

# “Fintech platforms in SME’s financing: EU experience and ways of their application in Ukraine”

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## FINTECH PLATFORMS IN SME'S FINANCING: EU EXPERIENCE AND WAYS OF THEIR APPLICATION IN UKRAINE

### Abstract

The main aim of the given research is to develop an appropriate approach for creation of information FinTech platform with the EU standards compliance mainly for SMEs in order to support innovativeness of SMEs, improve their access to finance and simplify different financial processes. The authors defined the main features of FinTech platforms underlining types of FinTech, its participants and the most influential factors. The main trends of FinTech platforms development in the EU countries, such as the level of investment, impact of EU FinTech platforms on the global scale, features of investments into B2B FinTech, were determined. It was considered that in Ukraine, some positive changes in legislation were adopted, but the challenges like lack of finance, slow adoption of innovations in the financial market, not sufficient clarity of legislation remain among the main constraints for further development of FinTech platforms in Ukraine. The conducted analysis on the level of FinTech types performance by Ukrainian platforms showed only the great share of digital payments and money transfers, while other modern innovative FinTech instruments should not be underestimated for proper FinTech application in Ukraine. For this purpose, the authors have developed the Information Platform on Support for SMEs' Innovations that consolidates interests of both SMEs and scientists. To determine both the SMEs' opinion about the necessity of a particular Internet platform for them and the types of services that could be provided by the sme-sci.com platform, the authors conducted a survey in which 374 medium-sized and 380 small businesses took part. The results of the survey that are presented in the article confirm the necessity of the Information Platform on Support for SMEs' Innovations and demand for it from the SMEs. Finally, the result of the research proves that such a unique informational platform as sme-sci.com that will serve as an interactive field for exchanging ideas and information of both representatives of scientific and business world is of great importance.

**Keywords** FinTech platforms, information platforms, P2P lending, equity funding, crowdfunding, new technologies

**JEL Classification** G31, G32, G14, G15

### INTRODUCTION

FinTech as a whole drastically transformed the financial services making every aspect of them easier, more accessible and faster to perform. Such spheres as banking, mobile payments, money transfers and asset management might only benefit from using innovation technologies that could simplify the access to finance and digital finance system for business, SMEs in particular. But some factors depending on legislation system in different countries, the level of Internet penetration, ICT infrastructure, especially in rural areas, can become simultaneously as merits, as well as drawbacks, due to the level of their availability and development.

In the conditions of reduction of banks' lending capacity, high interest rates and the low likelihood to obtain credit for start-ups, it is essential

for SMEs to use FinTech platforms in order to get faster and cheaper access to finance, simplify different financial processes by their digitalization and improve usage of e-money. Taking into consideration that Ukrainian SMEs face all the mentioned challenges and risks of being underfunded, it is crucial to develop FinTech platforms aimed at improving conditions for doing business.

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## 1. LITERATURE REVIEW

Our previous research was related to information and communication platform as a complex approach for solving information asymmetry problems, where we convinced that such types of platforms play an important role in solving informational asymmetry problems. A great deal of other research into FinTech platforms has focused on its regulation. For instance, Arner, Barberis, Buckley (2015) analyzed the FinTech platform development and found out that its history goes back more than 150 years. It should be admitted that this is the deepest analysis on FinTech platforms performance and, in their opinion, it can be divided into three periods. The current period has started after 2008 and it runs on till present. The authors of this paper tend to consider FinTech as a union of financial industries and IT technologies because of innovations movement. Whereas, financial regulators are afraid of risks, which they can take about FinTech platforms development. However, the scientists are convinced that it is not the time of launching the FinTech regulation.

Later, the team of the mentioned authors Arner, Barberis, Buckley (2016) described the reasons of 4regulatory reconceptualization in financial markets. Changing approaches to bank lending has caused regulative problems. Their RegTech concept is directed towards the facilitation of financial regulation. They are sure that using their concept will allow to save up expenditure related with regulation. The peculiarity of offered concept is laying not only in digitalization manual processes, but also in reducing risks caused by enabling real-time operations.

Fenwick, McCahery, Vermeulen (2017) relate increasing popularity of SMEs FinTech platforms to shrinking of SMEs lending by banks. At the same time, after studying policies of financial regulators, they make a point that central banks designed a set of instruments to stimulate SMEs' lending.

Moreover, Vasant and Roger (2016) are concerned that FinTech platforms increase access to finance for SMEs.

It was also proved in working papers of Haddad and Hornuf (2016) that the better is financial system, the lower is the number of FinTech start-ups in a country. It is believed that in these countries, financial systems have a lot of disadvantages, therefore, FinTech platforms try to adjust this gap.

As Caytas (2016) mentions in her paper, FinTech platforms are capable of identifying the risks of operations, but in her research, she focuses only on payment systems and banks' being rather afraid of losing payment leadership in this market.

Some scientists (Jaksic & Maricnc, 2015) tried to predict the future of banking services in the context of FinTech development. They insist on banks shouldn't stop doing banking. Instead, banks need to adjust themselves to consumers' new preferences for IT-driven products and use IT developments to reconfigure or even reinvent relationship banking. The authors suggest that government regulation and attempts to control FinTech platforms give banks additional possibility to adjust.

In the SWIFT Institute working paper, prepared by Mainelli and Milne (2016), the role of blockchain at the securities transaction lifecycle is considered.

There is also one more gripping paper of Dorfleitner, Hornuf, Schmitt, and Weber (2015) about FinTech market in Germany. The scientists assessed it and made the forecast for the years 2020, 2025, and 2035. Moreover, in this paper, it is revealed the connection between development of crowdfunding and SMEs' growth.

Dong He et al. (2017) consider FinTech as accelerating process. In their opinion, FinTech platforms are able to change financial sector and the profile

of its services. They admit that obstacles to entry are reduced, however, opportunities for competition for financial intermediaries are shrunk as well.

Mills and McCarthy (2016) made a research on innovation and technology and the implications for regulation of small business lending. The authors are also convinced that there is a sharp need to regulate FinTech platforms due to the growing amounts of raising capital.

Research of group with a head Antoniuk (2017) was devoted to the barriers for SMEs on the way to 4th Industrial Revolution, where FinTech platforms were considered as a part on innovation environment.

Sloboda, Dunas, Limański (2018) considered FinTech in bank retail. They viewed the obstacles and the perspectives of FinTech movement in Ukraine and tried to predict its future.

Not only academicians pay attention to FinTech platforms development issues. Different consulting companies, international organizations, etc., which are occupied with SMEs' funding problems make research on it. For instance, Stockholm FinTech Report (2018) overviewed the FinTech sector in the biggest Stockholm region. There the authors consider FinTech platform as ecosystem talent flow regulation. Another report (2015) prepared by World Economic Forum proves that FinTech platforms are capable of making shifts in small business finance. In EY's report (2017), it is possible to meet such definition of FinTech: "organizations combining innovative business models and technology to enable, enhance and disrupt financial services". Besides, EY researchers revealed, that numbers of Fintech users are increasing. At OECD discussion paper (2018) there is also strong background of Fintech facilitation of access to finance for SMEs.

## 2. METHODS AND RESEARCH QUESTIONS

The main goal of the given research is to develop an appropriate approach for creation of information FinTech platform with the EU standards compliance mainly for SMEs in order to support

innovativeness of SMEs, improve their access to finance and simplify different financial processes. The hypothesis of the research is that having different types of FinTech platforms in Ukraine, they do not apply modern innovative FinTech instruments, therefore, a unique informational platform should be developed.

To achieve this goal, the authors answered the following research questions: defined the main features of FinTech platforms underlining types of FinTech, its participants and the most influential factors; determined the main trends of FinTech platforms development in the EU countries and their impact on the global scale; identified the level of investment for FinTech development in different regions and Europe in particular: examined the place of FinTech platforms in business development, exemplified as B2B ones; designated the priority sectors for development of FinTech platforms in Ukraine, on the basis of which the challenges for further development of FinTech platforms in Ukraine were determined; substantiated the necessity of developing the Information Platform on Support for SMEs' Innovations that consolidate interests of both SMEs and scientists.

In the research, the authors mostly used qualitative analysis methods due to the gathered types of the EU and Ukrainian FinTech platform development data. Research strategy expected to make surveys and structural interviews (to evaluate the need to use FinTech platforms by SMEs' representatives in Ukraine from different branches and regions, were chosen randomly) in order to refute or confirm the following hypothesis: FinTech platforms in SME's financing play a crucial role in the EU countries and it is possible to implement them in Ukraine transforming some informational platforms. The surveys were conducted 1) during participation in thematic business forums, conferences, symposiums, seminars held from June to December 2017; 2) via social network Facebook among the needed focus groups; 3) direct delivery of the questionnaires to the participants by e-mails (received from SMEs' associations).

Within the survey, 2,140 questionnaires were sent from which 753 fully completed questionnaires were received (or 35% of sent questionnaires). Despite that fact that there was enough time to

collect the data (more than 6 months) and the costs on research were provided by project's budget, there was the main limitation – Ukrainian SMEs were quite passive in participation in the survey. Nevertheless, among respondents who actually took part in the survey there are 374 medium-sized and 380 small businesses from different branches and regions of Ukraine. Sample reliability was calculated using the Sample Size Calculator for Confidence at 5% interval and Confidence at 95% level<sup>1</sup>. The data were processed using table processor MS Excel.

There were analyzed secondary data with content analysis method on SMEs trends development, use of FinTech instruments and platforms and state of FinTech in different EU countries in order to reveal the examples of successful FinTech platform implementation. Cross-cultural analysis was used for assessment of FinTech platforms level development in different EU countries. For qualitative analysis, the gathered data were categorized and then packed with NVIVO software. It enabled to classify existing FinTech platforms, to determine the main problems and expectations of their users.

### Essence and parameters of FinTech platforms

FinTech has mainly transformed the traditional way financial services are produced and delivered through implementation of new technologies, which includes a variety of products, applications, processes and business models.

The term FinTech is often used for companies providing or facilitating financial services by using a technology, which allows to provide products and services directly to end users, often via online and mobile channels.

The features of FinTech system, including financial market players, the main FinTech trends and factors influencing FinTech development, are presented in Figure 1. Though, the great attention should be paid to FinTech trends, in particular to consumer/business lending and equity funding because of their great share according to estimations of Silicon Valley Bank.

The most widespread areas for implementing innovation technologies in financial sector include online banking, online payment and transfer services, peer-to-peer lending, personal investment advice and services.

Taking into consideration that in many cases, SMEs have lack of funding, such FinTech instruments as shown in Figure 1 could become the way of access to finance regarding solving such problems and challenges like more cash, improved working capital management, and more stable and secure funding.

### Fintech development in EU countries

In March 2018, the European Commission adopted an action plan on FinTech (Fenwick, McCahery, Vermeulen, 2017) in order to develop financial sector with more competitive and innovative features. The action plan sets out 19 steps that the Commission intends to take to achieve such main goals as:

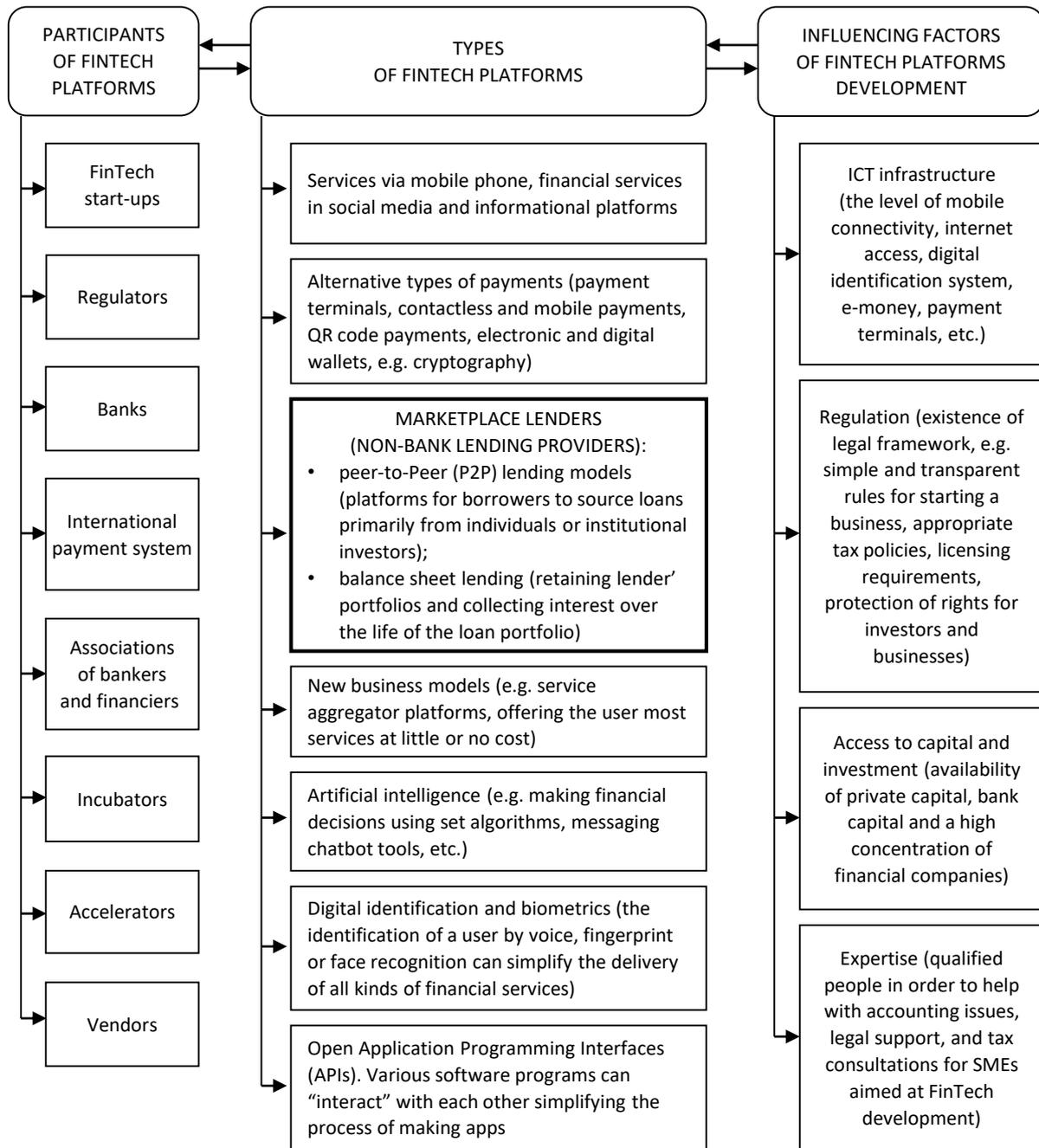
- enable innovative business models to scale up at the EU level;
- support the uptake of new technologies such as blockchain, artificial intelligence and cloud services in the financial sector;
- increase cybersecurity and the integrity of the financial system.

According to European Commission, the main aim of the mentioned initiatives is to strengthen the efficiency of convergence through technological innovation usage and wide capacity of the EU financial sector by implementation of new technologies in its activity (USAID, 2018).

For confirmation of the development of the European FinTech sector not only on legislative basis (an action plan on FinTech), but also simultaneously on economic one, it is reasonable to analyze the level of investment (Figure 2).

The overall trend from Figure 2 proves the increasing interest of investors to FinTech sector total

<sup>1</sup> According to the State Statistic Service of Ukraine at the beginning of 2017, there were 305,9 thousand SMEs in Ukraine, including 14,8 thousand (4.84%) of medium sized businesses, 291,9 thousand (95%) of small businesses. The large business share was 0.16%.



**Figure 1.** Theoretical approaches to Fintech platform basics

capital of which was raised from less than USD 1 bln to USD 2 bln (250% growth rate).

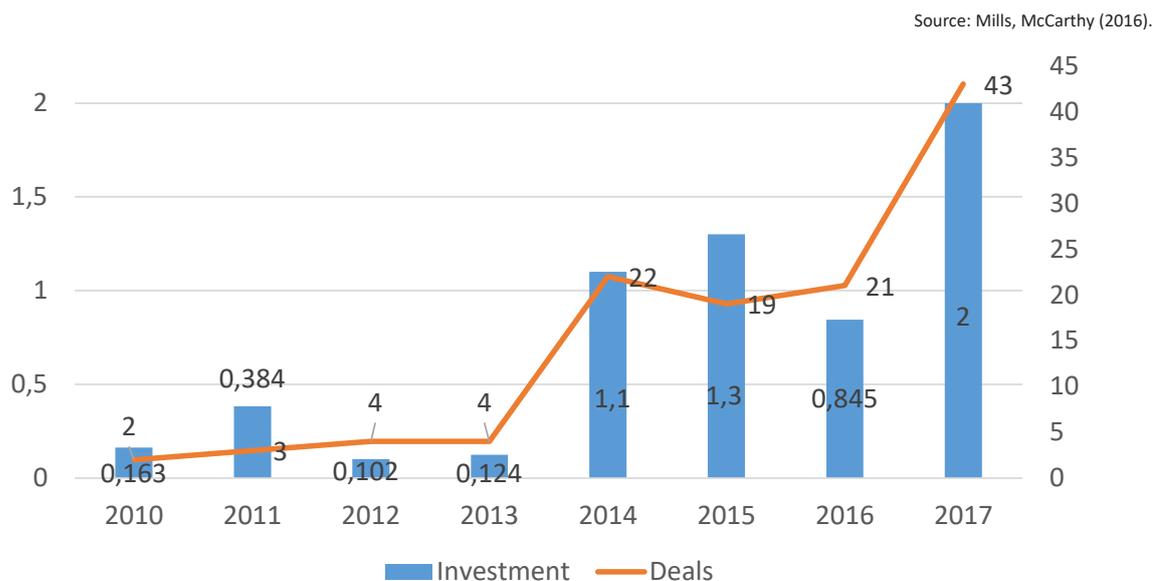
The analyzed tendency also correlates with the number of deals, which increased more than 20 times in 2017 in comparison with 2010.

This significant growth can be explained by the ongoing interest from entrepreneurs, investors, accelerators and consumers to FinTech companies and services.

Such online platforms can be exemplified as stories of successful FinTech implementation, based not only on mobile payments.

P2P lending is represented by European crowdfunding companies as an alternative to traditional bank credits (examples are Funding Circle, Lendico, Comunitae, Zopa, Bondora, Iwoca, etc.).

Equity crowdfunding changes the opportunities for investments providing services for attracting



**Figure 2.** Investments in European FinTech sector, bln. USD

capital for start-ups and opportunity to fund for potential investors (examples are SumUp, iZettle, Jusp, SetPay, etc.).

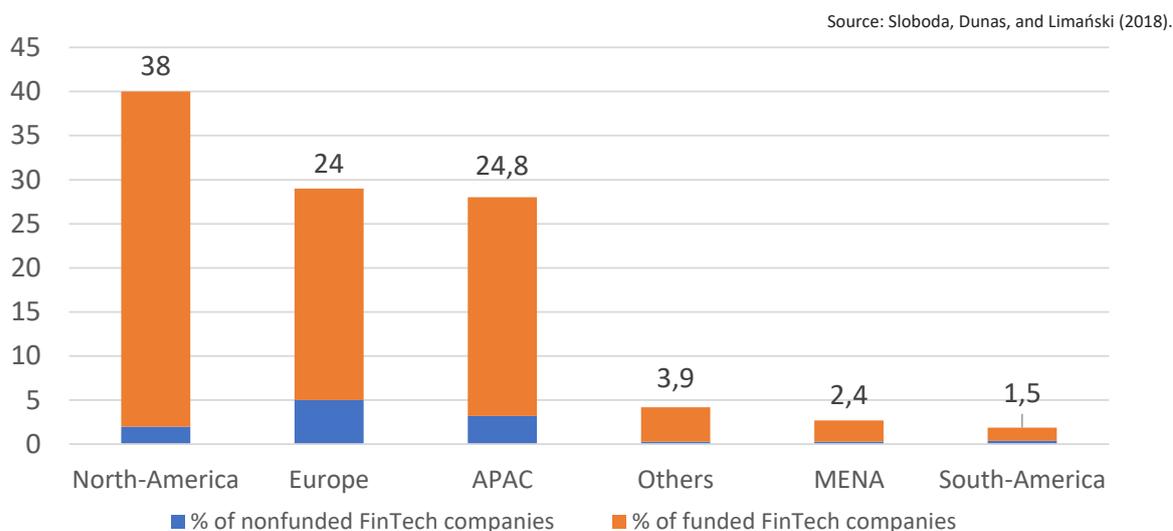
Money transfer allows to simplify the process of transferring money between countries in different currencies with lower commissions and fees (examples are TransferWise, Kantox, WorldRemit, etc.).

For estimating the most developed FinTech sectors, it is essential to analyze the territorial distribution of FinTech companies and the level of investments according to FinTech sector (Figures 3, 4).

Analyzing Figure 3, it can be observed that such regions as North-America, Europe and Asia-Pacific are among leaders in FinTech sector, while Middle East and North Africa and South America have percentage of FinTech companies less than 3 %.

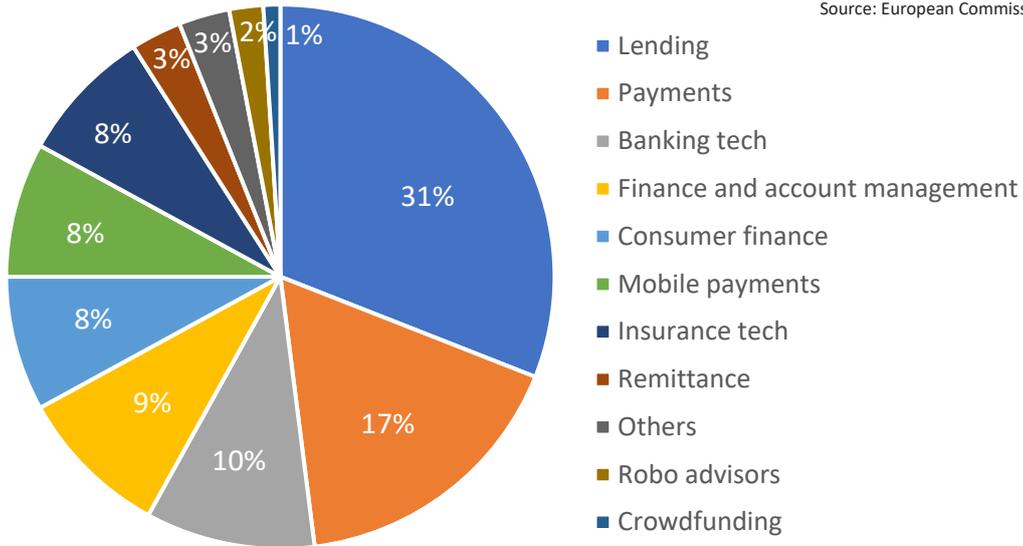
Moreover, the majority of FinTech companies in the considered regions are funded by investors, more active among whom are Startupbootcamp, 500 Startups and Y Combinator (Sloboda, Dunas, & Limański, 2018).

Besides, with the development of FinTech sector globally, the selection of the most popular sub-



**Figure 3.** The place of FinTech platforms in the EU countries on the global scale in 2016, %

Source: European Commission (2018).



**Figure 4.** Global funding invested in FinTech platforms in 2016, %

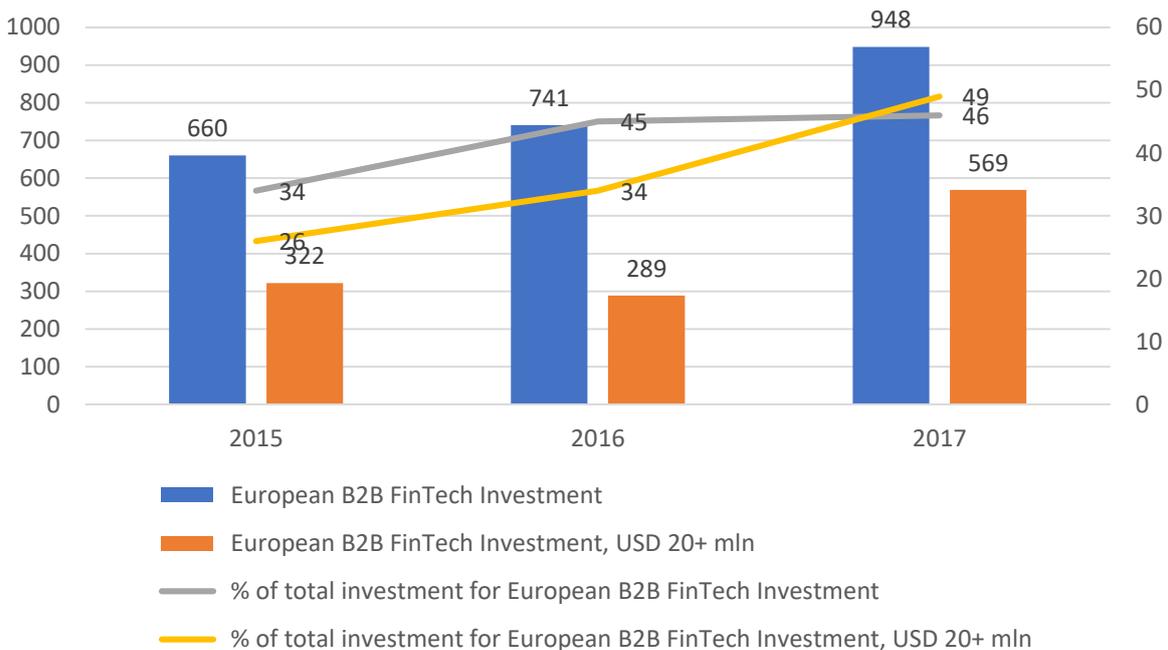
sectors for investment also has the great importance (Figure 4).

In Figure 4, the subsectors that were the most attractive for investments were payments, lending and banking technology. Other areas of global interest included mobile financial services, financial and account management, remittances and money transfer, robo advisors, insurance technologies, crowdfunding, P2P lending, blockchain and crypto-currency.

Source: Mills, McCarthy (2016).

According to the classification of FinTech growth forum, investment in FinTech platforms should be divided into 2 groups: B2B FinTech and B2B FinTech with investment more than USD 20 mln, the level of funding for which is shown in Figure 5.

Figure 5 shows the level of investment into European B2B FinTech companies, which had increased since 2015 to 2017 attracting USD 948 mln. For 20+ mln investment into FinTech companies, the % of total investment into B2B has almost doubled since 2015, from 26% to 49% in 2017.



**Figure 5.** Investment into B2B FinTech in the EU countries, mln. USD

## Trends of FinTech platforms development in Ukraine

All considered trends confirm that dynamics of FinTech has raised significantly over the past years in Europe that is why Ukrainian financial market could be transformed through new technologies. One of the conditions for FinTech development is Internet penetration. In 2017, in Ukraine, access to Internet is affordable for the majority of population and its level has raised to 63% by 2017 compared to the level of 2008.

The other important factor for FinTech is the existence of electronic identification system, but, in Ukraine, it is only expected to launch a Know Your Customer (KYC) process in one bank due to the issue of a National Bank ID, which would be relevant for any other Ukrainian banks. The system of electronic passport has only recently started to operate and not the majority of population in Ukraine have received them yet. This can be considered as the obstacle for further FinTech development.

Besides, in rural areas, the coverage of physical infrastructure for digital payment performance

is not sufficient and existing legal and regulatory procedures do not encourage their promotion.

But some positive changes in legislation were implemented among which the following should be underlined:

- authorization by electronic signature in invoice and/or contract performance;
- possibility to use the simplified taxation of services provided by individual IT entrepreneurs in Ukraine (5 % of income per quarter);
- restrictions from the National Bank of Ukraine (NBU) on dividend repatriation (up to USD 5,000,000 per legal entity per year);
- first steps from the NBU for the adoption of EU directives, in particular PSD2 Directive into the local legislative process;
- approval of “Electronic Trust Services Law” in order to launch an electronic identification and trust services for electronic transactions in the internal market;

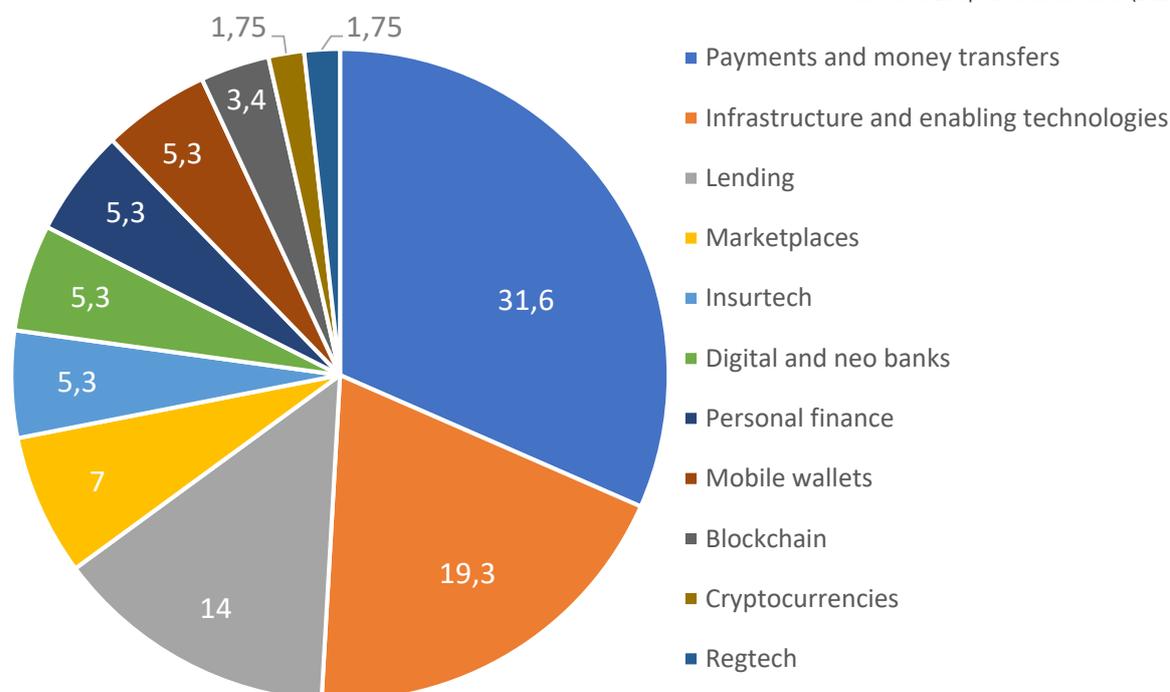


Figure 6. FinTech categories performed by Ukrainian companies

**Table 1.** Types of crowdfunding platforms for SMEs

| Platform                                                                               | Year of creation | Amount of funds received                                                    | About platform                                                                                                                                                                                                                                                                                                                                                                  | Fee                                                                                                                                                              |
|----------------------------------------------------------------------------------------|------------------|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Spilnokosht<br><a href="https://biggggidea.com/">https://biggggidea.com/</a>           | 2012             | UAH 15,5 mln into 221 projects from more than 28 thousand benefactors       | The joint fund, where people donate well-thought-out initiatives max term for collecting the indicated total amount of money cannot exceed 100 calendar days                                                                                                                                                                                                                    | The platform receives 10% of the collected amount solely in case of a successful completion of the project                                                       |
| Na-Starte<br><a href="http://na-starte.com/">http://na-starte.com/</a>                 | 2013             | n/a (approximately more than UAH 10 mln)                                    | The joint fund, which encourages authors of innovative, unusual, in all senses, special projects to realize their ideas                                                                                                                                                                                                                                                         | The platform receives 8% of the collected amount solely in case of a successful completion of the project                                                        |
| KUB<br><a href="https://kub.pb.ua/">https://kub.pb.ua/</a>                             | 2016             | UAH 4,2 billion                                                             | It was established by the Privat Bank to support SMEs in Ukraine. It provides loans for business projects and for agricultural business                                                                                                                                                                                                                                         | 2% per month from the initial amount of the loan (or 24% per year). Investors receive 230 UAH per year for each 1000 UAH he invested                             |
| Mo.Cash<br><a href="https://mo.cash/">https://mo.cash/</a>                             | 2017             | UAH 2 mln (3 projects have been currently financed)                         | It is an IT platform for direct investments to entrepreneurs and SMEs. The mission of the platform is to develop investment culture in order to introduce sustainable entrepreneur environment in Ukraine                                                                                                                                                                       | 25-35% per year (depends on the borrower rating). Maximum sum of a loan is UAH 500 thousand for maximum 18 months                                                |
| Komubook<br><a href="http://komubook.com.ua/">http://komubook.com.ua/</a>              | 2016             | Not stated                                                                  | The first Ukrainian platform of crowdpublishing. It is aimed at publishing of works of famous foreign authors for Ukrainian bookstores that have not been published by traditional Ukrainian publishers yet                                                                                                                                                                     | The platform offers a book to be published if it receives required sum of money during 30-60 days. After publication of the book each investor receives his copy |
| Kickstarter<br><a href="https://www.kickstarter.com/">https://www.kickstarter.com/</a> | 2009             | USD 450 mln has already financed 35 thousand creative projects              | It is an enormous global community built around creativity and creative projects. Among its leaders are technical inventories, music, soft, video                                                                                                                                                                                                                               | 3-5% commission of the money collected. According to its statistics, about 44% of the announced projects successfully collect the required amount of funding     |
| Indiegogo<br><a href="https://www.indiegogo.com">https://www.indiegogo.com</a>         | 2014             | Over the last four years, Indiegogo has helped to implement 45,000 projects | It was created for business projects of "universal" orientation that improve the life, environment, etc. Its advantage is also in the wider geographical coverage and flexible financing possibilities (the startup gets the amount even if the goal is not achieved). The "infinite crowdfunding" option has recently appeared (when the terms of the campaign are not called) | If a published project does not dial within the given amount, the service takes a commission of 9%, if dialing, then only 4%                                     |
| RocketHub<br><a href="http://www.rockethub.com/">http://www.rockethub.com/</a>         | 2009             | Not stated                                                                  | It is the world's leading social network for entrepreneurs. Its mission is to offer the achievers of the world networking, funding and growth opportunities. RocketHub does not work on the "all or nothing" principle. Thus, even if the required amount is not accumulated, the author of the idea can still get money                                                        | The site fee is 4% for projects that have received full funding, and 8% for others                                                                               |

Note: Systematized by the authors from Caytas (2016).

- announcement by mobile operator in Ukraine "Kyivstar" about launching Mobile ID service aimed at identifying the client and using his digital signature to access electronic services and document circulation by mobile phone.

Lack of finance for Ukrainian start-ups is also among the weaknesses for FinTech development, but high standards of education, especially in mathematics science and IT sphere, can eliminate the mentioned risks.

The FinTech providers in Ukraine are mainly presented in such spheres as shown in Figure 6.

Figure 6 shows the low level of FinTech sector development in Ukraine because of the great share of digital payments and money transfers, while other subsectors do not sufficiently function. It is mainly connected with the fact that more than 60% of the FinTech start-ups were run within the last three years.

According to the survey of USAID (FinTech Action plan: For a more competitive and innovative European financial sector, 2018), the prior sectors for FinTech development in Ukraine are digital banking, automation, biometric identification, machine learning, AI, forecasting and modeling,

smart contracts, chatbots, blockchain, big data, digitization of all registries, ICO, IT security, cybersecurity and payment security.

Currently, FinTech platforms (informative and crowdfunding) are becoming more and more popular among the entrepreneurs. One of the reasons is rapid growth of Internet coverage area, as it was mentioned, and number of people and business who use it in everyday activity. The most well-known types of crowdfunding platforms for SMEs that can be used by Ukrainian business are systematized in Table 1.

From Table 1, it can be seen that most platforms are no more than 10 years old, and most Ukrainian platforms were created no more than 5 years ago. All of these platforms are functioning to support private entrepreneurs and SMEs with finding finance resources for their business idea implementation. But any of them is aimed at consolidating the interests of both SMEs and scientists. Ukrainian science is suffering from lack of funding, but it rarely collaborates with the business entities mostly because of lack of exchange of information between them. On the one hand, innovations hardly could be developed without science and scientific activity. On the other hand, even having developed some innovative idea or a project, scholars and scientists suffer from lack of business soul and entrepreneur gut feeling. Therefore, the development of some unique informational platform that will serve as an interactive field for exchanging ideas and information of both representatives of scientific and business world are of great importance.

### Information Platform on Support for SME Innovation as an example of FinTech application in Ukraine

As a result of implementation of the young scholars' research project "The new paradigm of financial support of innovations in small and medium enterprises" (it is funded by the Ministry of Science of Ukraine), the Information Platform on Support for SME Innovation (sme-sci.com) was developed. This platform is aimed at consolidating the interests of both SMEs and scientists and

fostering their activity to meet the needs of consumers. Here scientists can offer their projects for SMEs, and SMEs can make their orders from scientists.

To determine the demand for the Internet platform services, the questionnaires were developed and a survey was conducted. Key goals of the survey were to determine both the SMEs' opinion about the necessity of a particular Internet platform for them and the types of services that could be provided by the sme-sci.com platform. The authors had developed such types of questionnaires:

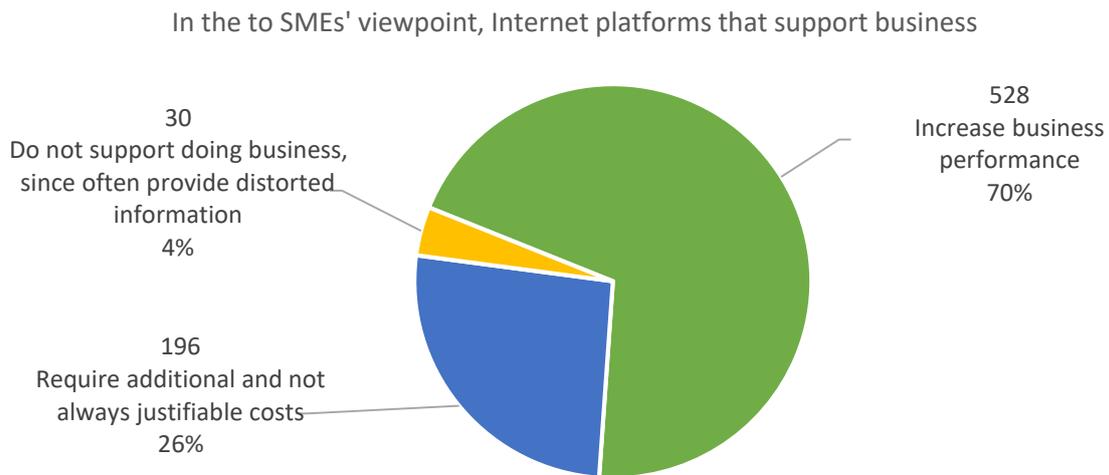
- formal interactive (for direct delivery of the questionnaires to the representatives of SMEs through their electronic mailboxes or through participating in the survey online through Google Forms);
- formal personalized (structured individual interviews of the SME's representatives (participants in thematic business forums, conferences, symposiums, seminars held from June to December 2017) with the same well-prepared list of questions (the questionnaire can be found by the link<sup>2</sup>).

The results of the survey disclosed that 81% of respondents (or 611 representatives of SMEs) use supporting business Internet platforms and websites on a regular basis. Most of them (or 70% of respondents) are certain that Internet platforms of supporting business contribute to increase of business performance (Figure 7). On the other hand, 30% of respondents consider that available Internet platforms either require additional and not always justifiable costs or even do not support doing business, since often provide distorted information.

Those legal entities who use Internet platform in everyday business claimed that they help them to find up-to-date information about the main trends of business development in various industries (49% of respondents) and both create opportunities to get acquainted with the results of latest market researches, which is important for SMEs' business development, and to promote their

2 Internet platforms for SME: the necessity and ways of development (Google Forms questionnaire): <https://docs.google.com/forms/d/15pmt-6ostKmxmz2w-j2h6H5JOjOWwEN3hvm5dIrMjC8/edit?ts=5ae74049>

Source: Calculated by the authors on the basis of the conducted research.

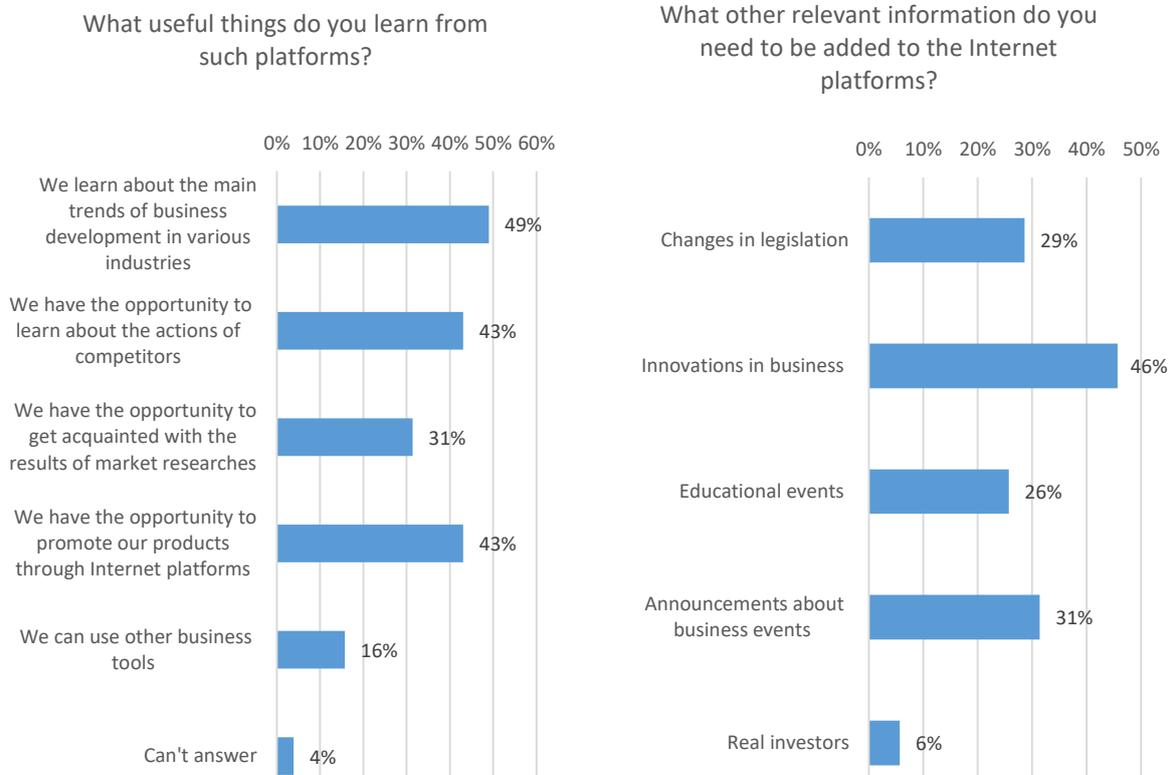


**Figure 7.** Structural indicators of respondents' answers on questions that determine the role of Internet platforms in their business performance

products through Internet platforms (Figure 8). Moreover, one third of respondents are sure that such platforms make searching information about their competitors easier and also teach them how to use other business tools. Besides that, legal enti-

ties claim on lack of information about last amendments to the legislation, innovations in business, some educational and business events or trainings and about real investors on currently available business platforms and Internet resources.

Source: Calculated by the authors on the basis of the conducted research.



**Figure 8.** The respondents' answers to questions that determine the importance of information presented by the Internet platforms (multiple choice)

Source: Calculated by the authors on the basis of the conducted research.



**Figure 9.** The respondents’ answers on question that determine the possibility to find external support with the help of the Internet platforms (number of SMEs who answered)

Despite the lack of some relevant information for SMEs, 45% of respondents (or more than 300 representatives of SMEs) have found experts who they were in need of, but 16% of SMEs were not so lucky and didn’t find appropriate external expert through the Internet platforms. At the same time, near 40% of respondents neither have used Internet platforms for finding experts at all nor had a need in such external experts for their business (Figure 9).

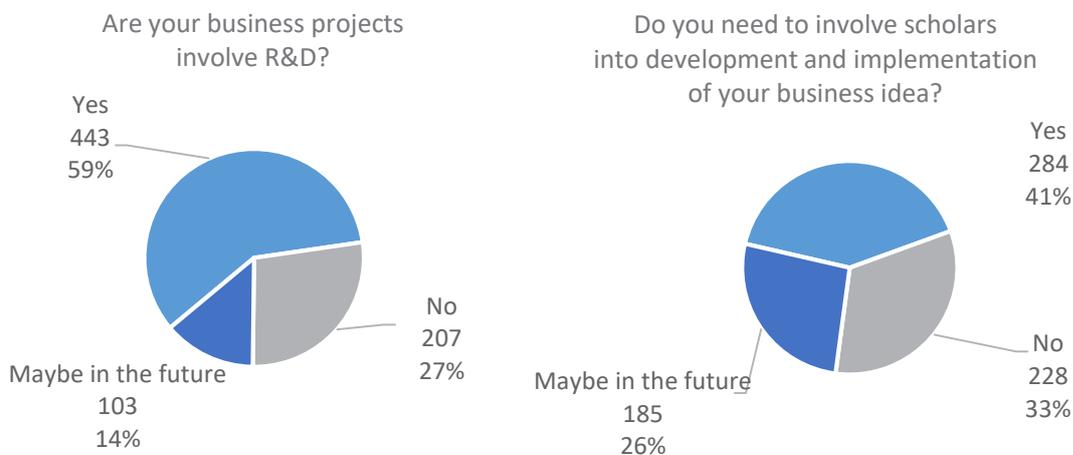
All the abovementioned results of the survey show that most SMEs use Internet resources and Internet platforms to improve their business performance, but most of the platforms do not include all necessary information for them and they need to spend a lot of time surfing the Internet in searching information or experts valuable for them. Such time-consuming activity does not create possibilities for R&D activity and self-development. Nevertheless, near 60% of respondents said that their business projects involve R&D and near

14% are sure that, in the nearest future, their business projects would involve R&D activity (Figure 10). Moreover, near 70% of respondents confirmed that they need now or will need in the nearest future to involve scholars and scientists into development and implementation of their business projects and ideas.

As can be seen from Figure 10, no more than 30% of respondents said that they are not going to develop some innovative projects in the nearest future and, therefore, they will not have a need to involve scholars and scientists. But we can’t say that this is a negative tendency, because it is impossible that all the SMEs being engaged in risky and expensive innovations and R&D.

Finally, we can say that the results of the survey confirmed the necessity of development of the Information Platform on Support for SME Innovation and demand for it from SMEs.

Source: Calculated by the authors on the basis of the conducted research.



**Figure 10.** The structure of the respondents’ answers to questions that determine the business’s need to collaborate with scientists

## CONCLUSION

The conducted analysis on trends of FinTech platforms in the EU countries defined the importance of P2P lending, balance-sheet funding, equity funding and crowdfunding for SME development, start-ups in particular, in order to facilitate their access to finance. The existence of legislation on FinTech in the EU contributes to the development of financial market through usage of innovation technologies and instruments proved by the level of investment into FinTech platforms in the EU countries. The research showed that Ukrainian FinTech sector is underdeveloped due to the great share of such traditional instruments as digital payments and money transfers, while other subsectors do not sufficiently function. The analysis of Ukrainian technology market defined that more than 60% of FinTech platforms were launched over the past three years and mainly elaborated in digital payments and money transfers market, which proved our hypothesis, therefore, among the most prior spheres for further FinTech development in Ukraine are digital banking, machine learning, artificial intelligence, smart contracts, blockchain, in accordance to the best European practices.

Nowadays, FinTech platforms in Ukraine face such challenges as the lack of clarity in legislation, slow adoption of innovations in banking segment, lack of open APIs and lack of finance. But such legislation steps as the adoption of EU directives by NBU, in particular PSD2 Directive into the local legislative process and approval of “Electronic Trust Services Law” regarding launching an electronic identification and trust services for electronic transactions in the internal market, could be considered as positive changes for further FinTech development in Ukraine.

Therefore, the greatest number of platforms are no more than 10 years old, but most of Ukrainian platforms were created no more than 5 years ago. Though, the risks of the considered challenges should be mitigated through improvement of legislation and financial system in Ukraine.

Taking into consideration that most of currently available platforms are functioning to support private entrepreneurs and SMEs with finding finance resources for their business idea implementation and any of them is aimed at consolidating the interests of SMEs with scientists, the Information Platform on Support for SMEs’ Innovations that consolidates interests of both SMEs and scientists has been developed. The necessity for this Information Platform and demand for it from the SMEs were confirmed by the results of a survey in which more than 700 Ukrainian representatives of small and medium business participated. Near 70% of respondents confirmed that, either now or in the nearest future, they will need to involve scholars and scientists into development and implementation of their business projects and ideas, so they are interested in services that could be provided by the Information Platform on Support for SME Innovation. Therefore, the authors will continue their work on further development and improvement of services that could be provided by the sme-sci.com.

## REFERENCES

1. Antoniuk, L. et al. (2017). Barriers and opportunities for hi-tech innovative small and medium enterprises development in the 4th industrial revolution era. *Problems and Perspectives in Management*, 15(4), 100-113. [https://doi.org/10.21511/ppm.15\(4\).2017.09](https://doi.org/10.21511/ppm.15(4).2017.09)
2. Arner, D. W., Barberis, J. N., Buckley, R. P. (2015). *The Evolution of Fintech: A New Post-Crisis Paradigm?* (University of Hong Kong Faculty of Law Research Paper, No. 2015/047; UNSW Law Research Paper No. 2016-62). <http://dx.doi.org/10.2139/ssrn.2676553>
3. Arner, D. W., Barberis, J. N., Buckley, R. P. (2016). *RegTech and the Reconceptualization of Financial Regulation* (Northwestern Journal of International Law & Business, Forthcoming; University of Hong Kong Faculty of Law Research Paper No. 2016/035). Retrieved from <https://ssrn.com/abstract=2847806>
4. Caytas, J. (2016). Developing Blockchain Real-Time Clearing and Settlement in the EU, U.S., and Globally. *Columbia Journal of European Law: Preliminary Reference* (June 22, 2016). Retrieved from <https://ssrn.com/abstract=2807675>

5. Crowdfunding for SMEs (2018). Retrieved from [www.smedevelopment.info/searchfinance/3/](http://www.smedevelopment.info/searchfinance/3/)
6. Dhar, V., Stein, R. (2016). *FinTech Platforms and Strategy* (MIT Sloan Research Paper, 5183-16). <http://dx.doi.org/10.2139/ssrn.2892098>
7. Dong He et al. (2017). *Fintech and Financial Services: Initial Considerations*. IMF, NY.
8. Dorfleitner, G., Hornuf, L., Schmitt, M., & Weber, M. (2016). *The Fintech Market in Germany*. Springer International Publishing. <http://dx.doi.org/10.2139/ssrn.2885931>
9. Ernst and Young (2017). *EY FinTech Adoption Index* (Report). Retrieved from [http://www.ey.com/Publication/vwLUAs-sets/ey-fintech-adoption-index-2017/\\$FILE/ey-fintech-adoption-index-2017.pdf](http://www.ey.com/Publication/vwLUAs-sets/ey-fintech-adoption-index-2017/$FILE/ey-fintech-adoption-index-2017.pdf)
10. European Commission (2018). *FinTech action plan: For a more competitive and innovative European financial sector* (Report). Retrieved from [https://ec.europa.eu/info/publications/180308-action-plan-fintech\\_en](https://ec.europa.eu/info/publications/180308-action-plan-fintech_en)
11. Fenwick, M., McCahery, J., Vermeulen, E. (2017). *Fintech and the Financing of Entrepreneurs: From Crowdfunding to Marketplace Lending* (TILEC Discussion Paper No. 2017-25; ECGI – Law Working Paper No. 369/2017; Lex Research Topics in Corporate Law & Economics Working Paper No. 2017-3). <http://dx.doi.org/10.2139/ssrn.2967891>
12. FinTech Action plan: For a more competitive and innovative European financial sector (2018). Retrieved from <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52018DC0109>
13. FinTech Growth Forum (2017). *State of European FinTech: current trends & prediction*. Retrieved from <https://www.slideshare.net/innovatefinance/state-of-european-fintech-current-trends-prediction-2017>
14. Haddad, C., Hornuf, L. (2016). *The Emergence of the Global Fintech Market: Economic and Technological Determinants* (CESifo Working Paper Series No. 6131). Retrieved from SSRN: <https://ssrn.com/abstract=2830124> or <http://dx.doi.org/10.2139/ssrn.2830124>
15. Information Platform on Support for SME Innovation (n.d.). Retrieved from <https://sme-sci.com/>
16. Ivaschenko, A., Sybirianska, Y., & Polischuk, Y. (2017). Information and Communication Platform as a Complex Approach for Solving Information Asymmetry Problems. In *13th International Conference "ICT in Education, Research, and Industrial Applications: Integration, Harmonization, and Knowledge Transfer"*, ICTERI 2017 (pp. 111-126). Retrieved from <http://ceur-ws.org/Vol-1844/10000111.pdf>
17. Jaksic, M., Marinc, M. (2015). The Future of Banking: The Role of Information Technology. *Bancni vestnik: BANKING SECTOR AT THE CROSSROADS: CHALLENGES FOR THE FUTURE*, Forthcoming. Retrieved from <https://ssrn.com/abstract=2656388>
18. Kiev International Institute of Sociology (2017). *Dynamics of Internet usage in Ukraine*. Retrieved from <http://www.kiis.com.ua/?lang=eng&cat=reports&id=705&page=1>
19. Mills, K., McCarthy, B. (2016). *The State of Small Business Lending: Innovation and Technology and the Implications for Regulation* (Harvard Business School Entrepreneurial Management Working Paper, 17-042; Harvard Business School General Management Unit Working Paper, 17-042). <http://dx.doi.org/10.2139/ssrn.2877201>
20. OECD (2018). *Enhancing SME access to diversified financing instruments* (Discussion paper). Retrieved from <https://www.oecd.org/cfe/smes/ministerial/documents/2018-SME-Ministerial-Conference-Plenary-Session-2.pdf>
21. PWC (2017). *Global State of FinTech* (Report). Retrieved from <https://www.pwc.com/jg/en/publications/pwc-global-fintech-report-17.3.17-final.pdf>
22. PWC (2017). *The state of FinTech* (Report). Retrieved from <https://www.pwc.com/sg/en/publications/assets/fintech-startupbootcamp-state-of-fintech-2017.pdf>
23. Silicon Valley Bank (2015). *Investment Trends in FinTech* (FinTech Report 2015). Retrieved from <https://www.svb.com/News/Company-News/2015-Fintech-Report-Investment-Trends-in-Fintech/>
24. Sloboda, L., Dunas, N., & Limański, A. (2018). Contemporary challenges and risks of retail banking development in Ukraine. *Banks and Bank Systems*, 13(1), 88-97. [https://doi.org/10.21511/bbs.13\(1\).2018.09](https://doi.org/10.21511/bbs.13(1).2018.09)
25. Stockholm School of Economics (2018). *Overview of the fintech sector in the greater stockholm region* (Stockholm fintech report) Retrieved from <https://www.hhs.se/contentassets/88eee8ea2b664a58bc652cb84aaded3/stockholm-fintechreport2018v2.3.pdf>
26. USAID (2018). *FINTECH IN UKRAINE: Trends, Market Overview and Catalogue*. Retrieved from [http://data.unit.city/fintech/fgt34ko67mok/fintech\\_in\\_Ukraine\\_2018\\_en.pdf](http://data.unit.city/fintech/fgt34ko67mok/fintech_in_Ukraine_2018_en.pdf)
27. World Economic Forum (2015). *The Future of FinTech A Paradigm Shift in Small Business Finance* (Report). Retrieved from [http://www3.weforum.org/docs/IP/2015/FS/GAC15\\_The\\_Future\\_of\\_FinTech\\_Paradigm\\_Shift\\_Small\\_Business\\_Finance\\_report\\_2015.pdf](http://www3.weforum.org/docs/IP/2015/FS/GAC15_The_Future_of_FinTech_Paradigm_Shift_Small_Business_Finance_report_2015.pdf)