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THE DIGITAL CAPITAL OF SOCIAL SERVICES CONSUMERS: FACTORS OF INFLUENCE AND THE NEED FOR INVESTMENT

Digitalization is one of the strategic directions taken in the reform of social services and a prerequisite for improving their quality and accessibility for various target groups in modern society. In recent years, the problems of digitalization occupy a significant place in social research; however, insufficient attention has been paid to the consideration of the digitalization process from the point of view of the social services clients themselves. The purpose of this article is to partially fill this gap. The article presents the results of a study aimed at developing the concept of the 'digital capital' of current and potential customers of social services, which comprised an analysis of their digital literacy, Internet use as well as the technical capabilities and willingness of Russian citizens to receive online social services. Our analysis of the digital capital of consumers of social services draws on data of the Federal Statistics Service and Unified Social Security Information System as well as on the results of a survey on social services conducted among residents of St. Petersburg and Yekaterinburg in 2019. The results of the study suggest the existence of various barriers to the development of the digitalization of social services provision. In addition to infrastructural problems, the existence/absence of digital communication tools and ICT competencies among citizens, primarily socially vulnerable sectors of the population, it is necessary to highlight the socio-psychological barriers: a lack of understanding and distrust among certain

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social groups – primarily among older age groups – towards digital technologies, i.e. insufficient digital capital. Overcoming the identified barriers can be achieved by investing in the digital capital of consumers of social services.

**Keywords**: digitalization, social capital, digital capital, social services, Internet

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Digitalization is one of the strategic directions taken in the reform of social services and a necessary precondition for improving their quality and availability for various target groups in modern society. Despite the fact that the digitalization of society is a relatively new area of scientific knowledge, digitalization problems have taken an important place in various social research projects in recent years. If you look at Russian academic literature on the digitalization of the economy and society, e-government is one of the most discussed topics (Gasumova 2010; Khalin, Chernova 2018; Dobrinskaja, Martynenko 2019; Vidjasova et al. 2019) along with research on the computer literacy of the population (see, Sharikov 2016). Some of the key studies on the subject highlight areas where Russia is still lagging behind, in particular the impact of IT on social work and the institutionalization of electronic social work, e-social work (Brian et al. 2010; Laurent 2010; Hill, Shaw 2011; Kirwan 2018; López et al. 2018) as well as the development of Internet technologies in social work with specific client groups and in various areas of social services (Hardey, Loader 2009; Herrmann 2018). Despite the popularity and dynamic development of Russian research on digitalization problems, insufficient attention in this context is paid to consumers of social services, including an assessment of the readiness of consumers, in view of material and subjective factors, to digitalized social services. This article attempts to partially make up for this gap based on the development of the concept of 'digital capital.' The goal of this research is to identify the main problem areas for the development of the digital capital of social services consumers, which requires attention from both the state and private actors.

**Theoretical background of the study**

The theoretical prerequisites for the study of digital capital are associated with the development of the concept of a social capital. Thus, Pierre Bourdieu emphasized the importance of social exchanges in the formation of social capital and access to institutional resources as its basis (Bourdieu 1986). At the same time, despite the structural and institutional constraints associated with social status, gender and ethnicity, Bourdieu views social capital as a characteristic of an individual rather than a group (Bourdieu, Wacquant 1992). James Coleman considers social capital in the context of relationships between people, but interprets it as a common form of capital based on the principles of rational action (Coleman 1986; 1988). Robert Putman has a different take on
the development of the concept of social capital, considering social capital to be a collective category, and, importantly, connecting it with 'the characteristics of social organizations, such as networks, norms and trust that govern action and cooperation for mutual benefit' (Putnam 1993: 35).

However, on the whole, the different approaches have a fairly high level of consistency in the definitions of social capital (Narayan, Cassidy 2001: 61). Social capital is viewed as the resources, knowledge and information that are accumulated by both an individual and a group or organization as a result of social interaction within and between organizations, institutions and communities (Lin 2001).

Our approach involves considering digital capital as a kind of social capital in a digital society, since digital capital includes IT resources, knowledge, skills and communication patterns that allow effective interaction in modern world. Digital capital depends on other types of social capital as well as on the effective use of Internet technologies and online communications (primarily social networks) affecting the development of social capital (Ragnedda 2018; Williams, Durrance 2008). At the same time, it is important to make a few methodological clarifications: firstly, digital capital is not the equivalent of information capital, which Bourdieu speaks of in his latest works, where information capital is essentially a rethinking of cultural capital (Bourdieu, Wacquant 1992: 119). Secondly, it is not limited to digital competencies and digital technologies, as is presented in a significant number of academic works on digital capital (Pedersen, Wilkinson 2018; Ragnedda 2018: 2367; Hargittai, Hinnant 2008). In addition to these, digital capital includes the availability of social resources that allow improvement to IT competencies and access to digital technologies.

Therefore, by the digital capital of social services consumers we mean a combination of the following factors: (1) the digital competencies of social services consumers, (2) the digital technologies available to them, including the availability of the necessary equipment, (3) the social connections and resources available to consumers, influencing the first two factors (for example, the ability to undergo IT training, acquire a computer, get help from someone in the process of online communication, etc.), as well as (4) the level of trust in digital technologies. The digital capital of social services consumers, first of all, can be assessed by such indicators as the availability and development of infrastructure, the intensity of online communication, the level of IT qualifications, the desire to receive certain digital services, which, among other things, depends on trust in digital technologies.

Research methods

The proposed definition of digital capital determined the main research tasks: analysis of the availability of digital technologies, use of the Internet, the digital competencies of social services consumers as well as their relationship to the digitalization of social services. The research hypothesis was associated with the assumption of limited digital capital among consumers of social services for
Based on this, the goal was to determine the most promising areas of social investment in the digital capital of social services consumers, that is, in other words, those areas that would create a basis for improving the quality of life, both for individuals and target social groups.

Developing the study design, existing limitations were taken into account, including the lack of reliable statistics on the digitalization of social services. The analysis was based on official data of the Federal Statistical Observation on the use of information technologies and information and telecommunication networks by the population (hereinafter the Federal Statistical Observation), the development of the digital infrastructure, the intensity of Internet communication and the level of computer literacy, which could be extrapolated to socially vulnerable groups.

Based on the data of the Federal Statistical Observation, the influence of various factors (the state policy on the digitalization of Russian society, the level of the socio-economic development of the regions, the psychological unpreparedness of the regions, etc.) on the Internet activity of the population using regressive analysis was considered in the context of the subjects of the Russian Federation, which allows us to carry out a multivariate analysis. In addition, since the data of the Federal Statistical Observation does not contain information about specific social groups that can be considered socially vulnerable (for example, the elderly or disabled), we used data from the Unified State Social Security Information System to conduct an in-depth analysis of existing problems in the distribution of digital capital among users of the social services. This made it possible to construct scatter plots between the proportion of active users, on the one hand, and the proportion of pensioners and disabled people, on the other, and to reveal the nature of the dependence between them.

To analyse certain aspects of digital capital, including the readiness of citizens to receive digital services, a telephone survey was conducted in 2019 among residents of two large cities: St. Petersburg and Yekaterinburg. In total, 1204 respondents took part in the interview (702 in St. Petersburg and 502 in Yekaterinburg); the stratified sample was filled in accordance with the number of residents of each district of the city, taking into account the age and gender of the respondents, and reflected these criteria of the general population. The survey was aimed at the attitude of citizens to the social service system and included a block of questions on the digitalization of social services; the statistical package SPSS 26 was used for data processing.

**Research results**

**Availability of the digital technologies and active use of the Internet**

The availability of digital technologies depends on the level of development of the information and communication infrastructure, and is primarily
associated with the availability of a computer and other modern means of communication as well as the availability of Internet access. In addition, the indicator of Internet use can be used to assess the level of development of digital capital. An analysis of the official data of the Federal Statistical Observation (2018) allows us to speak about the digital inequality that exists in Russia and this inequality goes in several directions. First of all, there is a digital inequality in the socio-economic development of the regions and, accordingly, in the development of information and communication infrastructure. Based on the statistical data, a scatter plot was constructed showing the impact of the development of information and the communication infrastructure on user activity on the Internet. It shows that the more developed the corresponding infrastructure, the higher is the activity of the population on the Internet.

![Graph showing influence of information and communication infrastructure on Internet activity](image)

**Figure 1.** Influence of the development of information and communication infrastructure on the activity of users on the Internet by constituent entities of the Russian Federation.

*Note.* The abscissa represents the access of the region’s population to broadband Internet. The ordinate is the percentage of active (almost every day) users among the population of the region. The diameter of the circle is proportional to the percentage of non-Internet users.

The analysis takes into account the population aged fifteen and over, and the diameter of the circle shows the percentage of those who do not use the Internet. On average in Russia, according to data for 2018, 17.6% of the population do not use the Internet, which indicates a relatively low level of digital capital on the part of the population. The largest percentage of those who do not use the Internet are elderly people. The lowest rates are in the northern regions of the Yamal-Nenets and Khanty-Mansiysk districts 1.25% (1.71%), Chukotka (1.5%), as well as in Chechnya (1.07%); the highest in the Oryol region –29.7%, and in Chuvashia –28.2%.
Use of the Internet as the most important component of digital capital is influenced by many factors: the psychological unpreparedness of the population, especially the older generation, the level of socio-economic development of the region and the government’s policy to improve the quality and accessibility of the information and communication infrastructure throughout the Russian Federation. To assess the influence of these factors on user activity, a regressive model was built. The dependent variable was the percentage of active users in the region; as independent indicators characterizing the psychological unpreparedness of the population, the level of socio-economic development of various territories and the effectiveness of the state policy of digitalization of various regions.

**Table 1**

<table>
<thead>
<tr>
<th>Non-standardized coefficient $\beta$</th>
<th>Standardized coefficient $\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>19.663</td>
</tr>
<tr>
<td></td>
<td>(15.583)</td>
</tr>
<tr>
<td>Internet access</td>
<td>0.542***</td>
</tr>
<tr>
<td></td>
<td>(0.167)</td>
</tr>
<tr>
<td>Average per capita cash income per month (thousand rubles)</td>
<td>0.262**</td>
</tr>
<tr>
<td></td>
<td>(0.105)</td>
</tr>
<tr>
<td>Gross regional product per capita (thousand rubles)</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
</tr>
<tr>
<td>Retail trade turnover per capita (thousand rubles)</td>
<td>-0.019</td>
</tr>
<tr>
<td></td>
<td>(0.017)</td>
</tr>
<tr>
<td>Agglomeration effect</td>
<td>-2.572</td>
</tr>
<tr>
<td></td>
<td>(3.514)</td>
</tr>
<tr>
<td>No need (unwillingness to use, no interest)</td>
<td>-.118</td>
</tr>
<tr>
<td></td>
<td>(0.212)</td>
</tr>
<tr>
<td>N</td>
<td>85</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.635</td>
</tr>
</tbody>
</table>

Source: Federal Statistical Observation on the Use of Information Technologies and Information and Telecommunication Networks by the Population (2018). Note. Standard errors in parentheses. ***, **, * – statistical significance at the level of 0.1, 1, and 5%, respectively.

Psychological unreadiness was assessed by the percentage of those who do not see the need (do not want to use) the Internet. It turned out that there are a lot of such people, on average in Russia 16.6% of the population; the lowest rates are in the Yamalo-Nenets Okrug, 1.3%, the highest in Chuvashia –28.2%. The level of socio-economic development was assessed on the basis of the following regional indicators: average per capita income (thousand per month, roubles); gross regional product per inhabitant (thousand roubles); retail trade turnover per capita...
(thousand roubles). To assess the agglomeration effects, a dichotomous variable was used (1 – Moscow, St. Petersburg, Moscow region, 0 – everything else). The state policy on the digitalization of Russian society, aimed, among other things, at levelling Internet accessibility across regions, was measured by the level of Internet accessibility for the population. On this basis, non-standard observations (‘outliers’) were sought, which could lead to distortion of the results and the accuracy of the regression. The obtained analysis results are shown in Table 1.

From the above table, based on the standardized \( \beta \) regression coefficients, it can be seen that the most significant factors affecting the activity of Internet use are Internet access (see Fig. 1) and the average per capita income (per month), while the level of socio-economic development of the region and the effect of agglomeration have an insignificant effect, which is clearly seen from Figure 2. Considering that consumers of social services, as a rule, have incomes below the regional average, it can be assumed that they are also characterized by lower Internet use. At the same time, the analysis shows that although incomes affect user activity, there are exceptions, in particular the Nenets Autonomous Okrug, which, on the one hand, is one of the top three regions in terms of wages but, on the other, is bottom of the list in terms of the number of active users. In the context of digital capital, these results indicate the need to develop investments not only at the regional level, but also at the level of individual social groups, as well as at the individual level.

**Internet accessibility among socially vulnerable segments of the population**

As already indicated, the above data characterize the overall activity of Russian citizens as Internet users, regardless of their belonging to socially vulnerable segments of the population, which traditionally include pensioners, disa-
bled people and large families. Unfortunately, these issues are not considered within the framework of the Federal Statistical Observation. However, it is possible to indirectly estimate the scale of the problem using data from the Unified State Information System for Social Security for January 2020 on the number and share of pensioners, disabled people, mothers and other categories of citizens eligible for social support measures in the population. In our research, we will focus on the cases of pensioners and disabled people. On average, the share of pensioners in the population of the Russian Federation is 30%, the highest value of this indicator is in the Moscow region (45% of pensioners). The scatter plot of the share of active users and the share of retirees in the population is shown below. The size of the circle reflects the total absolute number of retirees.

The Pearson correlation coefficient between these indicators is –0.283, which indicates a negative relationship; in other words, the more retirees in the region, the fewer active Internet users. According to the Federal Statistical Observation on the use of information technologies and information and telecommunication networks by the population, the share of active users, that is, those who use the Internet every day, in the Russian Federation is 64.3%, while there is an effect of age on the activity of using the Internet (see Fig. 4).

The results of the analysis demonstrate the following pattern: the older the person, the lower the Internet activity and the decrease in the frequency of use begins to decline sharply at the age of forty-five, that is, even during the period of active work. At the same time, a significant percentage of age groups that are the main clients of social services, that is, starting from sixty years old, do not use the Internet at all. In this situation, the role of factors such as the availability of social connections and resources (help from relatives and friends) among

![Figure 3. Diagram of the scattering of the activity of Internet users and the share of pensioners by constituent entities of the Russian Federation. The diameter of the circle shows the absolute number of retirees.](image-url)
consumers of social services increases, contributing to improved access to and skills of the use of the internet.

In contrast to pensioners, the proportion of people with disabilities, who make up 8.3% of the population of the Russian Federation, is more differentiated by region. The smallest number of disabled people is in Sevastopol (0.41%); the largest number (more than 12%) is in the Belgorod, Novgorod, Omsk and Tambov regions, St. Petersburg and the Chechen Republic. A scatter plot of the proportion of active users and the proportion of people with disabilities in the population is shown below, with the size of the district reflecting the total absolute number of people with disabilities.

![Figure 4. Influence of the effect of age on Internet use.](image)

![Figure 5. Diagram of the dispersion of the activity of Internet users and the proportion of people with disabilities in the regions of the Russian Federation. The diameter of the circle indicates the absolute number of disabled people.](image)
Pearson’s correlation coefficient between these indicators is 0.386, which indicates an even stronger negative relationship between these two indicators compared to previous data. The ICT competencies of people with disabilities are lower than those of pensioners, so the most important component of the state program for the development of an accessible environment should be not only the task of increasing the availability of the information and communication infrastructure for people with disabilities and children with disabilities, but also increasing their digital literacy and ICT competencies. The conducted analysis shows that a significant part of the main target client groups, namely, the elderly and people with disabilities, do not actively use the Internet. But in this regard, it is important to find out the reasons they refuse to use the Internet, and thus refuse online services.

**Reasons for refusing to use the Internet**

A digital society assumes that the Internet has become an integral part of the daily life of the entire society. However, a significant part of the Russian society is not ready for the ongoing digitalization of the main spheres of life. The main reasons for citizen refusal to have the Internet at home are shown in Fig. 6. It is important to note that the main reason for not using the Internet is not the lack of technical capabilities but the lack of interest: this is a fairly large group, 65.5% of respondents; and the second place is taken by 'lack of skills of working on the Internet' (28.6%). These results also indicate a lack of digital capital, and the need, on the one hand, to offer a digital literacy program, and, on the other, to increase interest by informing and explaining the benefits and necessity of online services, including social ones.

![Figure 6. Reasons for the lack of Internet at home.](image-url)

Thus, with the digitalization of modern society, the need for mastering and teaching digital skills to all segments of the population increases, with special attention paid to socially vulnerable groups, including the elderly and people with disabilities, who constitute the main consumers of social services.
**Digitalization of social services**

To assess the spread of digital social services, a telephone survey was conducted among residents of St. Petersburg and Yekaterinburg, which are large cities with a developed infrastructure. A total of 1204 people took part in the survey, of whom the majority (77%) regularly use computers and the Internet in everyday life, while 15.3% do not and 7.2% use occasionally; a comparative analysis of data by city did not reveal a significant difference (see Fig. 7).

According to the survey, 97% of respondents use mobile communications, 71% use e-mail, 70% use social networks, 72% use instant messengers and 61% use various applications for smartphones (for example, online banking, taxi calls, etc.). As for social services, most of the respondents do not receive them (65.4%); 26.8% received social services themselves; 7.8% received these services on behalf of their relatives. In the case of receiving social services, the main means of communication with the social service in question was its official landline telephone, which was used by 65.9% of the respondents; 5% of respondents who received services (or whose relatives did) used e-mail to interact with a social organization; 25.4% used the feedback form on the organization’s website and only 7.5% used messengers and applications for smartphones. It should be noted that on this issue there were significant differences between the residents of St. Petersburg and Yekaterinburg, which are reflected in Fig. 8. The reasons for this discrepancy require a deeper analysis, but it can be assumed that the situation is influenced by both the lower cost of mobile services in Yekaterinburg and the younger staffing of social workers.

Most of the respondents do not know whether information about social services has become more accessible over the past year, but 32% are sure that it has not; 27% are less sceptical and believe that it has become more accessible, although it should be noted that few people were looking for information about services. In general, the majority of urban dwellers in both cities (69% of re-
spondents) support the development of online social services, and only 9% have a negative attitude to such an opportunity. At the same time, only 11.6% of respondents visited the websites of organizations providing social services. At the same time, the websites of the electronic government of the Russian Federation are quite popular among the respondents: 18% go to the website of the Pension Fund of Russia, 58% visit to the website of the State Services. The portal of the Russian Public Initiative and the website of the Unified State Social Security System are not so popular (they are visited by 1.3% and 3%, respectively), and similar results are characteristic of each of the cities under review (see Fig. 9).

In general, the data of the conducted survey allow us to conclude that with a fairly widespread use of mobile communications and PCs, social services do not adequately develop online services, this is especially obvious in comparison with the development of online services in the commercial sphere and the sphere of public services. Moreover, the level of use of various everyday digital tech-
nologies (messengers, e-mail) in the activities of social services remains extremely low that is more typical for government agencies. This situation has many reasons, but it is undoubtedly influenced by the low level of digital capital among consumers of social services which social services are guided by.

**Conclusion**

In modern society, digital capital is starting to play a leading role in social interaction, resource mobilization, the dissemination of knowledge and information and in obtaining social services. The analysis shows the effect of age on the development of digital capital. Younger people have a higher level of digital capital, while older age groups, who are the main recipients of social services, have the most acute problems in the development of digital capital. The formation and further development of digital capital is an important goal of public administration, and in the context of the digitalization of the social sphere, the socio-demographic groups that are in a socially vulnerable position due to age or health status require special attention.

Digitalization of social services means not only the creation of common databases, which are now being quite actively developed, but also the development of online services. This requires, on the one hand, training of social service employees, and on the other, the development of the digital capital of the social services consumers. This process is impossible without public and private investment. The state should act as a key investor in the development of digital capital by creating an appropriate information and educational environment, including infrastructure. The main groups of clients of the social services (the elderly and disabled people) need not just computers and other modern communications tools, but computers and communications tools adapted to their needs, i.e. taking account of their disabilities. Of course, the development and production (or purchase) of such devices is quite an expensive process that requires the involvement of private investors.

Digital capital is a multi-level construct and investing in digital capital should affect different levels: the level of the region, social (client) groups, organizations and individuals. Investing in digital capital is not only investing in infrastructure, IT technologies, digital literacy, but also in the development of social interaction, trust and mutual assistance, which are value structures. The development of these areas is a challenge facing the state. The recent events related to the coronavirus epidemic have highlighted the urgent need for the development of online social work, which is needed by both the digital capital consumers of social services as well as social workers.

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