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#### ANALYSIS AND EVALUATIONS OF INNOVATIVE STARTUPS PERTAINING TO THE ATTRACTIVENESS OF INVESTMENTS

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#### *Abstract*

In modern conditions of dynamically changing environment and focus on the development of new knowledge, technologies and solutions, innovative startups are of special importance. At the same time, the development and support of small innovation-oriented structures in the key of attracting financial resources is currently one of the most problematic points in all countries of the world due to the extremely high level of risk of their activities. The objective of this study was to find and solve adequate tools to assess the investment attractiveness of innovative startups. The article analyzes the key characteristics of modern innovative startups and presents the methodology for assessing their investment attractiveness based on the calculation of the corresponding index. The startup's investment attractiveness indicator should have a complex character and reflect the whole set of factors significant for further development and scaling of business: organizational factors - reflecting the current structure of the company, its leadership, its qualifications and experience in implementing similar projects, availability of resources, etc; product - characterizing the business idea itself, its competitiveness, innovativeness, feasibility in the current conditions at the current level of development of science and technology; environmental - determining the parameters of the startup functioning environment: the availability of a developed infrastructure favorable for doing business, the level and dynamics of industry development, etc. The presented approach to determining the investment attractiveness of innovative startups will allow to form an objective opinion on the prospects of the business idea and to make an informed investment decision.

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**Keywords:** Investment attractiveness, innovative potential, entrepreneurship, innovative startup.



## **1. Introduction**

In modern conditions, the need to create adequate conditions for the creation and operation of innovative business oriented to new markets, technologies and ways to meet the needs of consumers is of fundamental importance for the development of the territory. The transition of developed countries to the sixth technological stage (Glaziev, 2016) and the obvious lag of the Russian economy at this stage determine the need to focus on a set of new innovative companies that use and offer advanced developments.

Investment is one of the most effective tools for economic development, regardless of its scale. The availability of financial resources and the variety of sources of their attraction often play a key and decisive role in the formation of an efficient economic system of the country and its movement in the high-tech direction. As practice shows, the main source of financing of innovative business in the Russian Federation at present is the state due to a number of circumstances: the lack of conditionally free financial resources of representatives of the commercial sector in the conditions of the crisis, low level of protection of investors' rights at the legislative level, high level of risk and instability of the environment, etc.

The whole set of the presented factors determines the need to increase the investment attractiveness of innovative business, to create an adequate model for evaluating their prospects, taking into account both personalized factors directly related to the startup itself and external factors that determine the risk level of the surrounding business environment.

## **2. Problem Statement**

The set of problematic points of assessment of the investment potential of business entities can be divided into two major blocks. On the one hand, it is a pool of fundamental features that are relevant for the entire business community: analysis and assessment of the prospects, financial attractiveness and commercialization potential of innovative startups. On the other hand, a set of characteristics of the environment, legislative regulation and regulatory support for the implementation of innovative activities.

Thus, in the absence of a clearly defined system of evaluation of innovative startups, as well as the diversity of newly created companies aimed at carrying out activities in predominantly new areas of activity, there is an objective need to identify a set of criteria to determine their prospects and, consequently, attractiveness for investment purposes.

## **3. Research Questions**

In today's business environment, an organization that creates a new product or service under conditions of high uncertainty is considered a startup (Ries, 2011). The most difficult decision is to invest in a project or not, because, as a rule, the company does not have sufficient financial history that can show the future effectiveness of its activities.

However, modern enterprises aimed at implementing innovative projects have a number of specific features that can significantly affect their attractiveness to investors. Identification of these features, which form their potential and competitiveness, is a labor-intensive task, which has been devoted to the work of many modern scientists and practitioners in the field of investment project evaluation (Villalobos, 2007;

Sobolev, 2015; Berkus, 2016; Kunitsyna & Halyavskaya, 2016). Within the framework of the research we propose to take into account the following peculiarities characterizing startups as independent subjects of the market:

- a current business idea, often of an innovative nature, with significant potential (Karpova & Lobakhina, 2015);
- significant emotional involvement of participants in the project implementation;
- the relatively young age of the startup team (on average about 25 years) and the resulting lack of experience in implementing similar projects;
- lack of a fully established and sustainable organizational structure;
- high level of uncertainty about the prospects of the business and, as a consequence, the risk for the investor;
- high level of demand for financing from external investors.

Some authors within the framework of the startup evaluation system focus on the possibilities of comparative analysis of the basic business characteristics: business and product competitiveness, presence of an appropriate team, strategic connections, peculiarities of promotion, etc. (Payne, 2011; Kolesnichenko, Stepanova, & Ivanova, 2015). Further, based on expert assessments, a final value of the pre-investment value of the startup is derived, which is the basis for making an investment decision. There are also methods to determine the investment attractiveness of the innovation-active business by means of correlation-regression analysis and other mathematical methods (Antipin & Bagaynikov, 2018).

At the same time, the issue of forming a unified methodological approach that allows for a comprehensive analysis of the investment attractiveness of an innovative startup remains open.

#### **4. Purpose of the Study**

On the basis of the analysis of the main problem areas and modern tendencies in the sphere of innovative business functioning and peculiarities of investment support of its activity, the key objectives of the research were determined:

Based on the analysis of the main problem areas and modern trends in the functioning of innovative business and the peculiarities of investment support of its activities, were determined the key objectives of the study:

secondly, the formation of a methodology for diagnosing the investment attractiveness of a startup based on the use of expert assessment tools.

#### **5. Research Methods**

Within the framework of the research it is supposed to use a pool of methodological approaches to the analysis of key criteria determining the investment attractiveness of innovative startups: comparative comparison, scientific abstraction, analysis and synthesis, grouping and systematization of theoretical material, economic analysis, expert evaluation, graphic interpretation.

## 6. Findings

As startups are usually at the initial stage of their life cycle, their investment attractiveness is formed not by the resources currently at their disposal, but by objective factors that can demonstrate their potential in the current environment.

All these factors can be divided into 3 groups: organizational - determining the strengths and weaknesses of a startup as a full-fledged business entity; product - allowing to identify the strengths and weaknesses of the innovative product with which the company plans to enter the market; environmental - characterizing the features of the startup environment, which can have a significant positive and negative impact on the project implementation.

The following can be considered organizational characteristics of a startup

1. Qualification and sufficiency of the personnel determines the level of qualification of the business team and its compliance with the set tasks (it is necessary to take into account both the quality of management and technical and technological training of the production personnel), as well as the availability of experience in implementation of similar projects.

2. The degree of resource endowment determines the need to gain access to limited and/or inaccessible resources or technologies, which may have a negative impact on business prospects and entail additional risks for the investor.

3. The quality of a startup's business model is one of the most important parameters, the evaluation of which is designed to find out the scale of the team's readiness to enter the market: the presence of the business plan, the adequacy of the evaluation of prospects, the definition of details of product promotion and distribution model, etc.

4. Forecast values of financial activity determine the nature of the potential profitability of the implementation of the startup idea, which directly depends on its scalability.

5. The presence of strategic partners makes it possible to significantly reduce investor risks and demonstrate the readiness of the team for independent interaction in the market environment.

A set of attributes that form an understanding of the investment attractiveness of a business in relation to its product:

1. The degree of product development characterizes the stage of the process at which an innovative product is located, ranging from the business idea to the created prototype (prototype).

2. The degree of originality of a product depends on its level of innovation: from radical to improving; this parameter can also be influenced by the scale of originality (from global to local).

3. The level of complexity of the product and its production process determines the scale of potential problems that a startup team may face in the process of business operation, which may lead to a reduction or loss of planned profit.

4. The degree of importance of the product for the consumer determines the scale of current problems (unmet needs) of consumers, which are not currently solved by the existing products (services) in full, and the scale of their importance for consumers.

5. The scale of the target market (the level of commercialization) demonstrates the uniformity of innovation, its orientation to a wide range of consumers, or to certain narrow segments of the market (industry, territory).

The average criteria for evaluating a startup's attractiveness determine the basic parameters of the environment in which a project is planned to be implemented, which have the potential to have a significant impact on business prospects:

1. The level of development of the industry will make it possible to take into account the stage of the life cycle of the proposed product market and its development prospects in the structure of the index of investment attractiveness of an innovative startup.
2. Dynamics and structure of investments in the industry is an indicator of an attractive market - it demonstrates the volume of financial resources coming from investors to the market, as well as key players and stakeholders (government, commercial sector).
3. The level of competition in the industry, on the one hand, will allow the investor to determine the presence of a market for the proposed product, on the other hand, the degree of difficulty in entering and exiting the market (if any); this aspect is important due to the innovative nature of the activity, which leads to a high level of uncertainty about the prospects of the product.
4. The state of the territory's infrastructure makes it possible to take into account the presence or absence of the necessary infrastructure support for entrepreneurial activity, starting with the registration of a business entity and ending with the stage of commercialization of the finished product.
5. Macroeconomic environment determines the conditions for the implementation of the business idea in the context of the economy as a whole: global and/or territorial crisis trends, the purchasing power of the population at the moment and in the future, the possibility of attracting additional sources of project financing, etc.

With the help of the expert evaluation method, all the criteria that form the investment potential of a startup can be diagnosed.

The first step of the method is to select and systematize all the parameters that characterize the innovative project. Further, each of the presented parameters should be assigned a weight according to the level of its significance and impact on the final investment decision. The next step is to score individual parameters on a predetermined scale (Table 01).

Thus, the quantitative assessment of the investment attractiveness of an innovative project can be determined by a weighted sum method using the following formula:

$$IA = \sum_{i=1}^n W_i * X_i$$

Where IA is the investment attractiveness of an innovative project

$W_i$ - relative importance coefficient of the criterion

$X_i$ - the significance of the i-th criterion in points

**Table 01.** Criteria for evaluating the investment attractiveness of an innovative startup

Criterion	Weight of $W_i$ criterion	Points score criterion $X_i$									
		1	2	3	4	5	6	7	8	9	10
Organisational											
Qualification and sufficiency of personnel	0.05-0.25										
Extent of resource endowment	0.05-0.25										
Quality of the business model of a startup	0.05-0.25										

Projected values of financial activity	0.05-0.25																		
Strategic partners available	0.05-0.25																		
Other	0.05-0.25																		
Food products																			
Degree of product development	0.05-0.25																		
Degree of product originality	0.05-0.25																		
The level of complexity of the product and its production process	0.05-0.25																		
Degree of importance of the product to the consumer	0.05-0.25																		
Scale of the target market	0.05-0.25																		
Other	0.05-0.25																		
Environmental																			
Level of industry development	0.05-0.25																		
Dynamics and structure of investments in the industry	0.05-0.25																		
Level of competition in the industry	0.05-0.25																		
State of the territory's infrastructure	0.05-0.25																		
Macroeconomic environment	0.05-0.25																		
Other	0.05-0.25																		

The use of the proposed methodology will allow to carry out an adequate comparison of a number of alternative projects in the process of making investment decisions, to identify the most attractive from the point of view of a comprehensive assessment of their prospects. Also, the calculation of the proposed index for a significant sample of innovative startups may allow to determine the critical values typical for projects of individual territories and industries.

## 7. Conclusion

Assessment of the investment attractiveness of startups operating in the field of innovative developments should be comprehensive and systematic in nature, allowing to assess all possible strengths and weaknesses of each specific business idea. The proposed methodology will allow investors to take into account both internal factors that determine the prospects of a project from the standpoint of its strengths and weaknesses, and external factors that determine the business environment, threats and opportunities of the environment, which may change the planned scenario of startup development in one direction or another.

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