

CROWDSOURCING AND CROWDFUNDING IN THE MANAGEMENT OF LARGE CITIES

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Abstract

The use of crowd practices in large city management makes it possible to implement various projects (social, environmental, educational, commercial) and attract residents and other interested persons to participate in self-government. As of this day, crowdfunding and crowdsourcing remain the most popular and practical approaches to urban management. This study reviewed the experience of using crowdfunding and crowdsourcing in managing large cities of the Russian Federation with a particular emphasis on the general trends and the differences in their implementation. The paper summarized theoretical developments and analyzed large Russian cities' practical experience in crowdsourcing and crowdfunding projects. This made it possible to develop the authors' vision of crowd practices in general as well as crowdfunding and crowdsourcing in particular with reference to Russian realities. The article identified general problems of crowd practices and obstacles to their implementation on the part of both large city residents and the authorities. As a consequence, a model for better government-society cooperation and more effective development of crowd practices was developed. Research significance lies in the generalization of the accumulated experience and investigation of global trends and regional features of crowdfunding and crowdsourcing in large city management. The research novelty, in turn, is in two aspects – in the theoretical substantiation of the use of crowd practices in large city management and in the developed recommendations for their implementation.

Keywords: crowdsourcing, public administration, city communication, Internet, social media, city management.

1. INTRODUCTION

The relevance of the reviewed crowd practices (crowdsourcing and crowdfunding) in city management is associated with the accelerated development of modern information and communication technologies (ICT), social networks, and various means for online communication (Carè et al. 2018; Staletić et al. 2020). As a result, city administration gets the opportunity to make decisions taking into account citizens' priorities, involve the population in solving urgent problems, exchange opinions, and look for compromises or more effective ways to tackle the current challenges. Such governance is a two-way process, the main actors of which are public authorities and an active part of civil society. For this reason, there is a particular research interest in generalizing the accumulated experience and investigating global trends and regional features of the considered practices. The research novelty lies in the theoretical substantiation of crowdsourcing and crowdfunding in large city management and development as well as in the elaboration of recommendations for their adoption.

2. LITERATURE REVIEW

The central aim of applying crowd practices by public administration is to (1) ensure that government decisions are made in line with the interests of various groups of the population, (2) increase the level of trust in the government, (3) obtain optimal management results with minimal resource use, (4) resolve urgent issues and define tasks for the future, (5) assess the work of central executive bodies objectively, and (6) ensure the life quality improvement. In view of the foregoing, crowd practices are rightfully considered the key means for implementing the projects of the European Innovation Partnership on Smart Cities and Communities (EIP-SCC) aimed at involving the general public in the rationalization of urban space. They make it possible to implement the following principles of public administration (Bell 1999; Maschio 2019):

- Openness (active communication with the people concerning the tasks and responsibilities of various officials as well as the decisions taken);
- Participation (perception of people as active objects who have the right to play an active role in the process of making administrative decisions at all stages of city management);
- Accountability (realization of the right for proper governance and the response of the government to the needs of citizens);
- Effectiveness (public policy, as well as legislative and regulatory systems, should correspond to real public needs, have clear goals and be adopted with reference to their expected impact and previous experience);

- Coherence (consistency and coherence between various policy instruments, mechanisms, and strategies).
- Crowd practices have proven themselves well in establishing a fruitful dialogue between society and the government (Glaeser et al. 2016). Studying crowd practices in city management is predominantly performed under four approaches: managerial (crowd practices are considered as a means of solving managerial problems (Brabham 2008; Kleemann et al. 2008), financial and economic (Bell 1999)), marketing (crowd practices are examined through the model of interaction with consumers (Vukovic et al. 2010; Boyle 2016)), and informational (crowd practices are analyzed as a way of information exchange and knowledge management (Brabham 2010)).
- Traditionally, the implementation of crowd practices suggests several necessary steps (Kazakova and Denisova 2016):
 - Problem statement – identification of acute issues and determination of prioritized ones for their solution at all levels of government;
 - Establishing the conditions for discussing these topics with the public;
 - Involvement in discussion and motivation of appropriate experts;
 - Idea selection – specifying the most effective proposals for solving identified problems;
 - Documentation of the discussion outcomes;
 - Project implementation;
 - Results analysis.

The active use of crowd practices in the public sector is associated with the development of ICT, social networks, and various chatting portals. In the meantime, the most frequently used crowd practices are crowdsourcing and crowdfunding (Lenart-Gansiniec and Sulkowski 2018; Starshinova et al. 2020).

The success of crowdfunding depends on adherence to its key principles (Glaeser et al. 2016):

- Availability of a specific purpose for fundraising;
- Fundraising transparency;
- Testing the reliability of the project before publishing account details or transferring funds;
- Help may be provided not only in monetary terms.

Implementation of crowdsourcing projects may be connected with some difficulties in ensuring public experts' productive work and high motivation for a long time. As such, crowdsourcing presupposes a proactive stance when setting up a new mechanism of interaction with society. The implementation of crowdsourcing projects should include the field-proven means of combating information overload, tools for protecting against spam and "robots", and various filters. Crowdsourcing presupposes an active mode of operation, daily monitoring of incoming proposals, constant communication with experts, maintenance of their involvement, and transparency of discussion results (Kazakova and Denisova 2016).

As of this day, considerable experience has already been gained in government-society interaction aimed at solving social, legal, and infrastructural challenges through crowdsourcing. The most prominent examples of such projects within the urban area are (OECD, 2020):

- Mobile World Capital, Spain (elaboration of the city development strategy);
- Goteborg & Co, Sweden (elaboration of the city management strategy)
- OnlyLyon, France; beBerlin, Germany (creation of shared brands mobilizing business and ambassadors);
- Tourism Montreal and its bloggers, Canada; Rally St. Louis, USA (tourism development);
- Gamecity, Germany (creation of an urban cluster);
- The National Library of Vietnam, the Library of Virginia, public libraries in Cambridge and New York, as well as libraries at universities of California, Tennessee, Louisville (digitization of materials from city archives and libraries).

It is worth noticing that large-scale crowd projects are predominantly introduced in large cities and focused on increasing the number of tourists and cities' attractiveness. In this connection, the experience of crowd practices on the territory of the Russian Federation, where social projects are implemented systematically, deserves particular attention. From 2014 to 2020, the Moscow government has adopted 27 projects and offered more than 106 thousand innovative ideas, over 4000 of which were selected for further review (Crowdsourcing Projects of the Government of Moscow 2020; Kazakova and Denisova 2016). These include the propositions concerning the improvement and development of online events and activities in the cultural sphere of Moscow; e-services in all key areas; vocational guidance services; sports facilities, parks, museums, libraries; maintenance of wild animals in apartment buildings, public places, and petting zoos; and managing environmental issues in the six most urgent areas (air, water, green resources, etc.).

Similar aims are also pursued across Russian regions. Surgut, for example, benefited from crowdsourcing in preparing the city development strategy. The recent public hearing in the city focused on discussing its

potential and development plans until 2030. As a result, it was resolved to build a shipyard, a furniture factory, new shopping centers, a university campus, and a technology park. The local authorities plan to erect 37 new kindergartens, 23 schools, a perinatal center, two hospitals, 13 new transport interchanges, a new bus station and reconstruct the airport. The Surgut development project was elaborated jointly by the city administration and the Surgut State University. Nevertheless, all residents interested in this project could submit their proposals (Mayorov 2015). Another bright example of successful use of crowdsourcing is the Strategy for Socio-Economic Development of Khanty-Mansi Autonomous Okrug – Yugra. Its residents are given the opportunity to express their vision of the city's development path based on which strategic priorities are determined (Government of Khanty-Mansi Autonomous Okrug – Yugra 2013).

Taking all things together, the introduction of crowdsourcing in the public sector is reasonably believed to contribute to creating a civil society in which the activity of residents, public expertise, and control will become integral components of making important government decisions (Starshinova et al. 2020). However, even though the issue under consideration is of particular interest among researchers worldwide and has been examined many times (Bakalenko 2018; Gambееva et al. 2018; OECD 2020; Sokolov and Deev 2017), the conducted literature review allowed identifying several gaps:

- Inadequately described features of crowd practices' implementation in cities of various sizes;
- Poor amount of relevant data on global trends and regional peculiarities of applying crowd practices in city management;
- No theoretical vision of this concept for the conditions of the Russian Federation.

3. PROBLEM STATEMENT

As noted above, most scholars focus exclusively on crowd practices implemented in large cities, as a rule, that of Europe or the USA. On the back of this, it is of particular academic interest to determine the regional features of crowd practices' application and then compare them with global trends.

This article considered crowdsourcing and crowdfunding practices precisely in the management of large cities of the Russian Federation since their geographical position enables highlighting regional application peculiarities (the chosen cities are located in both the European and Asian parts of the country). The assignment of a city to a large was carried out in accordance with the subdivision of urban and the rural settlements presented in the Town-planning Code of the Russian Federation (those with more than 1 million inhabitants).

The aim of this study was to identify common and distinctive features in the use of crowdsourcing and crowdfunding practices to manage large cities. This goal achievement was possible only after fulfilling the following tasks:

- Define theoretical approaches to studying crowdsourcing and crowdfunding in the world and in the Russian Federation;
- Summarize the practical experience of residents of large cities of Russia in crowdsourcing and crowdfunding;
- Identify common and distinctive features of the use of crowdsourcing and crowdfunding techniques to manage large cities in Russia and abroad;
- Explain the vision of the authors concerning crowd practices' application in managing large cities of Russia and develop a definition for crowdsourcing and crowdfunding;
- Generate recommendations for the implementation of crowdsourcing and crowdfunding practices in managing Russian cities.

4. MATERIALS AND METHODS

In order to accomplish the tasks assigned, the study was carried out in several stages. At the first stage, definitions of crowdsourcing and crowdfunding from the top-cited research articles were analyzed to characterize these practices in the most thorough way possible. Apart from this, the findings of Russian and foreign studies were compared to identify general trends and differences in understanding the research object.

The second stage of the study entailed surveying residents of large cities across Russia to determine possible inconsistencies between practical experience and theoretical developments. For this, inhabitants of large cities of the Russian Federation were surveyed on the matter of their participation/non-participation in urban crowdsourcing and/or crowdfunding as well as on the matter of typical practices for managing large Russian cities. The selection of respondents was carried out by sending invitations via social networks (Facebook, VK). In turn, multiple-choice questionnaires with several answers possible were delivered by means of Google Forms. Invitations to be engaged were sent only to those people in whose profiles one of the large cities of the Russian Federation was indicated as a place of residence. Though, in spite of being useful and simple, the chosen approach imposed a certain limitation on the research process as there was a possibility that the actual place of residence failed to coincide with the declared one. Respondents from Moscow and St. Petersburg were not invited to take the survey. Such a decision was connected with the fact that these cities take the top positions across the country in the

implementation of crowd practices (Crowdsourcing Projects of the Government of Moscow 2020; Kazakova and Denisova 2016). Subsequently, research results could be somehow distorted. The survey was carried out in April 2020 among 256 people. Participation was anonymous and voluntary.

A specific feature of this study is the division of respondents by gender and age. In total, the research involved 121 men (47%) and 135 women (53%). Among them, 84 (33%) respondents were in the 20-35 age group, 105 (41%) respondents in the 35-55 age group, 67 (26%) respondents in the 55+ age group (Table 1). These data correspond to age and gender declared in their social profiles.

TABLE 1 - DATA ON RESPONDENTS' AGE AND GENDER

| City | Male | | | Female | | |
|---------------|-------|-------|-----|--------|-------|-----|
| | 20-35 | 35-55 | 55+ | 20-35 | 35-55 | 55+ |
| Age | 20-35 | 35-55 | 55+ | 20-35 | 35-55 | 55+ |
| Krasnoyarsk | 6 | 7 | 4 | 5 | 5 | 5 |
| Rostov-on-Don | 7 | 5 | 0 | 5 | 5 | 4 |
| Perm | 1 | 7 | 7 | 1 | 4 | 0 |
| Ufa | 4 | 3 | 1 | 1 | 6 | 1 |
| Chelyabinsk | 2 | 3 | 3 | 2 | 7 | 5 |
| Krasnodar | 4 | 5 | 6 | 7 | 4 | 1 |
| Omsk | 4 | 0 | 1 | 5 | 6 | 3 |
| Voronezh | 5 | 7 | 0 | 6 | 7 | 0 |
| Kazan | 4 | 6 | 1 | 1 | 6 | 6 |
| Samara | 1 | 3 | 6 | 7 | 6 | 2 |
| Novosibirsk | 1 | 1 | 6 | 5 | 2 | 5 |

Throughout the present examination, the following data quality control was envisaged:

- Information obtained in the survey was compared with the profiling data;
- Multiple registrations were checked;
- Data uniqueness was verified several times.

The questionnaire was developed by the authors and included the following set of questions and answers:

1. Have you ever participated in crowdsourcing and/or crowdfunding projects initiated by the city government? (Yes; No)
2. What was your role? (Donator; Implementor; Initiator)
3. What was the focus of the project? (Social sphere; Marketing and tourism; Economy; Environment; Education; Housing and communal services)
4. What problems did you encounter while participating in the project? (Low level of trust to organizers; Doubts about the professionalism of project implementers and/or experts; Doubts about the project quality; Difficult to answer; No problems)
5. Would you like to be engaged in any project? (Yes; No)

6. What would be the focus of the project in which you would like to participate? (Social sphere; Marketing and tourism; Economy; Environment; Education; Housing and communal services)
7. What role would you like to take in that project? (Donator; Implementor; Initiator)

In case of a positive answer to the first question, respondents were allowed to reply to the following ones. In contrast, a negative answer to question 1 required to go to question 5 and then 6 and 7, correspondingly (only in the event that the answer to question 5 was positive).

The third stage of the study included the determination of (1) the main trends in implementing crowdsourcing and crowdfunding practices; (2) the differences between theoretical research and the real practice of implementing crowdsourcing and crowdfunding in Russia; (3) the author's vision of crowdsourcing and crowdfunding in the management of large Russian cities. At the fourth and last stage of the study, recommendations were developed for introducing the best crowd practices in the management of large cities in the Russian Federation.

5. RESULTS

The analysis of Russian and international studies on the topic under consideration showed the prevalence of the following categories of definitions describing the use of modern crowdsourcing and crowdfunding practices in managing large cities: smart city, social media, Internet, public administration, project (from most frequently used to less). What is especially notable is that foreign research tradition is more theoretical in nature, whereas Russian scholars focus on the generalization of practical experience. Table 2 presents the main definitions typical of Russian and foreign studies.

TABLE 2 - DEFINITIONS IN RUSSIAN AND FOREIGN STUDIES DESCRIBING CROWDSOURCING AND CROWDFUNDING

| Russian research works | Foreign research works |
|---|--|
| Internet, social media, social crowdsourcing, commercial crowdsourcing, public administration, government | Smart city, social media, Internet, smart community, e-economy, open innovations, exchange of ideas, public administration |

The more thorough analysis allowed highlighting the following general trends and differences in Russian and foreign research works:

- Investigators tend to link the increased use of crowdsourcing and crowdfunding in urban projects with the development of the Internet and social networks;
- Subjects of crowdsourcing and crowdfunding are mainly represented by Internet users, distinguished by high heterogeneity, broad experience in public initiatives, and focus on action;
- Russian scholars concentrate rather on individual crowd projects summarizing actual experience nor theoretical developments;

CROWDSOURCING AND CROWDFUNDING IN THE MANAGEMENT OF LARGE CITIES

- Foreign studies consider crowdsourcing and crowdfunding in the context of a smart city and e-economy;
- Russian researchers analyze individual motives of project participants, while foreign works investigate crowdsourcing and crowdfunding against the background of smart communities.

The results of respondents' surveying carried out at the second research stage are displayed in Table 3.

TABLE 3 - SURVEY RESULTS

| Age | Male | | | Female | | |
|---|-------|-------|-----|--------|-------|-----|
| | 20-35 | 35-55 | 55+ | 20-35 | 35-55 | 55+ |
| 1. Have you ever participated in crowdsourcing and/or crowdfunding projects initiated by the city government? | 22 | 40 | 28 | 35 | 54 | 21 |
| 2. What was your role? | | | | | | |
| Donator | 13 | 24 | 17 | 21 | 32 | 13 |
| Implementor | 8 | 14 | 10 | 12 | 19 | 10 |
| Initiator | 0 | 3 | 1 | 1 | 2 | 0 |
| 3. What was the focus of the project? | | | | | | |
| Social sphere | 0 | 2 | 4 | 4 | 5 | 2 |
| Marketing and tourism | 2 | 4 | 0 | 2 | 5 | 2 |
| Economy | 4 | 5 | 2 | 2 | 3 | 3 |
| Environment | 1 | 2 | 3 | 5 | 7 | 1 |
| Education | 1 | 2 | 2 | 4 | 6 | 4 |
| Housing and communal services | 0 | 8 | 10 | 1 | 3 | 2 |
| 4. What problems did you encounter while participating in the project? | | | | | | |
| Low level of trust to organizers | 1 | 1 | 5 | 2 | 2 | 2 |
| Doubts about the professionalism of project implementers and/or experts | 1 | 2 | 4 | 5 | 7 | 2 |
| Doubts about the project quality; | 1 | 1 | 0 | 2 | 1 | 1 |
| Difficult to answer | 8 | 9 | 7 | 9 | 4 | 8 |
| No problems | | 1 | | | 1 | 1 |
| 5. Would you like to be engaged in any project? | | | | | | |
| Yes | 20 | 37 | 28 | 35 | 54 | 21 |
| No | 2 | 3 | 0 | 0 | 0 | 0 |
| 6. What would be the focus of the project in which you would like to participate? | | | | | | |
| Social sphere | 2 | | | | | |
| Marketing and tourism | 4 | | | | | |
| Economy | 8 | | | | | |
| Environment | 8 | | | | | |
| Education | 3 | | | | | |
| Housing and communal services | 7 | | | | | |
| 7. What role would you like to take in that project? | | | | | | |
| Donator | 22 | 40 | 28 | 35 | 54 | 21 |
| Implementor | 22 | 40 | 28 | 35 | 54 | 21 |
| Initiator | 22 | 40 | 28 | 35 | 54 | 21 |

The survey found no differences between the implementation of crowdsourcing and crowdfunding in the large cities of Russia located in the European and Asian parts of the country. About 78% of respondents reported on their experience in crowdsourcing and/or crowdfunding projects initiated by the city authorities. Among them, 60% participated as a donor, 35% as a project implementer, and 5% as an initiator (the prevailing part of initiators were aged 35-55). The chief attention of study participants was paid to socially-oriented projects since, in this day and age, people are more inclined to give money for good deeds and not to entrepreneurs. The most active project participants were women. What concerns the challenges encountered during projects' implementation, the survey revealed difficulties in their recognition by the participants. In general, the project experience was described as positive, and respondents plan to take part in similar activities in the future.

The current level of public confidence in crowdsourcing and/or crowdfunding remains quite low because their philosophy is based on mutual responsibility, social participation, and the belief that everyone can change something in this world. Since there is no special legislation in the Russian Federation regulating crowdsourcing and/or crowdfunding, difficulties with taxation and various formalities may arise.

The conducted analysis provided an ability to note several problem areas in Russian research practice related to crowdsourcing and crowdfunding. They lie in the lack of substantiation of the conditions for the successful implementation of such projects in large cities, focus on commercial projects instead of social ones, and lack of clear policies in the field of support and regulation of crowdsourcing and crowdfunding.

The authors of this research paper uphold the view that crowd practices represent a mechanism for direct city management through transferring powers to an indefinite circle of persons coordinated via ICT to solve socially significant tasks. The authors regard crowdsourcing as the practice of performing various types of work to manage a city. Crowdfunding instead is recognized as collecting funds from a large number of people, typically via the Internet, for the same purpose.

The special emphasis of this study is put on the identification of the most urgent and notable problems in the application and implementation of crowdsourcing and crowdfunding mechanisms in large cities of Russia. They are as follows:

1. On the part of large cities' inhabitants:
 - Self-initiative in solving problems and making managerial decisions;
 - Even though the number of those using the Internet is constantly growing, there is a steady tendency towards digital isolation of a large share of the adult population as political actors (this is why it is advisable to provide more offline opportunities for participation in organizing crowdsourcing and crowdfunding projects);

2. On the part of large cities' leadership:
 - Insufficient attention to the introduction of modern management technologies;
 - Low priority given to the formation of a positive political image by improving interaction with public service users;
 - No strategy for attracting city residents to crowd practices;
 - No city portal with a bank of innovative and bright ideas;
 - No organized team of professional public experts;
3. General problems:
 - Crowdsourcing is not equivalent to democracy – the opinion of such projects' participants is not, as a rule, the opinion of the majority; however, crowdsourcing can be regarded as part of a democracy, for example, when using the poll method;
 - Crowdsourcing does not replace the expert view – depending on the project, public opinion can either be equated to that of the experts or be secondary;
 - Socio-political crowdsourcing needs technical and human resources – even so, not all projects necessarily require new technical solutions as there are many software and free tools like Twitter or Facebook;
 - Complicated attraction of new participants – usually, citizens learn about crowdsourcing and get involved not unexpectedly; given that political crowdsourcing is a new and unfamiliar process for most of them, special attention should be paid to working with the community and promoting crowdsourcing opportunities;
 - Challenging integration of people's opinions into the final decision – there is a danger that crowdsourcing will only become a tool for politicians to attract attention; in other words, crowdsourcing may cease to serve its purpose, and people's motivation to participate in such projects in the future may decrease.

Despite the fact that urban development initiatives can involve various actors, the joint work of three institutional sectors – science, business, and government – is of the foremost importance for enhancing the innovative development of a large city. Such a partnership should be viewed as a hybrid social structure, the main property of which is increased adaptability to changes in the external environment (Figure 1).

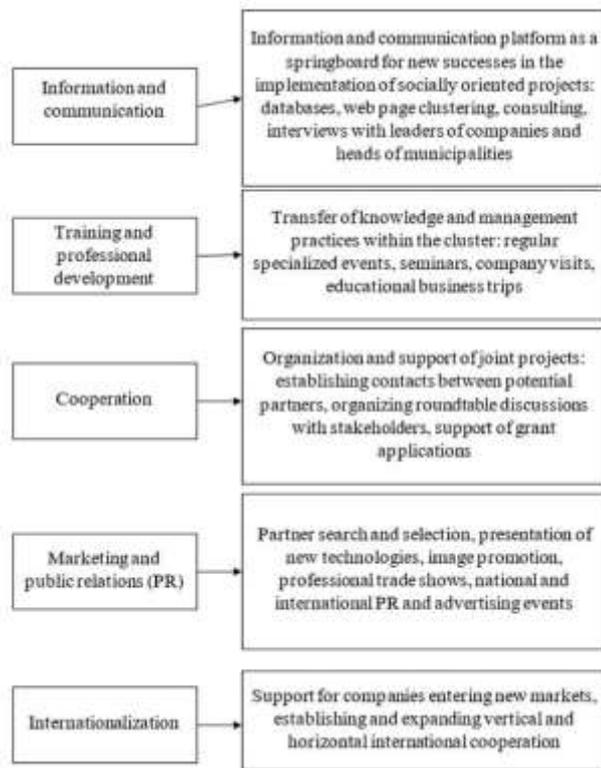


FIGURE 1 - REQUIREMENTS NECESSARY TO INCREASE THE EFFECTIVENESS OF COOPERATION BETWEEN THE GOVERNMENT AND SOCIETY WHEN DEVELOPING CROWD PROJECTS (ELABORATED BY THE AUTHORS)

Such a vision was built in accordance with the mechanisms of inter-structural cooperation that arise as a result of economic growth and social development and lead to the emergence of hybrid organizations performing socially imposed roles.

6. DISCUSSIONS

The present article analyzed the most widely used definitions of Russian and foreign researchers characterizing crowd practices and their application for managing large cities. It was noticed that Russian researchers study precisely the experience of implementing projects. In contrast, foreign works examine crowd practices against the background of smart city and smart community concepts, concentrating on the mechanisms of interaction between authorities and residents. These conclusions are fully consistent with the ideas presented in the work of Starshinova et al. (2020).

In general, the use of crowd practices is not a part of the overall strategy for managing a city. There is a notable divide between theoretical studies on this matter and the real experience in Russia and abroad. For the most part, various crowd practices applied in urban management are initiated by the government and aim to increase the tourist and economic attractiveness of the city. The world experience shows that many countries put an emphasis on commercialization and start-ups these days. In the meantime, the

majority of large-city residents in Russia are interested in socially-oriented and educational projects. Such drastic changes in priorities are most likely caused by the rapid spread of online communication (Nikiforov and Singireja 2016).

The authors' vision of crowdsourcing and crowdfunding in urban management somehow differs from the definitions presented by Bakalenko (2018). He denotes crowdsourcing as the activity of interested parties intending to solve various problems on a multi-stakeholder platform, formulated by individual people, institutions, non-profit organizations, or companies in an open format. The definition elaborated in this article considers crowd practices as a whole, as a unified mechanism for the direct management of a city by its residents and other persons concerned coordinated via ICT to solve socially significant tasks. Rather than focusing on the key participants and their actions, this interpretation addresses the overall goal.

Online surveying of residents of large Russian cities was especially useful as it provided the possibility to develop recommendations for further introduction of crowdsourcing and crowdfunding in urban management in Russia. First of all, any project should include six necessary stages: (1) involvement of active citizens in the process of problem-solving both online and offline; (2) organization and stimulation of the development of ideas and proposals; (3) selection of the best ideas by the participants themselves; (4) formation of an open expert community based on the personal contribution of each participant to the achievement of a common goal; (5) ensuring transparency in project implementation; (6) providing feedback and analysis of project results (Sokolov and Deev 2017). Successful tasks' completion is possible only in case of creating proper infrastructure, which would provide citizens with high-speed Internet access and enable forming integrated software products for public authorities and local governments based on free software principles (Collm and Schedler 2012). In turn, the introduction of crowd practices in urban management must be carried out within the general management strategy. Ways to achieve the goals set should be developed with reference to the interests of the majority of residents. Not less important for a crowdsourcing project is to declare its goal, the way to achieve it, and the project participants' role clearly. A sharp focus on citizens as key actors in the project is just as necessary as the understanding of the final result: would it be the ideas, knowledge, or experience. The next point concerns the importance of high-quality communication after the project was launched. Relevant information about the project must be disseminated by all possible channels. Apart from this, constant project management is crucial in the future as well. Holding regular multi-topic discussions, performing specific additional tasks, and removing offensive comments are paramount for the project's effectiveness. Another significant aspect is the correct definition of the project's duration. If the project supposes to take a long time to reach an ultimate goal, it is necessary to publish the intermediate results periodically. Regular offline events to support the project are also required. This communication format helps spread information about the

project and remains a perfect opportunity for participants to meet with the organizers. The final note is the continuous analysis and monitoring of the project throughout its implementation, as well as evaluation of the results after its completion. The outcomes that will confirm the crowdsourcing campaign's effectiveness are recommended to be published online for review by all participants and the interested public.

The complexity of the application and implementation of crowdsourcing mechanisms is not so much due to technical as to methodological and human factors (OECD 2020):

- Excessive self-initiative in solving problems and making managerial decisions;
- Difficulties in creating a highly efficient tool for filtering and selecting participants' decisions, as well as for selecting and forming an expert community (Staletić et al. 2020).

A characteristic feature of modern crowd practices is the use of Internet technologies as a qualitatively new means of access to information. In view of the fact that the city authorities should respond promptly to changes in modern realities, they need to receive relevant information about the processes taking place in society as fast as possible. Under such circumstances, the Internet is the most useful way to ensure an effective communication link between the authorities and society (Grömping and Sinpeng 2018).

Analysis of the implemented crowdsourcing and crowdfunding projects revealed that organizers must clearly understand how to attract and retain volunteers during the project's implementation, what volunteers can do, and how to process the received proposals. At the same time, the use of crowdsourcing and crowdfunding mechanisms to solve local problems does not remove the need to select an individual or a group of individuals in the local government who will deal with the suggested ideas.

7. CONCLUSIONS

This study determined the common aspects and specific differences in the use of crowdsourcing and crowdfunding techniques to manage large cities of Russia and the world. For this, a number of Russian and foreign studies were analyzed, and a survey of residents of large cities of the Russian Federation was conducted.

The in-depth analysis of scientific literature and survey results allowed outlining several general trends and differences in Russian and foreign research works. First of all, it was noted that researchers all over the world, including Russia, link the increased use of crowdsourcing and crowdfunding in urban management with the development of the Internet and social networks. Subjects of crowdsourcing and crowdfunding are mainly represented by Internet users, characterized by high heterogeneity, availability of certain skills or abilities, and emphasis on action. As regards differences between Russian and foreign

research works on the topic, it should be noted that Russian scholars concentrate on specific projects, generalizing the available experience instead of theoretical developments. They are more inclined to analyze individual motives of project participants, whereas foreign studies consider crowdsourcing and crowdfunding in the context of smart management and e-economy. This study findings indicate that Russian researchers focus on the implementation of commercial projects, while residents of large cities are more interested in social ones. The society of this day experiences the need for clear city policies in the field of support and regulation of crowdsourcing and crowdfunding.

The authors' interpretation of crowd practices in urban management regarded them as a mechanism for direct city management by means of transferring powers to an indefinite circle of persons coordinated via ICT to solve socially significant tasks. Within the framework of this definition, crowdsourcing was defined as the practice of performing various types of work to manage a city, whereas crowdfunding was described as collecting funds from a large number of people, typically via the Internet, for the same purpose.

The strong point of this research is in the developed recommendations for the implementation of the best crowd practices in large Russian cities. It was shown that the main result that can be obtained by public authorities from using crowdsourcing or crowdfunding is the compliance of the decisions made with the interests of the population, increase in trust to the government, gaining optimal management results with minimal resource use, solving current issues and defining tasks for the future, objective assessment of the work of central executive bodies, improved quality of life, and enhanced satisfaction of citizens with services provided by state institutions.

The most important study limitation is connected with the probability that the respondents' actual place of residence did not coincide with the declared one. The practical significance of the article is in the fact that the proposed recommendations can serve as a theoretical basis for the partnership between the authorities and society to develop crowd practices within the framework of large city management. Further experimental investigations need to consider the implementation of crowd practices in cities with a small population size.

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REFERENCES

- Bakalenko, A. V. (2018). Conceptualization of crowdsourcing: The world and Russian experience. *Journal of Mathematical Economics*, 19(2), 50–61. <https://doi.org/10.29141/2073-1019-2018-19-2-4>
- Bell, D. (1999). *The coming of post-industrial society: A venture in social forecasting*. Basic Books.
- Boyle, T. M. (2016). *The city and the crowd: an exploration of civic crowdfunding disruption to local government led city planning and the quest to co-create liveability* (Doctoral dissertation, Thesis-Masters). UNE.
- Brabham, D. C. (2008). Crowdsourcing as a model for problem solving: An introduction and cases. *Convergence*, 14(1), 75–90. <https://doi.org/10.1177%2F1354856507084420>
- Brabham, D. C. (2010). Moving the crowd at Threadless: Motivations for participation in a crowdsourcing application. *Information Communication & Society*, 13(8), 1122–1145. <https://doi.org/10.1080/13691181003624090>
- Carè, S., Trotta, A., Carè, R., & Rizzello, A. (2018). Crowdfunding for the development of smart cities. *Business Horizons*, 61(4), 501–509. <https://doi.org/10.1016/j.bushor.2017.12.001>
- Collm, A., & Schedler, K. (2012). Managing crowd innovation in public administration. *International Public Management Review*, 13(2), 1–18.
- Crowdsourcing Projects of the Government of Moscow (2020). Gorod Idei. Retrieved from <https://crowd.mos.ru/archive>
- Gambееva, Y., Medvedeva, S., & Balashov, E. (2018). Crowdsourcing – the technology of civil participation in public administration. *Russian Journal of Entrepreneurship*, 19, 3947. <https://doi.org/10.18334/rp.19.12.39545>
- Glaeser, E. L., Hillis, A., Kominers, S. D., & Luca, M. (2016). Crowdsourcing city government: Using tournaments to improve inspection accuracy. *American Economic Review*, 106(5), 114–118. <https://doi.org/10.1257/aer.p20161027>

- Government of Khanty-Mansi Autonomous Okrug – Yugra. (2013). Order dated 22 March 2013 No. 101-rp On the Strategy of Social and Economic Development of Khanty-Mansi Autonomous Okrug – Yugra till 2030.
- Grömping, M., & Sinpeng, A. (2018). The “Crowd-factor” in connective action: comparing protest communication styles of Thai Facebook pages. *Journal of Information Technology & Politics*, 15(3), 197–214. <https://doi.org/10.1080/19331681.2018.1483857>
- Kazakova, N. D., & Denisova, Z. A. (2016). Technology of crowdsourcing in the Government Regional Management. *Authority*, 24(4), 21–28.
- Kleemann, F., Voß, G., & Rieder, K. (2008). Un(der)paid innovators: The commercial utilization of consumer work through crowdsourcing. *Science, Technology and Innovation Studies*, 4(1), 5–26. <https://doi.org/10.17877/DE290R-12790>
- Lenart-Gansiniec, R., & Sułkowski, Ł. (2018). Crowdsourcing—A new paradigm of organizational learning of public organizations. *Sustainability*, 10(10), 3359. <https://doi.org/10.3390/su10103359>
- Maschio, I. (2019). European Innovation Partnership on Smart Cities and Communities (EIP-SCC). European Commission. Retrieved from <https://e3p.jrc.ec.europa.eu/articles/european-innovation-partnership-smart-cities-and-communities>
- Mayorov, V. (2015, March 4). Surgut it to use crowdsourcing to develop. The Crowd. Retrieved from <http://www.the-crowd.ru/government/32>
- Nikiforov, A., & Singireja, A. (2016, November). Open data and crowdsourcing perspectives for smart city in the United States and Russia (Paper presentation). Proceedings of the International Conference on Electronic Governance and Open Society: Challenges in Eurasia, St. Petersburg, Russia. <https://doi.org/10.1145/3014087.3014112>
- OECD. (2020). Smart Cities and Inclusive Growth. Retrieved from http://www.oecd.org/cfe/cities/OECD_Policy_Paper_Smart_Cities_and_Inclusive_Growth.pdf

Sokolov, M. S., & Deev, A. A. (2017). Crowdsourcing as an instrument of modernization of public administration system in the Russian Federation. *Trends and Management*, 2, 45–54.

<https://doi.org/10.7256/2454-0730.2017.2.19959>

Staletić, N., Labus, A., Bogdanović, Z., Despotović-Zrakić, M., & Radenković, B. (2020). Citizens' readiness to crowdsource smart city services: A developing country perspective. *Cities*, 107, 102883.

<https://doi.org/10.1016/j.cities.2020.102883>

Starshinova, A. V., Arkhipova, E. B., & Borodkina, O. I. (2020). Crowdsourcing technologies in municipal administration: The cases of Russian cities. *Sociology of Science and Technology*, 11(3), 90–105.

<https://doi.org/10.24411/2079-0910-2020-13006>

Vukovic, M., Lopez, M., & Laredo, J. (2010). PeopleCloud for the globally integrated enterprise. In A. Dan, F. Gittler, & F. Toumani (Eds.), *Service-oriented computing. ICSOC/ServiceWave 2009 Workshops* (pp. 109–114). Springer. https://doi.org/10.1007/978-3-642-16132-2_10