THE FINTECH SECTOR AS A DRIVER OF PRIVATE ENTREPRENEURSHIP DEVELOPMENT IN TIME OF INDUSTRY 4.0

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Abstract: *The Fourth Industrial Revolution is making changes to the structure and nature of employment, which is evident in several multi-vector trends. On the one hand, large corporations and industrial enterprises are experiencing declining demand for labor due to the digitization of business processes, the use of artificial intelligence, Big Data, and more. On the other hand, Industry 4.0 creates new opportunities for SMEs to grow, such as alternative business financing models through online platforms. Online financing models include peer-to-peer business loans, equity crowdfunding, profit-sharing crowdfunding, reward-based crowdfunding, and others. The purpose of the article is to explore the possibilities of meeting the needs of SMEs in online financing by the criteria of the volume, value and period of borrowing and to identify the factors that affect the effectiveness of online financing tools. The study used the methods of comparative analysis and expert evaluations. The results of the study show that the success of SMEs financing through crowdfunding and peer-to-peer platforms depends on a set of factors: objective (business project theme, projected profitability rates, loan repayment and interest payment terms) and subjective (investor personal preferences; attractiveness of information posted on crowdfunding platforms). Summarizing the impact of these factors, the authors provide recommendations for SMEs to increase the likelihood of obtaining full funding through online platforms.*

Key words: *FinTech, crowdfunding, online financing, SMEs, Industry 4.0.*

JEL Classification: *E22, G32, O16, O33.*

1. INTRODUCTION

The Fourth Industrial Revolution is making changes to the structure and nature of employment, which is evident in several multi-vector trends (Tatarczak & Boichuk, 2018; Rollnik-Sadowska & Dąbrowska, 2018; Dmytrów & Bieszk-Stolorz, 2019). On the one hand, large corporations and industrial enterprises are experiencing declining demand for labor due to the digitization of business processes, the use of artificial intelligence, Big Data, and more (Kohnová et al., 2015; Limba et al., 2019). On the other hand, Industry 4.0 creates new opportunities for SMEs to grow. This is facilitated by: increasing consumer demand for new products and services that can improve the quality of life; reducing the cost of organizing business through the transformation of core business processes into the digital environment (e-commerce, the use of social networks to promote goods, freelance and remote employment), rapid commercialization of innovation and business ideas through startups (Afonasova et al., 2019; Hu et al., 2019).

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One of the implications of the Industry 4.0 is the growing role of digital technology in enterprise manufacturing and all the processes that accompany and serve the core business (Krykavskyy Pokhylchenko & Hayvanovych, 2019). In particular, the emergence of FinTech companies, which combine the traditional functions of financial intermediaries (such as lending, savings (reserves) and settlement) and modern technologies, is a specific phenomenon of Industry 4.0 (Druhov et al., 2019). FinTech companies allow individuals and business entities to use the Internet, mobile phones, computers, etc. to simplify access to financial services and improve the technical basics of using these services (Wierzbicka, 2018).

From the point of view of SMEs, FinTech companies allow to increase financial inclusion – include SMEs to those financial services that were previously unavailable to them due to a number of conditions (lack of credit history, high rates for banking, etc.) (Bilan et al., 2019). Since SMEs tend to be scarce in their resources and require external financing, financial technologies such as online financing through crowdfunding and p2p / p2b platforms can be a good alternative to traditional loans (Paskevicius & Keliuotyte-Staniuleniene, 2018) and become a driver for the entrepreneurial sector, increasing the number of startups and volume of SMEs funding in general.

2. PROBLEM FORMULATION AND METHODOLOGY

There are differing opinions as to whether it is appropriate to use online financing in business activities. Thus, Jaziri and Miralam (2019) draw attention to the potential risks of launching a project proposal for innovative businesses and start-ups (eg plagiarism risk). In addition, despite the benefits of online financing for borrowers and the technological simplification of the funding approach, practice shows that projects hosted on a crowdfunding or peer-to-peer platform have not always received funding at all or have not been sufficiently funded to actually implement this project (Xin et al., 2019).

The issues surrounding the success of a project in obtaining funding through crowdfunding or peer-to-peer platforms are widely researched. However, the vast majority of researchers focus on the impact of isolated factors or a particular method of online funding. In particular, the following studies address the importance of the specific factors in choosing a project lender for financing. Chen, Zhou, & Wan found that the borrower's general group social capital and relational social capital yielded inconsistent effects, and the borrower's structural social capital had a negative impact on the funding (Chen et al., 2016). Han et al. investigated the factor of voluntary information in peer to peer lending (Han et al., 2018). Lin & Viswanathan found evidence that transactions in online financing are more likely to occur between parties in the same geographical area (Lin & Viswanathan, 2016). Malekipirbazari and Aksakalli proposed the RF-based method to assess the credit risk and predict borrower's status (Malekipirbazari & Aksakalli, 2015).

In contrast to most studies, in which the success of the project is considered from the perspective of the factors influencing the choice of lenders, in the studies (Feng et a., 2015) and (Jaziri & Miralam, 2019) the authors analyzed the behavior, strategies and decision-making by the borrowers. Among the studies that provide a comprehensive assessment of the impact on online funding success, it should be noted the study by Moreno-Moreno, Berenguer & Sanchís-Pedregosa (2018). The authors established a crowdlending success factor model, which includes borrowe's factors (info offered, expertise, trustworthy appearance), platform's factors (trust, loan characteristics, credit score), lender's factors (trust, herd behavior, demographic and social info, same geographical area). Another authors, Song and Boeschoten, designed the website for founders and funders to observe crowdfunding behaviors (Song and Boeschoten, 2015).

Gavurova et al. used the method of the multinomial logistic regression model, which included 48 factors, to describe the importance of borrowers' decisions in peer-to-peer market and their effects on funding results. They found that the debt to income rate is the most significant variable and the highest negative impact is reached by the home ownership type variable (Gavurova et al., 2018).

Therefore, most researchers pay attention to the success factors of the project as a whole. At the same time, there is virtually no research on the analysis of success factors for attracting financing through online platforms by SMEs. Small and medium-sized businesses, as well as start-ups, have their own specifics regarding the choice of online financing methods and their attitude towards lenders. Therefore, this issue requires a separate study.

3. PROBLEM SOLUTION / RESULTS / DISCUSSION

The main methods of attracting online financing are crowdfunding and peer-to-peer (peer-to-business) loans. The crowdfunding is primarily aimed at financing start-ups, businesses and ideas in the early stages of project development. Depending on the remuneration the investor receives from the project, there are following types of crowdfunding: crowdfunding with financial rewards (equity-based crowdfunding, profit sharing crowdfunding), reward-based crowdfunding and donation-based crowdfunding (Wardrop R. et al., 2016). The most common model by the number of platforms created is reward-based crowdfunding. For SMEs, each of these types of crowdfunding and peer-to-peer (peer-to-business) loans has its advantages and disadvantages (Table 1).

Table 1: Comparative analysis of online financing options for SMEs

Criteria	Online financing options				
	Donation-based crowdfunding	**Reward-based crowdfunding**	**Equity-based crowdfunding**	**Profit sharing crowdfunding**	**Peer-to-peer, peer-to-business lending**
Essence	The recipients of the funding have no obligations to the donors	Money providers receive non-financial rewards, such as participating in pre-ordering goods, receiving goods at a lower price	Investors provide funds in exchange for company shares, dividends or voting rights at a general meeting of shareholders	Investors receive a share of the proceeds or profits of the project in the form of dividends, royalties or other payments	Obtaining a loan directly from individuals and institutional investors without the involvement of a traditional financial intermediary
Pros	No additional costs	It gives an opportunity to estimate the demand for	It is possible to raise funds in any business, does not	It is possible to raise funds in any business, allows the	It is possible to raise funds in any business; it can be used at

		products and to find potential consumers	depend on the characteristics of the product	recipient of funding to retain control of the business	any stage of project realization
Cons	Used in the early stages of project development				The terms of the loan do not always match the needs of the business and the production cycle
	Suitable for creative projects, the likelihood of obtaining funding by SMEs is poor	It is necessary to have a prototype of products; the product must be innovative; the idea can be used by competitors	Loss of sole control and management of business (project)	Less common than other types of crowdfunding	

Source: based on (Segal, 2016), Zhang B. et al. (2016).

Profit sharing crowdfunding, equity-based crowdfunding and under certain conditions reward-based crowdfunding are best suited for SMEs. Since most of SMEs cannot offer a creative product, they are not a charity, SME entities are raising money for projects for profit, so they cannot claim free funding. Besides, if a SME entity does not carry out any innovative activities, does not create a product that is different from the existing ones, then it will not be able to raise funds on conditions other than equity-based crowdfunding, profit sharing crowdfunding or peer-to-business lending.

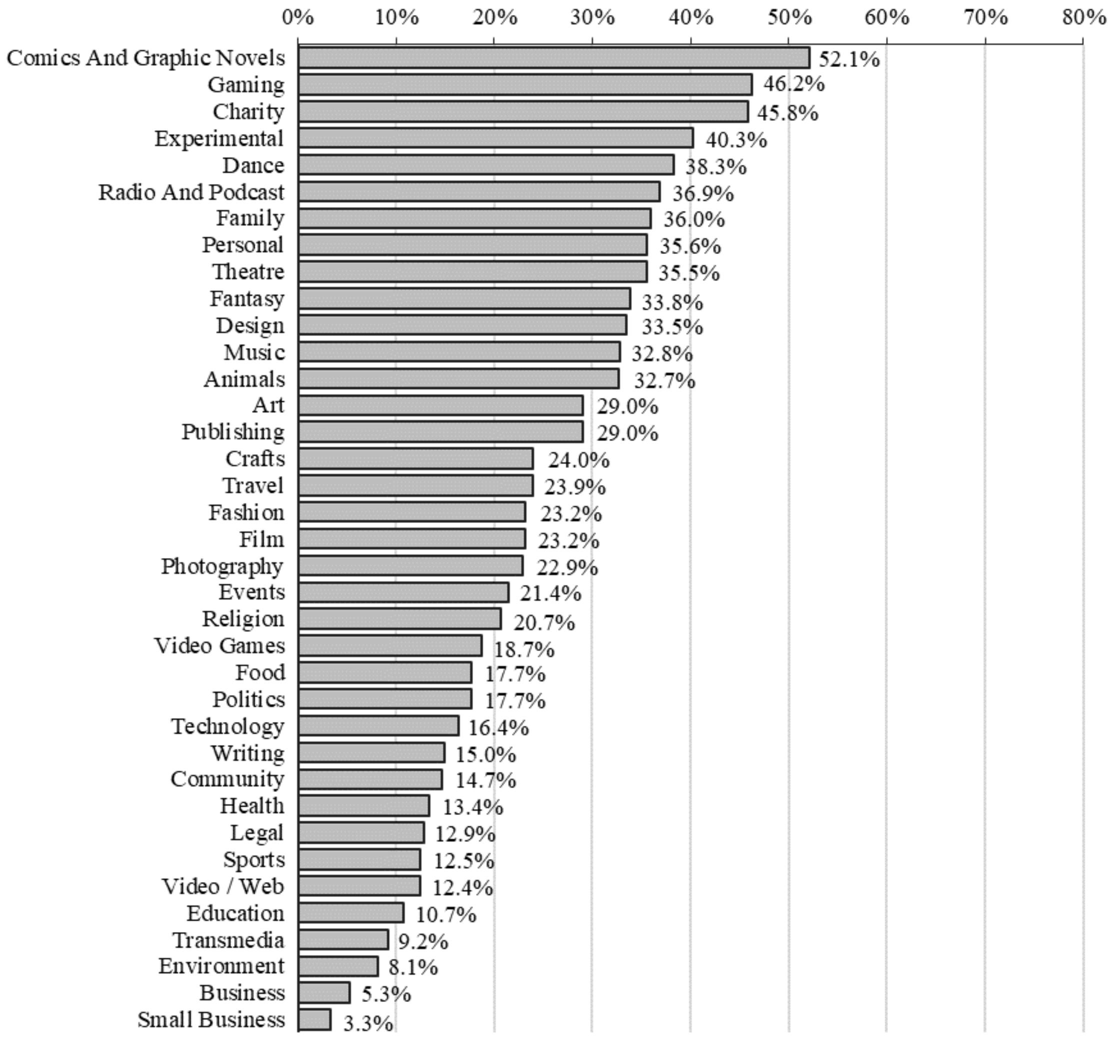
The fact that not all types of crowdfunding are suitable for small business causes the smallest share of receiving full funding by small and medium-sized business entities in comparison to other targeted financing areas (Figure 1).

Figure 1 summarizes data on the crowdfunding platforms such as Fundrazr, Crowdfunder.co.uk, Indiegogo, Kickstarter, Rockethub. The platforms differ significantly in the target areas of the funded projects. In particular, according to TheCrowdfundingCentre the world's largest crowdfunding platforms have the following specialization for the last 5 years:

- Kickstarter: music, film, design, publishing, games, art;
- Indiegogo: cinema, music, community;
- Fundrazr: charity, animals;
- Crowdfunder.co.uk: community;
- Rockethub: art, community, business.

Regarding the financing of small business projects on the listed platforms, in 96.5% of cases full funding was received on Indiegogo (732 out of 758 fully funded projects), the rest (26 projects) were funded on Fundrazr. In addition, Indiegogo is characterized by the largest amounts raised on projects – about $47,000 on average (TheCrowdfundingCentre). This platform offers services of experts and partners at separate stages of development and sale of a new product (fulfillment, marketing, prototyping, production, retail), as well as support of a business project at all stages. Indiegogo is used by entrepreneurs who create innovative products and use reward-based crowdfunding, offering as a reward the purchase of goods at a significant discount.

Figure 1: Share of successful (fully funded projects) on crowdfunding platforms depending on their targeting for the period from January 1, 2014 to September 30, 2019

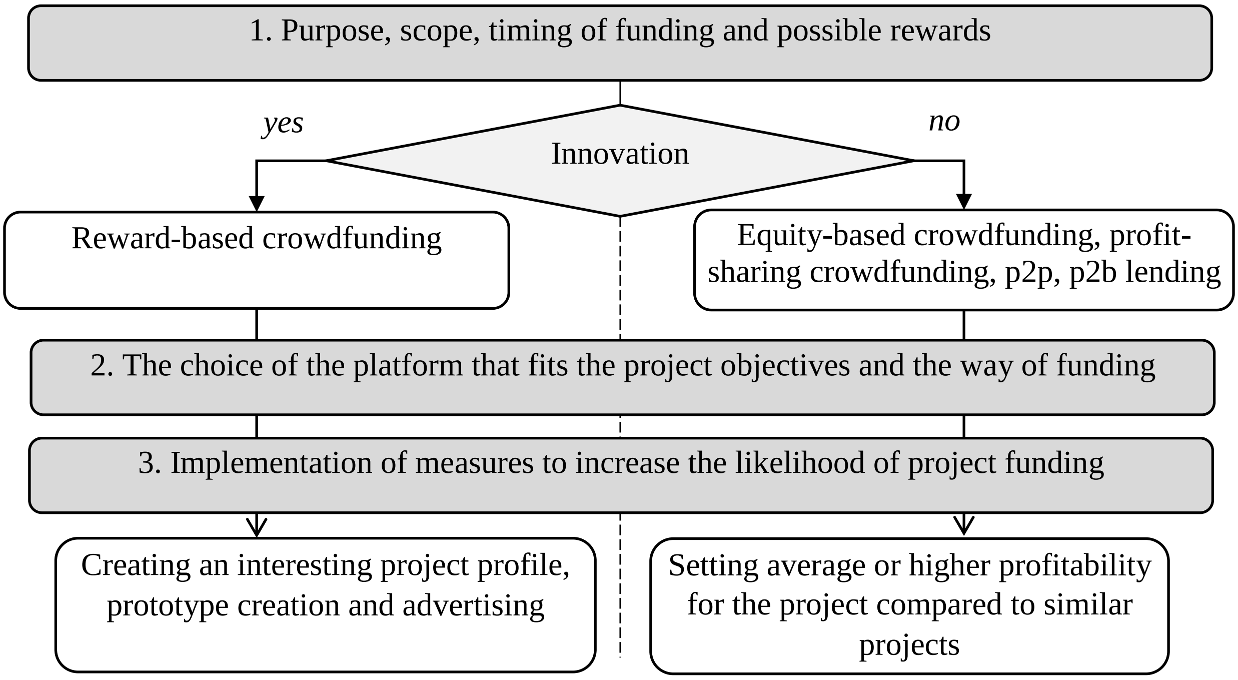


Source: (TheCrowdfundingCentre)

The crowdfunding platform can be considered as a trading platform, a certain local market in which supply, demand and price of borrowed funds are formed. Accordingly, if there are similar projects on the platform that offer higher returns or has other conditions that are more favorable to the investor, then the SME entity that raises funds through this platform has a worse competitive position than other market players. In order to reach the goals of attracting the necessary funding, SME entities need to explore the online platform on which it plans to post a project profile.

Given the above, it is necessary to develop a basic algorithm of actions for the company to raise funds through an online platform. First of all, the SME entity should determine the eligibility conditions of the loan, that is, required amount of funding, period of raising funds, return rate limits (maximum, minimum), other possible types of reward (Figure 2).

Figure 2: Measures to increase the likelihood of full funding the project in crowdfunding



Source: author's development.

Online platforms specialize in certain types of crowdfunding. Therefore, the second step is to select the platform that suits the goals of funding and study the current state of the local market on the chosen platform. In particular, consideration should be given to what similar projects are currently available on the platform, what loan conditions are in place. If the SME entity can set a rate of return equal or above the average market rate, this will create a competitive position and help attract funding.

The criteria for evaluating the success of a project depend on the evaluating entity – borrower, lender, platform runners, or other outsiders. For the borrower, the criteria for evaluating success of the project funding are (Astrauskaitė & Paškevičius 2018):

- Fundraising speed (time to get full funding);
- Receiving the required amount (full or partial funding);
- Lending period (attracting funds for the required period);
- Number of creditors (reflects the level of interest in the offer, indirectly determines the interest in the products of the company, the level of demand).

The main criterion for the success of the project offer, which fully reflects the purpose of the SME entity is obtaining the necessary amount of funding. Achieving full funding depends on many factors that can be summarized in three groups (Paskevicius & Keliuotyte-Staniuleniene 2018):

- Platform-dependent factors;
- Factors that depend on the lender;
- Factors that depend on the borrower.

On the other hand, these factors can be divided into objective and subjective. SMEs can partially manage the platform's factors (at the stage of selecting the platform that will provide the highest likelihood of obtaining financing based on product features and acceptable loan conditions). SMB determines whether it is competitive on this platform. Factors that depend on the lender are subjective and will be minimally influenced by the borrower: investor personal preferences; attractiveness of information posted on crowdfunding platforms for the investor. The third group of factors SMEs can and should manage to increase the likelihood of obtaining full funding: business project theme, projected profitability rates, loan repayment and interest payment terms, project profile, advertising.

For reward-based crowdfunding lender's demand will depend on the characteristics of the product being offered and the consumer's interest in it (reward-based crowdfunding finances the production of innovative products that have no analogues or products that have significant improvements over existing products, so competition under the financial terms of the loan is not significant). For loans attracted under equity and profit-sharing crowdfunding, the funding depends on the return rate and other financial terms of the loan.

4. CONCLUSION

Industry 4.0 creates new opportunities for SMEs to grow, such as alternative business financing models through online platforms. Online financing models include peer-to-peer business loans, equity crowdfunding, profit-sharing crowdfunding, reward-based crowdfunding, and others. Online financing models best suited for SMEs are profit sharing-crowdfunding, equity-based crowdfunding and under certain conditions reward-based crowdfunding. Achieving full funding through online platform depends on many factors that can be summarized in three groups: platform-dependent factors, factors that depend on the borrower and factors that depend on the lender. Factors that depend on the borrower (business project theme, projected profitability rates, loan repayment and interest payment terms, project profile, advertising) can and should be managed by SMEs to increase the likelihood of obtaining full funding. Measures to increase the likelihood of obtaining funding for innovative projects are placing a project offer on a reward-based crowdfunding platform, developing a product prototype, creating an interesting project profile on the platform, applying marketing tools to promote an innovative product. When placing a project offer for traditional types of goods / services, the measures to increase the likelihood of obtaining funding are to use equity-based or profit-sharing crowdfunding, to study the current state of demand and supply on the chosen platform and to set average or higher profitability for the project compared to similar projects on the platform.

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