CDSES 2020

IV International Scientific Conference "Competitiveness and the development of socio-economic systems" dedicated to the memory of Alexander Tatarkin

ALGORITHM FOR SOCIAL AND INNOVATIVE PROJECTS ASSESSING

Anna Veretennikova (a)*, Alisa Safronova (b), Ruslan Dolzhenko (c)
*Corresponding author

(a) Institute of Economics of the Ural Branch of the Russian Academy of Sciences, 29, Moskovskaya St., Yekaterinburg, Russia; Ural Institute of Management of the Russian Presidential Academy of National Economy and Public Administration, 66, 8 Marta St., Yekaterinburg, Russia; Ural Federal University named after the First President of Russia B. N. Yeltsin, Yekaterinburg, Russia; 13b Lenina Av., vay_uiec@mail.ru
(b) Institute of Economics of the Ural Branch of the Russian Academy of Sciences, 29, Moskovskaya St., Yekaterinburg, Russia; Ural Institute of Management of the Russian Presidential Academy of National Economy and Public Administration, 66, 8 Marta St., Yekaterinburg, Russia, alice.safronova2017@ya.ru
(c) Ural Institute of Management of the Russian Presidential Academy of National Economy and Public Administration, 66, 8 Marta St., Yekaterinburg, Russia, dolzhenko-ra@ranepa.ru

Abstract

The purpose of this study is to develop an algorithm for assessing social and innovative projects, which serves as the basis for the formation of a strategy for resource provision of the project using tools of the sharing economy. The article proposes an algorithm that includes the definition of the social function that this project solves, an assessment of the project's attractiveness and competitiveness, and an analysis of the institutional environment in which the project is supposed to be implemented. The implementation of each of the developed algorithm stages assumes the use of the author's assessment tools. Thus, when defining the social function of the project, the corresponding typology of functions was used, and the coding mechanism, which is required for the formation of the stages of the resource provision strategy. The second stage's implementation is conducted through the use of the adapted McKinsey matrix, which allows determining further directions for the development of the project in terms of increasing its attractiveness or competitiveness. The third stage of the algorithm is based on using the methodology for analyzing the institutional environment by assessing its flexibility, inclusiveness, and hybridity. The result of applying this algorithm are recommendations for the resource provision of the considered project. The practical significance is confirmed by the possibility of their application to develop an information system that allows assessing the potential of social projects when providing resources for their implementation.

1. Introduction

The management paradigm is based on the ability to manage demand and create needs, which is a prerequisite for innovative activity growth. Innovation as an economic phenomenon reflects specific characteristics that contribute to the development of society and the state. Within the social sphere, innovative development forms a favorable environment for society, meeting its needs. Although the experience of using social innovations is quite substantial, it still does not make it possible to fully demonstrate the effectiveness and universality of the approaches due to the short period of research on this topic. In this regard, the issue arises related to assessing the effectiveness, productivity, and direction of developing a social and innovative project in the current institutional environment.

2. Problem Statement

Evaluating the effectiveness of social innovations is a priority task for the development of socio-economic processes existing in society. According to WoS and Scopus's data, there are 542 publications on the query "social innovation", of which 276 are in the public domain. This suggests that there is an increase in scientific interest in social and innovative activities. However, there are not many studies in the field of assessing social innovations and social projects.

Activation of social and innovative activities in the context of the current economic and epidemiological crisis has become one of the essential areas for solving society's social problems. By social innovation in this study, the authors mean new ideas, opportunities, and actions in the social space that increase the possibility of using resources to solve economic, social, cultural, and environmental problems.

Concerning the analysis of approaches to assessing social projects' productivity and efficiency, the following studies should be noted.

Fokina and Chudinova (2011) in their work discuss social investment in social projects as a donation of monetary funds to charity and they propose to assess social and economic effects as productivity, reducing them to an analysis of the ratio of costs and incomes, as well as to assessing changes in living conditions. This research describes the assessment criteria but lacks a methodological component for a full assessment.

Filatov and Kuzmina (2012) state that the social effect assessment is a complex measurement and is presented as a vector reflecting all indicators of the standard of living in the implemented territory. Depending on the territory, a different set of social indicators is formed. This view of social innovation assessment is logical, but the criteria that cover the degree of financial assessment of labor costs in the implementation of social innovation are not taken into account.

Soma et al. assess social innovation in terms of 3 dimensions – resonance (resource provision), scale (target audience), and scope (level of change after implementation). The second perspective analyzes the adaptive cycle as a basis – growth, stability/balance, release, and reorganization (Soma et al., 2019). This methodology makes it possible to evaluate projects and innovations, but it does not take into account the involvement of citizens in the project itself and the cost of wages, if there are employees.

Gramescu (2016) defines the assessment of social innovation's effectiveness through the assessment of social entrepreneurship based on the BENISI database. The author uses such criteria as the territory of implementation, the period of existence of the organization, income, the number of involved volunteers, and the type of enterprise. This assessment helps to determine the effect of the implemented project and innovation. However, some criteria are not taken into accounts, such as funding (grants, subsidies, own funds or support from society and investors), the uniqueness of the project, and the number of users of the service or consumers of the goods or a product**.**

3. Research Questions

It is important to note that the digitalization of economic processes has significantly expanded the possibilities for implementing social innovations through the use of the sharing economy tools. A vivid example of the sharing and digital economy's synergy within the framework of social innovation is the crowd economy, which pursues a collective goal based on Internet platforms (Popov et al., 2019). The use of these 2 economic phenomena as the formation of an environment for expanding the tools for the development of social and innovative activities ensures the satisfaction of social needs, the formation of a culture of social activity, and the reproduction of goods. It is also essential to note that the sharing economy meets society's needs, as does social innovation. With the help of the sharing economy elements, social innovations can be implemented effectively, minimizing the level of aggravation of urgent social problems. The sharing economy is defined as an interaction between 2 parties, where one party has an underutilized asset and the other party can use it. In other words, it is the process of providing an item, a product for temporary use (Engels, 2015).

4. Purpose of the Study

In this regard, the purpose of this article is to develop an algorithm for assessing social and innovative projects, which serves as the basis for the formation of a strategy for resource provision of the project using tools of the sharing economy.

5. Research Methods

The development of an algorithm for assessing social and innovative activities assumed the implementation of the following principles. The first principle was based on the need to compare the goals, main idea, and intended results of the assessment with the functions that social and innovative projects perform for society. The implementation of this principle will allow determining the place of the project in solving social issues. The second principle was the need to determine the potential for project implementation through performance assessments. The third principle was the need to take into account the institutional environment when determining the further directions of the project development. To implement this principle, specific features of the institutional environment were used, and taking them into account will allow achieving the goals of a social and innovative project most effectively.

The research procedure included two main stages. At the first stage, an algorithm for assessing social and innovative projects was directly presented. At the second stage, the primary data groups were

described that would be subject to processing when developing an information system for evaluating a social and innovative project based on this algorithm. The study also showed how the instruments of the sharing economy related to the functions of social innovation.

The study's information base was the research published in the international databases of scientific citation Web of Science and Scopus, Internet portals of organizations, and international reports on the development of the sharing economy.

6.   Findings

At the first stage of assessing a social and innovative project, based on the analysis of the proposed project concept, social innovation functions are determined, which can be conducted during the project. Fleshler (2014) identifies the reproductive, stimulating, and investment functions of social innovation. The reproductive function is understood as the ability of social innovations to fill the public sector's gaps in eliminating the lack of public goods. The stimulating function should be understood as social innovation's ability to form motives and incentives for all citizens' categories to take the initiative in solving social problems. The investment function includes social innovation by channeling the received profit to create and implement a new social innovation to ensure the development of social and innovative activities. In addition to these functions, the marketing and regulatory functions of social innovation should be considered. The regulatory function will be considered as the ability of social innovation to change the foundations, traditions of society and form new economic institutions; the marketing function – as a way of promoting and analyzing a product, item, and service through the implementation of a particular social and innovative project (Popov et al., 2018).

During the examination procedure, each social and innovative project at this stage will be assigned a code that will show the set of social innovation functions implemented in this project, which will serve to filter the set of elements of the sharing economy. This will form the basis for defining economic agents that can contribute to the development of this project. When coding, the principle of sequential listing of criteria was used. For example, if a project being implemented involves volunteers (simulative function), changes the usual foundations of society (regulative function), and can be used by one or another company for personal promotion (marketing function), it will be assigned the following code – S2R1M1.

At the second stage, the project is assessed according to the adapted McKinsey matrix, which allows determining the project's competitiveness and attractiveness. To evaluate the project according to these criteria, the score is used taking into account their weight coefficients. The weight coefficients were formed based on expert assessments. The final action is the direct construction of the McKinsey matrix adapted for social and innovative projects. Depending on the level of attractiveness and competitiveness, the project can be located in an area of low, medium, or high potential. This tool will make it possible to evaluate social and innovative projects and become the basis for developing strategies for their development (Popov et al., 2019a).

At the third stage, an assessment of the institutional environment is made in which social innovation is or will be implemented. With its help, it is determined whether the existing institutional environment is favorable for implementing the project. The institutional environment analysis occurs by assessing its specific characteristics – flexibility, hybridity, and inclusiveness. Flexibility refers to the

ability to adapt to changes in environmental conditions; hybridity is the ability to combine a solution to a social problem and a commercial component; inclusiveness is the rational use of the characteristics (skills, abilities, and knowledge) of each member of society to involve them in solving social problems, thereby increasing the civic engagement of the population. Assessment of the institutional environment based on these characteristics will determine the way to support and attract resources, barriers in the public goods sector that hinder the development of this project. Evaluation of these characteristics will make it possible to determine the effectiveness of the existing institutional environment and its ability to stimulate the development of social and innovative projects (Popov et al., 2019b).

As a result of the implementation of the first three stages, at its fourth stage, a recommended algorithm for resource provision of a social and innovative project is formed (figure 1), taking into account the tools of the sharing economy recommended for use, as well as a list of persons interested in the project who can act as its investors.
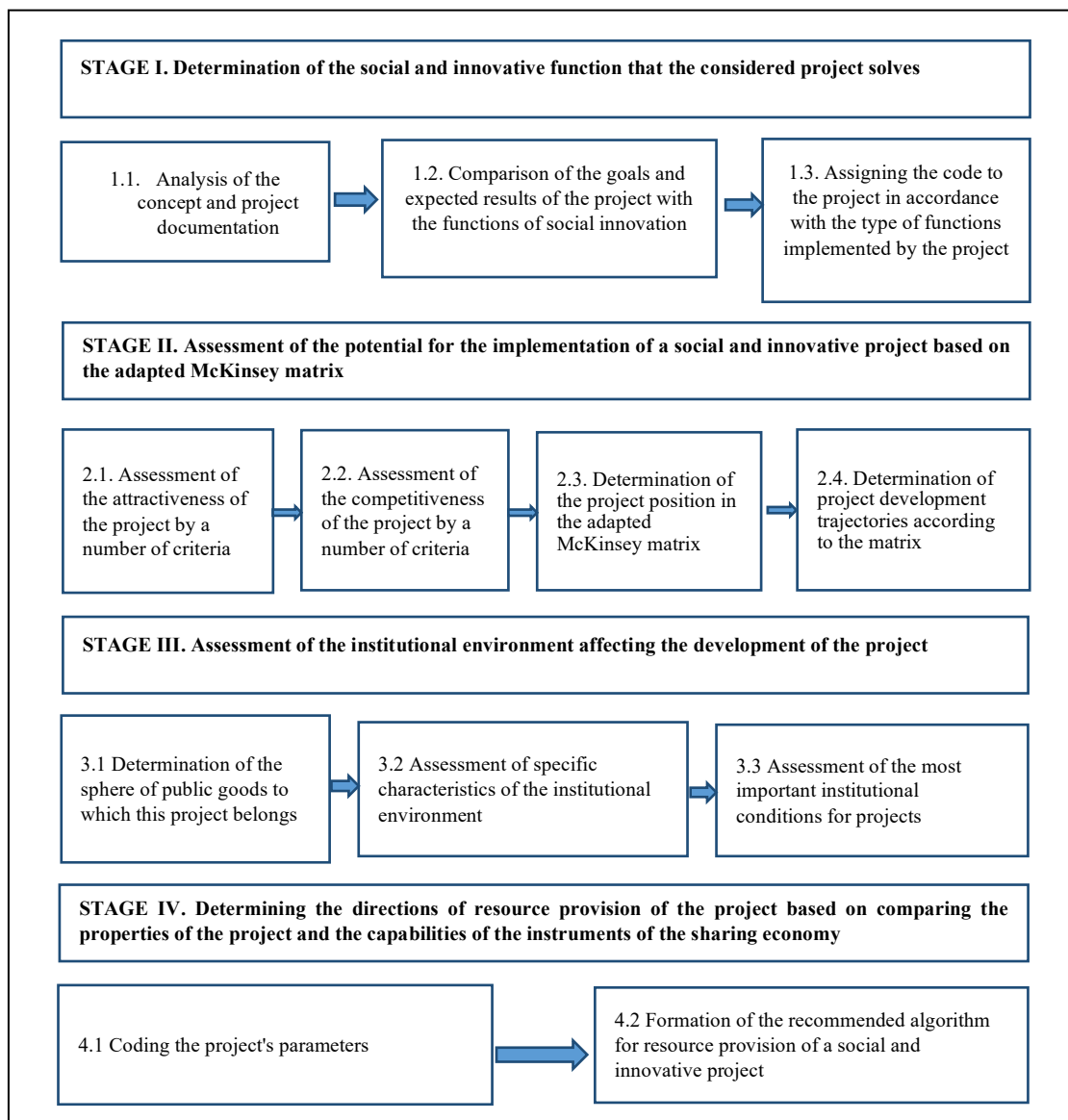

Figure 1. Stages of assessing social and innovative projects

To substantiate the possibility of developing the social sphere through the implementation of projects of the sharing economy, a set of tools for the sharing economy has been determined, which makes it possible to implement the functions of social innovation described above. The sharing economy contributes to making a profit from the implementation of social innovation, creating an environment for the exchange of information, ideas, motivating innovators and social entrepreneurs to invest in new ideas, projects, as well as create new norms and traditions in society and modify the existing ones to form new economic institutions. This is presented more clearly in Table 1 based on the use of digital economy tools.

Table 1. The relationship between the characteristics of the sharing economy and the functions of social innovation

Characteristic of the sharing economy / Functions of social innovation	Instant transactions (online purchases)	Minimum transaction costs	Dynamic pricing	Maximum citizen involvement
Reproductive	Crowdworking	Joint consumption	Crowdfunding	Knowledge exchange
Stimulating	Crowdsourcing	Crowdlending	Crowdlending	Crowdsourcing
Investment	Blockchain application	Crowdinvesting	Formation of cryptocurrencies	Crowdinvesting
Marketing	Crowd marketing	Crowdtesting	Crowd marketing	Crowdtesting
Regulatory	Coworking	Formation of cryptocurrencies		Self-preservation

According to Table 1, the sharing economy can fulfill most of the functions of social innovation through digital technology. This is due to the elements of the sharing economy, which can be both mechanisms and technologies of management. At the same time, all the elements described in the table contribute to the implementation of the regulatory function, since they create new norms in society, thereby changing the existing economic institutions.

The used mechanisms and technologies of management were taken for the analysis based on their definition. Crowdworking is an Internet labor market platform (Mäntymäki et al., 2019). Crowdsourcing is the concept of outsourcing tasks and presenting problems to a large group of people within an open call (Jespersen, 2018). Joint consumption is the consumption of goods and services to minimize network resources (Bhagat et al., 2016). Blockchain is the technology to protect and verify information for counterfeiting (Jamison &Tariq, 2018). Crowdfunding is the collective financing of a group of people on an Internet platform (Ilenkov & Kapustina, 2018). Crowdlending is online lending using a peer-to-peer network system (Wang, Zhang et al., 2019). Crowdinvesting is a form of financing entrepreneurs by raising capital from a group of microinvestors on an Internet platform to startups (Borello et al., 2019).

Crowd marketing is a technology of promotion by attracting a group of people or Internet communities as partners to increase sales (Agafonova et al., 2018). Crowdtesting is a form of attracting a large number of people on Internet platforms for software testing (Wang, Li et al., 2019).

In order to automate this algorithm and form a recommended strategy for resource provision of the project, an information system has been developed. In this information system, the developer enters data which are structured according to the blocks "Description of business", "Sales market (competitive environment and attractiveness of a service or a product)", "Financial forecast of implementation", "Project team and organizational structure", "Institutional environment". Based on the developed business plan, the developer indicates the characteristics of the project. As a result, a calculation is made and a recommendation is formed for the further development of the project.

The block "Business Description". In this section, the following items will be filled in – the name of the project, project developers, relevance, purpose, expected results, territory of implementation, novelty of the project for the territory of implementation.

The block "Sales market" (competitive environment and attractiveness of a service or product). In this section, it is required to enter the data on the expected increase in project revenues in the current year, the number of consumers; to describe the sales market, the number of competitors and their distinctive properties.

The block "Financial forecast of implementation". This section includes questions related to funding sources, in the case of using several sources – the ratio of their shares. In addition, the data of the presented block will describe the estimated implementation volumes, as well as the estimated budget and project effects.

The block "Project team and organizational structure". This section will contain the following items to be filled in – a description of the project participants, a description of the project participants' roles, and the number of volunteers.

The block "Institutional environment" will include the data that allow assessing the hybridity, flexibility and inclusiveness of the institutional environment in which the project is being implemented.

Thus, the application of the presented algorithm will automate the processes of assessing social and innovative projects and form the directions of resource provision for the project, taking into account the proposed list of investors and instruments of the sharing economy.

7. Conclusion

In this study, to develop an algorithm for assessing social and innovative projects, which serves as the basis for the formation of a strategy for resource provision of the project, the following results were obtained.

First, the importance of taking into account the adapted McKinsey matrix, the specific features of the institutional environment, and the development potential of the sharing economy in the implementation of social and innovative activities is substantiated.

Second, an algorithm for assessing social and innovative activity is directly developed, including the aspects presented above, and the main data blocks in the information system, which will be developed based on the proposed algorithm, are described.

Third, it shows how the sharing economy instruments can be used for various functions performed by social innovation.

The theoretical significance of the obtained results lies in developing methodological tools for assessing social and innovative projects, taking into account modern trends in economic development. The practical significance is confirmed by the possibility of their application to develop an information system that allows assessing the potential of social projects when providing resources for their implementation.

Acknowledgments

References

Agafonova, M. S., Poryadina, V. L., & Brezhnev, Z. O. (2018). Kraud-marketing: resheniye problem s prodvizheniyem malogo biznesa [Crowd marketing: solving problems with the promotion of small business]. *Modern scientific research in the field of economics,* 153-161.

Bhagat, A., Chaudhari, R., & Dongre, K. (2016). Content-based File Sharing in Peer-to-peer Networks Using Threshold. *Procedia Computer Science, 79,* 53–60.

Borello, G., De Crescenzo, V., & Pichler, F. (2019). Factors for Success in European Crowdinvesting. *Journal of Economics and Business, 106,* 105845.

Engels, S. (2015). *Die Sharing Economy und die konventionelle Wirtschaft: Eine vergleichende Geschäftsmodellanalyse zweier Vermittlungsplattformen der Übernachtungsbranche* [The sharing economy and the conventional economy: A comparative business model analysis of two mediation platforms in the accommodation industry]. https://publiscologne.thkoeln.de/frontdoor/deliver/index/docId/730/file/BA_Engels_Svenja.pdf

Filatov, V. V., & Kuzmina, A. O. (2012). Aktual'nyye problemy ekonomicheskoy i sotsial'noy otsenki innovatsiy [Actual problems of economic and social assessment of innovations]. *Scientific results of the year: achievements, projects, hypotheses, 2,* 146-152

Fleshler, A. A. (2014). O ponyatii i sushchnosti innovatsiy: istoricheskiy rakurs [On the concept and essence of innovation: a historical perspective]. *Bulletin of the Buryat State University, 1,* 110-117.

Fokina, O., & Chudinova, L. (2011). Otsenka effektivnosti sotsial'nykh investitsii i innovatsii predpriyatiya [Evaluation of the effectiveness of social investment and innovation of the enterprise]. *Region: systems, economics, management, 3*(14), 73-79.

Gramescu, L. (2016). Scaling Social Innovation in Europe: An Overview of Social Enterprise Readiness. *Procedia - Social and Behavioral Sciences, 221,* 218-225.

Ilenkov, D., & Kapustina, V. (2018). Crowdfunding in Russia: An empirical study. *European Research Studies Journal, 21*(2), pp. 401-410.

Jamison, M. A., & Tariq, P. (2018). Five things regulators should know about blockchain. *The Electricity Journal, 31*(9), 20–23.

Jespersen, K. (2018). Crowdsourcing design decisions for optimal integration into the company innovation system. *Decision Support Systems, 115,* 52-63.

Mäntymäki, M., Baiyere, A., & Islam, A. (2019). Digital platforms and the changing nature of physical work: Insights from ride-hailing. *International Journal of Information Management, 49*, 452–460.

Popov, E. V., Semyachkov, K. A., & Fairuzova, D. Yu. (2019). Sotsiotekhnologicheskiye drayvery razvitiya tsifrovoy ekonomiki [Socio-technological drivers of digital economy development]. *Journal of Applied Economic Research, 18*(1), 8-26.

Popov, E., Veretennikova, A., & Safronova, A. (2019a). Otsenka sotsial'no-innovatsionnykh proyektov regiona [Assessment of social and innovation projects of the region]. *Russian Journal of Economic Theory, 16*(1), 12-21.

Popov, E., Veretennikova, A., & Safronova, A. (2019b). Institutional support for social and innovation activity in the large city. *Terra economicus, 17*(3), 48-63.

Popov, E., Hercegova, K., & Semyachkov, K. (2018). Innovations in the institutional modelling of the sharing economy. *Journal of institutional studies, 10*(2), 26-43.

Soma, K., Sander, van den Burg, W. K., Selnes, T., & Martijn van der Heide, C. (2019). Assessing social innovation across offshore sectors in the Dutch North Sea. *Ocean & Coastal Management, 167,* 42-51.

Wang, C., Zhang, W., Zhao, X., & Wang, J. (2019). Soft information in online peer-to-peer lending: Evidence from a leading platform in China. *Electronic Commerce Research and Applications, 36,* 100873.

Wang, J., Li, M., Wang, S., Menzies, T., & Wang, Q. (2019). Images Don't Lie: Duplicate Crowdtesting Reports Detection with Screenshot Information. *Information and Software Technology, 110,* 139-155.