

GCPMED 2018
**International Scientific Conference "Global Challenges and
Prospects of the Modern Economic Development"**

**ANALYSIS OF C2A COMMUNICATIONS IN THE DIGITAL
ECONOMY**

Yu.A. Tatarovsky (a)*, M.V. Tsurkan (b)

*Corresponding author

(a) SamaraStateUniversity of Economics, Soviet Army Str., 141, 443090, Samara, Russia, e-mail:
tatarovsky.yury@yandex.ru

(b) TverStateUniversity, Zhelyabov Str., 33, 170100, Tver, Russia, e-mail: 080783@list.ru

Abstract

According to many experts, the most critical risks to the economic security of the Russian Federation are represented by the traditional export-oriented raw material model of the economy. The change of the key vectors of development, the response to the current challenges, the impossibility of allowing the technological gap from the leading countries actualize the need for the introduction of modern information technologies in the economic, social and political processes. Stimulation of digitalization of the economic space of the Russian Federation is necessary not only for Russia's participation in global processes, but also as a key element of solving the problems of domestic public policy. It is the sphere of high technologies that will allow achieving the desired results quickly and effectively. One of the goals of the program "Digital economy of the Russian Federation" is to improve the welfare of the population by improving the quality of public services using modern technologies. This goal requires not only solving the problems of technology development and adaptation of current processes to the requirements of modernity, but much wider: the creation and effective functioning of communication channels of the population and public authorities. Ensuring the interaction of society and government will increase the transparency of economic, social and political processes.

© 2019 Published by Future Academy www.FutureAcademy.org.UK

Keywords: Digital economy, economic security, crowdsourcing, G2C model, C2A model, industry 4.0.



1. Introduction

The need of the digital economy development in Russia is a task of strategic importance. Its implementation is necessary not only to remain competitive in the circle of foreign partners, but also to form a more perfect model of Russian economic development, capable of changing the usual model based on the export of minerals, the volatility of world prices for which, as well as political factors associated with them, represent a significant threat to the economy of Russian Federation. That is why this task should be considered not only as a desire to match the time in the field of high technology, but, first of all, it is a challenge to the entire system of economic security of the country.

1.1. The concept of the industrial revolution

It is impossible to deny the fact that the trends of recent decades associated with the development of information technology have made significant changes in the lives of ordinary households, which have received a large number of smart gadgets, and in more complex economic, political and social systems (Dolzhenko, 2014). Only the fact that high-tech companies are among the largest in the world in terms of capitalization, together with banks, insurance, oil and industrial enterprises, which, as the statistics of the first nine months of 2018 do not lose investment attractiveness even against the background of political risks and high uncertainty. That fact shows not only the prospects of this sector, but also the fact that it will serve as the basis for the transition to a new format of the economy (Kazakov, Lapidus, & Svetlov, 2016, Affan Alim et al., 2018, Malanov et al., 2016). Ideas about this format of economic relations have been actively developed since 2011 in conjunction with the concept of the fourth industrial revolution, called "industry 4.0".

The date of the official beginning of the formation of the digital economy in the Russian Federation can be considered July 28, 2017, when the government of the Russian Federation approved the program "Digital economy of the Russian Federation", prepared in accordance with the Strategy for the development of the information society in the Russian Federation for 2017-2030. Its goal is to create conditions for improving the quality of life of the population through the active and comprehensive use of modern information technologies (Lobova & Dolzhenko, 2016). Moreover, according to this concept, by 2030, radically different aspects of the functioning of economic systems and processes should be formed, which affects the interests of a wide range of stakeholders, which includes not only interests in the context of various social groups, but also business and government structures at various levels.

1.2. Levels of the digital economy in the Russian Federation

According to the concept, the successful development of the digital economy of the Russian Federation is based on the formation of a competent infrastructure consisting of three levels:

- environment - the institutional, regulatory and infrastructural basis for the functioning of the digital economy. It is intended to act as a fundamental basis for the development of the next level;
- platforms and technologies, middleware, necessary for the coherence of specific actors of the digital economy with the environment that is fundamental;

- markets and industries are places of interaction of the main participants of the digital economy, provided and supported by special platforms and technologies obtained through the formation of regulatory, institutional and infrastructure environments.

In the described transition from the general (environment) to the private (a particular market or sector of the economy), public authorities see their task in the formation of the first two, more general, but at the same time, the most significant levels: environment, platforms and technologies. At the same time, the creation of markets and industries allowed the implementation of private initiatives (Saxton, Onook, & Kishore, 2013).

However, there is a direction in which public authorities should form all three levels of the digital economy: the provision of public services to the population, which is also noted in the concept of digital economy in the Russian Federation. This stimulated the development of such areas of interaction between stakeholders as C2A (client-to-administration) and G2C (government-to-client), or the chain of interaction "population-public authorities" and "public authorities - population".

2. Problem Statement

Despite the high importance of the issue concerning the implementation of the concept of the digital economy in the provision of public services to the population, its theoretical side is not fully developed.

In particular, the differences between communications in the C2A and G2C sectors have not been fully identified. On the one hand, both models describe the communication between the population and public authorities. According to the position of the authors, these definitions should be distinguished depending on the side of the initiator of communication and the executor of the decisions made as a result of interaction.

G2C communication is the interaction of the state authorities and the population in the provision of public services by bringing information to its final consumer (population) (Chavan, Chavan, & Bankar, 2013). The initiator of communication in this model are the public authorities, and the reverse reaction (expectation of the population) is not the only desired result of such interaction (Affan Alim et al., 2018). At the same time, the format of the C2A communication also describes the interaction of the population and public authorities, but, in contrast to the G2C, the initiator of communications serves the population, and the expectation of the reverse reaction (action by state agencies) is the goal of the interaction.

2.1. Features of the population and public authorities' communication

The portals by means of which there is a communication of the population and public authorities, can be divided into two groups:

1. Informing or providing public services to the citizens without mandatory feedback (G2C) (Based, Tsay, & Mjølunes, 2012). This form of communication ends when the population receives the requested service (information, reference, etc.) and does not imply further feedback. Examples illustrating this form of communication can serve as portals that provide public services: public services, personal account of the taxpayer, etc.;

2. Formation of communication channels of the population and public authorities (C2A). Actively developing the concept of mass involvement of the population in the process of solving a number of socio-economic tasks (crowdsourcing), implies an urgent need in the formation of channels for information transfer from the public to the authorized state structure and back, observing the key principles of openness, transparency and accessibility (Hazzaa, Kadry, & Zein, 2012). One example of C2A communications is Internet referendums, which are platforms that aggregate public initiatives and bring them to decision makers in public authorities.

However, it should be noted that the implementation of crowdsourcing projects is possible only with the use of modern information technologies, which are necessary to coordinate actions, collect information and accelerate the procedure of its processing, scaling the project, etc. (Gorcheva, 2016). A conservative approach to the organization of crowdsourcing projects seems inefficient and unprofitable: the organization of the voting process requires the cost of renting premises and sound equipment, organizing the protection of order, as well as the payment of maintenance personnel (Gubaydullina, 2013). However, the number of project participants is limited by the physical size of the leased area. As part of the use of information technology, the key costs are the creation of a crowdsourcing service (application, website) and its promotion (Golubev, 2014). Modern and popular Internet resource is able to provide simultaneous smooth operation of hundreds of thousands of users, thereby identifying the really important problems for the population (Hazzaa, Kadry, & Zein, 2012). In addition, information technology allows the population to participate in the crowdsourcing project at a convenient time and place, without feeling discomfort and embarrassment with a large number of people, to be more open and honest, which is also necessary for public authorities to make management decisions.

Procedures for solving problems using crowdsourcing technology and the expert method can be compared according to the parameters presented in table 01.

Table 01. A comparison of the crowdsourcing approach and the expert method in solving problems

Criteria	Crowdsourcing approach	Expert method
Financial aspect of the event	As a rule, free or intangible remuneration	Payment for experts ' work
Number of participants	Indefinitely	Limited and closely correlated with the amount of funding
The cost of the organization	Relatively low	High
Time-frame	Set based on the urgency of the tasks: from a few minutes to an unlimited amount of time	Short-term, as they are connected with the payment of the expert's work time
Ease of organization	In the presence of the current and popular Internet resource start and operation of the project is not time-consuming	Difficulties in selection of experts, solution of organizational issues (rent of premises, technical equipment, solution of domestic issues of experts on transport, accommodation, food, etc.)
Simplicity of moderation and information processing	The complexity of moderation and processing of information "open" answers, requires the development of methods of accounting and processing, as well as the automation of these processes; requires skills with big data (Big Data Analyses)	Moderation and processing of information is possible with a small number of staff

Source: compiled by the authors.

As can be seen from table 1, crowdsourcing technologies are not without drawbacks, but their application is still very promising. The difficulty of moderation crowdsourcing projects is indeed an important problem, whose solution is possible through the limitation of the possibility of submitting a detailed response (Malanov, Masanov, & Podsevatkin, 2016). Thus, the most common practice to overcome the described problem is to submit an initiative with several fixed answers, without the possibility to comment, add or change proposals and answers.

2.2. Electronic referendum as a way of communication between citizens and public authorities

The first electronic referendums as communication platforms of the C2A sector in the digital sphere began to appear after the publication of the Decree of the President of the Russian Federation dated 04.03.2013 № 183, establishing the need to consider citizens' initiatives submitted via Internet resources.

One of the first Internet resources in the C2A sector was the "Russian public initiative", the purpose of which, according to its official website, is the development and strengthening of civil society, the protection of human and civil rights, as well as the participation of the population in the management of the state.

This resource is an Internet portal where people can:

- publish their initiative;
- acquaint with the initiatives of other users;
- vote for the published initiatives ("for" or "against");
- check the status of the review and the realization of the initiative.

Any citizen of the Russian Federation older than 18 years, who has an access to the Internet (stationary or mobile device), registered on the website of public services can take part in an electronic referendum on the resource of the "Russian public initiative". Registration on the website of public services as an important element of the authorization system, ensuring fair use of the portal, as well as protection from technical intervention to increase the number of votes to lobbying of any initiative by a group of individuals with commercial or other interest.

The aim of initiatives to collect votes of members "for" its implementation. According to the rules of this portal, the minimum required number of votes "for" the initiative to be transferred to the appropriate expert group of the Federal, regional or municipal level (Okokpujie, Etinosa, John, & Joy, 2017).

Before the implementation process, the initiative passes three filters:

1. Primary moderation for compliance with the current legislation. Contractor-authorized non-profit organization;
2. The result of voting-the initiative should collect a set number of votes for its implementation. Performers-citizens of the Russian Federation who meet the rules of the portal usage;
3. The decision of the expert Commission is to highlight the results of the analysis and discussion of the initiative within the working group. Performers - members of the expert Committee (working

group), created from the representatives of public authorities (Federal, regional or municipal level), deputies, representatives of the business community and public organizations.

The time from the moment of submission of a public initiative to the decision on its implementation (or refusal) is shown in figure 01.

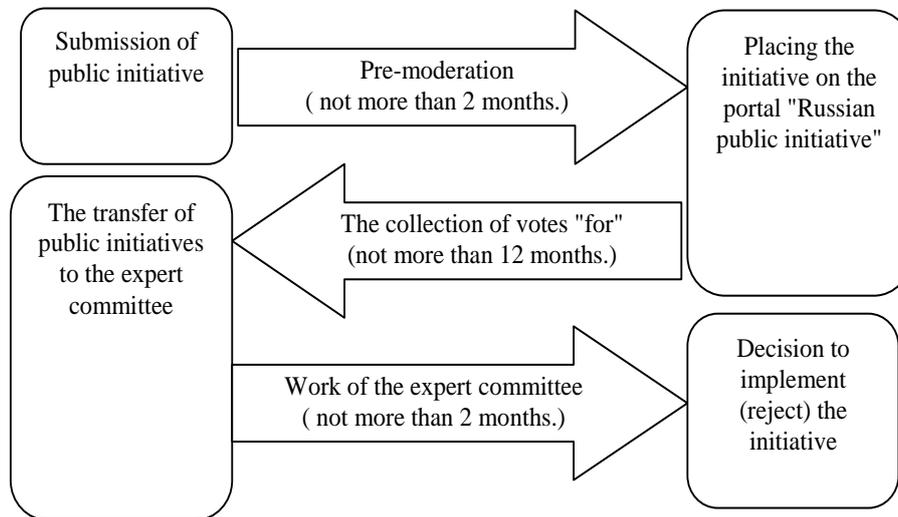


Figure 01. Chronological scheme of public initiative consideration stages on the internet portal " Russian public initiative"

Source: compiled by the authors on the basis of the requirements of the Decree of the President of the Russian Federation dated 04.03.2013 № 183 "On consideration of public initiatives directed by citizens of the Russian Federation using the Internet resource "Russian public initiative".

3. Research Questions

Within this study the following research questions were highlighted:

- What are the conceptual foundations of the digital economy in the modern conditions of the Russian Federation?
- What is the current state of the G2C and C2A sectors through the prism of modern internal Russian trends and regional peculiarities?
- What is the current practice of C2A communications?

4. Purpose of the Study

Within the study, the following goals were set:

- To explore the conceptual foundations of the digital economy in the modern conditions of the Russian Federation;
- To explore the current position of the sectors in G2C and C2A through the prism of national tendencies and regional peculiarities;
- To analyze the current practice of C2A communications implementation.

5. Research Methods

According to the principle defined in the decree of the President of the Russian Federation of 04.03.2013 № 183 "About reviewing of the public initiatives by citizens of the Russian Federation with the use of the Internet resource "Russian public initiative", the maximum time that passes from the moment of submission of the initiative before making a decision about its implementation (the failure of the implementation) cannot be more than 16 months. In the case of high quality formulation and elaboration of the initiative (reduction of the period of preliminary moderation, as well as the work of the expert commission), the significance of its results and public interest in it (the timing of the required number of votes "for") can significantly reduce the time of consideration of the initiative.

5.1. Characteristics of the Internet resource "Russian public initiative"

The weak point of the current implementation of this portal, in our opinion, is the presentation of data in the form of a list, which can be ranked only by thematic sections. This significantly complicates the collection and analysis of information about initiatives, as well as areas of civil activity.

Nevertheless, it should be noted the positive aspects of C2A communication, which can be described in the context of the levels defined in the program "Digital economy of the Russian Federation" (table 02):

Table 02. Advantages of the portal "Russian public initiative" in terms of digital economy levels development

Environment	Platform and technology	Communication tool
Legal framework for the process of working with initiatives from the moment they are received until a decision is made on their implementation or rejection.	Development of an Internet platform that can guarantee the reliability of use. The publication of initiatives, as well as the voting function are possible only for users registered on the website of public services, where the submitted data are carefully monitored	The web-site has a quality performance with user-friendly navigation, all necessary instructions and explanations are given

Note: compiled by the authors in accordance with the Order of the government of the Russian Federation from 28.07.2017 № 1632-p "on approval of the program" Digital economy of the Russian Federation"

5.2. Analysis users' activity in the Internet resource "Russian public initiative"

On August 8, 2018, 2108 initiatives were posted on the Internet resource "Russian public initiative". On the basis of the interactive map it is possible to identify the most initiative Federal districts of the Russian Federation (figure 02).

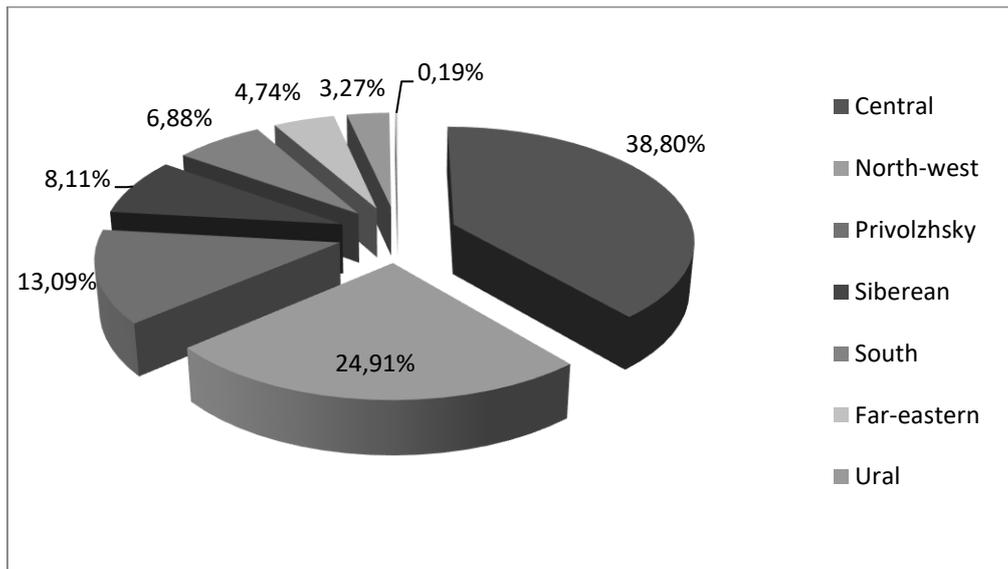


Figure 02. Diagram of distribution of initiatives by Federal districts of the Russian Federation

Traditionally, the regions of the Central and North-Western Federal districts are the most active. This is due to the density of their settlement, as well as the fact that the residents of Moscow, St. Petersburg, as well as adjacent subjects of the Russian Federation have a higher standard of living, which allows them to actively use modern information technologies, to increase their level of development, to show civic responsibility and initiative.

Low motivation in the manifestation of the initiative of the far Eastern and Ural Federal districts is the result of insufficient computerization of the population and its low motivation, to which attention should be paid to the bodies responsible for the implementation of the program "Digital economy of the Russian Federation".

The almost complete absence of public initiatives of the North Caucasus Federal district is presumably characterized by the peculiarities of the social and political structure of the regions, as well as by the presence of other channels of communication between the population and the authorities.

6. Findings

Within the project "Russian public initiative" it is possible to determine the level of public authority for which the initiative is directed. The distribution of initiatives by levels of government is shown in figure 03.

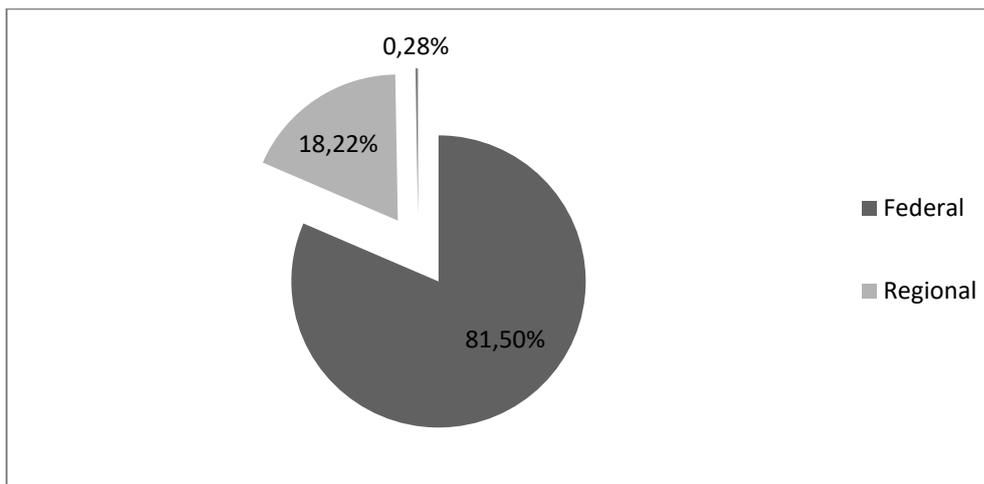


Figure 03. Distribution of public initiatives by levels of government

According to figure 4, the vast majority of initiatives (81.5%) is aimed at global changes and belongs to the Federal level of government, while there is a minimum initiative at the municipal level. We assume that the needs of the municipal level can be solved by means of other communication channels, including projects of electronic referendums of specific cities of the regions (Belgorod, Lipetsk, Moscow, Samara region, etc.).

Key interests of the population in the direction of initiatives are distributed as follows according to the thematic sections (table 03).

Table 03. Distribution of published public initiatives in accordance with the thematic sections

Thematic section	Number of initiatives	Percentage
Government and state support	608	28,84%
Transport and roads	314	14,90%
Security	278	13,19%
Economics and Finance	270	12,81%
Education and science	191	9,06%
Other	170	8,06%
City infrastructure	155	7,35%
Utilities sector	122	5,79%
Total	2108	100,00%

Source: compiled by the authors according to <https://www.roi.ru>.

According to the table 03, the main direction of public initiative is the development of public administration and programs of state support of citizens and business. Also, among the main priorities of the population (the share of more than 10%) are transport and roads, security, economy and finance.

The relatively low interest in the field of housing and communal services and infrastructure of the city can be explained by the above assumption that the implementation of projects of this level takes place on other resources, in which a direct dialogue is organized directly with the representatives of the public authorities of a particular economic entity, which contributes to a more targeted treatment.

7. Conclusion

In modern conditions, digital technologies form a new technological structure, which will be a base to all the main processes of economic, social and political life of society. The development of computerization, the increase in the coverage of the Internet, the increase in computer literacy of people changes not only the everyday life of citizens, but also form new socio-economic forms of interaction.

One of these forms is the digital economy, the tool of creation an infrastructure of interaction between various economic entities: the state, business, population. The functions performed by modern tools of the digital economy are no longer only information and communication, but also integration, and conducting of electronic voting.

However, the instruments of the digital economy are not always aimed solely at commercial benefits. They are widely used in public and municipal administration. Improving forms of interaction, including in the C2A sector, is an important component of improving the quality of life of the country's population. We can safely say that this thesis is typical not only for the Russian Federation, which has embarked on the development of the digital economy, but also for all countries where this process began in the early 2000s.

The need for the formation of reliable forms of communication of the population and state structures is caused by the tasks of improving the quality of life of the population and the state and municipal services received by them. Statistical data that was analyzed in the study on the conduct of electronic referendums, the growth rate of the number of their users leads to the conclusion about the feasibility of the development of this sector.

References

- Affan Alim, M., Misbah, M. B., Shahzain, M., & Imran, N. (2018). Method for secure electronic voting system: face recognition based approach. *Second International Workshop on Pattern Recognition*, 10443. <https://dx.doi.org/10.1117/12.2280495>
- Based, M. A., Tsay, J. K., & Mjølunes, S. F. (2012). A secure electronic voting scheme using polling booths. *LNCS*, 7696, 189–205.
- Chavan, M. U., Chavan, P.V., & Bankar, S. S. (2013). Online voting system powered by biometric security using cryptography. *International Journal of Advance Research in Computer Science and Management Studies*, 1(7), 98-105.
- Dolzhenko, R. A. (2014). *Crowdsourcing as a tool for improving the organization of the state and society: monograph*. Barnaul: Publishing house Alt. UN-TA.
- Golubev, E. V. (2014). Crowdsourcing project as a system: necessary elements, their interrelation, limitations and ways of overcoming. *Online journal "Science"*, 5 (24). Retrieved from URL: <http://www.sciencemag.org/journal/5/>.
- Gorcheva, A. Y. (2016). Possibilities of crowdsourcing platforms in communications. *Medialuna*, 2, 43-47.
- Gubaydullina, D. M. (2013). Evolution of information economy in Russia. *Social Sciences*, 4, 54-66.
- Hazzaa, F.I., Kadry, S., & Zein, O.K. (2012). Web-Based voting system using fingerprint: design and implementation. *International Journal of computer Applications in Engineering Sciences*, 2(4), 27-42.
- Kazakov, V. N., Lapidus, L. V., & Svetlov I. (2016). Intellectual resources of the service sector in the era of e-economy. *RISK: Resources, information, supply, competition*, 1, 280-283.
- Lobova, S. V., & Dolzhenko, R. A. (2016). Crowdsourcing for solving state and public problems in the region. *Regional Economics: theory and practice*, 2, 135-148.

- Malanov, E. V., Masanov, D. V., & Podsevatkin, I. S. (2016). Crowdsourcing projects: the space of interaction between society and government. *Power*, 4 29-34.
- Okokpujie, K., Etinosa, N.O., John, S., & Joy, E. (2017). Comparative Analysis of Fingerprint Preprocessing Algorithms for Electronic Voting Processes. *Lecture Notes in Electrical Engineering*, 450, 73-84.
- Saxton, G., Onook, O., & Kishore, R. (2013). Rules of crowdsourcing: models, issues, and systems of control. *Information Systems Management*, 30, 2–20.