

Електронний журнал «Ефективна економіка» включено до переліку наукових фахових видань України з питань економіки (Категорія «Б», Наказ Міністерства освіти і науки України № 975 від 11.07.2019). Спеціальності – 051, 071, 072, 073, 075, 076, 292.

Ефективна економіка. 2023. № 7.

DOI: <http://doi.org/10.32702/2307-2105.2023.7.50>

УДК 336.1

S. Teslya,

PhD in Economics, Associate Professor, Associate Professor of the Department of Finance, Money Circulation and Credit, Ivan Franko National University of Lviv, Ukraine

ORCID ID: <https://orcid.org/0000-0002-5655-5174>

N. Hembarska,

PhD in Economics, Senior Lecturer of the Department of Finance, Accounting, and Analysis,

Lviv Polytechnic National University, Ukraine

ORCID ID: <https://orcid.org/0000-0002-7839-4260>

V. Novosad,

Applicants for postgraduate studies of the Department of Finance, Money Circulation, and Credit, Ivan Franko National University of Lviv, Ukraine

ORCID ID: <https://orcid.org/0009-0007-8661-4914>

S. Yavorovskyi,

Applicants for postgraduate studies of the Department of Finance, Money Circulation, and Credit, Ivan Franko National University of Lviv, Ukraine

ORCID ID: <https://orcid.org/0009-0000-8658-5625>

THE ROLE OF THE STATE IN SHAPING THE STARTUP ECOSYSTEM IN UKRAINE

С. М. Тесля,

к. е. н., доцент, доцент кафедри фінансів, грошового обігу і кредиту, Львівський національний університет імені Івана Франка, м. Львів, Україна

Н. Є. Гембарська,

к. е. н., старший викладач кафедри фінансів, обліку і аналізу, Національний університет «Львівська політехніка», м. Львів, Україна

С. М. Яворовський,

вступник в аспірантуру кафедри фінансів, грошового обігу і кредиту, Львівський національний університет імені Івана Франка, м. Львів, Україна

В. О. Новосад,

вступник в аспірантуру кафедри фінансів, грошового обігу і кредиту, Львівський національний університет імені Івана Франка, м. Львів, Україна

РОЛЬ ДЕРЖАВИ У ФОРМУВАННІ ЕКОСИСТЕМИ СТАРТАПІВ В УКРАЇНІ

The article reveals the role of innovative business in the development of the national economy, groups the features by which domestic scholars highlight the essence of startups, highlights the main one – a large scientific potential, and compares the activities of startups with the functioning of small enterprises. The economic content of the startup ecosystem is presented in terms of its structural elements, which include actors and factors of the external and internal environment.

The economic essence of the innovation ecosystem is defined, its structural elements (intellectual and business economy) are characterized, on the basis of which it operates. The main features of the innovation ecosystem and its main component – the startup ecosystem – are highlighted.

The main actors of the startup ecosystem are systematized and their functions are highlighted. The factors affecting the functioning of the startup ecosystem and limiting its activities in the country are systematized. The role of the state in stimulating the development of innovative business in the country is determined. The importance of an effective policy by local governments to create the right conditions for the development of the startup ecosystem in the regions is emphasized. The factors of the formation of the startup ecosystem are structured, and a set of local economic entities that will create a favorable environment for its functioning is presented.

The main stages of formation of the policy of startup development in the national economy are revealed, the peculiarities of development of the domestic startup market and the dynamics of investments in this sector in the context of individual companies are analyzed, and the specifics of institutional support for startups in Ukraine are revealed. The author proposes directions for the development of the Ukrainian startup ecosystem, taking into account foreign experience. The main directions of state support for the development of the startup ecosystem in the national economy are presented, and the role of higher education institutions in intensifying this process is highlighted. The foreign experience of the State stimulation of the startup ecosystem development is studied and the possibilities of its application in the national economy are argued.

У статті розкрито роль інноваційного бізнесу у розвитку національної економіки, згруповано ознаки за якими вітчизняні науковці висвітлюють сутність стартапів та виділено головну з них – великий науковий потенціал, проведено порівняння діяльності стартапів з функціонуванням малих підприємств. Економічний зміст екосистеми стартапів подано з погляду її

структурних елементів, які охоплюють суб'єкти і чинники зовнішнього і внутрішнього середовища.

Визначено економічну сутність інноваційної екосистеми, охарактеризовано її структурні елементи (інтелектуальна та бізнес економіка), на основі яких вона працює. Висвітлено головні ознаки інноваційної екосистеми та її головну складову – екосистему стартапів.

Проведено систематизацію головних суб'єктів екосистеми стартапів та висвітлено функції, які вони виконують. Систематизовано чинники, що впливають на функціонування екосистеми стартапів та обмежують її діяльність в країні. Визначено роль держави у стимулюванні розвитку інноваційного бізнесу в країні. Наголошено на важливості проведення ефективної політики місцевим самоврядуванням у напрямі створення належних передумов розвитку екосистеми стартапів у регіонах. Структуровано чинники формування екосистеми стартапів, подано сукупність суб'єктів економіки місцевого рівня, які створюватимуть сприятливе середовище для її функціонування.

Розкрито головні етапи формування політики розвитку стартапів у національній економіці, проаналізовано особливості розвитку вітчизняного ринку стартапів та динаміку капіталовкладень у цей сектор у розрізі окремих компаній, розкрито специфіку інституційної підтримки стартапів в Україні. Запропоновано напрями розвитку української екосистеми стартапів з урахування зарубіжного досвіду. Подано головні напрями державної підтримки розвитку екосистеми стартапів у національній економіці, висвітлено роль закладів вищої освіти в активізації цього процесу. Досліджено зарубіжний досвід державного стимулювання розвитку екосистеми стартапів та аргументовано можливості його застосування у вітчизняній економіці.

Keywords: *Innovation Ecosystem, Startup Ecosystem, Startup, Venture Capital Financing, Business Incubators, Business Accelerators, Business Angels, Government Support, Financing, Investment, National Economy.*

Ключові слова: *інноваційна екосистема, екосистема стартапів, стартап, венчурне фінансування, бізнес-інкубатори, бізнес-акселератори, бізнес-ангели, державна підтримка, фінансування, інвестиції, національна економіка.*

Statement of the problem in general and its connection with important scientific or practical tasks. Currently, the Ukrainian economy is going through perhaps the most difficult period in its history due to the outbreak of all-out war and the temporary occupation of large parts of the territory, leading to loss of productivity and employment, declining budget revenues, and disrupting the country's financial stability. Despite the war being at an active stage, most scientists and practitioners are optimistic about the timing and outcome of the end of the war, so they are talking about the direction of recovery and development of the national economy at international conferences. We are actively looking for financial means to do so. However, the main focus is on the inner workings of the economic system, which is characterized by a large number of untapped investment resources of the nation, a high rate of adoption of innovative digital technologies in various areas of the economy, and high-quality human capital should be in potential.

In today's market economy, the vigorous development of entrepreneurial activities, including scientific, innovative, and hi-tech elements, has become a key factor in ensuring the country's rapid pace of socio-cultural and economic development. The presence of startups is typical of most developed countries today, but they cannot act alone and need to build the right infrastructure and extensive government support. Ukraine is characterized by its high scientific potential (a large number of educational institutions), the significant development of information technology and the digitization of the financial system, the presence of private investors ready to invest in interesting and innovative projects, and various world-renowned for its active creation of technology parks. Against this background, the state should make every effort and use all means and policies to create favorable conditions for the functioning of startup enterprises, and the authorities should comprehensively support the development of such enterprises in the region. should be promoted to Overcome various bureaucratic hurdles, find affordable financial resources, and build infrastructure facilities that make life easier for innovative small businesses.

Analysis of recent research and publications, which initiated the solution of this problem and on which the author relies, the selection of previously

unsolved parts of the general problem, which is the subject of this article. The issue of organizing the formation of a startup ecosystem in Ukraine and strengthening the role of the authorities in it is addressed in the following studies by domestic economists: R. I. Babiachok [1], H. P. Bortnikov [2], O. H. Brochkovska [9], Ye. A. Hazarian [6], N. B. Demchyshak [4], H. P. Zhaldak [5], M. O. Kravchenko [6], I. V. Lytvyn [7], O. O. Liubich [2], K. I. Okseniuk [8], N. H. Paitra [9], N. I. Sytnyk [11, 12, 13], V. V. Smachylo [14], D. Ye. Solodkov [16], R. K. Fedorov [15], V. Yu. Khalina [14], R. M. Tsyhan [16], D. O. Chaika [14] and others.

Considering the huge amount of research published by Ukrainian researchers, and the difficult socio-economic situation in which our country is today, there are still many problems with the functioning of the startup ecosystem, and more details should be researched and solved. In particular, this will involve strengthening government policies to support the development of innovative entrepreneurs, exploring new sources of funding for startups in light of the digitalization of the economy, and building the infrastructure necessary for the startup ecosystem to function. etc.

Formulation of the goals of the article (task statement). The purpose of this article is to consider the influence of the state on the formation of the startup ecosystem in Ukraine, considering the experience of developed countries in the process of globalization and the digitalization of the economy.

Presentation of the main material of the study with a full justification of the obtained scientific results. Today, innovative SMEs are the basis of economic system construction, and as the experience of major countries in the world shows, they are an important factor in the development of high-tech enterprises and an important part of the added value of enterprises. Their products contribute to increasing domestic employment. In the context of economic globalization and digitization, a considerable number of innovative products have been created by startups. Its founders are confident in the market alongside big companies and are competing with them. The ease of virtual access for consumers thanks to Internet technology and the increased information literacy of users and entrepreneurs has enabled innovative companies to develop rapidly. This situation proves that it is

expedient to seek ways to strengthen the development of startups in Ukraine within the framework of state and other forms of support that create a real basis for post-war economic recovery.

Currently, there is no universal approach in the economics literature to define the nature of startups, and scientists have identified startups with the following characteristics: short-term survival as successful startups develop into selling business units or merge with already functioning business structures in a relatively short period; focus on developing innovative products that meet the clear expectations of market actors; possibility to increase activity and progress throughout the lifecycle (I usually define startups as rapid entrepreneurship because they are established within a few months or a year and have different types of because it provides the conditions for rapid development in a situation of scarcity of human resources) entrepreneurship resources; high-risk market position and difficulty in making predictions about further functions and development.

A key feature of startups is the great scientific potential of their founders. This is because, by various estimates, it is the intellectual property that makes up the bulk of the value. A startup begins with the creation and further development of an idea, which forms the basis for the development of innovative products, usually in the fields of information and other high technology. Considering the above characteristics, the economic content of a startup is a temporary functioning organization with excellent intellectual ability, formed to build a sustainable large-scale corporate culture with new ideas. It is recommended to define innovation.

When describing the economics of startups, it is helpful to compare them with similar economic entities, such as SMEs, that share commonalities and unique characteristics. Both are founded by up-and-coming business people, are small (startups have up to 10 employees, SMEs have up to 50), and operate under highly uncertain conditions. Points are worth noting. is in a precarious financial situation and needs to mobilize funds from external sources to ensure its development.

In the current literature, the essence of the startup ecosystem (SES) is interpreted by characterizing its structural elements and distinguishing between actors and environmental factors. The former includes economic agents and institutions, and

individual market agents with their interests and incentives. They set their own goals, make decisions, define tasks, and act within legal frameworks. The latter affect the correlations between system participants and shape the rules of the ecosystem and its particular actors. His SES model with the above components is shown in the figure.

1.

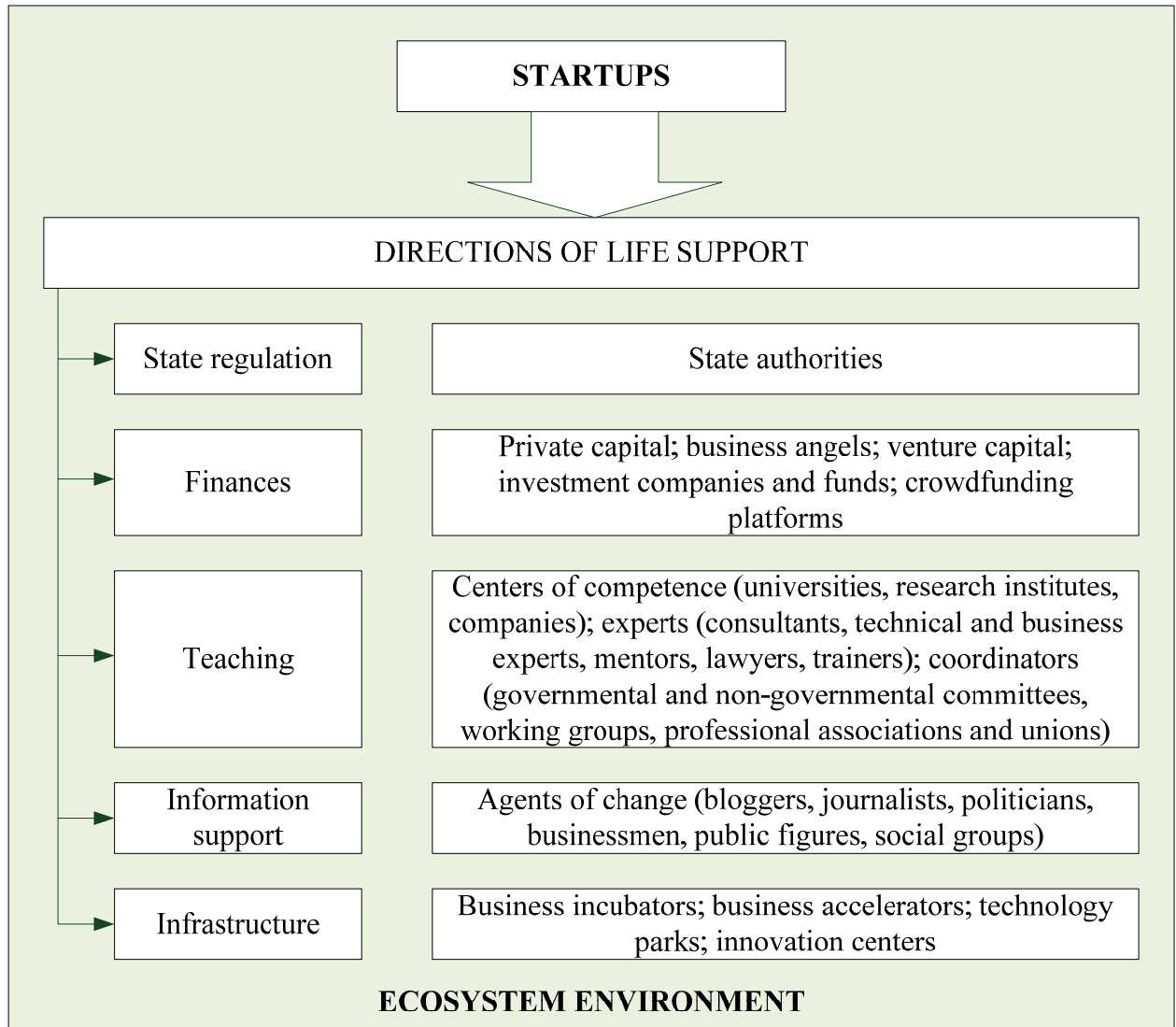


Fig. 1. Composition of SES elements and factors
formed by the authors using [12, p. 92]

The main players forming the ecosystem and playing a key role in it are startup organizations in various stages of development. These companies also include future startup participants who have the necessary skills to work in an innovative environment or who have strong intellectual abilities and are capable of generating progressive ideas. Based on certain characteristics, they form unique possibilities to manufacture innovative business products (tangible and intangible), helping them to achieve high financial results in the future.

The inclusion of other elements in the ecosystem will depend on their potential to provide resources to startups. Many institutions, agencies, and individuals with innovative business knowledge and other skills as SES actors are active in any of the following areas that are essential for the effective functioning of startups: government regulation; financial support for startups; professional development of startup members; information support; infrastructure support for startups. Figure 2 shows a list of SES actors and their functions.

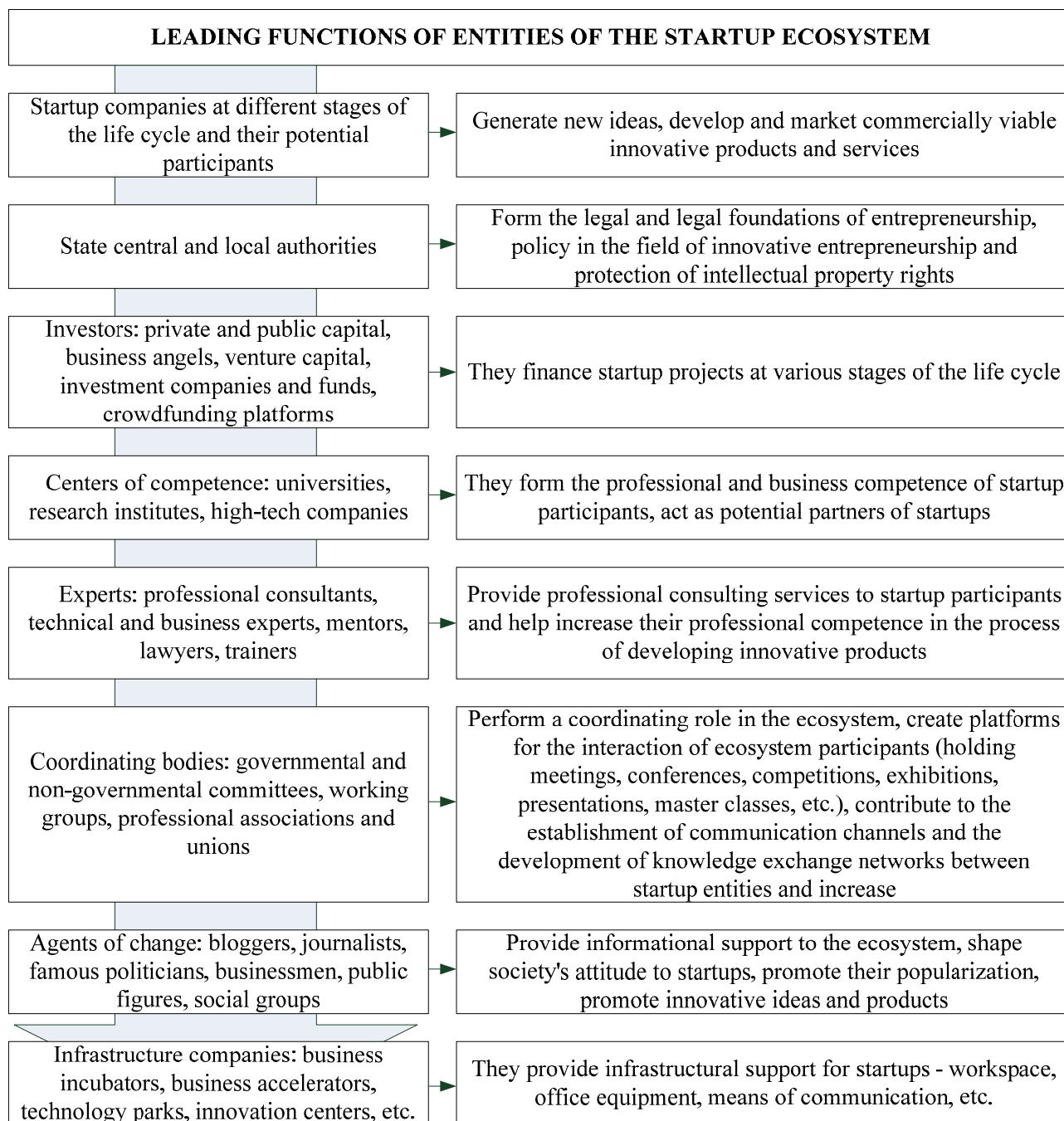


Fig. 2. Systematization of SES actors and their main tasks
formed by the authors

This should be emphasized as most SES entities are multifunctional and their activities are often associated with multiple opportunities to support startups. In most developed countries, the government not only creates the regulatory framework for its operation but also contributes to the formation of financial resources, the construction of incubators, technical parks, etc. The latter can also act as investors in startups, provide consulting services, help promote and create their image and spread positive information in the market. The multi-directional nature of SES actors' activities also provides opportunities to participate in parallel socio-economic ecosystems, making the relationships between SES actors highly complex.

ESS activities are determined by the influence of a large number of economic, resource, technical, market, social, and cultural factors that shape the specifics of the ecosystem's functioning and form certain limits on the activities of its participants. Such limiting factors include government policy in the field of finance, innovation, and entrepreneurship development; attractiveness of the investment climate in the country; technological progress of the state and availability of modern digital technologies; specifics of unmet market needs; the ratio of aggregate supply and demand in the country; ease of starting and running a business; social norms, history, and traditions; public attitudes toward the functioning of innovative organizations; economic literacy of society and possession of information, etc.

Since the late 20th century there has been a trend towards decentralized governance with delegation of powers and resources to the local level. Such policies aim to strengthen the activity of entrepreneurial organizations, especially in innovative sectors (startups) and to improve the quality of the local investment climate. Local governments developing their programs to foster the development of innovative entrepreneurship have many positive aspects such as:

- ✓ Better adaptation to local and entrepreneurial needs.
- ✓ The formation of a broader group of participants creates the conditions for closer cooperation between companies and municipalities.

To increase the effectiveness of such cooperation and support entrepreneurs, many factors that determine the development of SES at the regional level should be considered (Figure 3).

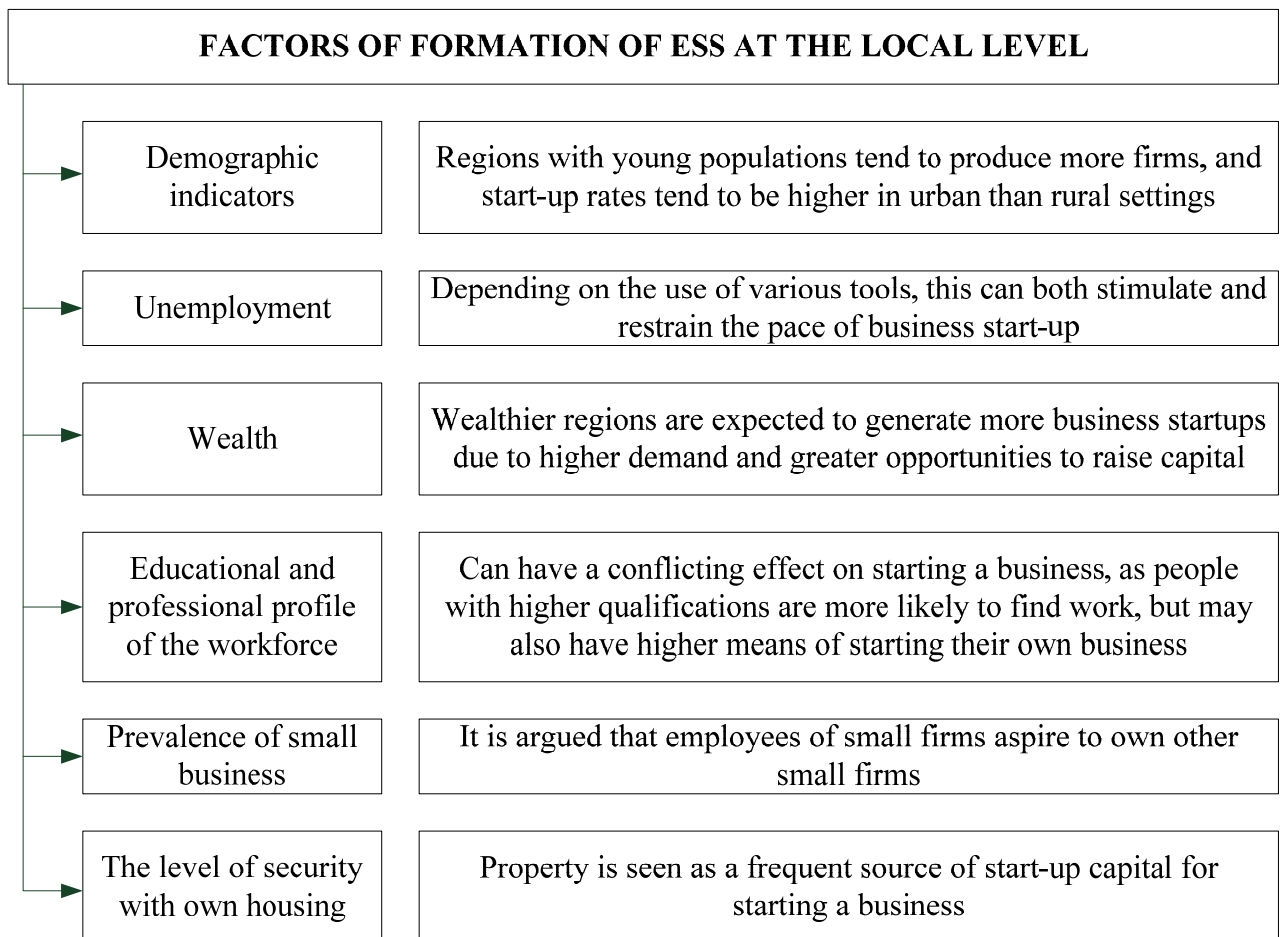


Fig. 3. Systematization of factors that determine SES formation at the regional level
formed by the authors using [14]

The nationwide SES is currently in its early stages and has a small number of participants. The government's role in promoting the development of startups is irrelevant, as all efforts are focused on defending the country. However, after the war, its importance became extremely important, so consulting, funding, and infrastructure support for startups were required.

The economic content of the innovation ecosystem (IES) has long been discussed in the scientific literature from various perspectives. D. Jackson believes that the economic system contains two important and distinct elements. A spiritual economy developed based on sound scientific research and a corporate economy fueled by trade relations. The IES develops through the presence of a large number of economic agents and organizations engaged in innovative activities and the multitude of relationships constructed by them and characterized by several parameters. In general, an IES is a network that connects many participants in the process of

implementing innovations and cooperates based on formal and informal rules and regulations.

In general, to highlight the essence of IES, it is advisable to reveal their main features: the presence of well-established ties between ecosystem participants, which are built on the basis of agreeing on common tasks, goals and objectives – the creation of modern innovative products; IES often progress on the basis of the development of a specific technology; decentralization and balancing of benefits and interests: ecosystem management is divided between the government, main contractors, venture capitalists, and persons engaged in innovation activities; distribution of benefits among ecosystem participants and exchange of intellectual resources, skills, rational proposals, etc.; linking intellectual potential with commercial means, which is part of the financial results of economic activity; accessibility and information transparency: the IES is available for acceptance of new members with progressive ideas, ready to exchange scientific products with the external environment; high potential for progress, self-improvement and regulation based on the ability to adapt to changing environmental conditions (gradual transformations of elements and correlations formed by them help the ecosystem to adapt to modern requirements of the population and business entities in the innovation sphere, which ensures the stability of its functioning in the long term).

Considering SES as part of IES, SES should be defined as a set of researchers, business units, and infrastructure facilities working together to develop new startups, and support and secure the progress of existing startups. It should be noted that the state, represented by the authorities (often at the local level) and their financial institutions, play an important role in this process. Like other systems, SES is most effective when each participant is efficient and there is a close and coordinated dialogue between participants. The elements of SES as part of IES are shown in Figure 4.

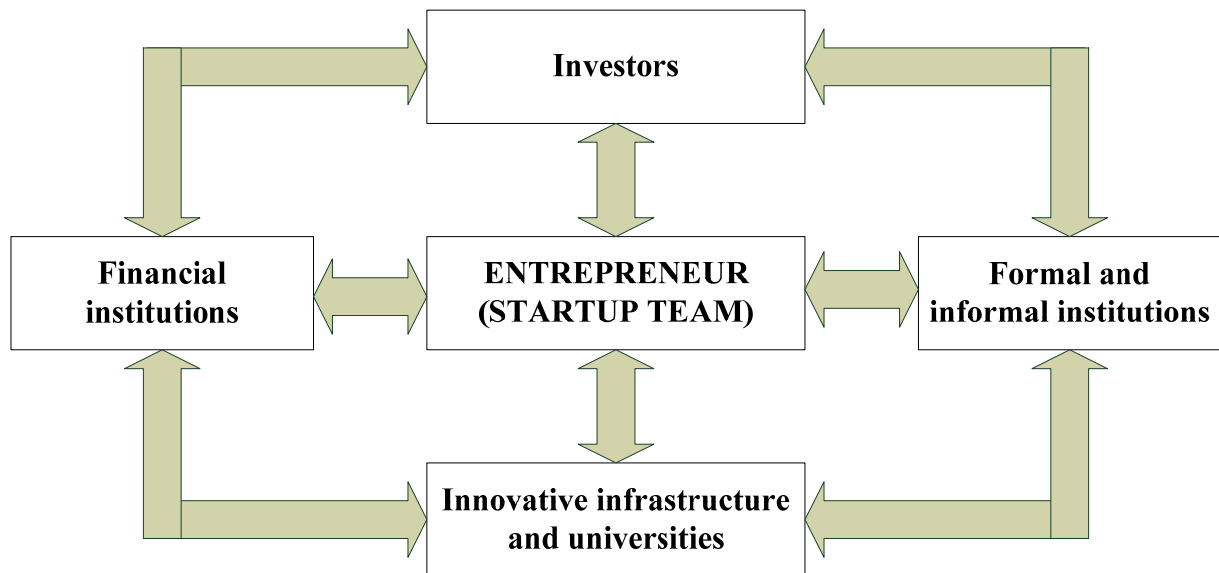


Fig. 4. The set of SES elements as a component of the IES
formed by the authors using [4, p. 7]

The formation of such a system is also relevant for the domestic economy in the conditions of granting the status of a candidate for EU accession and significant achievements of our country in the introduction of innovative digital technologies in various spheres of social activity. However, it will be quite difficult to develop the SES without improving the institutional component and improving the financial support system. It should be emphasized that all members of the SES are constantly fruitfully cooperating to achieve high rates of development, in particular: businessmen interact to trade new ideas and cooperation with educational institutions to involve researchers in the production process; investors try to invent attractive investment objects with minimal uncertainty and rank startups according to their principles regarding the probability of their success in the future; a consistent effect in such conditions will be the attraction of new intellectual and financial resources of the SES for business units, which in the strategic perspective will be able to increase them and return to a greater extent in the form of reverse cash flows and new skills and abilities.

National institutions, represented by central and local authorities, play an important role in the development of national SESs by creating favorable conditions for SMEs and developing appropriate regulatory frameworks. The state must also promote its willingness to provide infrastructure assistance, adhere to fair business

practices, and master the innovative technologies typically associated with its IT sector today.

Startup owners usually set the following tasks: to form a conceptual vision of the application of a new idea or product that would solve certain problems or satisfy certain market needs over a long period; to develop alternative options for the development of the commercial component of the startup, i.e. to clearly define the directions of generating financial results and potential growth opportunities; the adequacy of the entrepreneurial model to modern market requirements and the ability of the startup to respond promptly to changing market conditions. Figure 5 shows the stages of a startup's life.

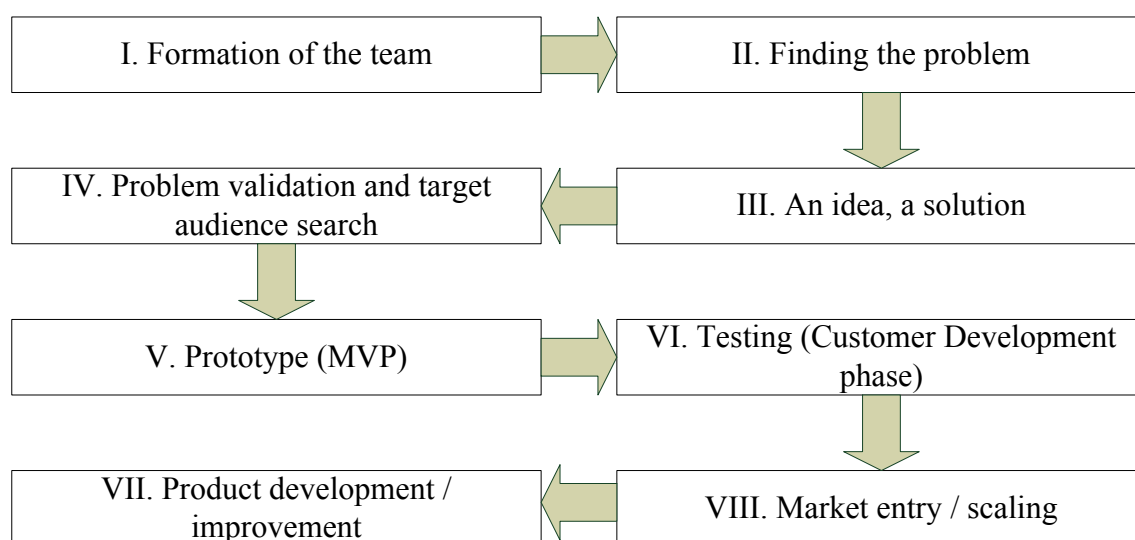


Fig. 5. Stages of startup progress in a market economy

formed by the authors using [4, p. 7]

Today in Ukraine, the financial decentralization reform is nearing completion, with almost all united territorial communities formed, but the war has made its adjustments, as there are regions that have hardly suffered as a result of hostilities and those that have been almost destroyed. The latter will be rebuilt in most cases at the expense of international partners, and great hope is placed on the effective economic activity of the surviving territories, as the state is unable to financially help all the victims. In such circumstances, it is the local authorities that need to pursue an effective policy for the development of small businesses in the region and the formation of the SES within it. In addition, establishing municipal communications can be much more effective for business structures than national ones. This is

confirmed by the fact that local entrepreneurs are carriers of important information, and have relevant knowledge and incentives that can contribute to the emergence of new startups. In this regard, a regional SES can establish interaction between startups, researchers, or educational institutions, potential investors who have difficulty identifying municipal businessmen, and several other entities operating in a given area.

Of great importance in the process of building the SES is attracting investment resources to a large number of potential businessmen, who need to be differentiated by the criterion of success in terms of the projects they have formed and provided with startup capital from the development fund. In practice, it is believed that it is more expedient to invest a small amount of capital initially in a large number of startups that will form the preconditions for cooperation and contribute to each other's progress in the future, i.e., synergies will be achieved and a regional environment for the entrepreneurial activity will be formed.

Given the above, it is advisable to submit a complex of subjects of the local SES, which includes: local self-government and objects owned by the OTG; consulting and monitoring institutes related to the activities of entrepreneurs; educational institutions, especially those with scientific and research structural divisions, technoparks; organizations designed to stimulate the development of entrepreneurship (accelerators, incubators, etc.); association of entrepreneurial structures, public organizations, state institutions, the functioning of which is aimed at ensuring stable socio-economic development of the region.

Policies for promoting startup activities differ according to their stage of progress. During the development phase, university startups form teams of members who share common ideas, interests, and beliefs to achieve their ultimate goals. During this phase, we develop algorithms for implementing ideas, explore funding opportunities to identify potential sources of funding and test a sample of future marketable products, works, or services. It is also necessary to organize the proposed ideas, select the most rational one and submit it to the local competent authority.

At the next stage of the startup's life, a local bank of problems for future investors will be launched, which will be open to everyone and will allow startups

based in higher education institutions to solve their problems in an innovative way in the process of competing with each other. The functioning of the startup center will be multifaceted and will help to intensify various types of economic activity in different sectors of the economic system, including the field of digital technologies. University startups need to form their base of ideas, filter them and implement the most relevant and useful ones in today's conditions.

In the context of globalization and the digitalization of the world economy, the innovation component has always played a leading role in ensuring the rapid pace of socio-economic development. Today, the SES is a relatively new concept in the world, which has proven itself as an innovative parameter for enhancing the growth of most national economic systems. According to the concept, the SES is a component of the IES and is aimed at developing innovative goods and services by startup entrepreneurs, who are the formative factor and the main subject of such a system.

At present, the Ukrainian startup market is in a period of active development and is well-positioned on the international stage. On the other hand, the failure of national economic reforms, the outbreak of hostilities in the eastern part of the country in 2014, and the full-scale war in 2022 have significantly slowed down the country's development, and now the country is open to foreign investment and investments. is effectively closed to the Startup owner. However, an end to hostilities is promising and could significantly change the attitude of potential investors toward Ukraine and encourage their participation in the recovery of the national economy.

In the pre-war period, the number of startup companies in Ukraine grew rapidly: at the beginning of 2015, their number was about two thousand, and at the end of 2017, it was more than three thousand. As of 2021, there were about 1,700 products and more than 500 service organizations in the national economy, the lion's share of which operated in Kyiv (more than 1,200 units). It should be emphasized that most domestic startups follow the global trend and work in high-tech areas (digital technologies, information communications, development of various applications and programs, production of computer equipment, construction of online retail stores, medicine, etc.)

The experience of developed countries shows that the state plays an important role in the SES, building the regulatory framework for startups, playing the role of an investor, participating in the organization of innovation infrastructure, business incubators, etc. In the domestic economy, its role has not yet reached the required scale, and the legal framework still lacks an interpretation of the essence of startups, and their operation requires special regulation. There are many problems in the area of intellectual property rights enforcement today, and only minor changes have occurred over the past few years. In particular, the Verkhovna Rada adopted legal acts that made it easier for foreign highly qualified specialists in the field of digital technologies to find jobs and make investments from abroad without registration. Before the war, the government had also made public many plans to boost innovation and create favorable conditions for the inflow of startups into the domestic economic system.

It should be emphasized that in developed countries, the main investors in startups are companies and individuals, governments, business angels, venture capital firms, crowdfunding platforms, and other investment funds. A distinctive feature of investment in the Ukrainian startup sector is the widespread availability of private funding. Domestic startups have been operating and developing independently for many years and do not rely on government support, which has always been minimal. Currently, 17 venture capital firms, 6 private equity organizations, 1 enterprise, and 5 incubators are investing in national economy startups.

The total volume of investments in the domestic startup segment showed positive trends in the period from 2010 to 2013 and amounted to more than USD 89 million at the end of 2013. However, due to the well-known events in early 2014, which provoked a socio-economic crisis in the country, the volume of investments in startups decreased to a level of USD 39 million. The following year, the national economy demonstrated a gradual recovery, and the business environment improved relatively, which resulted in a significant increase in this indicator to USD 132 million (+48% compared to 2013 and more than 3.4 times compared to 2014).

Foreign investment funds demonstrated high activity in concluding agreements, investing almost half of all financial resources raised. The following

year, 2016, was marked by an increase in the number of contracts concluded with innovative entrepreneurs by +32% (87 contracts), but the total amount of capital investments decreased to USD 88 million (by -33.3%) compared to the previous period. The peculiarity of the capital market's functioning in this regard was the investment of resources in startups that were at the initial stage of development. The number of such agreements amounted to 73, and the weighted average volume per startup was more than USD 500 thousand.

It should be noted that the level of interest in domestic startups is also increasing. In 2016, several large investors entered the Ukrainian capital market, so about 60% of investment agreements were concluded with foreign investors, and the share of foreign financial resources exceeded 80% of total investments. This year was quite successful for the national economy in the sphere of innovative entrepreneurs' activities, as 8 arrivals of investors were recorded, which signaled an improvement in the investment climate in Ukraine. In total, over the period 2013-2017, more than 400 million USD were invested in domestic startups [13, p. 119].

It is worth noting that the pre-war year of 2021 was quite successful in terms of investment in the startup sector, with almost USD 454 billion raised in three quarters, which is a total increase of USD 122 billion or +36.7% compared to 2020. According to rough estimates by the electronic edition of Mind, 54 contracts were concluded in the domestic market this year with a total investment volume of more than USD 2.35 billion. In addition, there were eight large investments, the amounts of which are currently being kept secret. This publication also formed a rating of startup projects by the volume of capital investments (only those entrepreneurs operating in Ukraine or owned by Ukrainians were taken into account) (Fig. 6) [10].

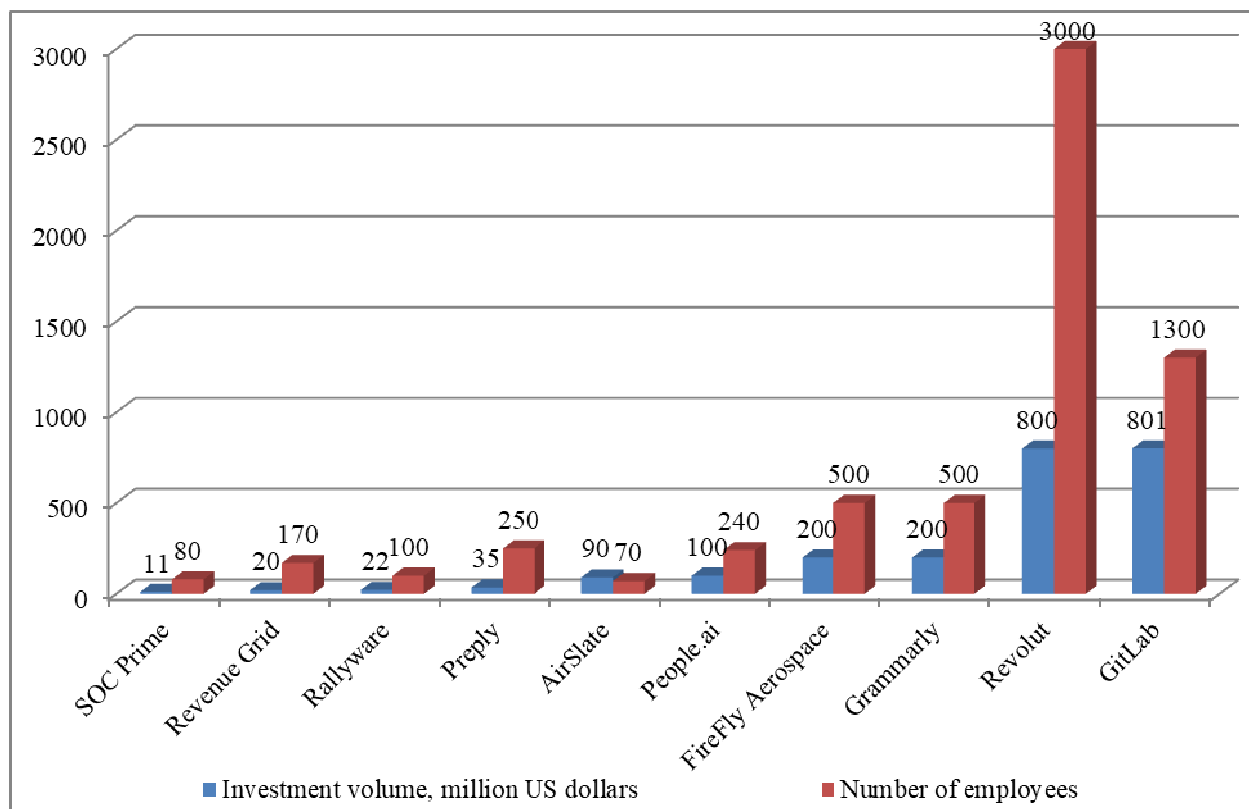


Fig. 6. Ranking of Ukrainian companies by the amount of attracted capital investments in 2021, USD million

formed by the authors using [10]

It should be noted that some rating agencies are currently losing money. However, this phenomenon is not unique to the Ukrainian economy and should not be viewed as a negative trend. This situation is typical of highly advanced organizations with great potential to develop investment strategies and achieve long-term financial results. In this case, the loss should be analyzed as a temporary phenomenon and the future profits of the startup that may exceed the initial investment should be evaluated. On the other hand, startups can be overvalued, and in the future, they may become a bubble, and the capital invested may not generate the expected return. For this reason, investors should adopt differentiation policies when investing in startups.

Institutional support, which has been provided by the Ministry of Digital Transformation and the Ukrainian Startup Fund (USF) since the beginning of 2019, is of great importance in the development of innovative entrepreneurs. An important role is assigned to financial support through grants, which are used by the USF as a financing tool, and incubation and acceleration policies with government assistance. The implementation of such policies (programs) is quite relevant and in demand for innovative entrepreneurs, since in a situation of lack of funding, all sources of

investment mobilization are important factors for ensuring the viability of startups. The availability of consulting services for startups in the market is also seen as a factor in their future competitiveness and growth in the market of innovative products and an important condition for bringing the business to the end, i.e., transforming into a full-fledged business entity. The result of the activities of the national SES should be the production of innovative and market-competitive products, which will help to significantly increase its efficiency. It should be noted that today accelerators and technology parks have been formed in Lviv at some higher education institutions (Lviv Polytechnic National University, Ivan Franko National University of Lviv), but they have a low potential to help startups, as they are significantly limited in funds and ability to provide consulting services.

The national economy has a great interest in revitalizing fintech startups, and the National Bank of Ukraine will provide strategic support in this area. Although our country is not rich in such companies today, the main source of capital formation for such organizations is still their resources (about 60%), which is in line with international trends. Figure 7 shows the funding structure of fintech startups compared to their planning metrics.

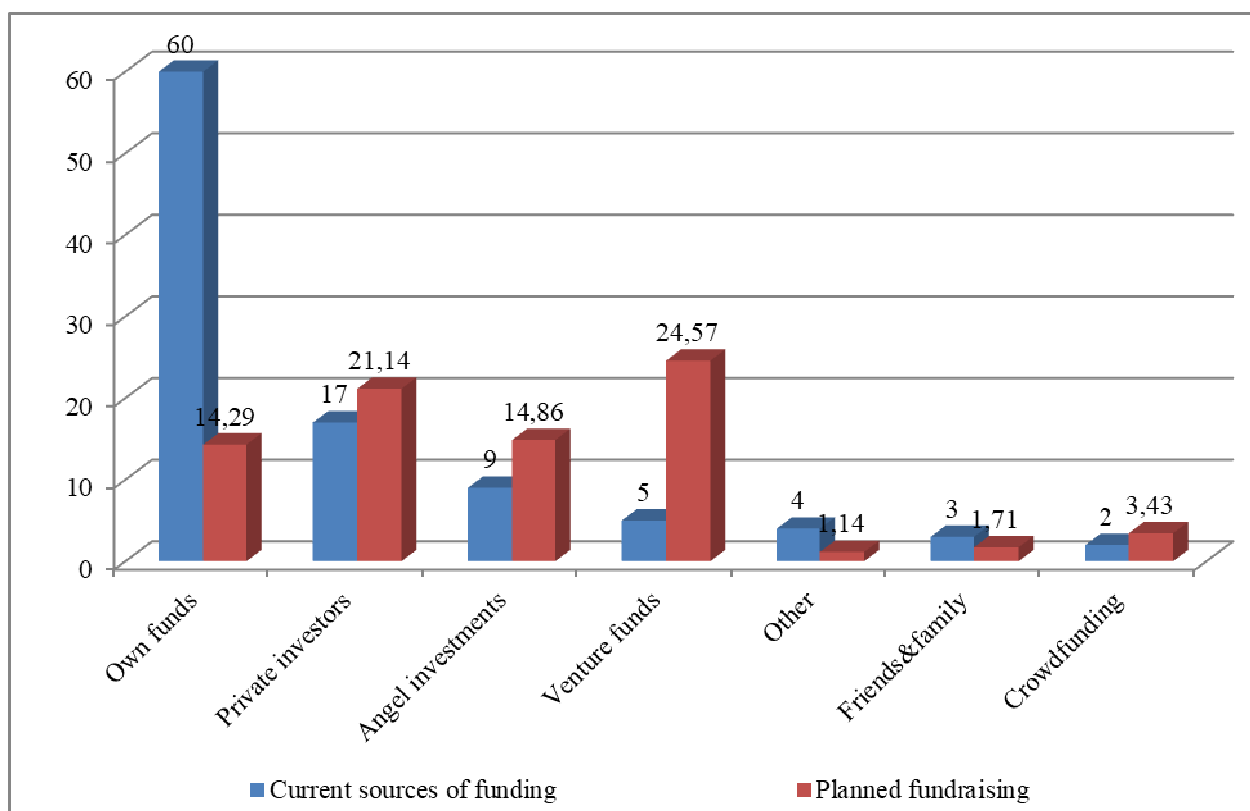


Fig. 7. Actual and planned sources of capital formation of fintech companies as of 2020, %

formed by the authors using [4, p. 8]

Ukraine has significant innovation potential, but it is not fully utilized, as many factors constantly hinder this process. Nevertheless, despite the poor state of the domestic economic system, by 2022, innovative business in the form of startups was constantly increasing its scale. The domestic segment of innovative entrepreneurship demonstrated fairly rapid development compared to other types of economic activity. The SES aims to comprehensively support the functioning of innovative entrepreneurs and is a subsystem of the IES, which includes various relations, organizations, and assets required for the formation, accumulation, exchange, and use of scientific resources in the form of innovative goods, electronic platforms, rational solutions, and technologies. The main factors of the IES development that are influenced by the government are monetary, innovation and investment, monetary and fiscal policies, measures to improve the environment for entrepreneurs, ensure the stability of macroeconomic parameters, maintain the stability of the country's socio-political segment, etc. These factors have an impact at the central and regional state levels and are determined by the government and local governments.

The accumulated experience of developed countries allows us to distinguish between two methods of developing a domestic SES. Focus the government's potential on creating a business environment that fosters innovation. Development of targeted programs by states to revitalize the startup segment. Depending on available resources and long-term progress goals, countries will use one of the following methods. While some governments have not developed special programs to foster innovative entrepreneurship (Romania, Croatia, Czech Republic, Slovenia), creating a favorable environment has encouraged these countries to as a company, we have become a world leader.

International practice shows that significant achievements in organizing national SESs have been demonstrated by countries where the activation of innovative business has been identified as the main task in the long-term development of the economy and has been prescribed in the principles of key economic policies.

Although domestic approaches to the development of startup promotion policies differ from those used in developed countries, they still allow us to identify key governmental regulatory instruments that have proven to be effective internationally. They include regulatory incentives, financial support, development of

scientific potential, formation of innovation infrastructure, cooperation with competence departments, media management, and important events or activities in the life of a startup (Figure 8).

Let's analyze the details of state regulations for the development of the startup sector in the domestic economy. The development of the Ukrainian economic system is based on its innovative and scientific potential, which is regulated by a large number of adopted government documents. In practice, however, the implementation of these laws has been partially delayed, and much remains to be expected of Japan's global leadership in terms of achievements in science and technology and the development of innovative companies. The pessimistic predictions of war are widespread due to the outbreak of crime on a large scale.

The Global Innovation Index for 2019 ranked Ukraine 47th in the world, down three positions from the previous year. In 2021, Ukraine ranked 49th in this index and became one of the three countries whose economic systems have incomes below the world average (in 2020, our country ranked 45th in this indicator, i.e. 4 steps higher) [3].

The low levels of the covered indicators and parameters indicate the low efficiency of the authorities. In such circumstances, it is inappropriate to rely on comprehensive measures to support the development of innovative businesses, although it should be noted that there were several positive trends in the activities of domestic startups. The formation of a favorable regulatory environment for the implementation of innovative activities in the form of startups is the main task of the state.

Several measures will help to improve the quality of human resources in the information technology sector, including: transferring programming to a group of compulsory disciplines already in secondary schools, lyceums, and colleges to provide students with basic knowledge of this subject; acquiring entrepreneurial general and professional competencies by students of technical education programs, which will be useful in starting an entrepreneurial activity in the future; developing students' skills in creating innovative products.

The largest domestic higher education institutions in Kyiv, Kharkiv, and Lviv are usually actively using this practice today and are constantly improving their educational programs to meet modern market requirements for innovative products

and services. The relevant ministry should take steps to strengthen cooperation between technical higher education institutions and entrepreneurs in the information technology sector. The transformation of higher education institutions into powerful centers for generating innovations can be a significant factor in the progress of startup businesses.

In the national economy, the initiative to form innovative associations was taken by business structures, so today more than a hundred large foreign business entities (from the EU, the US, and Israel) have their innovation centers. Such companies are activating the formation of clusters in the information technology sector, which in the pre-war period were represented in more than twenty large settlements of our country.

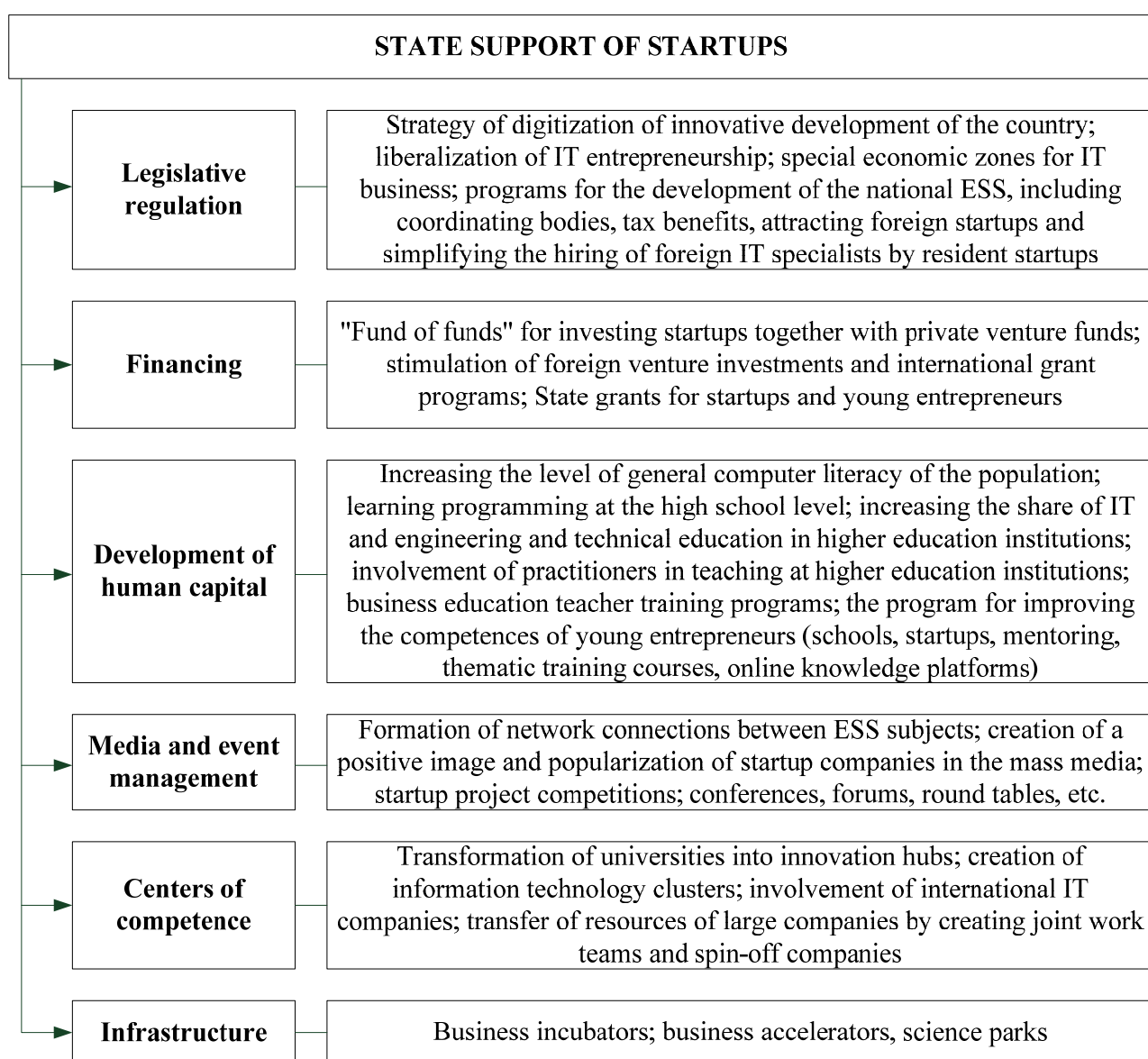


Fig. 8. Methods of government regulation of SES development
formed by the authors using [11, p. 32]

The study of the institutional and financial features of the intensification of the progress of the Ukrainian SES convinces us that this process should be implemented based on an analysis of foreign experience in this area, taking into account the possibilities of its implementation in the conditions of the national economic system. For example, the practical experience of stimulating the development of the Israeli SES, whose progress began in the late twentieth century, is of considerable interest. As soon as the government approved a strategy that envisaged the intensification of innovative entrepreneurship, a program to stimulate the development of startups was developed and implemented, for which financial resources of more than \$100 million were allocated annually from the central budget revenues.

The government did its best to encourage the establishment of joint ventures with experienced global venture capital organizations. At the same time, it could invest almost 40% of the required investment resources in regional innovative enterprises. In addition, work was done to prevent double taxation, and several processes in attracting investment resources were significantly facilitated. The Israeli government stimulates the development of startups and innovative technologies through grant investments and specialized incubators that generate their resources from the budget. By the end of 2017, the amount of public financial resources invested in the development of new startups reached USD 400 million. Out of more than 2.5 thousand established startups that applied for state financial support, more than 1.8 thousand were allocated grants, which confirmed the large scale of government financial support for such innovative entrepreneurs.

The economic progress of neighboring Poland is well known, and its government developed the State Program for Stimulating Business Entities to create favorable conditions for launching startups and modernizing and activating existing incubators. It was also designed to provide financial support for research and development of innovative technologies for EUR 250 thousand for companies operating within the incubator (the upper limit was set at 85% of the total amount of financial resources generated). For companies that do not tie their operations to the incubator, the upper limit was set at 65% for an average period of 3 to 4 years.

The EU countries have useful experience in supporting the development of the SES, which includes measures to enhance the activities of scientific associations that are designed to develop innovation. The EIT is a huge innovation system in Europe and one of the largest in the world. Innovation associations include several elements, including educational programs that facilitate the path from the development of innovative products to their promotion in the market environment; evaluation of innovative proposals, and development of investment projects; accelerators, and entrepreneurial incubators. The well-known EIT Digital Association has two important components. The first part focuses on pre-incubation services (through business startups) and stimulating digital transformation (through the introduction of a symbolic product capable of being afloat in the market). The latter component is aimed at fostering a younger generation of startups in the market that will form the predominant group of participants.

Canada has also developed a government program to encourage innovative entrepreneurship, which exists to this day, and has sought to create favorable conditions for the scientific community in particular and the SES in general. purpose. These programs have successfully established effective links between small science, technology, and innovation communities and successful corporate organizations interested in investing in startups.

It is worth noting that today there are more than 70 entrepreneurial incubators and accelerators in the domestic economy that are looking for startups developing innovative products to engage in cooperation. They tend to focus on the information technology sector. There are also a large number of accelerator programs that provide collective and personal support to innovative entrepreneurs, help mobilize initial capital, and provide consulting with the involvement of well-known and successful practitioners and company officials. All of these efforts combine to create an interesting product in the shortest possible time that can be presented to future investors. Experience shows that startups under the care of accelerators are highly likely to receive the desired amount of financial resources at the expense of venture capital companies that cooperate with such trustees. However, being involved in an accelerator program is not as easy as it seems, as startups are subject to a thorough

differentiation based on the criteria of innovation, the attractiveness of the proposed product to potential investors, the ability to cover a certain market segment and potential for its growth, etc. Such strict criteria are usually met by startups that are related to high-tech products (especially in the IT sector) and have significant prospects for scaling up in a short period.

The spread of entrepreneurial incubators in the domestic economy has significant prospects, as their demand is determined by several factors, including the lack of available sources of financing for newly formed businesses to form fixed and current assets, which contributes to increased costs and reduced working capital; the growing need among Ukrainian businesses for innovative science technologies, information and consulting services, etc.

Ukrainian business accelerators usually specialize in providing such support to startups: mentoring, which is implemented by attracting successful specialists who operate in many fields, developing educational programs and various training courses; provision of office space for conducting activities (this forces the participants of the startup to relocate to the territory of the accelerator; informational promotion of the startup in the form of media support, which is carried out even before the start of cooperation within the framework of the program; assistance in mobilizing initial capital investments that will make it possible to finance the initial significant expenses of the project; forming effective connections with future investors who are participants or counterparties of the accelerator, which significantly increases the probability of successfully covering the need for the next volume of financial resources.

The intensification of globalization processes in the international economic system has led to the development of SES in national economies and has been considered the main feature of development through the innovation and scientific component over the past ten years. Today, startups are characterized in terms of a new generation of innovative businesses that have a significant impact on most aspects of the country's life: economy, healthcare, environmental management, information environment, development of new technologies, etc. They are powerful

turbo-drivers of innovative products and creative ideas that can withstand competition with large international financial and industrial companies.

The development of the global SES began at the end of the twentieth century, during a period of intense stimulation of high-tech activities by the world's leading countries. There are also countries (China, Israel, and the Netherlands) where governments created national SESs on their own, which became a key factor in their maturity at the current stage of development. Today, such SESs are characterized by the high economic value of startups, the ability to mobilize large amounts of capital and a large number of innovation infrastructure facilities. A large number of valuable innovative enterprises are located in Silicon Valley, and about 80% of the value of the global SES is covered by only 11 national such systems. It should be emphasized that most of these national SESs would not have achieved such significant results and efficiency without proper support from the authorities and an effective policy to stimulate their development.

Eastern and central European countries took up the global initiative to develop the SES only at the beginning of the eleventh century, so they are currently at the stage of intensive development. Six years ago, these countries accounted for less than 1% of the world's innovation investments (USD 0.6 billion), while Western European countries had 25 times more venture capital resources (USD 15 billion). However, the situation is constantly improving, and the SESs of these countries are actively progressing and gaining higher places in global rankings. This is facilitated by the state's effective policy of developing the startup sector.

In 2015-2022, Ukraine's SES also progressed at a fairly high rate, but the government's merits are not as high as we would like. Therefore, today it is necessary to study the experience of our close neighbors in building a favorable environment for startups to create a solid foundation for the post-war reconstruction of the national economy.

Given the experience of several of Ukraine's close neighbors (Poland, Hungary, Estonia, etc.), the formation of a national SES should be carried out with conditions of maximum government support at the regulatory and financial levels. A large set of tools for government regulation of startups is usually formed within the framework of

long-term programs of digitalization of the state, progress of innovative business, and activities that produce high-tech products and is approved by the implementation of a set of measures in the field of reforming the national economic systems of these countries, introducing the latest technologies, creating a favorable environment for entrepreneurs, and paying significant attention to building intellectual potential.

Conclusions from this study and prospects for further exploration in this direction. Therefore, the main directions of the government's stimulation of the development of SES are: the introduction of legal innovations, which are designed to create a loyal environment for young businessmen in the field of information technologies and segments of the economy that produce innovative products; implementation of government capital investments in socially important and efficient startups, implementation of joint capital investments with commercial venture companies; creation of prerequisites for building scientific potential, raising the level of digital literacy of the population and awareness of computer information technologies, and involving secondary and higher education institutions in this process; formation of innovation centers, consulting groups and innovative organizations, which will have partnership relations with representatives of private domestic and foreign private businesses; the organization of communication management in the SES, which will help to establish cooperation with mass media and provide information about startups in social networks, Internet pages and other web resources.

Література

1. Баб'ячок Р. І., Кульчицький І. І. Основні тенденції розвитку стартапів в Україні – проблеми, перешкоди і можливості. *Аналітичний матеріал*. URL: <https://aei.org.ua/osnovni-tendencii-rozvitku-startapiv-v-ukraini-problemi-pereshkodi-i-mozhlivosti/> (дата звернення: 08.06.2023).
2. Бортніков Г. П., Любіч О. О. Кредитне фінансування стартапів як складова державних програм стимулювання економічного зростання. *Фінанси України*. 2018. №11. С. 54-75.
3. ВОІВ: ключові висновки глобального інноваційного індексу 2021.

URL: <https://ukrpatent.org/uk/news/main/wipo-gii-23092021> (дата звернення: 08.06.2023).

4. Демчишак Н. Б., Хильченко М. О. Стартап-екосистема: інституційні та фінансові аспекти стимулювання розвитку в Україні. *Інвестиції: практика та досвід*. 2021. №13-14. С. 5-13.

5. Жалдак Г. П. Проблеми та перспективи розвитку стартапів в Україні. *Інфраструктура ринку*. 2019. Вип. 32. С. 109-113.

6. Кравченко М. О., Газарян Є. А. Особливості формування екосистеми стартапів в Україні. *Східна Європа: економіка, бізнес та управління*. 2019. №22. С. 90-97.

7. Литвин І. Екосистема стартап-підприємництва в Україні: історія створення та сучасність. *Молодий вчений*. 2019. №1(65). С. 476-482.

8. Оксенюк К. І. Зарубіжний досвід функціонування стартапів та шляхи його використання в Україні. *Економічний форум*. 2018. №4. С. 48-51.

9. Пайтра Н., Брочковська О. Вітчизняні стартапи на міжнародному ринку та їхній інноваційний потенціал. *Східна Європа: економіка, бізнес та управління*. 2021. Вип. 6(33). С. 243-250.

10. Понад \$2,2 млрд у 2021-му: топ-10 українських стартапів за вкладеними інвестиціями. URL: <https://mind.ua/publications/20234509-ponad-s22-mlrd-u-2021-mu-top-10-ukrayinskih-startapiv-za-vkladenimi-investiciyami> (дата звернення: 08.06.2023).

11. Ситник Н. І. Держава як суб'єкт формування екосистеми стартапів України. *Науковий вісник Херсонського державного університету. Серія Економічні науки*. 2020. Вип. 40. С. 30-35.

12. Ситник Н. І. Екосистема стартапів як складова інноваційної екосистеми. *БізнесІнформ*. 2017. №8. С. 89-94.

13. Ситник Н. І. Сучасний стан та перспективи розвитку екосистеми стартапів України. *Науковий вісник Херсонського державного університету. Серія Економічні науки*. 2017. Вип. 27. С. 117-120.

14. Смачило В. В., Халіна В. Ю., Чайка Д. О. Формування локальної стартап-екосистеми. *Економіка та суспільство*. 2021. Вип. 23. URL:

<https://economyandsociety.in.ua/index.php/journal/article/view/148/142> (дата звернення: 08.06.2023).

15. Федоров Р. К. Стан та основні напрями розвитку стартапів в Україні. *Ефективна економіка*. 2021. № 4. URL: <http://www.economy.nayka.com.ua/?op=1&z=8783> (дата звернення: 08.06.2023).

16. Циган Р. М., Солодков Д. Є., Циган К. А. Адаптована комплексна методика оцінки стартап-екосистеми України. *Ефективна економіка*. 2019. № 5. URL: <http://www.economy.nayka.com.ua/?op=1&z=7044> (дата звернення: 12.07.2023).

References

1. Babiachok, R. I. and Kulchytskyi, I. I. (2018), “Main trends in the development of startups in Ukraine – problems, obstacles and opportunities”, *Analitichnyi material*, available at: <https://aei.org.ua/osnovni-tendencii-rozvitku-startapiv-v-ukraini-problemi-pereshkodi-i-mozhливosti/> (Accessed 24 June 2023).

2. Bortnikov, H. P. and Liubich, O. O. (2018), “Credit financing of startups as a component of state programs to stimulate economic growth”, *Finansy Ukrainy*, vol 11, pp. 54-75.

3. Ukrainian Institute of Intellectual Property (2021), “WIPO: key findings of the Global Innovation Index 2021”, available at: <https://ukrpatent.org/uk/news/main/wipo-gii-23092021> (Accessed 08 June 2023).

4. Demchyshak, N. B. and Khylychenko, M. O. (2021), “Startup ecosystem: institutional and financial aspects of stimulating development in Ukraine”, *Investytsii: praktyka ta dosvid*, vol. 13-14, pp. 5-13.

5. Zhaldak, H. P. (2019), “Problems and prospects for the development of startups in Ukraine”, *Infrastruktura rynku*, vol. 32, pp. 109-113.

6. Kravchenko, M. O. and Hazarian, Ye. A. (2019), “Features of the formation of the startup ecosystem in Ukraine”, *Skhidna Yevropa: ekonomika, biznes ta upravlinnia*, vol. 22, pp. 90-97.

7. Lytvyn, I. (2019), “Ecosystem of startup entrepreneurship in Ukraine: history of creation and modernity”, *Molodyi vchenyi*, vol. 1(65), pp. 476-482.

8. Okseniuk, K. I. (2018), "Foreign experience of startups and ways to use it in Ukraine", *Ekonomichnyi forum*, vol. 4, pp. 48-51.
9. Paitra, N. and Brochkovska, O. (2021), "Domestic startups on the international market and their innovative potential", *Skhidna Yevropa: ekonomika, biznes ta upravlinnia*, vol. 6(33), pp. 243-250.
10. Pidhajna, Ye. (2021), "More than \$2.2 billion in 2021: top 10 Ukrainian startups by investment", available at: <https://mind.ua/publications/20234509-ponad-s22-mlrd-u-2021-mu-top-10-ukrayinskih-startapiv-za-vkladenimi-investiciyami> (Accessed 08 June 2023).
11. Sytnyk, N. I. (2020), "The state as a subject of formation of the ecosystem of startups in Ukraine", *Naukovyi visnyk Khersonskoho derzhavnoho universytetu. Serii Ekonomichni nauky*, vol. 40, pp. 30-35.
12. Sytnyk, N. I. (2017), "Ecosystem of startups as a component of the innovation ecosystem", *BiznesInform*, vol. 8, pp. 89-94.
13. Sytnyk, N. I. (2017), "Current state and prospects for the development of the ecosystem of startups in Ukraine", *Naukovyi visnyk Khersonskoho derzhavnoho universytetu. Serii Ekonomichni nauky*, vol. 27, pp. 117-120.
14. Smachylo, V. V., Khalina, V. Yu. and Chaika, D. O. (2021), "Formation of the local startup ecosystem", *Ekonomika ta suspilstvo*, vol. 23, available at: <https://economyandsociety.in.ua/index.php/journal/article/view/148/142> (Accessed 08 June 2023).
15. Fedorov, R. K. (2021), "The state and main directions of development of startups in Ukraine", *Efektivna ekonomika*, vol. 4, available at: <http://www.economy.nayka.com.ua/?op=1&z=8783> (Accessed 08 June 2023).
16. Tsyhan, R. M., Solodkov, D. Ye. and Tsyhan, K. A. (2019), "The state and main directions of development of startups in Ukraine", *Efektivna ekonomika*, vol. 5, available at: <http://www.economy.nayka.com.ua/?op=1&z=7044> (Accessed 12 July 2023).

Стаття надійшла до редакції 15.07.2023 р.