

*The object of this paper is the study of the existing organizational forms of startups and the assessment of their compliance with the tasks of technology transfer. It has been established that existing approaches to understanding startups do not meet the needs of technology transfer. The feasibility of improving their legal status is substantiated. Directions for improving the form of a startup in the field of technology transfer have been formed. The following are proposed as the characteristic features of startups in the field of technology transfer: having the status of a business entity, meeting the requirements of a production and commercial entity, having technology or rights to technology, or performing work on its creation.*

*The need to change the provisions of the Framework Program for research and innovation "Horizon Europe" by introducing a separate category of startups in the field of technology transfer is substantiated. Their definition as autonomous small (medium-sized) enterprises at an early stage of their life cycle is proposed. As such, created as a division of a university or research institution, and carrying out production commercial activities and owning the rights to technology or aimed at new technologies or scaling existing business models based on them. A universal legal construction of a startup in the field of technology transfer is proposed, which can be used in national legislation. Under it, it is proposed to understand a business entity, created recently, with the purpose of carrying out production activities and obtaining profit, based on the realization of the appropriate right to technology.*

*The research is aimed at forming directions for improving the legal status of startups. The research results can be used in the formation of international normative acts, to regulate these relations and serve as a basis for further scientific research*

*Keywords: start-up, right to work, framework program "Horizon Europe"*

# DIRECTIONS FOR IMPROVING THE STATUS OF STARTUPS IN THE TECHNOLOGY TRANSFER SYSTEM

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## 1. Introduction

The level of productivity of the economy of any country directly depends on many factors. Key among them is access to raw materials, the labor market, funds, and the level of infrastructural development. Not the last place is occupied by the number and participants of relations involved in the production sphere. Their number determines the scope of the results of economic activity, and the competition between them intensifies growth. Developed countries ensure that the number of entrepreneurs steadily increases. All possible prerequisites are created for this. If within the limits of most countries it is sufficient for this to ensure the personal right of each person to engage in entrepreneurial activity.

Other countries even ensure the functioning of permanent training and support systems. Recently, another factor of economic development is beginning to come to the fore. We are talking about the use of a special method of production embodied in the form of a certain set of equipment and equipment – technology. The presence of special production technologies, their influence on the level of production of a public product directly determines the level of development of the country. The potential ability of technology to provide unique production results causes great public and scientific interest in this object of economic relations. On the one hand, this causes a large number of scientific studies of their transfer relations, and on the other hand, it determines the lack of unity of understanding of the essence of this process.

Most of the world's countries do not prefer to unify the regulatory regulation of the technology transfer system. They avoid this in order to maintain their own control over their circulation. However, the development and diversification of the world economy led to the development of international technology transfer. Active processes of transfer of rights to technologies between subjects of different countries are being observed. At the same time, such a transfer takes place both at the level of economic entities within the scope of foreign economic activity and at the level of state institutions.

A special place in the system of relations related to the creation, transfer of rights and implementation of technologies is occupied by the system of measures to support the implementation of innovations and new science-intensive technologies. As a rule, all these support measures are aimed at starting a new economic activity based on the use of a special object. Such an object is often technology, while performing the role of a special property basis of management. At the same time, the implementation of a certain project of implementing a new technology is considered as a separate form of technology transfer. Because at the same time, the transformation of an intellectual product into certain equipment, machines, and mechanisms takes place. And also, the simultaneous transfer of rights to use as an intellectual component from the developer of the idea to the business entity that must use it in the future.

A distinctive characteristic of all the world's leading systems for supporting innovative renewal and the introduction of new technologies is that they focus on a special subject of this relationship. Such an entity is a special recipient of such support, which is commonly identified as a startup within the regulatory systems of various countries.

Like other aspects of technology transfer, the understanding of the startup has a pronounced regional specificity. In each country, this category has a completely different meaning and significance. Such approaches to understanding the essence of a startup can be systematized and diversified in a certain way. However, the place of a startup in the system of technology transfer is always unchanged. It acts as that innovative project, or that business entity, or that place within which the embodiment of a new technology takes place. Due to the fact that the startup itself is the main recipient of an intellectual idea transformed into a certain method of production, it is a desirable participant in economic relations. Because of this, a start-up in the countries of the European Union is the entity that has the opportunity to receive most of the existing means of supporting the innovation process and technology transfer. In the countries of North and South America, a startup is the only form that can receive venture capital support and become a recipient of innovative investment. Even within the economies of developing countries, startups appear as specific participants in economic relations and the economy. Sometimes as separate types of economic entities, sometimes as a special party of a separate investment contract.

The difference in approaches to understanding the essence of a startup has an extremely negative impact on the intensification of the technology transfer process. The implementation of new technology should always be aimed either at starting a new economic production, or at least at improving the existing one. Ultimately, technology should always be the basis of the production process. And the production process is carried out exclusively according to the rules, principles and within the limits established by the

legal system of the countries. That is, the startup, as the final recipient of the technology, must automatically meet such established requirements. In the absence of such compliance, the startup will not fulfill its task of implementing the process of technological renewal of the production sector. Startups are the basis of the vast majority of means of supporting innovation processes. Therefore, the imperfection of their organizational form and status is guaranteed to entail the ineffectiveness of all previously applied means of innovative support. This, in turn, is guaranteed to lead to the absence of an economic effect from their operation. Such a situation requires correction, and such shortcomings must be eliminated. Increasing the efficiency of technology transfer is the basis of stable economic development of both a separate region and the entire country. This determines, on the one hand, the relevance of scientific research on this topic, and, on the other hand, entrusts scientists with the task of forming proposals for a startup concept in the field of technology transfer. It is science that should form a balanced mechanism for determining its essence and thereby make the process of technology transfer simpler and more effective.

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## 2. Literature review and problem statement

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Questions related to the definition of startups are the subject of a large scientific debate. They are studied both as a whole and in terms of their individual elements. In general, they were studied in numerous scientific works and were the subject of scientific research by many scientists. Thus, in work [1], the essence of a startup under Portuguese law is investigated. The work states that the lack of normative rules for the functioning of startups has a negative impact on their number. It was established that investors who are ready to finance startups have to solve two groups of problems. The first is the definition of what a startup is (is it already a business entity or is it just a community of people so far). The second is the determination of what the startup can offer in terms of potential results of future economic activity and how this is confirmed. It is proposed to normatively fix a startup as a certain, temporary economic entity, the main task of which is to choose the path and methods of innovative development and technology transfer. However, within the framework of this work, although the analysis of the main points of view on the essence of a startup was carried out, no general criteria for its definition were formed.

Work [2] analyzes the reasons that affect the effectiveness of startups. Critical reasons have been formed that determine whether a startup will turn into a permanent business entity. Their list includes the lack of a clear understanding of the essence of a startup. Despite the fundamentality of covering the causes of low performance of startups, the work does not provide suggestions for solving the identified problems.

Within the framework of the conducted research [3], the experience of the functioning of startups was studied using the example of Egypt. Problems faced by startups during their operation were identified and systematized. All these problems were divided into problems of an economic and competitive nature and problems arising from the lack of a legal definition of the status of a startup. It is useful within the framework of this study to form common economic problems that negatively affect any start-up without exception. However, the work does not make any proposals for solving

the problem of normative identification of the essence of a startup.

Work [4] identified and proposed a solution to the problem of defining a startup. However, the proposed way was to introduce a special temporary form of economic activity into the national legal system. It was determined that such a temporary form could play the role of a unifying factor for that collective of people who intend to receive funding for technology transfer. However, other options for solving the problem of identifying the essence of the startup were not investigated and their objective assessment was not carried out.

Within the framework of study [5], the reasons and conditions affecting the functioning of startups were studied. They were divided into general ones, i.e., those that are typical for everyone, including startups, and those that are determined by regional specifics. Among the regional problems, particular importance is attached to the uncertainty of the formal requirements for the functioning of a startup. The author's proposal to define a startup as one of the possible forms of realizing the right to work deserves special attention. Despite the presence of proposals for understanding the essence of a startup, its role in the system of technology transfer relations has not been determined.

Work [6] investigated the reasons and conditions for the growth of the number of startups in India. All the factors that had a positive effect on the trend of growth of the number of startups were formed and systematized. Among them, the clear rules of their functioning, created and implemented into the legal system of India, were named. However, within the framework of this study, negative trends were not evaluated, and no proposals were made to improve the charter of startups.

In the course of study [7], patterns of protection of labor rights within various forms of economic activity were studied. Including a study of how the rights of employees are protected within small and medium-sized enterprises. Prerequisites for ensuring the functioning of the trade union movement were studied. However, the concept of measures to improve regulatory acts was not formed.

In work [8], by analyzing statistical information, the effectiveness of Indonesia's approach to defining a startup as a company subordinate to a business incubator was investigated. A significant increase in technological entrepreneurship and low levels of results in other areas were noted. Within this study, more attention is paid to statistical indicators and determination of actual results. No proposals were made regarding the role of startups within technology transfer and improving their concept on this basis.

Within the framework of study [9], the legal nature of the relationship between a startup and a venture investor (business angel) was investigated. It was determined that the main tool for regulating this kind of relationship is a contract. A classification of contracts that can be used for the functioning of startups has been formed. Their main essential conditions and caveats, which should be used when concluding them, are defined. The main shortcoming of this work is that other approaches to defining the essence of startups were not explored. However, it was determined that a startup can enter into external relations with other business structures only after obtaining the status of a company.

In [10], the impact of the institutionalization of startups on their performance within the German economic system was analyzed. A direct correlation between the increase in the effectiveness of the startup and two such factors as en-

tering the system of clusters and acquiring the forms of an entrepreneurial entity was proved. At the same time, within the scope of this study, no attention was paid to the reasons for the identified patterns and no proposals were made to change the existing rules of the functioning of startups.

All the works analyzed above [1–10] testify to the focus of scientific research on the solution of certain aspects or features of the functioning of a startup. No works were found within which the concept of improving the status of startups for the purposes of technology transfer would be formed. Also, no works were found in which the proposals for their improvement were substantiated due to a change in the understanding of the essence of their inner nature. However, we can talk about the presence of many problematic aspects of the functioning of startups due to the lack of a generalized understanding of their essence.

The above previous scientific achievements additionally indicate the expediency of further research aimed at improving the essence of the status and form of startups. The inconsistency of the form and essence of the startup with the needs of technology transfer is defined in the works of many scientists as one of the main reasons for its low efficiency. However, this study offers a special way to increase the level of efficiency of innovation support and technology transfer, forming ways to eliminate organizational shortcomings of startups. All this allows us to state that it is appropriate to conduct a study on the formation of proposals for improving the approach to understanding startups. The proposed changes should ensure a higher level of efficiency of their functioning and contribute to sustainable and stable development. The conclusions formed within the scope of this study can become the basis for further scientific developments, as well as the basis for the formation of promising international and national acts.

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### 3. The aim and objectives of the study

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The purpose of this study is to study the existing organizational forms of startups and assess their compliance with the tasks of technology transfer and justify directions for improving the status and organizational form of a startup in the field of technology transfer. The obtained gains can become the basis for changing international acts, internal rules of European Union member states, European Union legislation, national legislation. And also, they can become the basis for further scientific research.

To achieve this goal, the following tasks are defined:

- to investigate existing approaches to defining the essence of startups. Analyze the advantages and disadvantages of each of these concepts;
- to analyze the place and role that a startup should occupy in the system of technology transfer and formulate proposals for improving the status and organizational form of startups in the field of technology transfer.

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### 4. The study materials and methods

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The object of the study is the existing organizational forms of startups and the assessment of their compliance with the tasks of technology transfer. The practice of conducting economic relations and scientific points of view and previous scientific research on this matter are also investigated.

When conducting this study, an assumption was made about the inconsistency of existing approaches to determining the status of startups, to the needs of the participants in relations in the field of technology transfer. The basis for this was the assessment of the experience of startups in this area.

The research hypothesis is that the special content of technology transfer relations requires the functioning of a startup in a special organizational form and with a special status.

In the course of the research, provisions of international acts, information from open sources were used. In addition, recommendations of leading international institutions, statistical information, and public information were used. In the course of the research, formal-logical methods of cognition, modeling methods, deduction, induction, comparison, methods of formal-logical interpretation of the content of scientific and economic categories and concepts were used.

When conducting this study, simplification was applied in the part that concerns the systematization of existing approaches to determining the status and organizational form of startups. Those approaches that have not become widespread (more than one country) were not taken into account during the study.

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## 5. Results of the study of directions for improving the status of startups within the framework of technology transfer

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### 5.1. Study of the main approaches to defining the essence of startups

The most widespread is the existing concept according to which a startup is a certain community of people who have developed a unique, special business idea that is potentially capable of a special economic result [9]. At the same time, such a community of people is connected only by the joint authorship of a certain innovative idea, which is the basis of their cooperation. This community of people does not have the resources for its implementation and is actively looking for an investor for further investment. At the same time, the startup is a conditional category used by the parties to the investment agreement, which will be concluded between the group of authors and the investor. That is, a startup is a form of innovative investment and is not used to denote any other types of economic activity.

The second most common is the existing concept, according to which a startup is a special type of business entity that exists in the legal system of a certain country as a temporary form of business [6]. Its essence lies in the fact that within the general process of creating a business entity, there is a certain additional period of time between the stage of making a decision on its creation and recognition by the state (state registration). During this period, a person who has expressed the intention to engage in entrepreneurial activity is in a special legal situation. This status does not yet endow the startup with all the rights and obligations of a business entity, but it already gives it the opportunity to enter into business relations with other entities.

The next existing concept of understanding a startup is an approach in which a startup is understood as a certain community (collective) of people who were previously connected on the basis of other connections [4]. Such communities include labor teams of enterprises, institutions, organizations, including scientific and research institutions. They

are connected to each other on the basis of labor relations. It can be certain co-founders of a business entity, connected to each other by corporate ties on the basis of an agreed charter. Or a certain number of persons who have previously entered into an agreement with each other agreeing on joint actions to achieve some result in the future. At the same time, the presence of an innovative idea for the formation of a startup is not mandatory.

From time to time, you can also find a form of startup organization that is identified with a separate type of business entity. At the same time, a startup is considered a special legal status. The status that a newly created business entity wants to receive. The status that is declared by those entities that created it for the purpose of carrying out business activities in the future. The announcement of this status means that such a newly created business entity has a certain innovative idea and is actively searching for means of its implementation. It needs either private investment or state funds to support the development of the innovation process.

Special attention should be paid to the understanding of the startup within the Framework Program for research and innovation "Horizon Europe" (Regulation No. 2021/695). According to this regulatory document, startups are defined as small (medium) enterprises (SMEs) at an early stage of their life cycle. Including and including those created as a division of a university or research institution. As well as those aimed at finding innovative solutions and scalable business models. At the same time, all of them should be autonomous.

The above concepts of understanding the essence of startups indicate the heterogeneity of the existing approach to regulating their activities. This testifies to the relevance of scientific research regarding the search and selection of proposals, regarding the improvement of their essence.

### 5.2. Study of the place of startups in the system of technology transfer relations and directions for improving the concept of startups for the needs of technology transfer

It is determined that start-ups within technology transfer are endowed with the status and play the role of either certain communities of technology developers or a special entity of the recipient of the technology that needs support. Not every technology developer is a startup, and not every startup is created to implement a new technology. This, in turn, indicates that technology transfer requires its own, unique concept of understanding startups.

It was determined that existing approaches to understanding the status and organizational form of startups do not meet the requirements of technology transfer participants. Achieving the goal of technology transfer requires concentration of efforts to create appropriate organizational requirements for its implementation. One of the reasons that affects the level of efficiency of technology transfer is the presence of a clear legal status of its subjects. A startup is the main form of innovation support, and its status should be clearly defined. Because of this, it is expedient to formulate proposals for improving the status and organizational form of startups in the field of technology transfer.

Due to the fact that none of the existing startup concepts existing in different legal systems correspond to the essence of the technology transfer process. This indicates that a new, special organizational form of a start-up should be used for the purposes of technology transfer. It should be based on those features that were formed in the course of this



research. The following can be suggested as characteristic features that it should meet:

- having the status of a business entity;
- compliance with the requirements of the production entity;
- compliance with the requirements of a commercial entity;
- the availability of technology or rights to technology, or the performance of work on the creation of technology.

Further research resulted in suggestions for improving the existing regulatory documents that define the status and form of a startup. Thus, it is considered appropriate to propose changes to the provisions of the Framework Program for Research and Innovation “Horizon Europe” (Regulation No. 2021/695). Within the proposed changes, introduce a separate category of startups in the field of technology transfer. Based on the selected criteria, the following definition of a start-up in the field of technology transfer can be proposed, which should reflect, namely:

- autonomous small (medium) enterprises (SME) at an early stage of their life cycle;
- including those created as a division of a university or a research institution that carries out industrial and commercial activities;
- as well as those that own the rights to technology or are aimed at new technologies or scaling existing business models based on them.

Within the national legislative acts of the countries that determine the essence of startups, it is appropriate to determine the distribution of startups that implement innovative ideas and startups that are involved in the field of technology transfer. On their basis, it is possible to fix the definition of a separate category of startups in the field of technology transfer. Namely, as a business entity, created recently, with the purpose of carrying out production activities and obtaining profit, based on the realization of the appropriate right to technology or technology that will be created in the future.

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## 6. Discussion of results of the study of proposals for improving the status of startups

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To determine the essence and place of startups in economic relations, it is advisable to use the method of historical knowledge, analyzing how the development of this subject continued. The term “startup” originates from the United States of America. It was first used in 1936 to identify an innovative business based on a new, original idea. In 1976, the same term was used to identify economic entities that did not have a long history of their operation. Since the 1990s, the same term has been used to identify the special condition of a person who has expressed the intention to carry out entrepreneurial activities in the future. At that time, those subjects who were searching for a certain model of their future business were called startups. That is, a startup was considered a temporary state of a future businessman who was at the stage of choosing the organizational form of his business. Until the 90s of the 20th century, the term startup had more colloquial and social meaning. It was hardly used in regulatory documents or official terminology. Everything changed significantly after the formation of a number of international cooperation projects in the field of exchange of scientific achievements within the European Community. It is within framework programs for stimulating innovative development (FP) that this term was given special importance.

In all the time of its use, the term “startup” was applied to completely different subjects of social relations and at the same time to characterize certain objects. Until now, within the global economy, common information space, a unified approach to defining their essence has not been formed. In other words, a startup is understood in one way in the United States of America, and in another way in the countries of the European Union. At the same time, there are a huge number of internal national means of support for startups all over the world. They appear in many international documents as a special recipient of benefits and preferences. However, regional specificity leads to a large number of mistakes among people who want to start a business and want to use the mechanisms of support for startups. This regularity of the historical development of the category of startups is reflected in them to this day. Decentralization of determining their status is a negative point. It creates significant obstacles within the international transfer of technology and needs to be solved. However, understanding the historical retrospective of the evolution of this category allows for a more accurate understanding of current approaches to determining the form and status of startups.

To determine the basic concepts of understanding the essence of startups, which have actually developed in different legal systems, one should proceed from the following. The most widespread is the existing concept according to which a startup is a certain community of people who have developed a unique, special business idea that is potentially capable of a special economic result [9]. At the same time, such a community of people is connected only by the joint authorship of a certain innovative idea, which is the basis of their cooperation. This community of people does not have the resources for its implementation and is actively looking for an investor for further investment. At the same time, the startup is a conditional category used by the parties to the investment agreement, which will be concluded between the group of authors and the investor. That is, a startup is a form of innovative investment and is not used to denote any other types of economic activity. This approach is characteristic of the United States of America. Its peculiarity is that the legal status of a startup is almost not reflected in the legislation of this country. This was done on purpose; thus the state gave the parties to the investment agreement the opportunity to independently determine the terms of financing the implementation of a new idea. The absolute and overwhelming number of startups in the USA are financed by private capital. Most of the efficiency criteria of this or that startup are formed on the basis of the rules of those public competitions that were announced by private investors.

The main disadvantage of this concept of understanding the startup is the dependence on the conditions of financial support provided by the investor. In fact, the choice of which innovative idea will be further developed into a new business will depend on who wants to invest in it. This calls into question the validity and meaningfulness of the analysis of the prospects for the implementation of a new idea. Investors want to get their profit as quickly as possible, so mostly short- and medium-term innovative projects are financed. However, such a concept is flexible and allows the implementation of those innovative ideas that are needed by the economy and society. With its help, it is possible to solve the issue of satisfying consumer needs relatively quickly. In addition, such a concept is universal and potentially able to provide support for any object. Including technology.

The second most common is the existing concept, according to which a startup is a special type of business entity that exists in the legal system of a certain country as a temporary form of business. This form is typical for Asian countries [6]. Its essence lies in the fact that within the general process of creating a business entity, there is a certain additional period of time between the stage of making a decision on its creation and recognition by the state (state registration). During this period, a person who has expressed the intention to engage in entrepreneurial activity is in a special legal situation. This status does not yet endow the startup with all the rights and obligations of a business entity, but it already gives it the opportunity to enter into business relations with other entities. During this period of time, the future business company decides for itself in which organizational and legal form it wants to continue its operation in the future. This is a conditional period of time during which a person can try himself in the role of an entrepreneur, without understanding at the same time whether he will remain in this status.

The main drawback of this approach is that a temporary, intermediate form of entrepreneurial activity is not a full-fledged participant in economic relations. It is not yet, until the moment of selection, endowed with all the rights of a business entity. And this means that it will not bear responsibility for its obligations in the same order as other subjects. This will determine a lower degree of investment return guarantees for a private investor and a lower percentage of the probability of the development of the state support funds received. In addition, the use of such a model imposes a greater number of organizational responsibilities on the startup. This subject will have to go through more registration and legalization procedures in order to obtain the status of a full-fledged participant in economic relations in the future.

The main advantage is that a person who intends to become an entrepreneur and who has passed this stage chooses the organizational form of conducting his business more consciously. And this ensures a higher percentage of stability of the further functioning of economic entities created on the basis of such a startup.

The next existing concept of understanding a startup is an approach in which a startup is understood as a certain community (collective) of people who were previously connected on the basis of other connections [4]. Such communities include labor teams of enterprises, institutions, organizations, including scientific and research institutions. They are connected to each other on the basis of labor relations. It can be certain co-founders of a business entity, connected to each other by corporate ties on the basis of an agreed charter. Or a certain number of persons who have previously entered into an agreement with each other agreeing on joint actions to achieve some result in the future. At the same time, the presence of an innovative idea for the formation of a startup is not mandatory. An innovative idea or a new technology is a mandatory component of such a startup when it wants to receive certain support at the national or international level. This approach is found in European countries and is more designed for individual scientific communities, which can be combined into temporary teams for the implementation of individual innovative projects. And also as a form of functioning of small (medium) enterprises.

The main disadvantage of this form of functioning of a startup is that a collective of people connected by labor, corporate or contractual ties is not a full-fledged subject of

relations. Such a collective is not capable of fully entering into economic relations, acting as a party to a contract, and assuming economic obligations. Any project that should be implemented by such a startup must necessarily be brought into the form established by law. Such a team must necessarily turn into a legal entity, or into another business entity, which causes a greater number of organizational actions.

The advantages of this form are that scientists who will be involved in such a startup are not limited in their ability to participate in other startups. And they are not subject to significant organizational restrictions arising from such participation.

From time to time, you can also find a form of startup organization that is identified with a separate type of business entity [8]. This kind of concept of understanding a startup is more characteristic of developing countries. At the same time, a startup is considered a special legal status. The status that a newly created business entity wants to receive. The status that is declared by those entities that created it for the purpose of carrying out business activities in the future. The announcement of this status means that such a newly created business entity has a certain innovative idea and is actively searching for means of its implementation. It needs either private investment or state funds to support the development of the innovation process.

The main advantages of this form of existence of startups are that they are already formed as a full-fledged business entity. They are already able to enter into economic turnover on their own behalf. They can conclude contracts and assume obligations. They are already able to provide additional guarantees for future investors. They should bear responsibility for late fulfillment of economic obligations.

The main disadvantage of this system is that you must first take the necessary actions to create a business entity and incur additional costs for its creation. And only after that, try to prove the ability of your innovative idea and try to get the means to support it.

The attempt of the institutions of the European Union to fix the essence of the startup at the level of international regulations in a certain way deserves special attention. Thus, on April 28, 2021, the European Parliament approved the Horizon Europe Research and Innovation Framework Program (Regulation No. 2021/695), which became the 9<sup>th</sup> framework program of this type [11]. The main purpose of its adoption was to strengthen the European Research Area (ERA) and support innovative activities (R&I) to fulfill strategic priorities and commitments.

Within the defined system of means of supporting innovative activity, a special place was occupied by startups. They were identified as key recipients of support and the main source of the emergence of innovative processes. A systematic analysis of the framework program "Horizon Europe" allows us to establish that these subjects of economic relations are endowed with a wider range of opportunities than other applicants [12]. In this regulatory document, startups are defined as small (medium) enterprises (SMEs) at an early stage of their life cycle. Including and including those created as a division of a university or research institution. As well as those aimed at finding innovative solutions and scalable business models. At the same time, all of them should be autonomous. At the same time, autonomy is revealed as the lack of other, previously created business entities or experience in business for the persons who created such a startup. The systematic analysis of the regulation of

the European Union No. 2021/695 allows us to conclude that a startup is a participant in innovative relations that has the status of a business entity. Such an entity should carry out business activities aimed at finding an innovative solution or scaling an already existing solution. And such a startup should need to attract certain means of support or financing and may involve scientists in such a process

The main advantages of this formulation of the essence of startups are that it should already have the status of a full-fledged participant in economic relations. This makes it possible to ensure the implementation of economic activities and creates a minimum number of guarantees for investors and those companies that enter into economic relations with them. The main drawback is that such an entity must already be carrying out some activity. That is, he must already have successfully implemented business operations, whether in connection with the search for innovative solutions or in connection with an already existing business model.

The above concepts of understanding the essence of startups indicate the heterogeneity of the existing approach to regulating their activities. Moreover, the decentralized approach to determining their essence has a negative impact on the efficiency of technology transfer in which they are involved. This indicates the relevance of scientific research, regarding the search and selection of proposals, regarding the improvement of their essence.

Technology, as a special object of legal regulation, has a large number of approaches to identifying its place within the economy. So, in certain countries, technology is assessed as a special object of intellectual property law. In others, it is attributed to a special result of innovative activity. Somewhere, technology is identified as a special type of property (asset), which is the basis of the economic activity of a certain business entity. In certain national legal systems, it is possible to find that technology is identified exclusively with the system of information (information). Somewhere, technology is understood as its material embodiment (separate technological line, experimental construction of technology, equipment and facilities). Determining the status of a technology always has a pronounced regional specificity of determining its essence. This leads to a large degree of generalization of all research results on this issue.

In any case, technology is generally understood as a system of techniques and methods of processing or processing raw materials, materials and finished products, as well as information about the sequence of execution of the specified economic operations. At the same time, technology transfer means their transfer from one subject to another. Transfer which is carried out within various forms and methods. The rules of such transfer are established either at the level of contracts concluded by the participants of these relations, or at the level of normative acts of different legal force. At the same time, there are no international treaties or agreements that would define what exactly technology transfer consists of.

In any case, the transfer (transfer) of technology primarily involves the transfer of the right to use technology from one subject to another. The basis of this process is the voluntary alienation of the absolute right of the developer of the idea, to transfer the right to use it to another person. In any case, the transfer of technology, rights to technology is a legal transaction that creates consequences for all participants in this relationship. If you analyze all existing methods and forms of technology transfer, you can identify certain common features:

- technology transfer involves the transfer of the right to use an intellectual product, the idea underlying the technology;
- technology transfer is carried out with the aim of establishing a new type (type) of economic activity on its basis;
- the transfer of technologies is carried out for the purpose of further organization and implementation of industrial economic activity and must ensure the appearance of products (works or services).

In other words, technology transfer can be characterized as an activity related to bringing an intellectual result to the stage of its implementation in the production sphere of the economy. The motivation of technology transfer participants is one, to create an economic activity based on the use of technology. And at its expense, produce that public product that will have obvious competitive advantages on the market, compared to similar products. Technology transfer is a process aimed at creating conditions for obtaining profit from the realization of the results of economic activity.

The complexity of the internal nature of technology determines another specificity of the flow of relations with their participation. This is a large number of participants in this relationship, who can fulfill different purposes within the framework of technology transfer. For convenience, it is customary to classify them according to different criteria. Startups are also present among all participants in technology transfer relations. Despite the regional specificity of defining the essence of startups, their place in the system of technology transfer is recognized. They can act as a technology developer, serving as a form of combination of a certain number of people to achieve a common goal. All existing concepts of understanding startups that exist in different countries correspond to this task. On the other hand, the startup serves as the recipient of the technology. That is, the subject on the basis of which, after the implementation of all necessary actions, a new business entity will be started and on the basis of which production economic activity will be carried out. At the same time, one should not forget that a startup is a form of public announcement of the need for investment or support. The entity that acquires or declares itself a startup informs all other participants of the economic system that it is seeking support for the further development of its idea. Conversely, if someone wants to receive any means of support or investment, he must first acquire the legal status of a startup.

Thus, start-ups within technology transfer play a role and are endowed with the status of either certain communities of technology developers or a special subject of the recipient of technology that needs support. Not every technology developer is a startup, and not every startup is created to implement a new technology. This, in turn, indicates that technology transfer requires its own, unique concept of understanding startups.

In the course of this study, we assume that it is the overly broad approach to the identification of startups that is the reason why they do not demonstrate a low level of their efficiency in terms of technology transfer. This increases the relevance of scientific research in this area and indicates the interest of society in their results.

The purpose of technology transfer is the establishment of a new production unit within the economic system of a certain country. All actions, all participants in the field of technology transfer are subordinated to this goal. Given that the final result of technology transfer should be the

systematic production of products (works, services), such activity should meet the requirements. In every country of the world, all subjects that carry out economic activity or mediate business processes are special subjects of the economy and legal system. Each state puts forward to them its own special set of specific requirements that they must meet. This set of requirements is different and depends on the country in which economic activity is carried out. However, such demands are always made. In other words, any participant in relations in the field of technology transfer will not be able to provide the result he seeks without complying with the requirements established by the state. This, in turn, means that all subjects and participants in technology transfer relations must meet these requirements. Thus, technology transfer can be fully ensured only when business entities participate in it. Thus, startups that either develop technology or act as its recipient must also have the status of a business entity.

Such a requirement leads to the inconsistency with the needs of technology transfer of such concepts of understanding startups as a collective of people united by an idea or other legal ties (labor, corporate, contractual, etc.). At the same time, the needs of technology transfer are met by those concepts of understanding the startup that provide for its preliminary registration as a business entity. This is the concept of a temporary organizational and legal form and the concept of a newly created business entity. And also, the position is laid out in the regulation of the European Union No. 2021/695. This need also indicates that having the status of a business entity is a mandatory condition for those startups that seek to develop or implement a new technology.

Technology is information (or material embodiment) of methods, mechanisms, methods of processing raw materials into finished products. This means that the business entity, the status of which the startup should receive, must meet additional requirements. We are talking about the requirements that are put forward to those economic entities that carry out industrial economic activity. The requirements regarding the procedure for carrying out production activities are distinguished by an even greater degree of regional specificity than all previously defined issues. Researching exactly what requirements of a production entity a startup should meet is impractical within the scope of this study. However, the sign that the startup must meet the requirements of a production entity should be defined as mandatory. In none of the existing concepts of understanding a startup, there is no indication that it should perform productive economic activity. This indicates that none of the existing concepts of their understanding meets the needs of technology transfer and requires the search for new forms of provision.

Technology transfer is a process that is determined by the fact that it is carried out for the purpose of obtaining profit. Although this goal does not directly follow from the process of transfer of rights to technology, it is guided by all participants of this relationship without exception. Profit must be obtained from the realization of the final result of the use of technology, that is, products (works, services) endowed with a high level of competitiveness. The process of realizing the results of economic activity is always an introduction to external communication with other subjects. That is, profit can be obtained only when the results

of economic activity will be realized for the benefit of third parties. This, in turn, determines that every start-up that should function in the field of technology transfer must meet the requirements of a commercial entity. In other words, he must fulfill all the requirements put forward by the states for business entities created for the purpose of making a profit. This feature is not reflected in any of the existing concepts of understanding the essence of startups, although it follows from the essence of the technology transfer process.

The next feature that startups in the field of technology transfer should be endowed with is the availability of technology. At the same time, this sign should be understood quite broadly. Such a technology should act as information about the order, terms, and sequence of economic operations for the processing of raw materials into finished products, as well as its material embodiment. The main problem with this issue is that there are no approaches to a unified understanding of the essence of this object. In each country, the technology is determined differently. Regardless, a technology transfer startup must own the rights to an already existing technology, or at least work on its creation. There is no such requirement in any startup design that exists within today. However, without a requirement for access to technology rights, such a startup will not be able to fully function in the field of technology transfer.

Summarizing all of the above, it is possible to form general requirements for a startup in the field of technology transfer:

- having the status of a business entity;
- compliance with the requirements of the production entity;
- compliance with the requirements of a commercial entity;
- the availability of technology or rights to technology, or the performance of work on the creation of technology.

All the mentioned conclusions indicate that none of the existing startup concepts existing in different legal systems correspond to the essence of the technology transfer process. This indicates that a new, special form of startup should be used for technology transfer purposes. It should be based on the features that were formed in the course of this research.

So, it is considered appropriate to propose introducing a separate type of startups in the field of technology transfer. Based on the selected criteria, the following definition of a startup in the field of technology transfer can be proposed. Namely as autonomous small (medium) enterprises (SMEs) at an early stage of their life cycle. Including and including those that are created as a division of a university or a research institution that carries out production and commercial activities. Own the rights to the technology or are aimed at new technologies or scaling existing business models based on them. It is advisable to introduce such a definition into the provisions of the Horizon Europe Research and Innovation Framework Program (Regulation No. 2021/695), making appropriate changes. If they are introduced, the existing Regulation No. 2021/695 will be supplemented by a separate type of startup in the field of technology transfer. The use of the formed conclusions will make it possible to record in it a special set of requirements that a startup in the field of technology transfer must meet. The wording that is contained in this normative document now has too broad characteristics. This will make it pos-



sible, on the one hand, to distinguish it from the mass of similar entities, and on the other hand, to more effectively distribute the means of innovation support. Within the framework of the formed proposals, for startups in the field of technology transfer, their production direction and availability of technologies will be recorded. Such a delimiting criterion will allow the startup to more effectively enter into economic relations. It will already meet all the requirements for entering into economic relations by the time he receives the means of innovative support. It will already meet the requirements of the subject of the production sector of the national economy.

At the same time, within the framework of national legislation of countries that are not part of the European Union, it is advisable to propose a different wording. So, it is appropriate to determine the distribution of startups that implement innovative ideas and startups that are involved in technology transfer. Based on them, determine the definition of a separate category of startups in the field of technology transfer. Namely, as a business entity, created recently, with the purpose of carrying out production activities and obtaining profit, based on the realization of the appropriate right to technology or technology that will be created in the future.

The proposed approach to determining the status of startups in the field of technology transfer is aimed at eliminating the problems of their functioning. It is the author's vision of the direction of development of this issue. During its formation, those circumstances were taken into account, about which there are discussions in scientific circles. In general, it is suitable both for use within the definition of official rules of their activity and for its further scientific development.

The study is aimed only at forming the basic principles of improving the status of startups in the field of technology transfer. It is not excluded that in the case of formation on its basis of the process of changing their status, the proposed concept will require some refinement. However, in any case, all previous scientific studies [1–10] either did not formulate such propositions or investigated separate aspects of this issue. None of the scientists who researched this problem did not propose to improve their status, but only proposed to solve these problems in a different way. The results of this scientific study contain conclusions that can become the basis for the formation of official regulatory rules, which is their advantage over similar studies.

The main drawback of the study is the lack of objectively systematized information about the problems faced by startups in the course of their activities. Regional features of startup identification have a significant negative impact on the research of this issue. The diversity of such approaches determined the significant level of generalization of conclusions and research results. This shortcoming of the study must be taken into account in the case of further study of the outlined issues. Especially in the case when it will be used to conduct research on the characteristics of startups within individual countries.

The main limitation of this study is that its results can be used within the framework of the normative technique of forming prescriptions of acts of international legislation or acts of national legislation. Further development of this research will allow obtaining results of practical orientation. On its basis, drafts of international documents can be formed.

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## 7. Conclusions

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1. The study of the essence of the existing approaches to understanding the essence of startups established the absence of a single approach to their understanding. The reason for this was the historical, regional, and economic features of the development of startups in different countries. Each country puts its own special meaning into this concept. The most common view is that a startup is a certain community of people who have developed a unique, special business idea that potentially has a special economic result. Also, a startup is understood as a special type of business entity that exists in the legal system of a certain country as a temporary form of business. Or as a certain community (collective) of people who were previously connected on the basis of other connections.

2. It was established that all existing approaches to determining the essence of startups do not meet the purpose of technology transfer and cannot ensure its implementation. Generalized criteria to which a start-up in the field of technology transfer must meet were formed. By them, it is proposed to mean that the startup has the status of a business entity, compliance with the requirements of a production and commercial business entity, the availability of technology or rights to technology, or the performance of work on the creation of technology. Ways to improve the organizational form of startups were proposed. The expediency of making changes to the provisions of the Horizon of Europe Research and Innovation Framework Program (Regulation No. 2021/695) has been substantiated. Within the limits of the proposed changes, the expediency of introducing a separate category of startups in the field of technology transfer has been proven. And identify them as autonomous small (medium) enterprises (SMEs) at an early stage of their life cycle. And also as such, which are created as a division of a university or research institution. They carry out production and commercial activities, own the rights to technology or are aimed at new technologies or scaling existing business models based on them. A universal legal construction of a startup in the field of technology transfer is proposed, which can be used in acts of national legislation. Under it, it is proposed to understand a business entity created recently, with the purpose of carrying out production activities and obtaining profit, based on the realization of the right to technology or technologies that will be created in the future.

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## Conflicts of interest

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The authors declare that they have no conflicts of interest in relation to the current study, including financial, personal, authorship, or any other, that could affect the study and the results reported in this paper.

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## Data availability

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All data are available in the main text of the manuscript.

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