

# The Sources of Innovation Financing: a Conceptual Model for Adopting Managerial Decisions

E. V. Spiridonova  
 department of Management  
 Novosibirsk state technical university  
 Novosibirsk, Russia  
 e.uvarova@corp.nstu.ru

C. V. Trofimova  
 department of Management  
 Novosibirsk state technical university  
 Novosibirsk, Russia  
 kris.v.tr@gmail.com

**Abstract—** In the article there is an attempt to construct a conceptual model for selecting fundraising (grant, non-repayable) sources of project financing, incl. high-tech and innovative ones. Three main sources are identified (individuals and legal entities, the state), as well as two forms of interaction with them (address and program support). Three key parameters are identified, which allows you to make a decision about referring to a particular source. Through one of the sources (donations from individuals, in particular, crowdfunding) a comparison of theoretical assumptions and analytical materials were made. The comparison of theoretical assumptions and statistical data through the example of raising funds from individuals through crowdfunding platforms confirmed the correctness of selected parameters and a brief assessment of their values. <sup>1</sup>.

**Keywords—** *funding, fundraising, targeted support, crowdfunding, innovation, grant, government subsidy.*

## I. INTRODUCTION

Innovative projects, start-ups, emerging business incubators and technology parks, scientific and educational institutions, small innovative companies are one of the main development drivers in the XXI century both in Russia and abroad. Regardless of the industries and activities the main barrier for a successful start is a lack of available funding sources.

Lending or receiving venture capital investments in the early stages of the project life cycle is often impossible. The project team can apply for the borrowed funds from traditional sources only since the early-growth stage (there are some first sales, the development strategy is defined, efficiency indicators are calculated). At the stage of idea generation, research (technical, marketing etc.) and production of the prototype there own funds and/or fundraising sources can be used. Fundraising is the resource (non-refundable, irrevocable) mobilization required to implement a specific project, which the organization cannot provide on their own. [1]

The term "fundraising" is not common; however, it has been actively used by individual communities for over 15 years. In general, we can distinguish three communities: non-

profit organizations, scientific and educational institutions, innovators and innovative companies.

The greatest experience of attracting irrevocable funding was accumulated by non-profit organizations (NPOs). Just in this environment some information on fundraising sources, methods and technologies of interaction with them was systematized. The legal part was developed: forms of contracts, the rights and obligations of the parties, tax issues. The most complete and systematic source of information on fundraising for NGOs is the Centre for development of NGOs (Center RNO). On the official website of the Center RNO (<http://www.crno.ru/>) there are more than 40 brochures, textbooks, collections of case studies devoted to various aspects of attracting grant funding. And this is not the only organization to provide consulting and methodological support to NGOs. The association of fundraisers and CAF-Russia, the fund of support and development of philanthropy, study the nonprofit sector fundraising, generalize and analyze the information, as well as conduct educational seminars and trainings.

Academic fundraising has also been developing for decades, but it is usually limited by the competitions of scientific funds, federal targeted programmes and the formation of alumni associations (the creation of endowment funds). Study and systematization of knowledge in this community are concentrated in the Higher school of Economics. But the academic environment is not sufficiently united around this issue. Most researchers choose their own "trial and error" path.

Fundraising for innovation is a relatively new direction. It arose in order to solve the major problem of finding resources at the early stages of financing innovative projects. High-tech, capital-intensive projects require significant investments long before the release of the prototype and the first viable sample (MPV). By fundraising one can attract the necessary resources to the project.

Each project has its own features and limitations; each fundraising source directs to certain goals and puts forward specific requirements. There does not exist any generalized information on innovation fundraising in Russia. Project managers neither know about the existence of gratuitous resources nor know how to determine which one to apply. The self-same study of individual sources and failures in

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contacting them can take months and sometimes even years, which is unacceptable in a dynamic innovative environment.

**The purpose** of this study is to create a conceptual model of choosing fundraising sources for project funding, including high-tech and innovative ones.

The following **tasks** were set to achieve this goal:

1. to consider the main sources of grant funding;
2. to explore forms of interaction with the sources;
3. to identify the key parameters, which assessment will make the decision about referring to a particular source;
4. to compare theoretical assumptions and analytical materials on the basis of one of the sources.

In general, the fundraising sources can be divided into three main groups: individuals (private donations of citizens), legal entities (corporate donations), and public authorities (grants and subsidies).

The main forms of interaction with the data sources are targeted support, trust contests and programs implemented, usually through private, public and corporate funds.

The hypothesis of this study is the assumption that out of the variety of project settings you can select two or three common key ones based on which there will be built a two - or three-dimensional model that facilitates the process of making management decisions about fundraising source.

The analysis and synthesis of theoretical information generalized for NGOs were chosen as main methods of investigation. The adaptation of this information to the specific innovation projects. The study of tender documentation of major funds. As well as a comparison of theoretical conclusions with analytical data according to one of the funding sources (private donations through a crowdfunding platform). In particular, there were analyzed some American researchers' papers dedicated to the study of more than 150 thousand projects that were hosted on the largest crowdfunding platform Kickstarter in 2009-2014, as well as own results of the analysis of 150 projects, posted on the Russian analogue of Boomstarter in 2016-2017.

## II. PECULIAR INTERACTION WITH FUNDRAISING SOURCES.

**The state** carries out the support of innovative projects, as well as any other, mainly using the program-target approach, which is implemented through public funds and targeted programs (federal, regional, municipal). Targeted support is extremely rare. [2]

Funds and programs are distributed through a procedure of open competition, having both positive and negative sides. The main advantages are the current state of all processes and procedures; availability of the tender documentation that sets forth the major rules and regulations; the standardized claim form. The main disadvantage is the duration of the competition (it takes from six months to a year to receive money from the announcement date of the competition).

The main criterion to select projects for state agencies is the massive effect on project implementation and/or development of priority directions and critical technologies. The important thing is the reliability of the grantee determined by the previous experience of cooperation and an existing

stepping stone for the project. Preference is given to the projects of cooperation with Russian educational institutions of higher education, state scientific institutions and organizations implementing integrated projects on creating high-tech production. [3]

The amount of grants and subsidies can range from 100 thousand rubles to 10 million rubles per year. For especially large tenders (for example, grants of the Russian Scientific Fund, grants under the state program in the framework of the Decree of the RF government of 09.04.2010 No. 218) can receive up to 100-150 million. [1]

**The business-** structures provide support either through corporate funds or targetedly. The first option is typical of major corporations, its advantages and disadvantages being described above. The second option is practiced by a small company. Its main difficulty is some unclear rules of the game, the cooperation channels, the interests of the company and its leadership. But if the innovator will be able to establish communication and identify points of interaction with the organization, resources can be obtained much faster than in the previous version.

The main thing to understand about commercial companies is that even providing grant support, the organization pursues its own interests. The business can be interested in the product, obtained as a result of the project or additional communication with the target audience and other marketing elements. When it comes to business, one should be aware of the possibility of a merger or take-over in the future. [4]

The amounts that can be obtained from commercial companies are virtually unlimited. They depend on the company size and the level of its interest in the project and the project team. [1, 3]

**Individuals** quite rarely use the program and target approach, however, even in Russia there are several large private foundations, for example, Vladimir Potanin's Charity Fund, the Fund of Mikhail Prokhorov etc. The majority of the citizens, if involved in the charity, carry out targeted support.

Citizens tend to support interesting but simple and easy projects. Technical innovations for home usage or some unique food product are likely to get the response and support of the everyman than the most important technical development, which essence is not clear.

The donations are relatively small. Even using crowdfunding platforms (platforms for raising projects funds from a large number of individuals) there can be collected the sum from 10 thousand rubles to 3 million rubles. [5]

## III. A CONCEPTUAL MODEL FOR ADOPTING MANAGERIAL DECISIONS

The analysis of the interaction with individual sources allows to identify three key parameters that are to be considered: the required amount of funds, the scale of the target project audience (whether the result of the project is the subject of the product consumption), the waiting period.

In the first phase we will construct a **two-dimensional conceptual model** of decision-making about the choice of

grant financing source on the basis of the first two parameters (see Fig. 1).

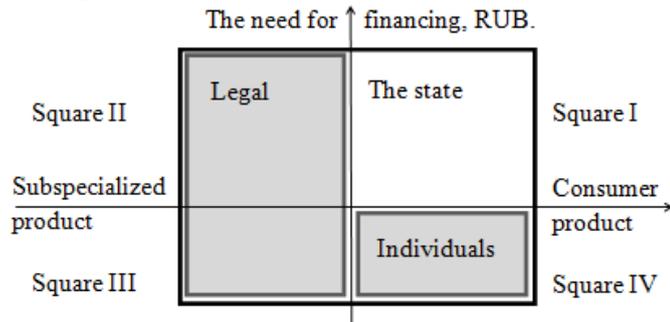


Fig. 1. The two-dimensional conceptual model.

The x-axis reflects the need for financing in monetary units, whereas the ordinate axis shows the scale of the target project audience. We should mention that the intersection point of the axes is not numerically equal to zero. The axis "X" represents a point close to 3 million rubles. The analysis of public tenders and successful crowdfunding projects has shown that the amount of grant support varies from tens of thousands of rubles up to 100-150 million rubles. Consequently, the height of the III and IV squares in Fig. 1 (from 10 thousand rubles to 3 million rubles) is significantly less than the height of the I and II squares (from 3 to 150 million rubles). However, a large part of innovation projects falls into III and IV squares. It is still impossible to determine numerically the intersection point of the axis "Y", it will be clarified in further studies. At this stage we will use the qualitative characteristics: sub-specialized projects fall into Squares II and III, whereas Squares I and IV projects comprise products of mass consumption. [1]

Individuals should be addressed only in case the characteristics project is under square IV. Goods and services of mass consumption are quite understandable for townsfolk. The amount of money that can be obtained from a major patron or a group of individuals (for example, through a crowdfunding platform or collection in the social network) is not more than 3 million rubles.

A legal entity is likely to support projects related to Square II and III. Commercial organizations, pursuing primarily their own benefit, are interested in a specific technical innovations or some interaction with a specific target audience. The value of corporate financial support is not limited to 3 million. It depends on the scale of the business and its interest in the project.

The variety of government support programs provides grants and subsidies to projects that fall into any square. State interests are focused on the mass consumer goods and sub-specialized projects in priority sectors with the use of critical technologies. The size of grants and subsidies ranges from a minimum (for example, subsidies to young entrepreneurs in the Novosibirsk region are in the amount of 100-200 thousand rubles) to a maximum (including RNF grants). The limitation of this source is the program form of the resource provision. It can be reflected in the model by introducing the third parameter, i.e. the waiting period. [1]

**In a three-dimensional model of source selection** there was added an axis "Z", i.e. the waiting period, which is located perpendicularly to the plane "XY" and crosses it at the intersection point of the first two axes. Let us consider a three-dimensional model in a flat cut at the intersection of axes "X" and "Z" (Fig. 2).

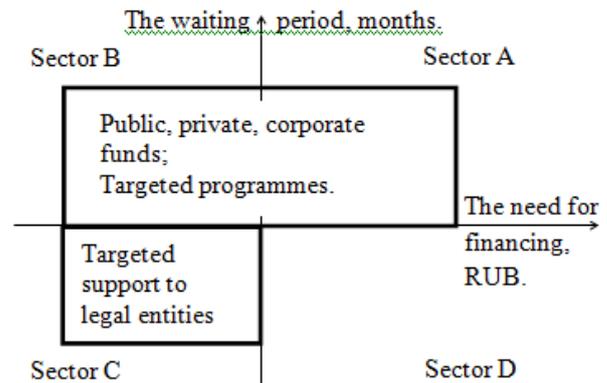


Fig. 2. A flat cut of dimensional conceptual model (the axes "X" and "Z")

The time factor determines the acceptable forms of interaction with fundraising sources. Software forms of interaction can be selected for projects within the sectors A and b (Fig.2). A valid waiting period for such projects is 0.5-1 year. The denial of funding and the need for re-treatment in one or another source does not compromise the implementation of the project (for example, if you have your own money for the first research cycle of complex technical project). [1]

Competitions of grants and subsidies to public, private and corporate foundations, as well as Federal, regional and local target programs can be considered as software forms of interaction. Different amounts of support are allocated in the framework of the competitions. It is important for the project objectives to be fully consistent with the program objectives, while the requested amount is not contrary to its terms.

Projects within the sector C should seek targeted support, which is usually provided by citizens and commercial companies that do not have their own charitable foundations and corporate social responsibility programs. One-time targeted support may exceed 3 million rubles just as an exception.

There are no suggested sources for projects that fall into sector D, requiring multi-million amounts in a period of up to six months in the model. One should not reject completely the possibility of implementing such projects, but their authors and managers need to think about how to break the project into stages. In this case, each stage can be considered as a separate project. To achieve a common goal there may be attracted not one, but several financial sources.

#### IV. APPROBATION OF THE MODEL IN THE FIELD OF CROWDFUNDING

Let us compare the theoretical assumptions presented in the models (Fig. 1 and 2) with the analysis of statistical information about the characteristics of successful and

unsuccessful crowdfunding projects hosted on platform Kickstarter (USA) in 2009-2014 and Boomstarter (Russia) in 2016-2017. Crowdfunding is a form of targeted support for projects by a large number of individuals (from the English "crowd"- crowd). Therefore, successful projects must fall in the fourth square of a two-dimensional model (Fig. 1) and the sector with a three-dimensional model (Fig. 2). Their main characteristics are: the result of the project is the product of mass consumption; the waiting period of financing is not more than six months; the need for financing is not more than 3 million rubles.

The analysis of projects on Kickstarter.com indicated that the financial goal of the successful projects is 3 times less than in unsuccessful ones. The average number of the received money for the successful projects is 10 times more than failed ones. [6, 8]

The goal of the successful projects on the Russian platform varies from 30 thousand to 3 million rubles. Only 4 of 1553 successful projects (on 18.09.2017) have collected more than 3 million rubles. Amount differences in the requested amounts of Russian successful and unsuccessful projects are not so obvious. On average, the financial goal is actually higher in unsuccessful projects than in successful ones, but only by 10% (667 and 607 thousand rubles, respectively). [5]

The collection period on both platforms is 30-60 days. 30 days are considered to be some standard duration, it is often chosen by authors. The assumption that increasing the collecting duration allows to collect large amount of funds is not supported by statistics. Some additional research, Kickstarter, which involved 1,000 projects, showed that in short crowdfunding programs, the proportion of successful projects is higher than in long ones. In campaigns lasting about 30 days the proportion of successful projects is 50-60% (varies by month), while there is a success in 30-40% of the 45-90 days projects. The analysis of the Russian campaign repeats this trend with a lower proportions of successful projects. Thus, even with the preparation of the crowdfunding campaign, the waiting time is not more than six months. [5,6]

The analysis of categories, which can be considered as projects on crowdfunding platforms allows us to conclude that most of the projects aimed at creating consumer goods and services. On both platforms there are categories such as "Food", "Design", "Fashion", "Photography" and others. Even in the category "Technology" there are presented projects understandable to the layman. For example, in 2017 the following projects became a success: "Tengu - a phone charger from the fire" (collected 700 thousand rubles in 2017), "Underwater vehicle KUSTO" (110 thousand RUB.).

Also as main factors of success in crowdfunding projects there is its design, as well as web and media promotion. But these settings are not universal for all fundraising sources, so they cannot be included in the model. [5, 6, 7, 28]

The comparison of theoretical assumptions and statistical data through the example of raising funds from individuals through crowdfunding platforms confirmed the correctness of selected parameters and a brief assessment of their values.

## V. CONCLUSION

The proposed pilot version of the conceptual decision-making model on the choice of financing source in the most General terms allows the project manager to determine which source should be contacted with a specific project. The choice depends on three parameters: the required amount of funds, the scale of the target project audience and the duration of the wait.

Further research will be focused on updating the numerical values of the parameters based on the analysis of factual information on projects receiving support from various sources. On the basis of the proposed model there can be developed the technique of decision-making about choosing financing sources for innovative projects at early stages of the life cycle.

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