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Methodology for Assessing the Effectiveness of Citizen Electronic Participation in Socio-Political Processes

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Abstract. The development and active introduction of information and communication technologies contributes to the emergence of new forms of citizen electronic participation in socio-political processes and the expansion of the circle of persons involved in these processes. In this regard, it becomes urgent to develop a method for evaluating the effectiveness of the use of existing information and communication technologies to enhance citizen socio-political participation. Currently, the scientific literature and management practice do not possess a single integrated approach to carry out such an assessment. The issue requires further study and elaboration, since the existing methods assume a one-sided assessment, in most cases focused on quantitative indicators. The article presents a four-aspect approach to the development of a comprehensive indicator of the effectiveness of citizens of socio-political activity through information and communication technologies. The proposed methodology is based on the fact that the

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effectiveness of information and communication technologies in increasing socio-political participation is determined by the ability of citizens, involved with their help in socio-political processes to participate in the policy pursued by the authorities, influence it and even determine it. The effectiveness of such socio-political participation depends on four aspects (technical, economic, social and political), each of which is determined by a set of indicators. All these aspects affect the perception of information and communication technologies, used by citizens for the manifestation of socio-political activity, as well as assessing the level of their accessibility, satisfaction with them and trust in them. The methodology was tested as part of a study of the socio-political participation of the Tyumen Oblast citizens using modern technologies. The study will be interesting for government and business representatives involved in the development, implementation, improvement of existing information and communication technologies for the purpose of citizens' socio-political participation.

Key words: socio-political activity, citizen socio-political participation, citizen electronic participation, role of information and communication technologies in the citizen socio-political participation.

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In recent decades, the issues of electronic participation in socio-political processes remain rather relevant. This is due to the development of information and communication technologies (hereinafter referred to as ICTs) which allow both expanding the participation forms and increasing the number of participating citizens, as well as the fact that socio-political participation is considered by the authorities as a way to reduce general dissatisfaction with the policy and increase confidence in the authorities. At the same time, issues related to assessing the effectiveness of modern digital participation forms require additional research, and existing assessment methods remain the subject of discussion by specialists. According to a number of scientists, the assessment of electronic participation requires further research, since existing methods assume a one-sided assessment, in most cases focused on quantitative indicators of the number of participants and their perception of existing technologies. A number of works focus on the factors limiting the use of modern technologies by individual social groups.

The effectiveness of using modern digital services in socio-political processes is determined not only by their convenience, accessibility, but also by the ability to influence political processes. Sh. Arnstein notes that citizens do not always count on true participation, which makes it possible to influence the policy pursued by the authorities (Arnstein, 1969, p. 217). Most of them are limited to the lowest levels of participation corresponding to the level of "informing" remaining passive participants in socio-political processes. Moreover, passive participation may be associated with various factors (social, economic, technical, cultural, and legal) that should be taken into account when assessing the effectiveness of using ICT for socio-political participation.

The article aims to develop a methodology for assessing the effectiveness of their use for citizen socio-political participation of including principles and a set of quantitative and qualitative methods, based on the analysis and synthesis of the most popular information and communication technologies. These principles and methods allow evaluating the effectiveness of ICTs from the

standpoint of the possibility of their use by citizens for socio-political participation and influence on existing policies.

The theoretical basis of the research are the following works: Sh. Arnstein (Arnstein, 1969), J. van Deth et al. (van Deth, 2014; Hooghe et al., 2014; Vráblíková, van Deth, 2017), E. Theocharis (Theocharis, van Deth, 2018; Theocharis et al., 2021), J. Gabber (Gabber, 2019), E. Macintosh and A. Whyte (Macintosh, Whyte, 2006), A.V. Anttiroiko (Anttiroiko, 2003; Anttiroiko, 2004), L. Pratchett et al. (Pratchett et al., 2011), M. Henderson (Henderson, Hogarth, 2011), H. Kubicek and G. Aicholzer (Kubicek, Aichholzer, 2016), D. Kipenis and D. Askonis (Kipenis, Askounis, 2016), R. Lindner (Lindner, Aichholser, 2020), D. Friess (Friess et al., 2021) et al.

We use a broad interpretation of socio-political participation considering it as any citizen activity influencing politics which includes both traditional participation forms (voting, party membership, election campaigning) and non-traditional ones designed to influence political actors (protests and political activism, in particular on the Internet, etc.), as well as activities aimed at solving specific community problems (civic activism and volunteering), participation forms that stem from individual motives (political expression of one's own views) (van Deth, 2014).

The study assesses the existing digital services and platforms in the Tyumen Oblast that citizens can use to demonstrate their socio-political activity.

Brief overview of methodologies for assessing citizen electronic participation

Foreign literature presents a fairly wide range of studies concerning the citizen socio-political participation including methodologies for assessing the effectiveness of modern information technologies for electronic participation, whereas in the Russian scientific discourse there are only separate studies of citizen electronic participation at the federal and regional levels (Demushina, 2017; Belyi, 2019; Vasilenko, 2020; Mukhametov, 2020), and we can also find works devoted to the assessment of trust, perception of ICTs used for socio-political participation (Vidyasova, Tensina, 2020).

H. Kubicek and G. Aichholser point out that in the early 2000s, many methodologies appeared describing various approaches to assessing citizen electronic participation in socio-political processes. International or intergovernmental organizations developed them. According to the authors, in most cases, the developed methodologies concerned e-government and were aimed at assessing the implemented e-government and e-participation technologies, but not at expanding citizen political participation from the position of influencing political decision-making (Kubicek, Aichholser, 2016).

Currently, international practice presents several well-established methodologies of assessing citizen electronic participation in socio-political processes. Since the concept of "e-participation" is closely related to the concept of "e-government", one of the first methodologies to assess the implementation level of digital technologies for socio-political participation is the UN methodology "E-Government Development Index" (EGDI). Within its framework, the possibilities of the country's government to implement online participation initiatives are assessed to a greater extent. In particular, this index allows assessing the volume and quality of online services, the state and development of IT-infrastructure, as well as the level of human capital development in the country. Its advantage is the coverage of most world countries, and therefore the ability to conduct cross-country comparisons.

In addition to it, the index of citizen electronic participation is calculated. It supposes a quantitative and qualitative assessment of existing digital services for socio-political participation on the basis of sociological surveys. The survey is aimed at

assessing e-participation in accordance with citizen involvement level in socio-political processes (based on the authorities' official websites data). The study evaluates the provision of electronic information, electronic consultations, as well as the possibility of electronic decision-making in six different areas (health, education, employment, social protection, environment and justice).

Another index for assessing citizen electronic participation is the Measurement and Evaluation Tool for Citizen Engagement and e-Participation (METEP). It is calculated by the United Nations Department of Economic and Social Affairs (UNDESA). The methodology is aimed at assessing the success of the ICT introduction for citizen political participation in three blocks: political, social and technical. It makes it possible to assess the government's implemented initiatives in the field of e-participation at the local, regional and national levels, based on the opinions of various categories of participants in socio-political processes.

The Global Open Data Index (GODI), calculated by the Open Knowledge Foundation, can also be considered an index that allows partially assessing citizen electronic participation level. Its feature is the emphasis on the level of informing citizens about certain data published by the government. During the calculation of the index, attention is paid to information accessibility for citizens, the efforts required to find information, the convenience of its use and processing, the need for additional registration to receive it, as well as to who is collecting and accumulating information.

The index of local online services, which is calculated by the UN for individual municipalities, deserves attention. This index takes into account 4 aspects: technology; provision of content; provision of services; citizen participation and involvement in governance processes at the local level. The technological aspect is related to the accessibility and attractiveness of websites, portals and platforms, as well as the quality and functionality of digital services. The provision of content determines the accessibility degree of information and resources on the Internet, the provision of services implies a focus on the provision of public services to the population, and the last aspect is the citizen active involvement in the management processes at the local level.

It is worth noting that in the mid-2000s, the European Union implemented several research projects aimed at assessing electronic forms of citizen participation in socio-political processes. Among such projects, we should particularly note the DEMO-NET[1] project, aimed at studying the effectiveness of electronic forms of citizen participation to maintain democracy, as well as the initiative of the Special Council of Europe activities in the field of e-democracy[2] to create standards for electronic participation (CAHDE – Ad hoc Committee on e-democracy, 2006–2008). The implementation of these projects allowed the EU authorities, together with scientists, to assess a large number of existing e-participation practices and tools and to assert that "e-participation assessment is in its infancy and there is a need to develop a coherent assessment system covering various methods" (Macintosh, Whyte, 2006, p. 4).

E. Macintosh and A. Whyte have pointed out the need to revise the assessment methods used, and noted that in order to obtain a relevant assessment of the effectiveness of using ICT for involvement in socio-political processes, a combination of field research (surveys, interviews, focus groups) and analysis of statistical data on users and ICT infrastructure is required. And the very assessment of citizen electronic participation should be carried out taking into account three aspects: political, social and technological.

[1] The democracy network. Available at: https://cordis.europa.eu/project/id/027219

[2] Council of Europe activities in the field of e-democracy. Available at: https://www.coe.int/t/dgap/goodgovernance/Activities/CAHDE/Default_en.asp

According to E. Macintosh, the political aspect of e-participation assessment involves getting answers to the questions: "Was e-interaction an effective contribution to the decision-making process?", "To what extent did interaction affect the policy pursued by the authorities?", "How is consensus achieved in the system?" etc. (Macintosh, Whyte, 2006, p. 4). The social aspect of the assessment makes it possible to determine whether the results obtained by citizens are related to electronic participation, how effective it turned out to be, whether it allowed achieving the intended goals, making a real contribution to solving the problem, what circumstances helped or prevented the solution of problems.

The technological aspect of the assessment makes it possible to understand to what extent the ICT design promotes participation, whether it takes into account the skills and experience of target participants, whether the system contributes to increasing public satisfaction with the use of modern digital systems and participation platforms; whether modern digital platforms allow achieving the intended results (Macintosh, Whyte, 2006).

The three-aspect assessment of electronic participation is regarded by the scientific community today as a reference. At the same time, a number of authors have made attempts to supplement and expand the vision of E. Macintosh in assessing the effectiveness of the use of digital technologies in citizen socio-political participation.

H. Kubicek and G. Aichholser write that most e-participation studies focus on technical aspects ignoring procedural and institutional ones. It does not take into account the fact that the same tools can be used in completely different contexts in different countries, different legal regimes, formalized rules of participation, cultural traditions (Kubicek, Aichholser, 2016). According to H. Kubicek and G. Aichholser, "the effectiveness of online tools is not determined by their technical functionality and usability, but to a much greater extent by the context in which they are used", as well as the existing institutional and social environment. In addition, the authors emphasize the need to apply different approaches to the assessment of passive and active forms of participation (Kubicek, Aichholser, 2016; Karakaya Polat, Pratchett, 2014; Macintosh, Whyte, 2006).

A.V. Anttiroiko has proposed a system for assessing the implementation of ICT in the e-government system based on four "I" involving the analysis of the following:

To what extent do existing institutions and establishments use ICTs, how does the introduction of modern ICTs affect the actual decision-making processes (*Institutions*);

How optimally is the potential of modern technologies used to integrate the main elements of the electronic democratic process including agenda setting, planning, preparation and decision-making, implementation, assessment and control (*Integration*);

Does the existing e-democracy practice in the country allow citizens to influence decision-making (*Influence*);

To what extent the technology potential is used in the dissemination of information, facilitating interaction in the political conduct of transactions, in increasing transparency, efficiency, flexibility, economic efficiency and inclusiveness of the democratic system (*Interaction*) (Anttiroiko, 2003; Anttiroiko, 2004).

According to A.V. Anttiroiko, e-democracy should develop in such a way as to give people a real opportunity to influence the policy being pursued. The author believes that at present "a hybrid democracy model is being formed in which the new technologies used are developing together with public and government structures" (Anttiroiko, 2003, p. 127). The introduction of digital technologies and their combination with traditional participation forms contribute to increasing transparency, facilitating information and communication processes, and democratizing society.

M. Henderson et al. also point out that the existing system for evaluating the effectiveness of the use of electronic services for citizen socio-political participation should be based on the principles of efficiency, fairness, quality, efficiency, relevance, sustainability of the process (Henderson, Hogarth, 2011).

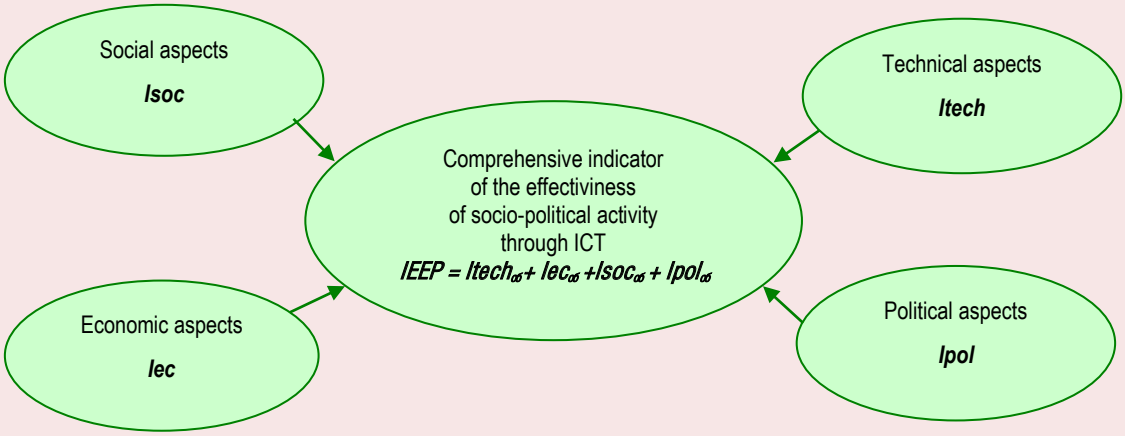
Summarizing the existing research, we can argue that the effectiveness of the use of digital services in citizen socio-political participation should be assessed in accordance with the ability not only to participate in the policy, but also to influence it. Thus, the method for assessing the effectiveness should include quantitative and qualitative indicators reflecting citizens' ability to use existing technologies for socio-political participation, as well as indicators of the ability to influence existing policies.

Methodology for assessing the effectiveness of the use of electronic services in citizen socio-political participation

The assessment of the effectiveness of the ICT use in citizen socio-political participation should take into account technological, social, economic and political aspects of the introduction of digital services and platforms for socio-political participation (*Fig. 1*).

The technical aspect reflects the development level of the IT-infrastructure, the quality of mobile communications, convenience and accessibility of modern e-participation services for citizens. When assessing the technical aspect, the development degree of the ICT infrastructure in the settlement area should be taken into account. In addition, this aspect should reflect the convenience of the existing services for users, ease of use, and clarity of functionality. In fact, the design of existing services and their functionality will affect the accessibility level of these services and citizens' satisfaction with them. The availability of digital services for socio-political participation will also be determined by socio-economic factors characterizing the level of income, education, information competence of citizens, their information culture within the established communities. When assessing the technical aspect, efficiency included such indicators as the availability of access points to free Wi-Fi and high-speed Internet connection, fixed and mobile communications for citizens and organizations, as well as the convenience of existing services for users (functionality, ease of use, the need for additional registration, obtaining passwords from the ESIA; flexibility; the ability to correct errors).

Figure 1. Components of comprehensive assessment of citizen socio-political participation through ICT



Source: own compilation.

The economic aspect of using modern technologies reflects the cost of funds needed to access them, as well as time savings. When assessing the economic aspect, we have considered the accessibility of communication services for population (the cost of communication services for consumers in relation to the subsistence minimum), as well as the attractiveness of using ICT for citizens through saving time during the use of electronic participation forms compared with the traditional form. Thus, economic and technical factors together influence the accessibility level of modern technologies for political participation.

The social aspect of e-participation reflects the level of citizens' trust in modern information technologies, the assessment of the safety of their use, the possible level of participation and interaction with the authorities. The assessment of the social aspect involves the analysis of such indicators as social acceptability (trust and security, relevance and legitimacy), usefulness and satisfaction with existing services and platforms, as well as the possibility of citizens' interaction with the authorities and responsiveness to their appeals.

The political aspect includes the level of participants' involvement, the ability to influence the policy. It reflects the level of decisions transparency, equality of all participants, and public control quality. The political aspect of socio-political participation presupposes the characterization of the type of interaction between citizens and authorities that has developed through ICT (informing; consulting; active participation), assessment of the scope of discussion and interaction between the authorities and citizens (social/economic/political, perceptions of subjects about democracy), the level of participants' involvement in socio-political processes. In addition, the transparency of the existing system of citizen electronic participation, the existing system quality, the quality of participants' management/ satisfaction in public control, political equality and integration with the traditional system of participation should be assessed.

Each aspect includes a number of indicators characterizing it which should be taken into account in a comprehensive assessment of the effectiveness of citizen socio-political participation through modern ICT (*Tab. 1*).

Table 1. Comprehensive methodology of citizen electronic participation in socio-political processes

Index	Indicator	Methods used to evaluate indicators
$Itech_{об}$	*TECHNOLOGICAL ASPECT*	
$Itech_1$	Availability of access points to free Wi-Fi High-speed Internet Availability of fixed communication Mobile communication Availability of Internet in organizations (including public access points)	Analysis of statistical data on the development level of IT-infrastructure in the region
$Itech_2$	Convenience of services for users (functionality, ease of use, need for additional registration, obtaining passwords from ESIA; flexibility; ability to correct errors)	User survey/analysis of platforms, services for the opportunity to make edits
$Iec_{об}$	*ECONOMIC ASPECT*	
Iec_1	Cost of communication services for consumers in relation to the subsistence minimum	Actual data analysis
Iec_2	Saving time when using electronic participation forms compared to the traditional form (attractiveness of use)	

End of Table 1

Index	Indicator	Methods used to evaluate indicators
$Isoc_{об}$	*SOCIAL ASPECT*	
$Isoc_1$	Social acceptability (trust and security, relevance and legitimacy)	Sociological survey
$Isoc_2$	Usefulness (accessibility, satisfaction, attractiveness of use)	Sociological survey
$Isoc_3$	Ability of interaction, responsiveness	Sociological survey / analysis of interaction regulations / regulatory framework
$Isoc_4$	Content and quality (satisfaction of participants with responses)	Sociological survey
$Ipol_{об}$	*POLITICAL ASPECT*	
$Ipol_1$	Type of interaction: informing; consulting; active participation	Sociological survey
$Ipol_2$	**Area of discussion and interaction** (social/economic/political, subjects› ideas about democracy)	Sociological survey
$Ipol_3$	**Participants'; involvement:** gender, age and territorial (city, village, regions) structure of participants	Sociological survey, actual data analysis on participants (using technologies)
$Ipol_4$	**Providing information:** about the rules of participation, knowledge, number of participants and level of involvement, building social capital, etc.	Analysis of changes in the list of services offered on platforms and websites based on the request of citizens' requirements / analysis of shortcomings in the work
$Ipol_5$	**Process quality:** improvement areas, gap analysis, harmonization of working methods	Expert survey, analysis of legislation in the field of electronic citizen participation, monitoring of websites, platforms
$Ipol_6$	**Transparency / Conflict and consensus:** transparency of interim and final decisions, publication of results, identification of "pros" and "cons", discussion of final results, moderation; publication of interim and final results, information on how decisions were agreed, public discussion of final results	Expert survey
$Ipol_7$	**Quality of management / Participants' satisfaction in public control:** satisfaction of participants; influence on the decision-making process, i.e. the level of administrative integration, accountability, documentation of results, policy results, influence at different stages of decision-making	Expert survey
$Ipol_8$	**Political equality / Pluralism:** number of relevant target groups in relation to the total number of participants, openness, i.e. identification of barriers to active citizenship **Integration with the traditional participation system:** compliance with the current legal framework, integration with offline participation.	Analysis of legislation
Source: own compilation.		

The table presents four groups of indicators that should be reflected in the comprehensive assessment of socio-political participation through ICT. The assessment method involves the calculation of four sub-indices:

$$IEEP = Itech_{об} + Isoc_{об} + Iec_{об} + Ipol_{об},$$

where IEEP – comprehensive index of the effectiveness of citizen electronic participation in socio-political processes;

$Itech_{об}$ – sub-index reflecting the technological aspect of socio-political participation;

Iесоб – sub-index reflecting the economic aspect;

$Isoc_{об}$ – sub-index reflecting the social aspect;

$Ipol_{об}$ – sub-index reflecting the political aspect.

The first two sub-indices largely determine the availability of the existing ICTs for socio–political participation, the latter two reflect the level of citizens' involvement in socio-political processes and their trust in the existing system in terms of the ability to influence the policy pursued in the country.

Research methods

We have carried out the development and testing a methodology for assessing the effectiveness of the ICT use for socio-political participation in several stages. At the first stage, we have studied works concerning the concept and essence of citizen socio-political participation, as well as how modern information technologies fit into socio-political participation. Then, at the second stage, we have studied the most cited works devoted to assessing the effectiveness of citizen electronic participation in socio-political processes. The analysis of theories suggests that the effectiveness of the use of modern technologies in socio-political processes lies in the ICT ability to give citizens the opportunity to influence the policy implemented by the authorities.

At this stage, based on the analysis of the works, we have identified the main aspects, each of which is presented in the form of an index. The sum of the indices is the complex index of citizen electronic participation in socio-political processes (*IEEP*). Further, to calculate each of the sub-indices of the complex indicator, we have determined a list of indicators requiring evaluation and the methods used for this, and also developed an assessment scale for each group of indicators. Since the social and political aspects are fundamental in assessing the effectiveness of the ICT use for socio-political participation, the two corresponding indices received a greater share and were assessed in the range from 0 to 40 points. We have estimated sub-indices reflecting technological and economic aspects of socio-political activity (*$Itech_{об}$ and $Iec_{об}$*) on a scale from 0 to 20 points each.

Thus, the maximum IEEP value in points is 100. The index value in the range from 0 to 20 points indicates a low level of efficiency; from 21 to 40 points – about average; from 41 to 60 points – about high; from 61 to 100 points – about very high.

At the third stage, we have developed a questionnaire survey method to assess the use of modern ICT by citizens for socio-political participation, as well as their involvement level in socio-political processes. The survey has also identified social, economic and technical barriers to active socio-political participation through ICT.

At the fourth stage, we have carried out the analysis of the level of IT-infrastructure development in the south of the Tyumen Oblast, as well as socio-economic factors of the region's development and factors limiting the ICT use by respondents. We have compared and adjusted the data obtained in accordance with the all-Russian indicators presented in the study "Infrastructure of Russia: Development Index 2020".

At the fifth stage of the study, during the questionnaire survey, we have measured the social acceptability and perception of modern technologies, their usefulness and usability for citizens; determined the type of interaction with the authorities, the area of issues discussed, satisfaction with existing technologies, the quality of the process, as well as the main problems arising during interaction with the authorities through ICT. During the survey, we asked the respondents to assess each of the indicators on a five-point scale, as well as to speak about the main factors limiting the use of modern ICTs for socio-political participation.

At the sixth stage, we have carried out an assessment of the sub-index reflecting the political aspect of the citizen socio-political participation ($Ipol_{об}$). Its calculation is based on the sociological survey data characterizing citizen participation level, as well as the analysis of actual data reflecting the involvement and transparency of the existing system of electronic participation of the country's population.

For a more accurate assessment of the accessibility and level of citizen involvement, we have analyzed statistical data of websites and platforms used for the manifestation of socio-political activity. The assessment of the democratic aspects of the effectiveness of electronic participation in socio-political processes is based on the respondents' survey about their perception of the opportunity to influence the adoption of socio-political decisions, as well as to be heard by the authorities.

Assessment results

We have obtained data for a comprehensive assessment of the effectiveness of the ICT use for socio-political participation on the basis of statistics reflecting the development level of the region's information and communication infrastructure, as well as the socio-economic development level of cities and villages in the south of the Tyumen Oblast, and during a sociological survey[3].

We have carried out the assessment of the development level of the Tyumen Oblast IT-infrastructure on the basis of available official statistics, as well as data from the Tyumen Oblast geoportal (information on the coverage of territories with mobile communications, the number of collective Internet access points, free Wi-Fi, etc.). *Table 2* presents the assessment results in points.

The Tyumen Oblast can be characterized as a region with a fairly high level of IT-infrastructure development. In the all-Russian rating of the development level of telecommunications infrastructure, the Tyumen Oblast ranks 14th[4], although there are certain problems associated with providing high-speed Internet for remote areas. For instance, the survey has revealed that about 6% of respondents are not satisfied with the communication quality in their localities.

In the research course, based on the analysis of the theory of citizen socio-political and electronic participation, we have selected a list of electronic services and platforms available for use by the Tyumen Oblast residents for the manifestation of socio-political activity. The sample for assessing accessibility, demand and perception included the most popular services and platforms for socio-political participation, most of which were created by the authorities (the portal "Gosuslugi", websites

[3] The survey was implemented in an online format using the SurveyMonkey service in June – August 2021. The research object is residents of all cities and municipal districts of the south of the Tyumen Oblast at the age of 18. The sample size is 1,200 people. The sample represents the population of the south of the region by gender, age and place of residence (Tyumen, other urban settlements of the south of the region, rural municipal districts). The sampling error does not exceed 3% for one attribute.

[4] According to the analytical report of InfraONE research "Infrastructure of Russia: Development index 2020". Available at: https://infraone.ru/sites/default/files/analitika/2020/index_razvitiia_infrastruktury_rossii_2020_infraone_research.pdf

Table 2. Complex methodology for assessing information and communication technologies in the manifestation of citizen socio-political activity

Index	Maximum value of indicator	Calculated value
$Itech_{об}$	20	15.2
$Itech_1$	10	7
$Itech_2$	10	8.2
$Iec_{об}$	20	13
Iec_1	10	7
Iec_2	10	6
$Isoc_{об}$	20	12.36
$Isoc_1$	5	2.1
Iso_{c2}	5	3.26
$Isoc_3$	5	3
$Isoc_4$	5	4
$Ipol_{об}$	40	18.45
$Ipol_1$	5	1.45
$Ipol_2$	5	2
$Ipol_3$ $Ipol_3^1$ $Ipol_3^2$	5 3 2	3 2 1
$Ipol_4$	5	2
$Ipol_5$	5	2
$Ipol_6$	5	3
$Ipol_7$	5	2
$Ipol_8$	5	3
IEEP	100	59.01
Source: own compilation.		

of government agencies, blogs, pages on social networks of government representatives, parties, services for petitions). The assessment also took into account the availability of services, platforms for socio-political participation created by individuals, local communities and organizations for the purpose of citizen social or political participation (unofficial sites of cities, villages, pages of local communities in social networks used to manifest their social and political activity). At the first stage of the study, we have made an assessment of the demand for these services, awareness of them and their availability. Respondents evaluated the services on a five-point scale which allowed deducing the average values for each of the indicators of the first block of the methodology.

To assess the convenience and satisfaction with technical aspects, we have offered the respondents a list of available and most popular digital services which were initially assessed separately. Further, we have determined the average values of the indicator reflecting the convenience of the services. We have also assessed the overall satisfaction level with digital services and platforms. 82% of respondents have stated that they are satisfied with the existing services, but 14% have noted that they have difficulty working with them due to the fact that the services are complex and incomprehensible to

use. In most cases, citizens of the older group have experienced difficulties (60 years and older).

The maximum rating of this indicator can be 10 points, but considering that the satisfaction level with digital services is 82%, which means that every fifth citizen is not satisfied with the service work, and every seventh claims that the services are incomprehensible, an adjustment was made by minus 2 points.

We have assessed the *Iec* value comprehensively taking into account survey data on the respondents' socio-economic situation, as well as actual data reflecting the income level of the Tyumen Oblast residents. During the survey, the majority of respondents noted that the cost of communication services for them is not a factor limiting the ICT use for socio-political participation. The minimum possible tariff for cellular subscribers is 250–300 rubles depending on the operator which ranges from 0.45 to 0.54% of the average monthly income. According to the mobile accessibility index, the Tyumen Oblast ranked 17th in the second half of 2020, and 11th in Russia in the first half of 2021[5]. But at the same time, prices for home Internet have increased by 3–4% over the previous year; the average cost of unlimited Internet in Russia was 830 rubles per month. The total expenses of citizens to pay for communication services (mobile communications, home Internet, landline phone) amount to more than 1,500 rubles which is generally a significant amount for pensioners and low-income citizens. For example, the average salary in Ishim is 45,015 rubles, and the median is 28,105 rubles. Considering that the study involvs residents of small towns and villages of the Tyumen Oblast, where the average income level is significantly lower, we have made an adjustment of minus 3 points in terms of the cost of communication services in relation to average incomes.

[5] The most affordable mobile communication in Russia. Available at: https://www.content-review.com/articles/53245/

In addition, the study reveals that 11% of respondents do not have technical means of communication; they do not have a computer or smartphone which does not allow using modern technologies to manifest their socio-political activity. Analysis of the research results proves that, in general, citizens with higher incomes demonstrate a higher level of socio-political activity.

The majority of respondents in the survey noted that the ICT use allows significantly saving time and money on interaction with the authorities and accelerating the decision-making process. In general, the research does not carry out a detailed quantitative analysis of time and money savings, but the survey data indicate that, since among the services used, those that allow solving the current pressing problems of citizens, filing complaints, appeals, informing the authorities are the most popular, then indicators characterizing electronic participation in within the framework of e-government. For such services, time savings are estimated to be up to 20 hours per year which in monetary terms for the Tyumen Oblast residents is about 6,900 rubles per year. But at the same time, 24% of respondents said that sometimes using the services is useless – in any case, they have to personally visit the authorities. This indicates that not all services help to effectively implement socio-political participation; in some cases, saving time for citizens is not obvious. This fact also allows adjusting the time saving indicator by minus 4 points, since in the case of receiving public services, sending complaints through digital services and applications, it is significant, but if we want to participate in the ongoing socio-economic processes at a higher level, citizens will not feel it, this activity will require time to comprehend the processes and the participation itself.

We have assessed the indicators characterizing the usefulness of individual services on the basis of survey data and varied significantly, the portal

"Gosuslugi" received the highest utility rating among all services – 4.6 points out of 5 possible, but the average score for all types of digital services was equal to 3.26. The level of social acceptability of the existing ICTs for the manifestation of socio-political activity was low and it was rated at 2 points.

Low trust in digital services on the part of the Tyumen Oblast residents is associated with distrust of modern technologies, fear of losing privacy, and becoming the object of manipulation and fraud. At the same time, the satisfaction level with the existing services is quite high, more than 80% of respondents state that their needs for political participation are fully satisfied. However, some respondents have noted that the main problem remains the lack of feedback when interacting with the authorities, and in some cases the slow response rate to appeals.

Further, we have given an assessment of the indicators of the political bloc on the basis of survey data and analysis of the regulatory framework related to electronic government, citizen electronic participation. The most important indicator characterizing the effectiveness of the existing services for socio-political participation is the type of interaction between population and the authorities. We have found that the majority of citizens remain at the lowest level of interaction (informing – 70% of respondents, consulting – 25%, only 5% of respondents feel genuine participation). Therefore, the value of the indicator characterizing the types of participation turned out to be 1.45 points[6].

Regarding the scope of the issues, the survey shows that residents discuss the most pressing problems for the region, most often their appeals are related to social security, housing and communal services, healthcare, but most respondents note that they turn to digital services in order to solve some life problems. More than 70% of citizens have stated that their use of services is not political in nature.

We have assessed the participants' involvement within the framework of gender, age and territorial structure. In particular, men demonstrate greater involvement in political life, compared to women. Young people are characterized by the lowest participation level in socio-political processes than older respondents. The level of electronic socio-political participation of residents of the capital was the highest, and in the villages – the lowest. Both of these criteria were evaluated at 2 points.

We have assessed the latest 5 indicators based on the analysis of Russia's legislation, as well as expert assessments concerning the level of openness, transparency of the system of electronic socio-political participation, participants' satisfaction in public control, research conducted by the scientific community (the study "Openness of the state in Russia – 2021"[7], the Openness Index of the government of Russia's regions[8]).

Taking into account the data of the previous studies, we can conclude that the Tyumen Oblast indicators characterizing transparency, the quality of participants' satisfaction in public control, political equality can be estimated at 3 points each because according to the openness ratings, the region ranks 19th out of 82, and has the lowest ratings in terms of instruments of open government of executive bodies of Russia's entities and the use of social networks[9] which indicates the authorities' interaction with citizens of the "informing" type. As for public control, additional research is required to conduct a more accurate assessment of this parameter. In general, the analysis of the public chamber activities shows that public

[6] The share of participants of the first type × 1 + the share of participants of the second type × 2 + the share of participants of the third type × 5 = 0,7×1+0,25×2+0,05×5=1,45.

[7] Electronic region. Available at: http://eregion.ru/opengov

[8] Openness of the state in Russia-2021. Available at: https://ach.gov.ru/upload/pdf/Otkrytost-2021.pdf

[9] Electronic region. Available at: http://eregion.ru/opengov#methodology

control is carried out, but not all issues of concern to citizens fall under it, but only those with the greatest resonance. The Tyumen Regional Public Chamber has not yet considered issues related to digital services and technologies of socio-political participation.

We have assessed the integration of the existing system of socio-political participation with the traditional one at 3 points. The Tyumen Oblast population, unlike the residents of the capital, is limited in the possibilities of electronic participation, there is no access to electronic voting in elections in the region, citizens are less involved in the system of online petitions, crowdfunding, etc. As for political pluralism, 28 regional branches of various political parties out of 32 registered in Russia are represented in the Tyumen Oblast today[10]. However, the political composition of the Tyumen Regional Duma includes 4 parties: United Russia, LDPR, CPRF and Just Russia, the majority is represented by members of the United Russia party. This cannot indicate a high level of political pluralism in the region.

Summing up 4 sub-indices, we have obtained the complex index value of citizen electronic participation in socio–political processes – 59.01 *(IEEP = $Itech_{об}$ + $Iec_{об}$ + $Isoc_{об}$ + $Ipol_{об}$* = 15.2 + 13 + 12.36 + 18.45 = 59.01), which, in accordance with the proposed scale, indicates a high efficiency level in the ICT use for citizen socio-political participation. A fairly high indicator of the $Itech_{об}$ sub-index indicates a high development level of the region's IT-infrastructure and high satisfaction of respondents with it and the design of existing services. The sub-index reflecting the economic aspect of citizen socio-political activity ($Itech_{об}$) is equal to 13 points; therefore, the economic component is not a significant limiting factor for the majority of respondents when using modern ICT for the manifestation of socio-political activity.

The value of the $Isoc_{об}$ sub-index is equal to 12.33 points; it means that in general, reginal residents are satisfied with the existing services to demonstrate their socio-political activity, but the use of services is mainly non-political in nature. Most of the respondents, using services and platforms for socio-political participation, remain at its lowest level of "informing"; only a small part goes to the level of "consultations" and the level of real participation in socio-political processes which also partly explains the low value of the $Ipol_{об}$ sub-index (18.45 points).

Conclusion

The research results allow concluding that the development of modern digital services is important for citizen socio-political participation. The participation of population through the ICT should be effective, make it possible to act not only as a passive consumer of digital services, but also through these technologies to influence policy, to be heard by the authorities. Further improvement of platforms and services for socio-political participation is impossible without developing a methodology for assessing the effectiveness of their use. The availability of the methodology will allow developers and authorities to monitor the level of citizens' involvement in socio-political processes, their satisfaction level with existing services.

V. Lowndes and L. Pratchett wrote that people are ready for socio-political participation when "the infrastructure allows doing it, they have the resources necessary for argumentation, when they feel part of something whole, when they are asked about it, their opinion is asked. Finally, people participate when the participation system allows them to interact and influence socio-political processes, when the system is responsive to them

[10] Election Commission of the Tyumen Oblast. Available at: http://tyumen.izbirkom.ru/regionalnye-otdeleniya-pp-v-ra/informatsiya-o-tyumenskikh-regionalnykh-otdeleniyakh-politicheskikh-partiy/index.php

and their needs" (Lowndes et al., 2011, p. 553). This statement is characteristic of both traditional forms of participation and modern forms involving the ICT use.

Taking into account the most popular studies, conducted in the field of assessing the effectiveness of citizen socio-political participation through ICT, the proposed methodology is aimed at assessing four main components that determine the effectiveness of socio-political participation tools using modern technologies: technological, economic, social and political. Each of these components is of significant importance for assessing the final value of the indicator of the effectiveness of socio-political participation through modern ICT.

The effectiveness of the ICTs used in socio-political participation depends on the political system and democratic foundations, the country's legislation that determines the censorship level on the Internet, on the cultural and historical heritage that determines the citizenship model in the country and the development of formal and informal political institutions, as well as on the level of economic and technological development of the country/region.

The proposed methodology shows that a qualitative assessment of the effectiveness of the ICT use for socio-political participation is impossible without combination of quantitative and qualitative research methods of its various aspects. The assessment of the political aspect seems to be the most difficult which should be comprehensive, include an analysis of the legislative framework in various areas related to transparency and openness of the public administration system, security, the level of censorship and control in networks, as well as expert assessments of the potential of various services and platforms for citizens to demonstrate socio-political activity.

The obtained assessment results for the Tyumen Oblast are not final and require further research. This is largely due to the fact that today there is no single database that could become the basis for clarifying the assessments of existing services and platforms for socio-political participation in various regions. In addition, the primary research results indicate that the data should be supplemented with an expert survey of business representatives engaged in the development of platforms and services; political parties and public organizations; authorities actively implementing various kinds of ICT for social and political participation; citizens as users and participants of socio-political processes.

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