЫЛЫҚ ДЕЛДАЛДЫЛЫҚТЫ ТРАНСФОРМАЦИЯЛАУ

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ТРАНСФОРМАЦИЯ ФИНАНСОВОГО ПОСРЕДНИЧЕСТВА В УСЛОВИЯХ РАСПРОСТРАНЕНИЯ ЦИФРОВЫХ ТРЕНДОВ

Аннотация. В статье определены сущность, принципы, трансформация функций и элементы управления финансовым посредничеством как центральным институтом экономического роста в условиях распространения цифровых трендов. Рассматривая эволюцию концепции бизнес-модели банков как финансовых посредников, выявлены принципы функционирования их адаптационной бизнес-модели в условиях распространения процессов цифровизации, где главными принципами стали клиенто-ориентированный подход при реализации продукта, эффективное инновационное развитие, организационная гибкость. Для реализации адаптационной бизнес-модели обоснована система трансформационных мероприятий в направлениях создания основного банковского продукта, технологии обслуживания клиентов, небанковских услуг. Доказано, что эволюционный прогресс и процессы цифровизации обусловили потребность банков на основе адаптационной бизнес-модели создавать экосистему как эффективную интеграционную рыночную стратегию, которая обеспечивает функциональную открытость через любой интерфейс, возможность создания инновационных продуктов, взаимодействие на уровне клиентов и учреждений для роста стоимости, укрепления финансовой устойчивости и повышения конкурентоспособности. Систематизированы современные тенденции относительно трансформации сущности страховщика как субъекта финансового посредничества, принципов и подходов страхования новых видов активов и рисков; выявлены реакции на распространение цифровых технологий и поддержки цифровых трендов на страховом рынке; обоснована необходимость изменения бизнес-модели страховщиков.

Ключевые слова: инновации, финансовые инновации, финансовое посредничество, цифровая экономика, FinTech, InsureTech.

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REFERENCES

[1] Fintech Exit Activity Reached Record Year in 2018. [Online]. Available: https://www.venturescanner.com/blog/tags/top%20fintech%20companies (in Eng.).

[2] Pantielieieva N., Krynytsia S., Zhezherun Y., Rebryk M., Potapenko L. (2018) Digitization of the Economy of Ukraine: Strategic Challenges and Implementation Technologies // IEEE 9th International Conference on Dependable Systems, Services and Technologies (DESSERT). P. 508-515. doi:10.1109/DESSERT.2018.8409186 (in Eng.).

[3] Mergenbaeva T., Nurasheva K.K., Kulanova D.A., Abdikerimova G.I., Abishova A.U., Alibek A. (2019) IPO Market: transformation of savings into investments // Bulletin of National academy of sciences of the Republic of Kazakhstan. 2019. Vol. 1, N 377. P. 119-125. ISSN 2518-1467 (Online), ISSN 1991-3494 (Print) https://doi.org/10.32014/2019.2518-1467.14 (in Eng.).

[4] Kenzhebayeva Zh.E., Yeskendirova D.M., Abdurakhmanova A.A., Bainazarova R.M., Sarieva A.M., Pestvenidze T.K. (2018) System analysis, management and processing of information // Bulletin of National academy of sciences of the Republic of Kazakhstan. 2018. Vol. 5, N 375. P. 124-128. ISSN 2518-1467 (Online), ISSN 1991-3494 (Print) https://doi.org/10.32014/2018.2518-1467.16 (in Eng.).

[5] Kushzhanov N.V., Balginova K.M., Maydangalieva Z.A., Satygalieva G.B., Dashqin Mahammadli. (2018) The digital Kazakhstan. The developmemt of human resourses in education // Bulletin of National academy of sciences of the Republic of Kazakhstan. 2018. Vol. 6, N 376. P. 82-94. ISSN 2518-1467 (Online), ISSN 1991-3494 (Print). https://doi.org/10.32014/2018.2518-1467.31 (in Eng.).

[6] Alt R., Puschmann T. (2012) The rise of customer-oriented banking – electronic markets are paving the way for change in the financial industry // Electronic Markets. 22(4): 203-215. doi:10.1007/s12525-012-0106-2 (in Eng.).

[7] Davies S., Jackett D., Kashyap M., Nicolacakis D. et al. Customers in the spotlight: How FinTech is reshaping banking // Global FinTech Survey. 2016. [Online]. Available: PricewaterhouseCoopers. https://www.pwc.com/il/he/bankim/assets/fintech-banking.pdf (in Eng.).

[8] Marjanovic O., Murthy V. (2016) From product-centric to customer-centric services in a financial institution – Exploring the organizational challenges of the transition process // Information Systems Frontiers. 18(3): 479-497. doi:10.1007/s10796-015-9606-x (in Eng.).

[9] Bunea S., Kogan B., Kund A.-G., Stolin D. Fintech and the banking bandwagon // Journal of Financial Transformation. 2018. 47:25-33. (in Eng.).

[10] Philippon T. The FinTech Opportunity // The National Bureau of Economic Research. 2016. doi:10.3386/w22476 (in Eng.).

[11] Gomber P., Koch J.-A., Siering M. Digital finance and FinTech: Current research and future research directions // Journal of Business Economics. 2017. 87(5):537-580. doi:10.1007/s11573-017-0852-x (in Eng.).

[12] Pousttchi K., Dehnert M. Exploring the digitalization impact on consumer decision making in retail banking // Electronic Markets. 2018. 28(3):265-286. doi:10.1007/s12525-017-0283-0 (in Eng.).

[13] Dapp Th.F. Fintech reloaded – Traditional banks as digital ecosystems. 2015. ISSN 1612-314X [Online]. Available: https://www.deutschebank.nl/nl/docs/Fintech_reloaded_Traditional_banks_as_digital_ecosystems.pdf (in Eng.).

[14] Stöckli E., Dremel C., Uebernickel F. Exploring characteristics and transformational capabilities of InsurTech innovations to understand insurance value creation in a digital world // Electronic Markets. 2018. 28(3):287-305. doi:10.1007/s12525-018-0304-7 (in Eng.).

[15] CRO Forum. The Cyber Risk Challenge and the Role of Insurance (2014) [Online]. Available: https://www.thecroforum.org/wp-content/uploads/2015/01/Cyber-Risk-Paper-version-24-1.pdf (in Eng.).

[16] Safarov R., Kushzhanov N. Methods for improving the socio-economic efficiency of state regulation of insurance activities in the digital economy // Bulletin of National academy of sciences of the Republic of Kazakhstan. 2018. 3(373):130-136. ISSN 1991-3494 (in Eng.).

[17] Issues Paper on Cyber Risk to the Insurance Sector (2016) [Online]. Available: https://www.iaisweb.org/page/supervisory-material/issues-papers//file/61857/issues-paper-on-cyber-risk-to-the-insurance-sector (in Eng.).

[18] Global State of FinTech Report (2018) [Online]. Available: https://gomedici.com/state-of-fintech-2018/ (in Eng.).

[19] The Internet of Things in insurance: shaping the right strategy, managing the right risks (2016) [Online]. Available: https://www.ey.com/Publication/vwLUAssets/EY_-_The_internet_of_things_in_insurance/$FILE/EY-the-internet-of-things-in-insurance.pdf (in Eng.).

[20] The Impact of Big Data on the Future of Insurance (2016) [Online]. Available: https://actuaries.asn.au/library/opinion/2016/bigdatagpweb.pdf (in Eng.)

[21] Big Data and Insurance: Implications for Innovation, Competition and Privacy (2018) [Online]. Available: https://www.genevaassociation.org/sites/default/files/research-topics-document-type/pdf_public/big_data_and_insurance_-_implications_for_innovation_competition_and_privacy.pdf (in Eng.).

[22] Insurance 2030 – The impact of AI on the future of insurance [Online]. Available: https://www.mckinsey.com/industries/financial-services/our-insights/insurance-2030-the-impact-of-ai-on-the-future-of-insurance (in Eng.).

[23] The FinTech in Ukraine report (2018) USAID Financial Sector Transformation Project [Online]. Available: http://data.unit.city/fintech/fgt34ko67mok/fintech_in_Ukraine_2018_en.pdf. (in Eng.).

[24] Nailya K. Nurlanova, Anel A. Kireyeva, Rashid M. Ruzanov // Journal of Asian Finance, Economics and Business. 2017. Vol. 4, N 2. P. 37-44 37. Print ISSN 2288-4637. Online ISSN 2288-4645. Evaluation of Economic Potential and Level of Concentration of the Regions of Kazakhstan Received: March 8, 2017. Revised: April 25, 2017. Accepted: May 2, 2017. https://doi:10.13106/jafeb.2017.vol4.no2.37

[25] Sagiyeva R., Zhuparova A., Ruzanov R., Doszhan R., Askerov A. 2018. Intellectual input of development by knowledge-based economy: problems of measuring in countries with developing markets // Entrepreneurship and Sustainability. Issues 6(2). P. 711-728. https://doi:org/10.9770/jesi.2018.6.2(17)

[26] Kosherbayeva N.A., Abdreimova K., Kosherba G., Anuarbek A. Synthesis of achievements of world mankind in humanity pedagogy // Procedia - Social and Behavioral Sciences. 2013. 89. P. 886-889. https://doi:org/10.1016/j.sbspro.2013.08.950

[27] Kassymova G.K., Arpentieva M.R., Kosherbayeva A.N., Triyono M.B., Sangilbayev S.O., Kenzhaliyev B.K. (2019). Science, education & cognitive competence based on e-learning // Bulletin of the National academy of sciences of the Republic of Kazakhstan. 2019. Vol. 1. P. 269-278. https://doi.org/10.32014/2019.2518-1467.31

[28] Alibekova G., Panzabekova A., Satpayeva Z., Abilkayir N. // IOP Conference Series: Earth and Environmental Science IOP Conf. Series: Earth and Environmental Science. 2018. 177. 012010 (Web of Science Conference Proceedings Index и Scopus). https://doi:10.1088/1755-1315/177/1/012010

[29] Azatbek T., Panzabekova A., Bekenova L., Yegizbyeva Zh. The share of drug trafficking in Kazakhstan's GDP: methods for evaluation // Economic Annals - XXI. 2017. 166(7-8). P. 31-36 (Scopus). https://doi.org/10.21003/ea.V166-06

[30] Khalitova M.M., Praliev G.S., Panzabekova A.Z., Andreeva Z.M., Dzhubaliyeva Z.A. Financial instruments of state regulation industrial and innovative development of Kazakhstan economy // Life Sci J. 2014. 11(10s). P. 369-378. ISSN 1097-8135. http://www.lifesciencesite.com.70

[31] Khalitova M.M., Panzabekova A.Z., Berstembaeva R.K. Government debt of Kazakhstan under conditions ofthe global financial system`s instability // Life Sci J. 2014. 11(4s). P. 354-35. ISSN 1097-8135. http://www.lifesciencesite.com.63