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# REPORT*
# "Development of Financial Technologies in the BSEC Member States"

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## I. INTRODUCTION

1. In the 21st century, financial and technological innovations are developing rapidly and fundamentally change the contemporary world and require a new architecture for the global financial system. Financial and technological innovations lead to an accelerated growth in financial flows from the commercialization of these innovations. All these have a great impact on the financial services sector, and, therefore, financial technology (FinTech) poses new challenges to governments and private companies.
2. The main activity of FinTech companies is aimed at creating innovative technological solutions for financial firms in order to increase their efficiency, optimize customer service, and improve user convenience. Every year, FinTech is increasingly used in other industries, for example, in the field of automation in insurance, risk management, as well as in trade, telecommunications, entertainment, etc. The key financial technologies today are cloud technologies, robotic process automation, digital transformation, artificial intelligence, blockchain, etc.
3. Today, new technologies (digital, telecommunication, biometric, etc.) are reshaping financial services industry, extensively pushing out traditional actors and traditional business models. Integration of new financial solutions allows adjustment of consumption patterns, reduction of costs, increase in the efficiency and quality of business processes, and significantly affects sustainability of business development. As a result, the financial technology industry is gradually turning into an independent highly developing sector of modern economy.
4. No matter how quickly and efficiently FinTech goals are achieved in various countries, the trend of using technologies for providing the best financial products and services completely changes the nature of the financial industry for the better. The modern digital revolution provides a wider range of new and potential financial products and services.
5. The global financial technology market is one of the fastest growing in the world. According to the experts, the number of financial technology users in the world annually grows by 15-20 % that is primarily promoted by the global use of the Internet. According to the preliminary estimates in 2019, the total volume of transactions in financial terms in key segments of this sector (payments, transfers, personal and corporate finances) was 5.1 trillion USD (more than 24 % compared to 2018).
6. According to the estimates of the consulting company KPMG, in 2018 FinTech start-ups attracted 120 billion USD - a record amount of funds from private investors from around the world, while in the first half of 2019 the global investments in FinTech companies reached 37.9 billion USD. Over the past 4 years, the use of financial technology in the world has grown by 48 %, and the penetration rate of FinTech services has grown from 16 % in 2015 to 64 % in 2019. The main areas of financial investments are in electronic money, plastic card services, P2P transfers, new payment infrastructure, Internet acquiring systems, mobile POS terminals, online credit, etc.
7. The present Report uses the information received from the national delegations of Armenia, Bulgaria, Greece, Moldova, Romania, Russia, Serbia, Turkey and Ukraine. It also uses the research material, reports of relevant international organizations, as well as the information from various Internet sources.

## II. TRENDS IN DEVELOPMENT OF FINANCIAL TECHNOLOGIES

8. Financial technology (FinTech) is an industry consisting of companies using new technologies and innovation that allow them to compete in providing financial services at the market of traditional financial institutions and intermediaries. At present, FinTech is constituted by many

technology start-ups as well as large companies that try to improve and optimize the financial services.

9. The FinTech popularity growth began in 2008, when the global financial crisis forced financial companies to cut their costs. During this period, the population began to lose confidence in traditional financial products and instruments. The factors like higher Internet penetration and digitalization covering almost all spheres of human life, including the financial sector, started to actively stimulate development of the financial technology sector. Portable gadgets (smartphones, tablets, smart watches, etc.) made it possible for a person to be in the cyberspace around the clock, where gradually take place trade, education, communication, entertainment, employment, etc. As a result, new living conditions dictate new financial practices.

10. Major companies like Apple, Alibaba Group, and Amazon have been working successfully in the FinTech field introducing new financial technologies. Due to the recognition and credibility of these companies, as well as the fact that millions purchase their products, each year the number of those involved in FinTech projects are increasing.

11. The fact that the FinTech sector has great potential is also indicated by the number of companies and services with a capitalization of more than 1 billion USD. According to the CB Insights, today FinTech companies take first place in terms of capitalization and the number of all categories of unicorn companies[1]. For example, the largest FinTech project in Asia Lu.com is valued at 18.5 billion USD, while the largest in the United States (Stripe) - at 9.2 billion USD.

12. Drivers of progress in this area are not only technological progress and growing electronic commerce, but also the Millennial Generation (the first generation thoroughly involved in digital technologies), who trust smart technologies more than classic financial institutions. According to the international financial institution BIS, in 2019, banks lost 25% of the payment market due to FinTech projects. The experts are sure that this is a permanent trend rather than a temporary phenomenon. After all, FinTech start-ups adapt and change more easily unlike the conservative banks that need time to change the elements that have long been working on the market. As the world practice shows these organizations respond to market changes more quickly compared to the traditional financial organizations. They introduce quickly completely new products and services. The target audience for these start-ups are the new generation consumers who have grown up using digital technology.

13. It should be specially noted that there are diverse actors in this new industry. There is no doubt that FinTech start-ups share their locomotive function with the traditional financial organizations who actively invest in modern technologies with the aim to strengthen their position and not to leave much room for innovative companies to maneuver. Financial technologies actively penetrate other areas. Today, large Internet corporations, telecommunications companies, retailers, car manufacturers, electronics manufacturers and some other non-financial actors owing large client bases, are becoming competitors to financial organizations.

14. The development of financial technologies modernizes to a greater extent the traditional financial services and products in several areas: payments and transfers: online payment services, online transfer services, P2P currency exchange (transfers between individuals), B2B

[1] *In recent years, the global economy has witnessed immense growth in unicorn companies in high-tech areas: artificial intelligence, cloud computing, big data, etc. China currently holds the second place in the world in terms of the number of these companies following the United States.*

payment and transfer services (transfers between legal entities) ), cloud cash desks and smart terminals, mass payment services; Financing: P2P consumer loans, P2P business loans, crowdfunding; capital management: robo-advisers, financial planning programs and applications, social trading, algorithmic exchange trading, target savings services.

15. Today, the new generation technologies directly connected to the Internet are influencing the financial market. Examples of such technologies are:

    - Mobile technologies - combination of mobile devices and applications using wireless communication. Mobile communications infrastructure is growing rapidly. Mobile Internet access is growing very fast. At the same time increasingly develops mobile device manufacturing (smartphones, smart watches, smart rings, etc.). The solutions become rather multi-functional.

16. As for the financial sector, the development of mobile technologies resulted in appearance of various direction - mobile banking, which implies management of bank accounts using mobile devices: smartphones, tablets, smart watches, etc. In general, a special application is downloaded to a mobile device. In addition, special mobile devices are developed with the aim to simplify the financial services and increase customer loyalty.

    - Big Data - structured and unstructured large volumes of data, as well as technologies for their processing and utilisation, methods for finding the necessary information in large data arrays. The data sources are various Internet publications, social networks, bank card transactions, radio frequency identification, audio and video recording devices, etc. Big data analytics allows financial organizations to identify new consumer categories, create the personalized products, etc.

    - Artificial Intelligence - technologies that allow creation of machine intelligence and programs that can demonstrate creative functions that are traditionally performed by humans (for example, writing music, literature, etc.). Artificial intelligence-based technologies allow financial companies to work in a proactive manner and provide the most personalized services with reduced costs.

    - Digital Currency Technology - digital currency is a type of funds without material embodiment that can be used by both individuals and legal entities as full-fledged currency. The use of digital payment methods does not require opening of an account in a traditional bank. Just an online registration in the appropriate payment system is enough.

17. Today, there are two types of digital currencies - electronic wallets (for example, PayPal, WebMoney, ApplePay, etc.) and cryptocurrencies (Bitcoin, Litecoin, Ethereum, etc.). Replenishment of e-wallets can be done by "traditional" money, while cryptocurrency mining, exchange and accounting are done through cryptographic algorithms and encryption. At the same time, all cryptocurrencies are based on blockchain technology (technology of distributed registry) - a chain of information blocks arranged in strict sequence and specific rules. Each record contains information on ownership history, which makes it extremely difficult to falsify information. FinTech projects based on blockchain technology are spreading rapidly throughout the world.

18. Some countries have already recognized cryptocurrencies as a full-fledged means of payment and even began to develop their own state cryptocurrencies. Some countries have restricted the use of cryptocurrencies or completely prohibited them as a threat to the state of limiting its exclusive right to issue currency.

- Virtual and Augmented Reality. Virtual reality is the use of computer technology to simulate environment perceived by a person through his abilities to apprehend information (vision, hearing, touch, smell, etc.). To create a convincing complex of sensations of reality, a computer synthesis of properties and reactions of virtual reality is performed in real time. Augmented or mixed reality is an extension of the reality that allows real and virtual elements to interact in real time using computerized devices.

19. The classic financial institutions and FinTech start-ups are actively using virtual and augmented reality technologies in order to improve the quality of remote services and increase customer loyalty. For example, opening of full-featured virtual departments, creation of financial literacy training services, organization of virtual entertainment venues for the customers, etc.

- Contactless Technology - short-range wireless technology requiring a separation of 10 cm or less. Information from the objects is read through radio signals. Today, such technologies are integrated into smartphones, tablets, smart watches, plastic cards, etc. As for their utilisation in the financial sector, it is the process of making contactless payments using devices, usually with an integrated Near Field Communication (NFC) chip - smartphones, bracelets, etc.

- Biometric Technology is based on biometrics, measuring the unique characteristics of an individual including dynamic (behavioural) and static (physiological) characteristics. Behavioural features include voice, gesture, gait, etc. Physiological features include fingerprints, face geometry, retina, etc. In the financial sector, biometrics are used in identification and authentication systems to increase transaction security.

- Neobank (digital bank) - a new concept in banking, which implies a bank that operates without offices, attendants and paperwork. At the same time, banking services are performed through mobile applications, the Internet, robotic consulting, etc. All these allow the bank to minimize costs, increase the speed of service up to real-time, provide an individual approach in customer service, achieve round-the-clock banking services with 24/7 operation pattern and, as a result, reduce tariffs. It is predicted that 35-50% of bank customers will be using a mobile banking in 2020.

20. It should be noted that FinTech industry affects the global financial markets. According to the experts, the introduction of new technologies contributes to increased competition in the financial markets. The product offers are augmented and personalized and their access is simplified. The boundaries between the financial products and lifestyle-oriented services are gradually disappearing, setting the new standards. New flexible business models appear and develop that allow entering a new market niche. For example, P2P services have become the most important form of new relationships arising from the development of the FinTech industry. Majority of the global FinTech investments are including the projects related to payments and loans. According to the forecasts by the international consulting and auditing company PricewaterhouseCoopers (PwC), already in 2020 FinTech will be able to conquer 28% of the banking and payments market and up to 22% of the insurance, asset management, and private capital management market.

21. Innovation also helps increase business efficiency. According to the experts, the cost of supporting any transactions related to finances is reduced in the world. New solutions help to significantly reduce the cost of attracting clients and serving them, evaluate existing risks and prevent the new ones, find new sources of income, etc. At the same time, business transparency

is increased. Distributed systems are gradually restructuring the existing business models, making them as transparent as possible.

22. The use of big data analytics tools allows financial companies to separate new categories of potential customers, develop targeted offers, improve customer service, thereby increasing their loyalty. As practice shows, the customers who have already used technological services, wish to see the fundamentally new interaction with the financial institutions.

23. Despite the noticeable and significant positive effect of the FinTech market development, there are some risk-factors that have negative impact. Three risk-groups may be differentiated as follows: Infrastructural risks - the main infrastructural risk is the magnitude of the consequences resulted from an error in automated processes. The risk of impossibility to ensure proper infrastructural work may occur not only in case of cyber risks, but also when a technological failure emerges in any business process. Economic risks - one of the main economic risks is the risk of increased credits by population and business (online-crediting is one of the main products on the FinTech market today), and if real income is decreased it will result in increased debts, non-return debts, decline in living standards and weakened economy as a whole. However, this risk factor directly depends on the quality of the provided financial services which cannot be high without development of financial technologies. Social risks - FinTech companies, like any other technology companies, have a significant impact on labour market. Firstly, the creation of new services through the automation/robotization of existing processes leads to a reduction in the personnel who performed these functions before. Secondly, from the point of view of employing personnel, FinTech companies are oriented towards the younger generation, that increases inequality in availability of vacancies for the population of the older age group (50 years or more). It should be noted that the above risk factors are relevant not only for the FinTech market, and therefore, it is important that the development goes parallel to the transformation of the educational system to ensure training of specialists necessary for the digitalised world.

24. The digital revolution which followed the emergence and enhancement of innovative technologies poses new challenges and tasks to the society. One of the strategically important challenges is the threat to information security.

25. Participants in financial transactions need to be ensured in data security, minimization of cyber risks and protection against cyber threats. Growing financial damage from cyberattacks along with increasing volume of information data stored in the networks calls for the development of new instruments to ensure information security.

26. At the same time, from macroeconomic point of view, government support is necessary for the development of financial technology market and creation of a sound infrastructure, which entails significant costs for the government. At present, there is a big number of private FinTech companies on the market existing for only a few years, which indicates to the “young age” of this market and lack of its maturity. To this end, creation of the necessary market infrastructure requires large labour and capital investments from both the state and the business.

27. **International organizations**. At present, the international organizations like the Financial Stability Board (SPS), the Bank for International Settlements (BIS), the Basel Committee on Banking Supervision (BCBS), the Committee on Payments and Market Infrastructures (CPMI), the International Organization of Securities Commissions (IOSCO) and the International Association of Insurance Supervisory Authorities (IAOSN) are analysing the consequences of the financial technology development. They have drawn up the priorities and

the lists of regulatory and oversight issues that provide very valuable information to national governments. The Financial Action Task Force on Money Laundering (FATF) has issued guidelines on the application of anti-money laundering and anti-terrorist financing (AML/ CFT) standards for new payment methods.

28. **International cooperation**. Today there are some efforts for increasing international cooperation. The FinTech problems are higher on the agenda of many international and regional organisations. This cooperation is taking shape also by means of the exchange of information and good practice. However, a viable framework for comprehensive coverage of various FinTech issues does not exist yet. Such a framework could facilitate further cooperation between the industry and regulators (financial and technological regulatory body, antimonopoly regulatory body) both at the national and international levels. This would create a favourable international climate for using the opportunities that financial technologies offer, along with mitigating the risks of regulatory arbitration and potential inconsistencies in the case of cross-border application of laws and regulations.

29. There is no doubt that the development of new financial products requires new mechanisms of economic security. The emergence and enhancement of supranational payment systems poses a serious threat to the states as such, because of the possible transition of economic entities from the state-controlled payment systems. The success of the FinTech development in a country largely depends on the state regulation in this area. Working groups at the governmental level are created in some countries to develop legislation in FinTech sphere. For example, with the introduction of the updated Payment Services Directive in the European Union, the focus of regulation has shifted to financial companies that offer banking services, API platforms with support for big data and advanced analytics. The partnership between FinTech companies and the governmental bodies are also developing in the Asian countries.

## III. SITUATION IN FINANCIAL TECHNOLOGY SPHERE IN THE BSEC MEMBER STATES

30. Innovative projects are regularly initiated by licensed financial organizations (in accordance with **Republic of Armenia** law “On Licensing” from 30.05.2001), which are implemented either in-house or by outsourcing implementation to partner organizations (in accordance with Central Bank of Armenia regulation “On obtaining preliminary permission of the Central Bank for outsourcing of financial services defined by law for banks” from 25.07.2018).

31. Certain banks and financial organizations, such as e-money an e-wallet operators (acting under RA law "On payment-settlement system and payment-settlement organizations" from 24.11.2004 and Central Bank Regulation 18 "On granting permission for creation and operation of Armenian payment-settlement system" from 08.06.2005), are considerably advanced in financial technologies. They are offering their products and services through fully digital channels, including remote customer identification and onboarding, access to advanced online and mobile banking via websites and mobile applications, NFC-enabled payment cards, QR-code payments, online underwriting and compensation processes under ASWA system, quick loans etc.

32. The Government and the Central Bank of Armenia maintain ongoing work and are developing plans for several initiatives aimed at supporting the development of financial technology, as well as matching best international regulatory practice, fostering financial inclusion, and strengthening international integration of Armenia’s financial system, including: organizing a “Payment Forum” discussion platform, which will enable better communication between the regulatory bodies and the business community through regular meetups, conferences and

expos; development of national fast payments system together with “STAK Money Transfer” CJSC, the designated operator of the system; developing plans to cooperate with financial companies, IT companies and leading universities to create a productive Fintech environment, including a specialized accelerator for Fintech startups and SMEs, which will catalyze influx of innovation into financial sector; researching the extensive topic of Digital Transformation in relation to banks and other financial organizations, in order to enable and guide their transition into the future digital financial system; closely following international regulatory practice on new technology such as blockchain, Digital Identity Management, E-money and Digital Payments, Protection of Personal Data; close cooperation with Central and National Banks of Eurasian Economic Union (EAEU), most notably around a large common project called "Development of National Payment System", which includes detailed action plans on topic such as cooperation of national payment card system, adoption of ISO 20022 standard for financial messages, development of a system for transmission of financial messages and settlement, harmonization of regulation of financial technologies, implementation of cross-border remote identification mechanisms, development of Open APLs, implementation of digital letters of credit, bank guarantees and bills of sale, cooperation of national fast payment system, and in the field of cybersecurity.

33. Over the past five years the sector of financial technology in **Bulgaria** acquired its appearance - its contribution to the national economy for 2018 reached 0.5%, while its results in traditional sectors are remarkable - revenues increased by over 30% annually. The sector relies entirely on private investment. It is in progress as it offers vast opportunities for entrepreneurs and professionals but needs institutional support to strengthen and develop without lagging behind the pace of global competition.

34. 65 companies form the financial technologies sector in Bulgaria. Thus, the country is ranked first among the countries of South-eastern Europe in the number of business start-ups. One third of the companies are established companies with a long history as ePay.bg (2000), Datecs (1990), Trader.bg, Transact Europe (1997), and the rest are the result of start-up enthusiasm in recent years, especially in the period 2014-2018.

35. The average age of FinTech companies in Bulgaria is six years, and the main area of manifestation is payments, investment in capital markets and personal finances by consumer lending. Most of them (54 companies) are based in Sofia, 4 - in other cities (Varna, Plovdiv, Burgas) and 7 are companies established in partnership with Bulgarian entrepreneurs in foreign jurisdictions such as Estonia, France, Germany, Malta, Cayman Islands.

36. A major market for their products and services is the local market, Central and Eastern Europe. Total revenues of the companies in the sector for 2018 were 212.5 million Euro, an increase of 33.5% on an annual basis. Net profit was 59 million Euro compared to 23.3 million Euro for 2017. The average revenue per employee in the sector is 78,300 Euro per year compared to 63,200 Euro in 2017. Its highest is in the segment “personal finance” (243,000 Euro per employee per year) compared to 60,900 Euro annual revenue per employee in the segment “payments”.

37. The supervision on the activities of payment service providers in Bulgaria (Banks, payment institutions, electronic money institutions and account information service providers) is performed by the Bulgarian National Bank, which licenses and registers them in accordance with specified functions in the Bulgarian National Bank Law and the applicable sectoral legislation for their activities - the Credit Institutions Act, the Law on payment services and payment systems (LPSPS) and regulations for their implementation. Payment service

providers can provide services included in their license and by the use of innovative FinTech solutions in their operations they should be able to provide and ensure the compliance with regulatory requirements to their operations and minimization of the risks associated with fraud, cybersecurity, personal data security, money laundering and terrorist financing, etc.

38. In **Greece**, licensed and supervised by the Bank of Greece (BoG), the FinTech companies are mainly active in payment and e-money services, with e-wallet commodity as base product.

39. In addition, 386 payment institutions from 24 Member States of the European Economic Area (EEA) and 176 electronic money institutions from 17 EEA Member States, operating with a Community passport, have announced their intention to provide services in Greece without establishment in the country.

40. In 2015, there were 8 active crowdfunding (CF) platforms in Greece, with only two of them being equity-based CF platforms and the rest being CF donation platforms.

41. The Bank of Greece is responsible for the licensing and prudential supervision of payment institutions, pursuant to Article 23 (1) of Law 4537/2018 (replacing Law 3862/2010) which incorporated provisions of Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on "payment services in the internal market, amending Directives 2002/65 / EC, 2009/110 / EC and 2013/36 / EU and Regulation (EU) 1093/2010 and repealing Directive 2007/64 / EC".

42. In accordance with the authorization provided by the aforementioned law, the Bank of Greece is in the process of issuing an Executive Committee Act on the terms and conditions for the establishment and operation of authorization and supervision rules for Payment Institutions, Electronic Money Institutions as well as for account information service providers and payment initiation service providers.

43. Bank of Greece progress in the field of FinTech: FinTech Innovation Hub launched on Bank of Greece site on 02.03.2019, along with the simultaneous establishment of a working group responsible for supporting FinTech Innovation Hub effective operation and updating its content. Requests for information and guidance submitted are approximately 30; completion of Executive Committee Acts (RIPs) for PSD2 purposes and a pending RIP for AML purposes (expected to be completed by 2020); encouragement towards extensive use of international standards APIs Open Banking Standard and NEXTGenPSD2 in the Greek financial market, in order to implement open banking in a harmonized manner with other Member States. All banks in Greece meet the relevant requirements; request for financial support submitted to the European Commission (SRSP-Structural Reform Support Package) for regulatory sandbox creation. The request has been accepted by the European Commission and implementation will begin in the 2nd half of 2020 with an 18 -month implementation horizon.

44. In the **Republic of Moldova** pursuant to the Law No 190 of 26.07.2007 on preventing and combating money laundering and terrorism financing, the implementation of the automated information system (AIS) Creation and circulation of electronic documents between State Tax Service and Financial Institutions– individuals was ensured as of 01 January 2019. All the necessary support was provided to the financial institutions during the implementation.

45. Aiming at the execution of the Order of the Ministry of Finance No 33 of 19.02.2019 on the amendment of the Order of the Ministry of Finance no. 126 of 4 October 2017, the implementation of the following forms was ensured: EMPOLDEP19 (Account on pollution payments for the emissions and discharges of pollutants and storage), IRM19 (Information

on the establishment of social and medical rights related to employment relationships), DAJ17 (Declaration on tax income for individuals who carry out their professional activity in the justice sector), IPC18 (Account on the retention of the income tax, mandatory healthcare insurance premiums and calculated mandatory social contributions) and TAXI18 (Account on the calculation of the income tax, mandatory healthcare insurance premiums and mandatory social contributions calculated for drivers of taxi vehicles) as of 01 April 2019. Thus, adjustments were carried out on Quick Declaration AIS, Electronic Declaration AIS and Electronic Processing AIS and reports related to the EMPOLDEP19 and IRM19 forms in Tax Reports AIS were implemented. At the same time, the web-service for providing the information to the National Health Insurance House and the National Social Insurance House on data of the IRM19 form was implemented.

46. According to the Work Plan of the Ministry of Finance for 2019 under the Treasury module, the technical solution for the generation, execution, accounting and control of the remittances of compensations/subsidies for beneficiaries/applicants of state programmes was drafted and implemented. Under the Treasury Institution module (e-Docplat electronic service) the functionalities of uploading, signing and sending foreign currency payment documents to regional treasuries were drafted and implemented.

47. The Center for Information Technology in Finance (CITF) is a public institution, the mission of which is to coordinate and organize the activities of the information systems operation in the fields of public finances, public procurement, tax and customs, *i.e.* ensuring proper functioning, design, development and maintenance of information systems, management of computer networks, servers and databases, information security, etc. Therefore, the Public Institution CITF, jointly with the Ministry of Finance, the State Fiscal Service and the Customs Service, focuses on the administration, development and improvement of the Automated Information Systems for 12 AISs of the Ministry of Finance, 53 AISs of the State Fiscal Service and 23 AISs of the Customs Service.

48. **In Romania**, as a result of the transposition of the EU Directive 2015/2366 (PSD2) on payment services in the internal market, the implementation area of the payment methods was widened by including new categories of payment services, namely payment initiation services and account information services, in accordance with the provisions of the Directive.

49. In this regard, the national legislation aims at increasing the level of competition in the field of payment services, in order to ensure a proper protection of the users, and to increase the efficiency in payment services. Thus, the premises on increasing the innovation in payment services and, finally, reducing the costs for the consumers are ensured.

50. The initiatives at the level of the European Commission and the European Supervisory Authorities (EBA, ESMA, EIOPA - AES) encouraged the competent national authorities at EU Member State level to support the promotion of technological innovation in the field of payment services.

51. Considering the legal responsibilities of central banks regarding the supervision of payment systems and instruments, and with a view to supporting the companies developing innovative solutions in the area of payment and financial services, the National Bank of Romania (NBR) has launched *FinTech Innovation Hub*, which is intended to ensure a direct interaction with the FinTech sector and provide an institutional framework for presenting innovative projects.

52. The aim of FinTech Innovation Hub is to encourage and support innovation in payment and financial services, in a controlled manner and for the benefit of consumers, while seeking at the same time to identify the potential risks involved and propose measures to manage them.

53. In fact, through FinTech Innovation Hub, it is established a point of contact where the NBR can be asked questions about the innovative solutions in the area of payment and financial services or be requested non-binding guidelines with regard to the compliance of innovative products and services with legal requirements in force.

54. In Romania, there are other initiatives designed to developed contact points, in this regard the Financial Supervisory Authority created channels, *InsurTech Hub* / *FinTech Hub*, aimed at encouraging innovative technologies in insurance field.

55. To ensure an integrated approach in the development and implementation of new digital technologies, the Government of the **Russian Federation** has developed the project "National Program "Digital Economy of the Russian Federation", aimed at creating a new regulatory mechanism for the relations between citizens, business and the state arising from the development of the digital economy, creating a modern high-speed infrastructure for storing, processing and transmitting data, ensuring stability and security of its functioning, formation of training system for the digital economy, supporting the development of advanced cross-cutting digital technologies and their implementation projects, improving the efficiency of public administration and delivery of public services through introduction of digital technology and platform solutions.

56. The main directions in the development of financial technologies for the Bank of Russia are the creation of infrastructure platforms, as well as the necessary legal conditions for the introduction of innovative solutions on the market. In January 2019, the Quick Payment Service (QPS) was launched. Currently, QPS provides the ability to transfer funds between accounts of individuals opened with different credit organizations - participants of QPS, in real time 24/7/365 by simple identifier - mobile phone number, as well as from individuals in favour of legal entities (including using QR codes).

57. In June 2018, a platform for "remote identification" was launched in Russia, which provides the ability to remotely receive some banking services to individuals (for example, opening an account (deposit), obtaining a loan, making money transfers, including in the banks where these people are not yet registered), after authorization in the Unified Identification and Authentication System and confirmation of biometric data (face image and voice) in the Unified Biometric System through using a smartphone, tablet or computer equipped with a camera and a microphone.

58. On 27 December 2019, Federal Law No. 476-FZ was adopted "On Amendments to the Federal Law on Electronic Signatures" and to the Article 1 of the Federal Law on the Protection of the Rights of Legal Entities and Individual Entrepreneurs in the Implementation of State Control (Supervision) and Municipal Control".

59. On 1 October 2019 the Federal Law No. 34-FZ of 18 March 2019 entered into force, which enshrines the concept of digital rights - obligations and other rights, the content and conditions for the implementation of which are determined in accordance with the rules of an information system that meets the criteria established by the Law. The Ministry of Communications of Russia together with the Bank of Russia and interested state bodies is creating a Digital Profile platform that will allow provision of convenient, safe and fast online data exchange between

citizens, the state and business in the "one window" format and will facilitate the translation of state and commercial services into fully digital view.

60. In April 2018, the Bank of Russia launched a regulatory sandbox for pilot innovative financial services and technologies in order to create favourable legal and infrastructural conditions for the development of innovations in the financial market and reduce associated risks for consumers.

61. **Serbia** is witnessing digital transformation of its economy and society and this process changes the educational structure and leads to the increase in the number of jobs. Digitization is one of the key priorities of the Government of the Republic of Serbia, especially in the fields of economy, public administration and education.

62. On 17 October 2017, the National Assembly adopted the Law on Electronic Document, Electronic Identification and Trust Services for Electronic Transactions ("Official Gazette of the RS", No. 94/17). The Law equalises the legal effect of an electronic document and the paper one, and besides the e-signature and time stamp, it also envisages new qualified trust services in electronic business (e-stamp, electronic delivery, storage of e-documents and authentication of websites). It also provides for the service of a qualified signature in the cloud, which will enable the use of a qualified electronic signature only through a mobile device and authentication data. The Law enforcement is expected to bring many advantages for the citizens, economy and the state – faster and more efficient business operations, reduction of costs and increased availability of public authority services by electronic means.

63. Since its inception, the Government of Serbia's digitisation programme has been implemented mainly through the project Serbia at your Fingertips – Digital Transformation for Development. This project consists of five segments. The first three relate to the development of the e-Government system, the fourth includes support for the implementation of activities on the agenda of ministerial councils, while the fifth includes support for the implementation of major infrastructure projects.

64. In November 2016, the Government of the Republic of Serbia adopted the Strategy on Development of Information Technology Industry in the Period from 2017 to 2020 and the Action Plan for Implementation of the Strategy. In April 2018, the Government of the Republic of Serbia adopted the Strategy for Development of New Generation Networks until 2023.

65. In the Republic of Serbia, there is a comprehensive and contemporary legal framework applicable to the payment system, established on the model of the most economically developed countries of the European Union and creating the conditions for the development of a secure and stable financial infrastructure and the functioning of the digital economy. In the last few years, the Republic of Serbia has since 2012 implemented a number of reforms and infrastructural changes in the area of payment services, the most significant being the adoption of the Law on Payment Services in 2014, which was subsequently amended in 2018. In addition, the Law on Multilateral Interchange Fees and Special Operating Rules for Card-Based Payment Transactions was adopted, the Law on the Protection of Financial Services Consumers in Distance Contracts, the Law on Electronic Document, Electronic Identification and Trust Services for Electronic Transactions, etc.

66. According to European Innovation Scoreboard 2019, **Turkey** is a "Moderate Innovator" but the Turkish innovation ecosystem is specifically performing well above the EU average. Prior

to 2010, there were only six active start-up accelerator programs in Turkey. By the end of 2018, this number reached to 47, almost an 8-fold increase in 8 years.

67. Turkish banks have various activities in FinTech area: they invest in their own technology infrastructures, take services from FinTech, make collaboration with FinTech, directly buy or invest in FinTech, arrange innovation activities and actively take part in FinTech ecosystem by establishing innovations hubs/accelerators. In recent years, Turkish banks have launched both accelerator programs and venture capital funds to reach and support start-ups, while leveraging network resources to scale their growth.

68. On the other hand, after the enactment of the Law on Payment and Securities Settlement Systems, Payment Services and Electronic Money Institutions in 2013, many FinTech start-ups have been flourished especially in payments domain, including payment service providers, mobile payment operators, e-money institutions and remittance firms.

69. There are also many FinTech firms providing services in other areas such as credit scoring, open banking, finance management for corporates & SMEs, insurance, crowd funding, wealth management, crypto trading, cyber security, e-invoicing and collections. In recent years, several non-governmental organizations and initiatives have also emerged to foster FinTech development. Among these FinTech İstanbul and Blockchain Turkey Platform have gained prominence. Several universities have established educational programs and incubators as well.

70. Turkey's 11th Development Plan, which was announced on July 2019, provides a roadmap to improve the country's position in the international FinTech arena and aims to transform Turkey into a hub for innovation and growth. The plan specifically emphasizes the objective to improve the ecosystem of financial technologies and sets outs the following actions: the creation of a secure financial technology ecosystem that provides equal opportunity to firms utilizing international best practices will be supported; a road map for the development of the FinTech ecosystem will be established and the implementation will be coordinated by a single public institution/authority; a FinTech regulatory sandbox will be set up; the union of payment service providers and electronic money institutions will be established; Istanbul Finance and Technology Base will be established; in order to set up and strengthen the legal infrastructure for open banking, the harmonization with the EU Payment Services Directive 2 will be ensured.

71. In accordance with Ukrainian association of FinTech and innovative companies today there are over 100 FinTech companies in **Ukraine**, over half of which have been established in the past three years. Ukraine has the fourth highest share of contactless payments on total card transactions in the world as of 4th quarter of 2018 (in accordance to Mastercard data).

72. Majority of Ukrainian FinTech companies are Europe-focused, B2B-oriented, self-financed, operating for 3+ years and having senior management with experience in traditional financial services (in accordance to 2019 Ukrainian FinTech and banks survey conducted by USAID and EY).

73. Ukrainian FinTech market is very dynamic with rapid development and launch of number of products in 2018-2019 like FacePay, KastaID, neobanks, Moneytou, Tap to phone, QR-payments, MDES for Merchants etc.

74. Ukrainian FinTech ecosystem unites start-ups, regulators, banks, international payment systems, bankers and associations. The following FinTech sector regulators are in Ukraine –

the NBU, the National Commission for State Regulation in the Financial Services Markets, the State Financial Monitoring Service, – establish regulations for market players. In the sector there are traditional financial institutions (banks, credit unions, insurance companies, etc.) that hold financial resources, developed infrastructure and a customer base. Finally, Ukraine already has number of FinTech providers that, through technology, improve financial services and empower users.

75. The legal and regulatory environment is currently being improved to support FinTech ecosystem and start-ups. A number of the important changes has recently taken place in Ukrainian legislation: The Law No 1069-2 has been adopted in fall 2019 which will bring the regulation of the non-banking market in line with the European standards, define clear responsibility and authority of state regulators, ensure transparency of financial companies, increase the protection of consumers of financial services and to stimulate the entry of new players including international. The law has transition period until June 30, 2020, when the regulatory functions will be transferred from the National Financial Services Committee to the NBU and NCCFR. Starting July 1, 2020, the National Bank will perform the function of regulating financial services markets; The removal of the NBU's restrictions on dividend repatriation - a limit raised to 5 million USD per legal entity per year, or 5% of annual taxation for IT companies; New currency law came into force, allowing online FX transactions to be conducted by individuals; National Bank continued working on the updated payment legislation to implement the rules of the European PSD2 directive, in particular, the Open Banking concept, to enhance competition, protect consumer rights, introduce new technologies and stimulate the development of new innovative FinTech products. The draft law on payment services is expected to be finalized and submitted to Parliament in 2020; Act on the legalization of cryptocurrencies in Ukraine was submitted to the Parliament of Ukraine and is to be discussed and adopted in 2020.

## IV. CONCLUSIONS

76. Today, the banking sector is undergoing major changes, the main factor of which is the development of financial technologies. Financial technologies increase the availability of financial services for individuals and business, speed up financial services, improve the living conditions of the population, and ensure the growth of business competitiveness, that often results in its increased profitability.

77. Financial technologies are one of the main tools for increasing transparency of business and economy of a country (a tool for reducing cyber risks in financial sector), as well as for improving the living standards of the population and financial support for business. They ensure formation of FinTech infrastructure, which today is a prerequisite for the development of leading sectors of the economy.

78. Digitalization, which is important for all spheres of industry, significantly changes the needs of business and expectations from FinTech companies. The financial technology market is fast-growing and highly competitive and, therefore, the representatives of FinTech companies are sensitive towards specific demands and the behaviour of their competitors. Thus, in general, the financial technology market is one of the factors that can improve the socio-economic climate in the countries.

79. Business in the BSEC Member States has been successfully integrating into the global financial space influenced by the financial technologies. In the BSEC states, there are more and more financial and technological start-ups in the field of payments, crowdlending and crowdfunding operations, online portals for entrepreneurs that offer convenient business and

financial management services. All these are only the starting point on the path that banks and financial companies of the BSEC Member States have to follow in order to obtain the main benefits and opportunities that come together with the development of FinTech sector.

80. Today, a number of trends are observed in the financial markets of the BSEC Member States, which form the prerequisites for stimulating and developing financial technologies, including: transformation of business models by financial market actors; increased penetration of financial services through digitalization; loss of monopoly by banks on the provision of traditional services (payments, etc.), as well as acquisition of a significant role in the financial market by non-financial organizations; banks' aspiration to cooperate with the start-ups and technology companies.

81. FinTech development in the BSEC Member States mainly takes place with the full support and leadership of the main regulator - the Central Bank. Under the conditions of increased credit risks of borrowers, strict regulation is accompanied by accelerated consolidation in the financial sector. The regulator is interested in the maximum automation of processes under its full control in the financial sector and is even ready to take some risks associated with the rapid introduction of new financial technologies.

82. Taking all the above into consideration, the process of forming a policy in the field of financial technologies should be flexible, innovative and interactive. It is also important to establish the right balance between the conditions for the financial innovations, on the one hand, and solving the problems related to eliminating threats affecting the integrity of the market and the financial system, as well as protecting consumer rights and financial stability, on the other. This balance is crucial to ensure the social benefits that are brought about by the financial innovation.

83. For the development of the financial sector, it is also necessary to ensure the availability of qualified specialists in the field of financial technologies. In this regard, it is necessary to launch appropriate training programs in the field of financial technologies for representatives of financial organizations, university students, etc. in order to have appropriate specialists in the financial market. It is also important to ensure active involvement of students in the FinTech ecosystem.

84. Financial institutions around the world are working intensively with IT services to achieve effective results in the future. Creation of new tools and mechanisms combines the various characteristics of the financial service sector, thereby expanding the range of financial technologies.

85. Financial technologies are dynamically developing in the modern market and serve as a tool for sustainable development, capable to increase the efficiency of the financial industry, and to contribute to the achievement of the SDGs. It is expected that the scope of application of financial technologies for reaching the social and environmental objectives will be enlarged and FinTech will become more influential tool to achieve the SDGs and improve the quality of life of people. To this end, it is very important to take effective decisions to regulate FinTech, both in the short and long run, in order to ensure the sustainable economic development and growth in the region.