

Development Fintech Ecosystem: Evidence of European Countries for Ukraine

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Abstract

The growth of digitalization processes around the world, covering almost all areas of human life, including the Fintech sector. In the field of financial technology, radical changes are taking place with increasing levels of automation, openness and consumer focus. In addition, in the context of the spread of coronavirus infection, quarantine and forced isolation, the role of digital technology is coming to the fore worldwide, including in Ukraine. The purpose of the article is to assess the development of Fintech ecosystem of European countries and outline the strategic parameters of domestic Fintech development. The study concluded that the investment raised for the Fintech industry increases annually and the quality and size of transactions gradually increases.

Today, Fintech maintains its position as one of the most attractive markets for venture capitalists and the image of an industry with high potential, especially in the era of open banking. The most attractive markets for investors are mature markets, such as the United States, Germany and the United Kingdom, and the preferred niches for investment - the vertical of payments and lending. Trends in investment activity in terms of investing in financial technologies are studied. Moreover, investors prefer businesses that already have a significant scale or considerable potential to achieve it and become sustainable businesses.

Keywords: *Fintech companies, financial services market, digitalization, financial ecosystem, Sandbox.*

1. Introduction

The impact of new technologies on modern financial the market today is very difficult to overestimate. The Fintech industry is booming, penetrates into all spheres of financial activity and demonstrates to clients new and convenient financial services and tools. The modern consumer is cardinal changes its attitude towards financial services based on distance, ease and security managing your own finances.

Fintech reformatted drastically the finance in order for digitize all areas of business and life, transform and create new services and financial instruments. Nowadays, revolutionary changes of the modern financial market take

place in the vector of the Fintech innovation development. In recent years, Fintech has strengthened its functional position and has an impact on the national business performance. Today we are talking about the internationalization Fintech industry. The process of the Fintech investigation in Ukraine and its comparison with Fintech operating in European countries creates opportunities to accumulate complete information about Fintech from the perspective of its sub-sectors and markets, and will create a clear picture of the management and provision of conditions for further development.

2. Literature Review

Not so long ago, in 2008, it was the world the financial crisis led to the emergence of Fintech . Today, the financial market is also experiencing a new one the turn of evolutionary possibilities and the start of a new one stage of the Fintech industry.

Fintech is advances in technology that can change the provision of financial services by stimulating development of new business models, applications, processes and products.

The emergence of Fintech is primarily associated with the rapid development of the digital economy in the world. Today, the economy is being actively digitized. The notion of digitization, more precisely “digital literacy”, was first used by Gilster (1997) in the interpretation of computer literacy, in which this definition is defined as accentuation of critical thinking and evaluation of information more than technical and procedural skills . However, during all this time, scientists have made numerous attempts to investigate this category (Rachinger M., Rauter, R., Müller, C., Vorraber, W., & Schirgi, E. 2019). The issue of digital literacy has significantly intensified over the last twenty to thirty years, along with the digitalization of most business activities, while growing its role in the financial services market (Fintech) and in banking and consumer lending, in particular (Gobble M., 2018). A significant number of scholars have

devoted their work to studying the impact of digitalization processes on the global financial services market. Such studies have been conducted, in particular: Akerlof G.A. (2015), Azarenkova, G., Shkodina, I., Samorodov, B., Babenko, M., & Onishchenko, I. (2018). Digitalization process is a mandatory element for a conscious choice of reasons and ways to use new technologies; second, when digitizing activities, we are faced with a socio-cultural process that is responsible for acquiring and processing basic information and knowledge (Buckley, R.P., Zetzsche, D.A. 2020), (Antikainen M., Uusitalo T., Kivikytö-Reponen, P.,2018) .

The term “Fintech” was first used in the 1990s, the essence of which is the use of computer programs or other technologies to help the financial industry (Hochstein, 2015). Starting in 2011, Fintech began to attract the attention of regulators, customers and scientists Arner D., Barberis J., (2016), Julapa, J., & Lemieux, C. (2018), Llewellyn D.T. (2018), Gulamhuseinwala I., Bull, T., Lewis, S. (2015) and Deng X., Huang Z., Cheng, X. (2019). The use of FinTach is complicating the institutional structure of the global financial system. Ways to reduce the negative impact of Fintech on the stability of the financial system can be: the work of «regulatory sandboxes» in which new technologies, business models and algorithms underlying Fintech innovations are tested, ie digitization and legal regulation of digital ownership tokens (Ringe, W., Ruof, C., 2020) and a clear definition of blockchain technology in various spheres of life (Azarenkova, G., Shkodina, I., Samorodov, B. 2018). The development of the Fintech sector, taking into account modern processes of digitization of activities, based on the development of “blockchain” in the Fintech sector can become an ascending element (Fernandez-Vazquez S., Rosillo, R., Fuente, D. 2019). Modern research on the development of Fintech shows that the use of information technology provides access to international markets, develops business online and thus – contributes to the progress of the digital economy (Berisha-Shaqiri et al., 2015). To date, Fintech companies have formed a new niche in the financial services market, which is based on intersectoral cooperation between government agencies (Bukhtiarova et al., 2018). Analysis of the value and structure of investment flows as the most obvious indicators showed the high potential of the Fintech industry to process international transfers. Fintech (Petrushenko Y., Kozarezenko, L., Glinska-Newes, A., Tokarenko M., But, M., 2018).

The development of an effective approach to the creation of Fintech information platform should be based on the characteristics of Fintech platforms, their types, participants and features of investing in B2B Fintech platform (Ivashchenko A., Britchenko, I., Dyba, M., Polishchuk, Ye., Sybirianska, Yu., & Vasylyshen, Yu., 2018).

In general, the vast majority of research focuses on finance and the banking sector. The study of the model of functioning of the financial services market in its separate segments: deposit, credit, insurance and investment showed the important role of banking institutions in the economic development of this country (Yoo Y., Lyytinen, K., Thummadi, B.V., & Weiss, A 2010). Modern trends in Fintech development should be taken into account when determining the key determinants of the transformation of the banking sector in the formation of new business models of the banking business.

Thus, economic feasibility of the Fintech development in today’s environment is an important part of the overall process of studying peculiarities of the functioning of the financial services market to manage them. To this end, the analysis of foreign experience in this field becomes relevant. The article is a continuation of the study of the state of European Fintech and aims to justify decisions for Ukraine especially in the context of the spread of Covid-19 infection, quarantine and forced isolation, the role of use digital technology comes to the fore worldwide.

3. Methodology and research methods

To achieve the defined goal and solve the set tasks, a system of general scientific research methods will be used, namely: methods of theoretical generalization, induction, comparison - to clarify the problematic aspects of Fintech in Ukraine and analyze foreign European countries experience in using its opportunities; methods of analysis and synthesis – to summarize the deals and funding of Europe-based Fintech, distribution of Fintech companies by areas of activity, well-funded startups, indicators of digitalization in Eastern European countries and Ukraine; graphic and tabular methods – to visually illustrate the studied Fintech ecosystem of European countries; abstract-logical method for summarize the results of the study and determine the priority areas and tools for further development of Fintech in Ukraine.

4. Results and Discussion

Financial technologies are a synthesis of digital technologies and innovations in the financial sector used to provide, expand and distribute financial services by technology companies. Fintech covers a range of complementary technologies, including mobile networks, big data, cloud computing, distributed registry technologies, artificial intelligence and data analysis, which together form a wide range of operations in the financial industry.

The main factors that contributed to the rapid development of Fintech in the world, as practice shows, are the following:

1. The global economic crisis that began in 2008 and its consequences. During this period, the population began to lose confidence in traditional banking financial products and instruments.

2. Growth worldwide of digitalization processes, covering almost all spheres of human life, including the financial sector.

3. The development of information processing technologies has determined the development of such segments of Fintech as blockchain, P2P lending, online scoring, algorithmic trading, etc.

4. Active spread of the Internet (expanding geography and increasing the speed of its work), which allows a person to be in cyberspace around the clock. Accelerated development of the mobile device market also contributes to this process. Rapid spread of social networks and messengers. The growing popularity of social networks has contributed to the emergence of fundamentally new types of financial services based on the exchange of information between users (crowdfunding, P2P transfers and financing, social trading, etc.).

5. The desire for innovation, increased demands on the ease of use of services, quality and speed of information, inherent in the most numerous generation of millennials in world history, who already depend on automated, faster and more efficient technologies and services. As a result, demand for digital payment systems will grow rapidly this year and beyond. The success of technology companies in other sectors of the economy (retail, entertainment industry, etc.).

6. The emergence of successful companies that have significantly changed their markets and offered more competitive products and services, has aroused the interest of entrepreneurs, including in the financial sector.

7. The growth of e-commerce stimulates the growth of services in the segment of payments and transfers, as well as in the segment of financing. Increasing the turnover of online commerce is a driver of the development of payment services (including e-wallets, internal payments using applications and instant payments), as well as services in the field of credit to customers.

Research shows that the financial technology market has been developing rapidly in recent years around the world. The main driver of the development of the Fintech market is the degree of penetration of financial services, which contributes to the annual growth of the number of users of financial technologies in the world.

The development of financial technologies, according to research, is particularly noticeable in the last five years.

Compare the indicators of the Fintech sector in 2021 to 2020 according to the Deloitte report research

report by CBINSIGHT and from research «The pulse of Fintech H1'21» by KPMG:

Fintech investments soared to \$131.4 billion in 2021, up 144% from \$53.9 billion funding in 2020.

2,222 funding events were reported last year, directed towards 1,361 companies in 2021, compared to 1,781 funding events across 1,362 Fintech companies previously.

Investment interest was seen across all sectors in 2021. InsurTechs saw a 216% increase in funding, accounting for 13% of the total for the year. Meanwhile, BankTechs saw a 186% increase (representing 63% of the total), InvestTechs had a 110% increase (9%) and PropTechs a 43% increase in YoY funding (15%).

Total M&A deal value declined by 17% to \$42.5 billion compared to \$50.9 billion in 2020. But the number of deals rose by 49% to 241.

2021 was again the best performing year over the past 20+ years for initial public offerings as well. 48 companies went public, raising a total of \$20.7 billion, versus 22 companies and \$13.3 billion in 2020.

Companies in five countries accounted for 78.5% of the total funding: those headquartered in the US received \$62.8 billion (or 47.8% of the total); followed by those in Singapore with \$13.2 billion (or 10%); the UK with \$12.7 billion (or 9.6%); India with \$10.1 billion (or 7.7%); and Germany with \$4.4 billion (or 3.3%).

23 venture capital (VC)-backed Fintech launches were reported in 2021. This compares to 119 VC-backed Fintech launches in 2020, 240 in 2019, and 281 in 2018.

Fintech companies have actively facilitated over 380 new partnerships to expand services and scale operations. We highlight 5 notable partnerships below:

In September 2020, Currencycloud, a B2B cross-border payments platform, partnered with VoPay to embed its payments API within VoPay's payments-as-a-service platform.

Affirm partnered with payments platform Adyen in November 2020. With this partnership, Adyen's merchants can now offer Affirm's financing option at checkout.

Brazil-based challenger bank Nubank partnered with Chubb in December 2020 to launch a digital life insurance offering, Nubank Vida, for customers in its home country.

In January 2021, Goldman Sachs selected Marqeta to partner on its Marcus by Goldman Sachs checking accounts, which will launch this year. The checking product will use Marqeta's issuing platform to offer customers account services.

In May 2021, Railsbank entered into a strategic partnership with Plaid. Railsbank customers in the UK will be able to use Plaid's Payment Initiation API to accept bank payments directly within their app or website. Previously, a Railsbank customer would have had to onboard to Plaid in addition to Railsbank to do so.

As we can see, there is a very strong rebound in Fintech investment levels was seen throughout 2021, which could herald even further consolidation as we move

through 2022 with the emergence of new players in the field.

Funding to Europe-based Fintech companies in H1'21 surpassed 2020's full-year total (fig.1).

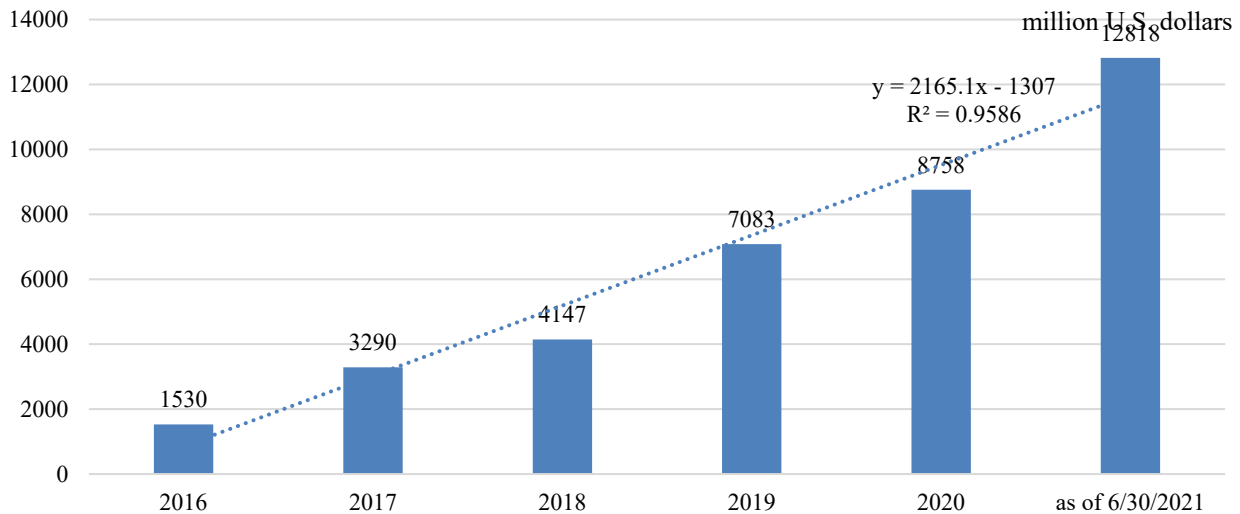


Fig. 1. Funding of Europe-based Fintech

Source: compiled by the authors based on <https://finanso.se/digital-payments-in-europe-to-surpass-802bn-transaction-value-this-year>, <https://www.cbinsights.com/research/report/Fintech-trends-q1-2021>

The data of Fig. 1 show that Europe-based Fintech's raised a record-breaking \$12.8B in H1'21, nearly 1.5x higher than in all of 2020. In Q2'21 specifically, deal activity fell by 8% quarter-over-quarter to 148 deals, while funding grew by 30% to reach a record \$7.2B, driven by companies raising more mid- to late-stage mega-rounds.

funding rounds in the quarter, two went to companies based in Germany.

Insurance and wealth tech companies led funding growth in Q2'21. Across Europe, companies in insurance and wealth management saw the biggest funding gains among Fintech sectors. Insurance tech companies raised a record-breaking \$1.8B, up over 400%, while wealth tech companies raised \$1.3B in funding for Q2'21. Banking companies led the quarter in deal volume and growth at 34 deals, up 70% quarter-over-quarter.

Germany-based companies nearly reached UK's funding high among European countries in Q2'21. In Q2'21, UK Fintech companies raised \$2.1B in funding, only 2% more than Germany-based ones. Of the 5 largest

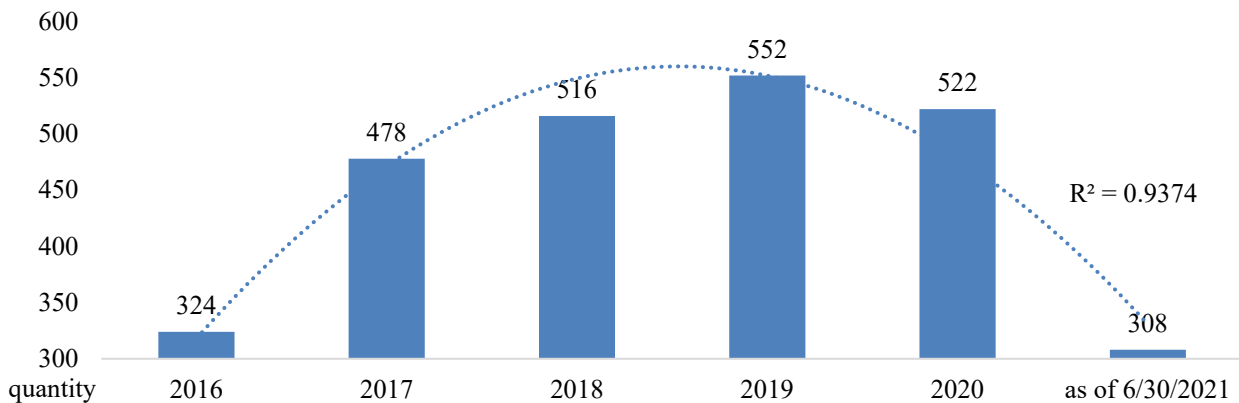


Fig. 2. The deals activity Europe-based Fintech

Source: compiled by the authors based on <https://www.statista.com>, <https://www.cbinsights.com/research/report/Fintech-trends-q1-2021>

The data in Fig. 2 show the information on dynamics of Fintech investment deals in Europe. 118 of the 250 companies (47%) are valued at or above \$1B as of their latest funding round. In 2021 year-to-date (YTD), these 250 private companies have raised \$40.3B in equity funding across 275 deals. Since 2020, there have been 178 mega-round (\$100M+) equity investments to this year's Fintech 250, with 138 of them in 2021 YTD.

Fig. 3 shows the Category of Fintech and the well-funded startups in 2021.

Analysis of Fig. 3 shows global representation: 36% of the 2021 Fintech 250 are based outside the US. After the US, the UK is home to the most Fintech 250 companies (25), followed by India (12).

This year's winners are based in 26 countries, including France, Brazil, Germany, Indonesia, and Nigeria.

Top VC investor: Ribbit Capital is the most active investor in this year's Fintech 250 companies, having invested in 62 deals since 2016. Since 2019, Ribbit has participated in 41 deals to this cohort of companies, including to Nubank, Uala, Brex, Vouch, Razorpay, and BharatPe. Tiger Global Management and Accel were close behind with 57 and 55 deals, respectively.

Top deal of 2021: Klarna raised a \$1B growth equity round in Q1'21 from undisclosed investors.

Most well-funded: Klarna is the most well-funded company on the Fintech 250 list, having raised approximately \$3.5B across 26 rounds since 2010.

The most founded Fintech of Q1'21 from:

- US: AvidXchange, DriveWealth, Brex, Carta, Plaid, Credit Sesame, Stripe, Gusto, Stash, Pacaso, Forter;
- Sweden: Klarna;
- Germany: Wefox, Trade Republic
- South Korea: Toss
- Hong Kong: WeLab
- Bahamas: FTX.

Well known to all California-based Visa is a global payments technology firm that enables digital currency transactions across 200 countries for governments, businesses, and banks. The company can handle over 65,000 transaction messages per second. The company recorded a net income of \$3B in Q2'21. Visa, a digital payment network, has acquired Tink, a Europe-based open banking platform, for \$2.15B in a mix of cash and retention incentives. This acquisition comes 6 months after Visa dropped its \$5.3B Plaid takeover. Here are the top-line bullets you need to know.

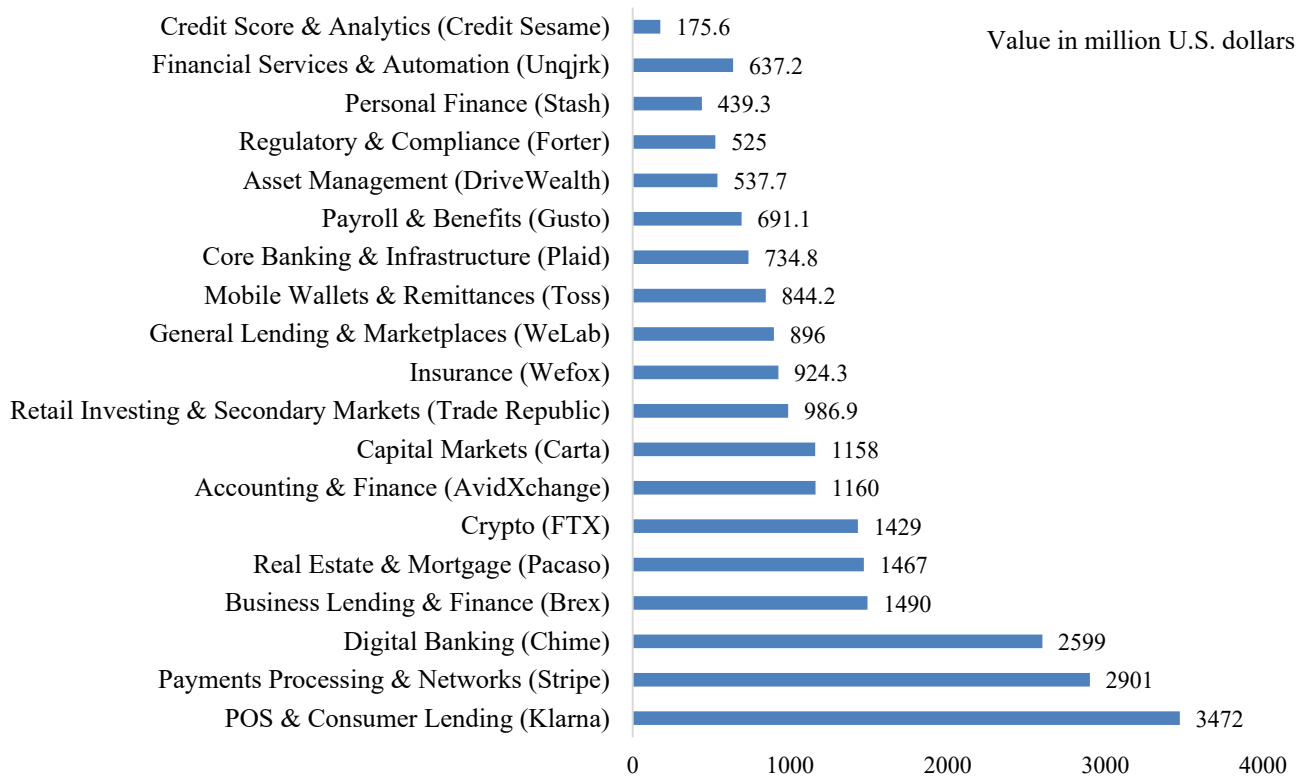


Fig. 3. The 2021 Fintech categories and the most funded startups

Source: compiled by <https://sifted.eu/articles/eastern-europe-tech-review-2021>, <https://thefinancialbrand.com/116705/the-top-11-Fintech-disruptors-of-2021>

The Fintech industry is one of the main industries which highly benefited from the pandemic. While traditional financial institutes are failing in some Eastern European countries, Fintech took over the market by using the power of digitalization. For years Fintech was trying to push consumers and businesses to the digital financial world.

With high amount of VC-backed funding entering the industry, attention among customers may see more competition. In many places, growth seems to be slowing down at the later stage investments. 2021 saw great innovative strides taken in the Fintech industry, but as we look ahead into 2022 this trend is not likely to plateau. With incumbent financial institutions looking to expand their technology solutions, we may see more innovation,

product categories and industry collaboration.

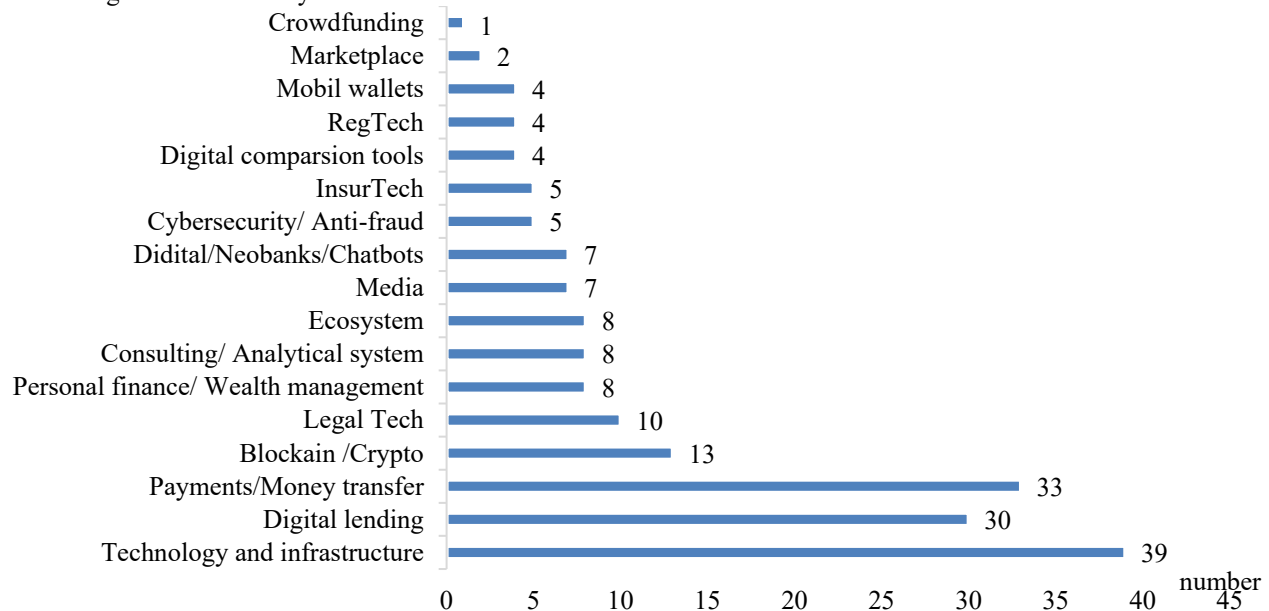


Fig. 4. Directions of Fintech in Ukraine

Source: compiled by the <https://drive.fintechua.org/FintechCatalog19Ukr.pdf>, <https://afi.org.ua/expert-opinion>, <https://www.sgs4business.com/news/pidsumky-uaFintech-2020-fintekh-sfera-v-ukraini-aktyvno-rozvyvaietsia.html>

Figures illustrating the development of Fintech in the world:

- two-thirds of all financial transactions are now online;
- 40% of existing roles in banking can be replaced by artificial intelligence;
- 500+ new Fintech startups are created annually;
- 2 billion people not covered by banking services can be reached by mobile devices;

Fintech-friendly regulatory initiatives are driving much of this activity. Open banking and the European Commission's Second Payment Services Directive (PSD2) have made it easier for Fintech companies to form, get regulatory approval, exchange data with incumbents, and ultimately acquire customers.

Areas of activity and a number of Ukrainian Fintech companies in 2020 are presented in Fig.4.

The Ukrainian Fintech market has about 200 Fintech companies the vast majority of which are providers payment services are also developed online lending and infrastructure decision. Among the big Fintech companies there is a fully mobile bank, and new players are emerging in this niche.

- \$ 50 million needed to create a new digital bank.
- The sphere of Fintech in Ukraine is actively developing, as evidenced by the following figures:
 - a surge in the development of Fintech for 2016–2019: 58% of companies were founded in the last 3 years;
 - based markets Ukrainian Fintech companies: Europe (72%), post-Soviet (30%), USA (21%), others (19%);
 - 55,2% of payment card transactions are non-cash;

- 53,6% of enterprises are financed by their own funds;
- 72% of Fintech companies are based in Kyiv;
- 28% of companies in the field of Fintech executives or senior managers – women;
- 89% of payment terminals support the function of contactless payments;
- 71% of companies in the field of Fintech have passed the break-even point;
- 47,5% of companies in this industry have been established in the last three years;
- 52% of companies operate in the international market;
- the number of companies in the field of payment services and money transfers increased by 14%.

Note the important impact of digitalization on the development of business and society as a whole, which increases the satisfaction of consumers of financial services; expands the possibilities of capital management of the economic entity; reduces the costs of all financial market participants; accelerates financial transactions; increases territorial coverage by financial services; increases the transparency of relations in the financial market. Therefore, increasing financial literacy and financial inclusion is the number one issue that will have a positive impact on the digitalization of the financial ecosystem and the Fintech sector in particular.

Table 1. Some indicators of digitalization in Eastern European countries and Ukraine of 2020-2021, %

Country	Internet usage (of pop.)	Did online shopping (age 15+)	Paid bills via internet (age 15+)	Accessed a bank account online (age 15+)	Paid utility bills using a mobile phone (age 15+)	Made or received digital payments (age 15+)
Albania	80	15-19	11-13	12-15	2-3	43-48
Austria	89	66-67	73-75	72-74	10-11	>98
Belarus	80,2	43-45	55-57	45-47	10-12	85-86
Bosnia & Herzegovina	74	20-24	16-19	15-18	3-4	64-69
Bulgaria	74	30-34	22-25	19-23	3-4	79-84
Croatia	80	43-45	58-60	46-48	13-16	90-91
Czech Republic	89	67-69	70-72	66-67	12-15	86-87
Estonia	90	68-70	94-95	91-93	9-14	>98
Hungary	86	42-44	43-45	42-43	2-4	78-79
Kosovo	97	19-22	16-19	14-17	3-4	53-58
Latvia	90	48-49	71-73	69-70	10-13	>98
Lithuania	84	54-56	63-64	56-58	3-7	84-85
Poland	85	61-63	64-66	65-67	10-11	89
Romania	85	24-28	20-24	21-24	4-5	61-66
Russia	75,9	35-39	43-47	42-45	11-12	84-90
Serbia	79	33-35	25-27	25-27	5-8	73-74
Slovakia	91	55-57	66-67	56-58	6-8	88-89
Turkey	78	34-36	46-47	39-41	12-15	70-71
Ukraine	64,6	30-34	31-35	27-30	5-6	75-80

Source: compiled by the authors on the <https://www.cee-fintechatlas.com/all-countries>

These table 1 show that in our country the figures are low. Digitalization must be paramount task as digital technologies evolve rapidly. Most opportunities in application of these technologies in the financial market, due to the formation of a single digital space. Within its activities there is an opportunity for improvement communication aspect and interaction, increase the level of trust, which will increase efficiency of financial services, which will strengthen the level of the economy.

With technology infiltrating and modifying every part of our lives, it has also influenced how we purchase and make payments. There has been a significant movement toward e-commerce, as well as an increase in digital payments. Also, with a host of technological advancements in a full phase, consumers have an expanding variety of options for spending money fast and easily.

The frequency of using digital payments has significantly increased in the past few years, which underscores the reality that digital payments are becoming an increasingly more vital part of our daily lives.

There following Fintech trends from reserch:

- large technology companies continue to develop in the direction of payments and the digital ecosystem;
- Fintech companies are developing in related fields to expand the customer base;
- large corporations increase investment in digital technology;
- Fintech companies unite in consortia to gain better access to investment;
- governments focus on regulating the Fintech industry;

Fintech companies are adapting quickly to conditions of turbulence, understanding the needs consumers become more aggressive in matters of expanding its baseline products and services, moving from mono - to multi-offers.

The success of the Ukrainian Fintech ecosystem and its potential for sustainability will depend on the opportunities for participants:

- ✓ adopt and implement in a timely manner progressive policies and regulations, aimed at the growth of Fintech;
- ✓ find sources of capital and invest transparently them, understanding the protection of their own rights;
- ✓ create demand for Fintech products and stimulate the growth of the innovation sector;
- ✓ have access to and develop talent.

5. Conclusions

Domestic Fintech business is at the stage of active development, which is manifested in the increase in the number of Fintech companies and the expansion of their activities. The formation of the Fintech ecosystem in Ukraine was facilitated by certain preconditions: the creation of proper infrastructure; formation of a favorable legislative and regulatory environment; ensuring access to capital and investment; availability of a sufficient level of qualification and innovative potential of employees.

The Fintech direction in Ukraine has significant potential for the introduction of financial services in new areas of activity and among various segments of the population. To do this, we need to increase the digitalization of the financial sector and increase financial literacy. The development of financial innovations in our country will promote mutually beneficial cooperation of Fintech companies with traditional banking and non-banking institutions. NBU according to the international standard ISO 20022, introduction of the system of instant

payments, open banking and regulatory sandbox of the NBU for fast testing of innovative projects.

Over the past 5 years, the word Fintech sandbox has become synonymous with the digitalization of the country and its entry into a new level of customer-product relations. A regulatory sandbox is essentially a platform or mode of soft promotion of regulatory innovation. This experience is quite developed in many countries and some companies increase capitalization, attract investment more easily, getting to Sandbox Fintech startups can come to the sandbox, but three types of players can actually come to the sandbox. The first are the participants of the payment market already authorized by the National Bank. They may also have some breakthrough products. The second - those who are going to get NBU authorization and come to the payment market. Third are those who are not going to get a license at all. There are also suppliers of related products who will work in conjunction with authorized participants. Then they go to the sandbox together. Benefit to all. Although at some point the sandbox will open for the entire financial market. It's just that so far, the sandbox is registered in the Law «On Payment Services», which will come into force in July 2022. But on December 14, 2021, the Verkhovna Rada passed a law «On financial services», which also refers to the sandbox and that this sandbox will be able to include companies from other sectors of the financial market.

The next important solution is the instant payment system If in Europe all banking started with current accounts in banks, and the cards were then screwed to this account, then Ukraine since the late 90's all went with the development of card payments. Card payments are fast, but they are really expensive. We will admit it, banks know about it. Payments between accounts are cheap, even interbank, but long. When Europeans set up their mobile payment systems, they tackled the problem of instantly crediting money to a recipient's account. Not 1-3 days, but instantly. And these systems were gaining some popularity among Europeans. There has been talk of such a system in Ukraine for a long time. Currently, the concept of its operation has been developed, which is based on the current accounts of individuals and legal entities, which in the mode, in fact, online, but much cheaper, help to make money transfers. Such implementation will accelerate growth the level of non-cash payments in both quantity and volume.

Based on this, the mission of development of Ukrainian Fintech should be: to stimulate the development of innovations in the financial market in order to appear quality and affordable financial services, strengthening the startup movement and effective competition for consumer protection through the development of the cash economy, increase financial literacy and creation sustainable Fintech ecosystem.

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