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Graduate School of Management

Master in Urban Management and Development

DIGITALIZATION OF SPHERES OF URBAN LIFE: INEQUALITY IN DISTRICTS OF SAINT-PETERSBURG

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ЗАЯВЛЕНИЕ О САМОСТОЯТЕЛЬНОМ ХАРАКТЕРЕ ВЫПОЛНЕНИЯ ВЫПУСКНОЙ КВАЛИФИКАЦИОННОЙ РАБОТЫ

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1 June 2022 

АННОТАЦИЯ

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Образовательная программа	Менеджмент и развитие городских агломераций
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Описание цели, задач и основных результатов	Актуальность данного исследования заключается в том, что в условиях активной цифровой трансформации сфер городской жизни проявляется неравенство в распределении цифровых благ среди административных единиц Санкт-Петербурга, а также неравенство в использовании электронных сервисов жителями города. **Цель** работы – разработать рекомендации по преодолению цифрового неравенства для региональной власти Санкт-Петербурга. Для достижения цели были выполнены задачи: анализ литературных источников в сфере цифровизации, цифрового неравенства и цифрового разрыва; анализ федерального и регионального законодательства в сфере цифровой трансформации; анализ вторичных данных по распространению цифрового оборудования и использованию цифровых сервисов жителями в районах Санкт-Петербурга; анализ результатов опроса; постройка регрессионной модели для проверки гипотез. По результатам исследования были разработаны рекомендации: создание единой информационной системы хранения данных и обмена данных; проведение социально-экономического анализа на районном уровне; обеспечение политики адаптации старшего поколения к цифровым сервисам.
Ключевые слова	Цифровая трансформация; цифровизация; цифровое неравенство.

ABSTRACT

Master Student's Name	Perekatova Arina Aleksandrovna
Master Thesis Title	Digitalization of spheres of urban life: inequality in districts of Saint - Petersburg
Educational Program	Master in Urban Management and Development
Main field of study	Public administration
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Academic Advisor’s Name	Golubeva Anastasia Alekseevna
Description of the goal, tasks, and main results	In the conditions of dynamic digital transformation of urban life, the inequality arises in distribution digital

	amenities among St. Petersburg administrative unites and in digital services usage level among citizens. The goal of this study is to develop recommendations of digital inequality overcoming for regional authorities of St. Petersburg. In order to achieve the goal, the objectives were set analysis of literature sources in the field of digitalization, digital inequality, digital divide; analysis of federal and regional legislation in the field of digital transformation; analysis of secondary data of digital equipment distribution and digital services usage by citizens in St. Petersburg districts; Analysis of survey results; construction of regression model to test hypothesis. According to the results of research the following recommendations have developed: creation unified information system of data storage and data exchange; providing socio-economic analysis of St. Petersburg districts; providing policy of adult citizens adaptation to digital services.
Keywords	Digital transformation, digitalization, digital inequality

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Definitions

Digitalization – is a process of converting of public services into digital platforms and adaptation (awareness, accessibility, usability) of digital platforms between citizens.

Spheres of urban life – urban environment (urban safety, citizen's e-participation in urban development); Healthcare (online appointments); Education (online registration of child in kindergarten/school). Government (proportion of e-services; proportion of e-services' users) (according to Decree of the Ministry of Finance of Russia dated 18.11.2020 N 600 (ed. dated 14.01.2021) "On approval of methods for calculating the target indicators of the national development goal of the Russian Federation "Digital Transformation")

Approbation

Separate parts of the study were tested at such scientific conferences and competition as:

1) XVI Russian Scientific and Practical Conference "Technology of PR and Advertising in Modern Society", "MEANING ENGINEERS IN A NEW REALITY" (26-27 April 2022, SPbPU, St. Petersburg);

2) XV Kovalev Readings Sociologist: education and professional trajectories (25-27 November 2021, SPbU, St. Petersburg);

3) Win in Grants competition 2021 for students of universities located in St. Petersburg, graduate students of universities, industry and academic institutions located in St. Petersburg (Committee for Science and Higher Education of St. Petersburg, St. Petersburg) - topic "Digitalization of the urban environment of St. Petersburg: analysis of the distribution of digital goods in metropolitan districts based on statistical data" http://knvsh.gov.spb.ru/closedcontests/view/268/.

INTRODUCTION

In the conditions of active introduction of Information and Communication Technologies (ICT) in Russia digital transformation is being implemented. It is represented in converting of public services into digital platforms in different spheres of urban life: healthcare, education, urban environment, transport, public administration. But technologies not only make daily life easier saving spent time and money, but also form obstacles.

So, in St. Petersburg the mandatory receipt of QR-codes of vaccine in digital form has led to impossibility for adult people, who didn't have accounts in "Gosuslugi", to get digital QR-code. As the result, citizens older 60 years had the possibility to get QR-codes in traditional way (in paper form). Another example is transport reform 2022. One of the goals of reform is transition to cashless payment. But citizens also faced problems due to system failures of the validators, which are not able to apply online payment by cards or sometimes citizens do not have the cards, only cash, thus they cannot pay. Also, citizens note the impossibility to make online doctor's appointments due to system failures in digital platform of healthcare.

The problem of digitalization is represented by both sides: supply side is not able to adopt digital infrastructure and information systems, and demand side (users) is not able to be adopted to digital environment due to different factors.

The studies show that the level of broadband penetration in St. Petersburg – 87,4% (EMISS, 2020) and 89,5% active users of Internet (EMISS, 2020). There are some differences in Internet use. The part of residents isn't ready to use technologies. 63% didn't trust the communication with government via official accounts on social networks. And 42% preferred to contact the authorities in person and 22% preferred contact online (Vidiasova L., Tensina I. 2020).

In literature it was proved that digitalization generates and increases socio-economic inequality. In the context of digitalization, the terms "digital divide" and "digital inequality" were arisen. Digital divide is about differences in access to Internet, digital inequality – the differences in Internet use due to socio-economic features of population (education, gender, age, digital skills, average wage, geographical location) and represents socio-economic inequality of society.

As for socio-economic inequality in St. Petersburg, it is represented in gender and age composition, allocation of income, housing development, investments in districts of St. Petersburg.

Thus, because of digitalization increases inequality, and at the same time the inequality is observed in St. Petersburg between administrative unites (18 districts). The problem of implementation the digitalization policy in the context of St. Petersburg districts under the influence of inequality factors becomes actual.

Research questions:

1) Whether there is digital inequality between population of districts of St. Petersburg? 2) What are the reasons of digital inequality?

Goal: develop recommendations of digital inequality overcoming for regional authorities of St. Petersburg.

Objectives:

1. Analysis of the literature sources in the field of digitalization, digital divide, and digital inequality.
2. Analysis of the federal and regional legislation in the field of digital transformation.
3. Analysis of the secondary data of digital equipment distribution and digital services usage by citizens in St. Petersburg districts.
4. Analysis of survey results.
5. Construct appropriate regression model and run tests hypotheses.

Object – digitalization of spheres of urban life in districts of Saint-Petersburg.

Subject – digital inequality in districts of Saint-Petersburg.

Methodology

This dissertation follows both qualitative and quantitative methods. The following methods were used: legislation analysis, secondary data analysis, survey, regression analysis.

As for the methodology, this study originates from the previous research of author (since 2018) devoted to inequality in districts of St. Petersburg, unequal urban development and unequal distribution of social benefits in districts of St. Petersburg.

Thus, theoretical and methodological base of dissertation is based on scientific papers of such scholars as P. Bourdieu, M. Castells, Jan Van Dijk, DiMaggio and Hargittai, etc.

P. Bourdieu showed the existence of the effects of “club” and “ghetto”. The dominant class, having the access to social benefits restricts the possibilities of benefits possession for members of another class. Thus, those who have not gained access to this club are in the ghetto, where they cannot get out, because the norms in society, existing for reasons of established economic relations on the distribution of benefits, set the boundaries of their social practices (Bourdieu, 2007).

Since the society is actively developing, technologies are being introduced, it is appropriate to consider the processes of access to benefits in society from the point of view of the formation of information society. Technologies have become new social benefits. M. Castells was mainly concerned with the access of these benefits and provided the following explanation: digital economy connects those who are valuable for it (consequently giving additional value them) but disconnects those who aren’t valuable for it (consequently decreasing the ability to get any value)

(Castells, 1996). It leads to gain social inequality and injustice such as unequal income, polarization of society.

Thus, Jan Van Dijk defined the factors, which increase disparities in society in access to technologies – digital divide. The main factors are access to Internet, digital skills, trust, and benefits (Dijk, 2005). And DiMaggio and Hargittai in the study added that digital inequality is represented by social inequality in society. Thus, the access to Internet, level of skills, trust, benefits are defined by socio-economic features of people (wage, age, location, gender).

Based on theoretical description, it was proposed that due to unequal socio-economic development in St. Petersburg among districts, the population of districts have different access to technologies and have different usage level. That's why the statistical data is collected at the district level, where it is observed distribution of digital infrastructure and level of usage of online services. The data is analysed in the following spheres of life: urban environment, healthcare, education, public administration. The spheres have defined according to the legislation of the Russian Federation.

As for the survey, the influence of age, income, education, and geographic location (district) on access to Internet, awareness, level of skills, trust and benefits is studied.

The structure of the dissertation includes an introduction, three chapters, eight paragraphs, conclusion, references and appendix.

The **1st chapter** is devoted to theoretical aspects of digitalization, digital divide and digital inequality and federal and regional legislation in the field of digital transformation. It was defined the definition of digitalization, digital divide and digital inequality and studied approaches. Listed factors of digital inequality, and the consequences of digital inequality. The legislative framework in the field of digitalization from the federal to the local level is described, as well as the responsible executive authorities in the field of digitalization are identified. Identified weaknesses.

The **2nd chapter** analyzes the distribution of digital infrastructure and the usage level of online services in the districts of St. Petersburg based on secondary data. Identified weaknesses. Also, the descriptive analysis and regression analysis of survey are represented.

In the **3rd chapter** solutions are put forward to eliminate the identified weaknesses. They are aimed both at overcoming the digital divide in St. Petersburg.

CHAPTER 1. THEORETICAL AND LEGISLATIVE FOUNDATION OF DIGITALIZATION AND DIGITAL INEQUALITY

1.1 Analysis of the literature sources in the field of digitalization, digital divide, and digital inequality

During the human evolution, the humanity and habitat has been transforming. Rural areas were transforming into cities, where the main driver was production improving and as the consequence economic growth. According to Marx, the main source of social evolution is technical capabilities at the certain historical moment (Durkheim, E., 2019). E. Durkheim assumed, that depending on the production methods of product, the distribution and availability of this product relations would be formed.

Digitalization

Nowadays, information society is forming, where one of the main production methods are digital technologies. There is the concept, where the digitalization is the relationships system in society based on using digital goods – informational system, where these digital goods create new relationships system, which weren't existence early. Digitalization is understood as the processes that influence on changes in society. This revolution means that the capabilities of human brain will be expended due to integration in social communication networks. New predominant information technology changes everything, even the language, partly, due to the need of new terminology (new definitions for new tools). Society becomes more communicable, open, and mobile. During the digitalization computing machines have been created to facilitate faster and more reliable calculation. Arising of Internet has allowed to receive information from all over the world (Soderqvist J., Bard A., 2002). Neveertheless, the tools have changed, but the essence of human actions stayed the same.

That's why there is another concept. Digitalization is the distribution process of digital goods, which depends on formed relationships in society. I. e. digital goods are the "smart" tool that doesn't affect the society. Not distribution processes of digital goods influence on the society, conversely, social relationships, economic relations effect the distribution of digital goods – information. So, in market relations the information will compete or not, will be widespread or closed. The market norms, ways of regulations influence the information distribution.

According to the Castells, 1996 digital economy connects those who are valuable for it (consequently giving additional value them) but disconnects those who aren't valuable for it (consequently decreasing the ability to get any value). It has led to gain social inequality and injustice such as unequal income, polarization of society.

At the same time, Scott D. Campbell studied urban space and identified, that the main aim of space evaluation was formation comfortable relations and conditions, but the level depended on historical relations. (Campbell S., 2016). Nevertheless, author studied 3 conceptions of urban development: green city – creation comfortable ecological environment, which requires ongoing support, using resources of the urban environment, because the lack of these resources leads to transformation of green spaces into empty places. (Jacobs J.,). According to the concept of an industrial city, everything starts with resources. At the beginning - a resource, then-a person, then-social relations. But this view was replaced by a post-industrial view of changes in cities, where the main focus had changed from production to consumer relations. At the forefront are the issues of urban space reconstruction, the creation of public places, the point construction of places of well-being, the alteration of old buildings (gentrification), renovation, and so on.

And the third conception is digital city. The critical approach shows that digitalization – is the tool, and IT industry – suppliers of these additional goods and services that leads to increasing or decreasing costs in different spheres. Another problem is creation of this tool because digital goods is produced using back-door, which allows to update, change, or hack the system. And the last important problem, technologies consist of binary system "Yes-No" ("1-0"), that doesn't take into account human "maybe".

So, S. Campbell criticizes all these approaches, but calls on do not deny, and combine its in urban planning triangle, where there are all positive traits of the mentioned theories. (Campbell S., 2016, Campbell S., 2013, Campbell S., 1996)

City is a local territorial space where market relations exist. Consequently, market relations in society directly affect digitalization.

According to Eurostat one of the rapidest growth of individuals who use Internet were observed in Russia between 2008 and 2018 (54 points) from 27% to 81%. As for the broadband subscriptions, in Russia it was observed 16 subscriptions per 100 inhabitants in 2018. ICTs affect people's everyday life in many spheres, both at work and at home, for example, when communicate, buy goods or use online services.

At the same time according to the "Concept E-Government formation in the Russian Federation till 2010" between 2008 and 2010 electronic document management has increased in public sector, there was an electronic data exchange and storage in a unified system, multifunctional centers, the provision of public services online, etc. All these have become a prerequisite for the digitalization of urban life.

Technologies are introducing dynamically into the development of urban infrastructure. Technology can provide safety in public places due to using cameras and notification system, increase quality of air and provide ecology functioning of buildings, also provide citizens with

access to open interaction with the government. So, digitalization is represented in the Smart City concept, which is realized not only in EU, USA, but also in Africa, India and Russia.

Smart City

There are a lot of descriptions and definitions of ¨smart city¨ in the literature. Talen E. in the study defined 5 dimensions for smart city: 1) accessibility - increasing access to places of job and the services. In this way, accessibility is tied to the principles of smart growth. 2) Connectivity - higher connectivity leads to higher levels of interaction between residents and the environment, society, and cultural and economic activity all of which is believed to improve neighborhoods. 3) Density - low-density development has been linked to higher infrastructure costs, increased automobile dependence, and air pollution. Density has been seen as an essential factor in maintaining walkable, pedestrian-based access to needed services and neighborhood-based facilities. 4) Diversity - Socially diverse neighborhoods continue to be seen as essential for broader community well-being and social equity goals, but the connection to sustainability is also made mixing incomes, races, and ethnicities is believed to form the basis of `authentic, sustainable communities' stability in the long term. 5) Nodality - area with high activity of people. They are named urban cores (it can be trade zone, business zone or railways stations) (Talen E., 2011). Another opinion about smart city is offered by Marsal-Llacuna. Smartness in the smart city is when the three pillars of sustainability, environmental, economic, and social are safeguarded while urban resilience is being improved by making use of ICT infrastructure. Smartness in the smart city equals urban smartness which is a combination of three components such as: sustainability (environmental, economic, and social development, urban resilience (smart growth, urban development) and ICT infrastructure (technology, connection, and information) (Marsal-Llacuna, 2015).

In literature number of definitions of smart city are proposed, for instance, smart city is a "place where IT is combined with infrastructure, architecture, everyday objects, and even our own bodies to address social, economic and environmental problems" (Townsend, A.M., 2013). In EU smart city is defined as places where the city's functioning is made more efficient with the use of information and communication technologies (ICT), resulting in better public services for citizens, better use of resources and less impact on the environment (European Commission). Also, smart city is connecting the physical infrastructure, the IT infrastructure, the social infrastructure, and the business infrastructure to leverage the collective intelligence of the city and improving the operational efficiency and quality of life of a city by building on advances in IT (Harrison C., el al., 2010). Nevertheless, smart cities are the places where different actors use technology and data to make better decisions and achieve a better quality of life (McKinsey, 2018). According to the Russian project "Smart City", the main purpose of this concept is not only in digital transformation,

but in complex increasing of efficiency urban infrastructure (Minstroy Rossii,2018). Thus, the common features of this concept are ICT, efficiency, and quality of life.

Based on these characteristics it is defined several dimensions which provide the development of smart city concept:

- Smart economy.
- Smart people.
- Smart mobility.
- Smart governance.
- Smart environment.
- Smart living.

Dudzevičiūtė G. et al. summarized key indicators of dimensions in following table (Table 1).

Table 1

Indicators of smart city's dimensions (Dudzevičiūtė G., 2017)

Smart cities dimensions	Indicators
Smart economy	Public expenditure on research and development, innovations and entrepreneurship, public expenditure on education, gross domestic product per capita, debt of municipal authority per resident, unemployment rate, employment rate in high tech and creative industries, annual household income, energy intensity, renewable energy, financial intermediation, culture and entertainment industry, hotels and restaurants.
Smart people	Percentage of population aged 15-64 with secondary level education, percentage of population aged 15-64 with higher education, percentage of population working in education sector, city representatives per resident, foreign language skills, level of computers skills, patent applications per inhabitant, participation in life-long learning.
Smart living	Health care expenditure, tourists overnights stays, museum visits, cinema and theatre attendance, percentage of people undertaking industry-based training, number of enterprises adopting ISO 14000 standards
Smart mobility	City logistics, info mobility, people mobility
Smart environment	Annual energy consumption, total CO2 emissions, efficient use of electricity, annual water consumption, efficient use of water, area in green space, greenhouse gas emission

	intensity of energy consumption, population exposure to air pollution, percentage of population engaged in environmental activity, percentage of citizens travelling to work on public transport, percentage of total energy derived from renewable resources.
Smart governance	E- Government usage by citizens (percentage of individuals who have used the Internet for interaction with public authorities in the last 3 months, E-democracy (usage of innovative ICT to support ballots, green and fair-trade public procurement), percentage of households with Internet access at home, transparency enabling citizens to access official documents in a simple way and to take part in the decision processes.

Additionally, smart city requires both physical infrastructure and digital infrastructure to ensure functioning of urban environment. Physical infrastructure provides the smart grid, renewable energy, mobility with smart public transport and traffic management and water supply. The digital infrastructure is presented by telecommunication, computing, data, devices like smartphones, computers, etc (Lehner, 2019). Thus, from the one hand there is need to distribute this infrastructure inside the city (between districts, municipalities, etc.), from the other hand, the adaptation of digital solutions among citizens. Then, if these two conditions are completed, it will be possible to achieve efficiency in urban management and increase quality of life of residents.

The concept "smart city" supposes technologies introduction, which is required special infrastructure, access, skills usage – environment and citizens must be prepared to new technologies. That's why in literature scholars have defined two terms: digital divide and digital inequality.

Digital divide and digital inequality

A term "digital divide" has arisen with mass distribution of computers. But the more computer penetration, the higher digital divide. As NTIA, 1998 noted "digital divide between certain groups has increased between 1994 and 1997 so that there is now an even greater disparity in penetration levels among some groups" (NTIA, 1998). And this divide was observed between groups with high- and low-income levels, different racial groups, young and adult, etc.

Digital divide is defined as the gap that exists between individuals advantaged by the Internet and those individuals relatively disadvantaged by the Internet (Rogers, 2001). Another definition, digital divide is division between people who have access and use of digital media and those who do not (Jun Van Duk, 2020). The digital divide has arisen as a result of such reason as

lack of access to Internet which can be explained by socio-economic factors, demographic characteristics of population.

Nowadays, the dimensions of digital divide are broader and focus not only on access to Internet. It is defined 3 levels:

– the 1st level - Internet access (internet, mobile internet);
– the 2nd level - digital skills, technology usage, e - participation;
– the 3rd - outcomes in the form of benefits and harms (Lutz C. 2019).

Also, Jun Van Dijk, 2005 defines 4 phases of digital divide: 1) motivational access is based on "no need or significant usage opportunities", "no time or liking" and "rejection of the medium"; 2) material access is divided into two types a) physical access (hardware, operational software, and services of computers, networks) and b) conditional access (entry to particular appli-cations, programs, or contents of computers and networks); 3) skill access are presented by set of digital skills which allow to operate computer and network (operational skills), search information online (information skills); achieve certain goal in network or goal-oriented behaviour (strategic skills); 4) usage access describes the actual usage of technology, because to have access to computer and use it are different behavioural characteristics. Based on actual usage there is possibility to determine usage time. Then this time can be spent for different purposes: search information, communication, work, education, shopping, and this one is called usage diversity. Nevertheless, the time and diversity can be increased with adoption of broadband (broadband usage). And the last dimension of access usage is creativity usage, when users create some certain content by themselves (van Dijk, 2005).

But with the appearance of ICT another term also has arisen – digital inequality. There is no certain definition of digital inequality. But DiMaggio offered to expand the focus of research from the "digital divide" between "haves" and "have-nots" (or between users and non-users) to the full range of digital inequality in equipment, autonomy, skills, support, and scope of use among people who are already online (DiMaggio et al. 2001).

It exists across a variety of demographic, ethnic, and geographic dimensions. In other words, digital inequality tends to mirror existing social inequalities in terms of socio-economic status, education, gender, age, geographic location, employment status, and race (Lutz C. 2019).

Digital inequality is defined as the disparities in knowledge and ability of using digital and information technology among individuals with different demographics, socioeconomic backgrounds, and digital and information technology experience and competencies (Cai Y. 2016).

In order to understand the reasons of digital inequality, it is necessary to identify factors of digital inequality. Some of them were mentioned above, but the following figure resumes its (fig.1).

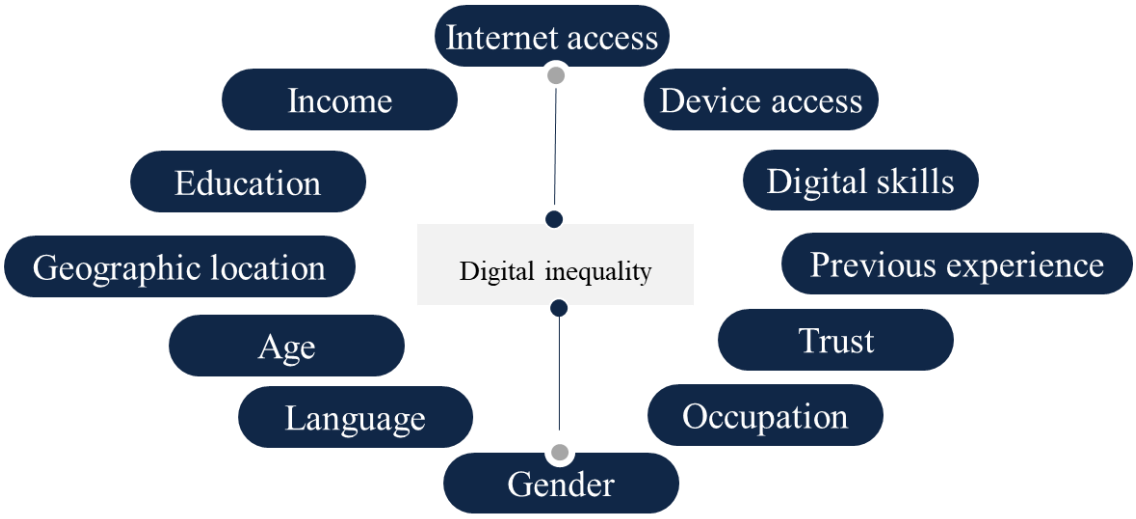

Figure 1 – Factors of digital divide (by author)

Internet access – those who have access to Internet have possibility to use ICT technologies.

Digital skills as the knowledge and skills are needed to use IT effectively, highlighting the need for both technical competencies (e.g., skills needed to operate hardware and software) and information literacy (e.g., the ability to recognize when information use can solve a problem). In study (Ferro E., Helbig N.C., Gil-Garcia J. R. 2011) it was mentioned that IT literacy is positively associated with internet access and internet use (Ferro E., Helbig N.C., Gil-Garcia J. R. 2011).

Previous experience – the previous successful experience influences on subsequent use of ICT.

Trust – the more trust level the less digital divide.

Occupation – professional, scientific, and technical workers are more likely to access and use ICT tools than are other workers (Varallyai L., Herdon M., Botos S. 2015).

Gender – men use ICT tools more frequently than women (Varallyai L., Herdon M., Botos S. 2015).

Language – knowledge of English helps users to understand the Internet resources, because the structure and definitions of online sites are based on English letters and words.

Age – elderly people show greater reluctance to adopt new technologies than young prople. (Varallyai L., Herdon M., Botos S. 2015).

Geographic location – urban population may benefit from easier and cheaper access to ICT infrastructure because adoption costs will decrease with population size and density increase (Varallyai L., Herdon M., Botos S. 2015).

Education allows the individuals to understand the possibilities of the Internet and to use it meaningfully. (Ferro E., Helbig N.C., Gil-Garcia J. R. 2011)

Income is significant in case of possibility to buy devices and to get an Interne access or up-to-date Internet services (Ferro E., Helbig N.C., Gil-Garcia J. R. 2011, Varallyai L., Herdon M., Botos S. 2015).

But what are the consequences of digital divide and/or inequality? Pollitzer E., 2019 supposes, that digital divide will not allow to achieve 17 Sustainable Development Goals. Due to the low level of digital skills, literacy, and ICT demand, it may lead to lack of innovative resources, as a result the lack of innovations will not provide the overcoming of poverty, quality education, climate changes and so on.

The digital inequality will worsen the current situation in terms of socio-economic inequality.

Another consequence of digital divide/inequality can be illustrated in the labour market. John B. Horrigan, 2011 showed that in 2010 80% of companies accepted application for job only online. Thus, those who do not have Internet access at home or do not have digital skills they may not get a job, as a result it will be observed increasing of unemployment rate.

Digital divide is not profitable for government, because it is cheaper to serve citizens via online services than financially support physical locations, and for citizens it is better to use e-service, thus people save time and costs receiving online services, than in-person.

Policies of overcoming digital divide

In order to avoid these consequences and overcome digital divide and/or digital inequality many countries have launched digitalization strategy, digital inclusion strategy, etc. Based on Network Readiness index of countries, it was analysed Top-10 countries' policies of digital divide overcoming (Table 2).

Table 2

Policies of digital inclusion

Country	**Policy**
Netherlands, Amsterdam (NL DIGIbeter Digital Government Agenda, 2018)	• Making digital services easier for everyone (affordable services for disabled persons – test services and improve its; finance IT companies) • Helping people go digital (training population) • Explaining what happens when people go digital. (Explain the benefits of ICT for citizens, increase awareness)

	• Working together with companies and other organisations. • Every municipality has its own agenda and has the power to prioritize what is important
Stockholm, Sweden (Stockholms stad, 2017)	• "Tools for self-assessment" teachers in primary and secondary schools asses their own digital skills within various fields. Based on the results, the tool suggests concrete actions that will form the basis for an action plan. • "1:1 in 2016" is a project to improve high school students' learning by raising teachers' and librarians' digital maturity (all high school students should have access to their own computer) Eye scanning to identify literacy obstacles of pupils in school. **Security** • A digital identity • High security requirements • Privacy in the digital society • Democracy safeguards in digital environments • A secure and mobile labour • market • Functioning digital markets • and secure consumers
Denmark (Danish Ministry of Finance, Local Government Denmark and Danish Regions, 2016)	• **Better digital communication**: Data will be collected about user experience and use of the e-services so that can constantly be improved. • **Overview of own interactions with authorities and benefits**: The authorities will increasingly actively inform citizens and businesses about important events. For example, this may be a text reminder that it is time for children to be vaccinated • **Clear legal framework for government**: a standing committee will be set up under the auspices of the Agency for Digitisation. This committee will collect, screen

	and prioritise cross-sectoral legal challenges identified by the authorities. The committee will prepare solutions for how to deal with the challenges identified. • **Cohesive welfare pathways for citizens**: Welfare pathways will be analysed: 1) cross-sectoral, coordinating interventions for citizens with concurrent substance use and mental health disorders; 2) unemployed young people on educational programmes; and 3) incarceration at institutions under the prison and probation services and subsequent reintegration into society. Proposals will be prepared for how to make pathways more coherent for citizens, for example through data sharing and smoother workflows. • **Open pubic sector data**: partnership will consult with businesses and experts to establish a better overall picture of existing open data and promote efforts to ensure access to more open data. **Security** • **Well-managed information security in all authorities**: central, regional and local governments have to commit to the principles set out in the international information security standard ISO27001. • The authorities will provide clear and consistent information adapted to the target group (young people, elderly people, people from non-western countries and businesses that are not quite ready for IT.) about the digital channels and portals to the public sector
Austin, USA (Office of Telecommunications & Regulatory Affairs, 2014)	• The city's open data portal has a schedule with classes on improving digital literacy. They include courses for both inexperienced users in the face of the older generation, as well as courses on the study of special programs for managers of different industries. • City libraries are one of the main facilities that provide access to the Internet, as well as conduct digital skills training

	• Industry organizations (healthcare, libraries, etc.) within their industry should establish grants to support the development of digital skills training (cooperation with service providers, technology updates).
Helsinki, Finland (Helsinki, 2020)	**digital literacy** • Free digital literacy training is available at several Helsinki libraries, community meeting areas, senior homes and youth centres. The City of Helsinki's digital consultants are even available for home visits! • Residents must be able to use the city's services with the help of screen readers and other technical aids. Helsinki's Accessibility model defines the many means and methods the city uses to safeguard the accessibility of digital services, now and in the future
Switzerland	Child safety online (legislation, education, awareness
Singapore (Ministry of communication and Information, 2007)	• Annual events (seminars, exhibitions, study trips, talks) held by the responsible executive authority together with universities, industry partners and communities to help older people in the development of digital technologies. • Training centers for the adult generation located in different parts of the country for the accessibility of education • Schools cooperate with this program, as a result, they have organized digital learning campuses, which involve the interaction of the older and younger generations in the process of technology development.
Norway (Norwegian Ministries, 2019)	• New sensor for the early warning system for digital infrastructure (VDI) • NSM currently provides a DNS service for selected companies. Using this service makes it possible to stop traffic to specific websites. The DNS service is to be developed, upscaled and made available to the public sector. • One of the larger stand-alone measures implemented with the aim to increase knowledge and

	competence in cyber security is “National Cyber Security Awareness Month”. This is a public-private initiative to raise awareness about cyber security. National Cyber Security Awareness Month takes place annually in October and was organised for the eighth time in 2018. In 2018, training lessons were provided for 250 000 employees in 330 companies.
UK (Government Digital Inclusion Strategy, 2014)	• The Digital Friends Initiative - state and municipal employees should help their friends, acquaintances, relatives who have problems using online space in the development of digital services. • “Digital assistant” - the ability to receive a digital service in other ways (for example, if the user cannot be online or use the application at a particular moment). An alternative is a personal meeting; through intermediaries (an intermediary will act on your behalf); a regular phone call or with a bot • Equipping libraries with free Wi-Fi. • UK's Online Centers Network program provides a flexible platform to develop essential digital skills for the local job market through one-to-one mentorship and open-ended learning.

Listed policies have similar features of digital divide overcoming. Every country pays attention to Internet access, providing corresponding infrastructure in remote territories and provides cheap Internet connection. Also, ensure device access, equipping public places like libraries with computers with Internet access.

Provided Internet access and device access, policymakers identify vulnerable population (seniors, pupils, disabled people) and give a possibility them to increase digital skills and literacy. For example, organization courses, education centres, help in services centres.

Another reason of e-services usage is trust, which can be ensured by security of data, protection against false advertising. And in this case, authorities develop legislation of digital field, where the data protection, information use, etc. are described. Thus, the clear framework of legislation will help to avoid problems of e-services users.

Moreover, not all people know and understand the benefit of online services, that’s why it is necessary to implement measures to increase awareness of people about existence e-services

and their benefits for citizens. And furthermore, the feedback of users promotes improvement of e -services.

In conclusion, the digital inclusion policies are more successful, when public sector collaborate with private sector. Also, it can increase participation not only citizens, but also business.

Thus, digitalization of urban environment is represented in the smart city concept, which supposes availability of digital infrastructure and online services in all spheres of urban life. But with the technologies introduction not all people have the possibility to use it due to inequal distribution of digital benefits, that depend on relations in society. It is proved that there is digital inequality, that is represented by socio-economic inequality in society. Such features as gender, age, occupation, education, geographic location influence on levels of digital divide: access, skills, trust and benefits – digital inequality.

Because of this study is devoted to digitalization of Saint-Petersburg, it is relevant to describe existing legislation framework of digitalization at the federal, regional and local levels.

1.2 Analysis of the federal and regional legislation of digital transformation

In the Russian Federation the legislation system is represented at the federal, regional, and local levels.

At the federal level digitalization originates in Decree of President of 21.07.2020 г. № 474. One of the 5 listed national goals 2030 is “digital transformation”. In order to achieve this goal, it was set the following objectives for Russian Government:

– achieving “digital maturity” of key sectors of the economy and social sphere, including healthcare and education, as well as public administration;

– increasing the share of mass socially significant services available electronically to 95%;

– an increase in the share of households that have broadband access to the Internet information and telecommunications network to 97%;

– an increase in investments in domestic solutions in the field of information technology is four times compared to the indicator of 2019.

These objectives are considered by both supply side of digital services – increasing electronic services, and demand side – provide broadband access to the Internet. The 2nd one ensures the solution of digital divide problem. But access to Internet is not the only aspect of digital divide, as it was mentioned, digital divide includes level of digital literacy of residents, trust, benefit. In order to achieve sustainable development of digitalization it is necessary to consider the development of human capital in digital transformation.

Based on the Decree of President of Russian Federation of 21.07.2020 г. № 474, Unified plan for achieving the national development goals of the Russian Federation for the period up to 2024 and for the planning period up to 2030 was approved. An action plan has been developed:

1. to achieve “digital maturity” it was proposed providing citizens with opportunity to get digital competences via the professional education both for civil servants, students, and pupils (courses in modern programming languages for pupils) – federal projects “Personnel for digital economy”, “Artificial intelligence”, “Information Security”;
2. to increase the share of mass socially significant electronic services it was proposed creating trust in the electronic format of receiving services by increasing the level of information security, including the protection of personal data of citizens and data in state information systems – federal projects “Information Security”;
3. to increase in the share of households that have broadband access to the Internet - development of telecommunication infrastructure, including digitalization of urban economy – federal projects “Digital Infrastructure”, “Formation of a comfortable urban environment”.

As a result, the indicators of digital transformation were set (Table 3).

Table 3

Federal projects and indicators of digital transformation

Indicators	Projects
The number of people accepted for training in higher education programs in the field of information technology at the expense of budget allocations of the federal budget, thousand people	“Personnel for digital economy”
The level of satisfaction with the quality of providing mass socially significant state and municipal services in electronic form using the Unified Portal of State and Municipal Services, points	“Digital public administration”
The number of types of information provided online by public authorities, units	
The share of socially significant facilities with broadband access to the Internet information and telecommunications network in accordance with the approved requirements, %	“Digital Infrastructure”
The number of settlements with the number of inhabitants from 100 to 500 people, on the territory of which households are provided with the possibility of broadband access to the information and telecommunications network "Internet", thousand units.	

Nevertheless, Ministry of Digital Development, Communications and Mass Media of the Russian Federation has approved Decree No. 600 of November 18, 2020 “On Approval of the Methodology for Calculating the Targets of the National Development Goal of the Russian

Federation “Digital Transformation”, which is devoted to achievement of national goal “Digital transformation” and corresponding targets.

In section of Decree No.600 “Methodology for calculating the indicator “Achieving digital maturity of key sectors of the economy and social sphere, including healthcare and education, as well as public administration” for the region of the Russian Federation” it was determined 5 economic sectors and social spheres, indicators for each sphere are in Appendix 1:

1) Urban environment
2) Healthcare
3) Education
4) Transport and logistics
5) Public administration

It is important to note, that urban environment, healthcare, education, and public administration will be used in this research as spheres of urban life. Transport and logistics will be not included, because indicators of this direction cover such transport mode as railroad, air transport and sea transport, which provide transportation between regions, but not urban public transport (bus, underground). Also, the transport reform 2022 is actively implemented in St. Petersburg, and it is relevant to discuss the results of this reform after completing (15 July 2022).

Thus, in Russia digitalization based on national Program “Digital economy” which includes above-mentioned federal projects. Ministry of Digital Development, Communications and Mass Media of the Russian Federation is responsible for digitalization at federal level.

Also, in order to realize “Smart City” concept, there is the project “The concept of the urban economy digitalization project “Smart City””, which is also based on 2 projects: national project “Housing and urban environment” and national program “Digital economy”.

According to this project, digitalization covers such areas as, urban environment (smart housing and communal services, comfortable urban environment, transport and mobility), safe city (Public, Transport and Environmental safety), city administration (urban planning, public services, synchronization of departments and services, open government), welfare of the population (medicine, social policy, education, culture, tourism).

As for the regional level, the Committee of Informatization and Communication of St. Petersburg is responsible for the digitalization. Committee ensures the maintenance of the Register of state information systems of St. Petersburg, coordinates the activities of the authorities of St. Petersburg when connecting and operating the Unified Multiservice Telecommunications Network, organizes the provision in electronic form of public services provided by the authorities of St. Petersburg, interacts with the local government of St. Petersburg in the provision of municipal services (Resolution of the Government of St. Petersburg N 450, 2010). Also, it is

responsible for implementation of regional projects “Personnel for digital economy”, “Information Security”, “Digital technologies”. “Digital Infrastructure”, “Digital public administration” which are included in State Program “Increasing effectiveness of public administration in St. Petersburg”.

As for the implementation of the projects of digitalization in the spheres of urban life, it was defined the following projects: 1) in the sphere of urban environment digitalization is realized in the framework of regional project “Housing and urban environment”, automated systems of the state information system “Safe city”. 2) In the healthcare digital transformation is implemented in regional projects “Creation of unified digital framework in healthcare based on unified government information system in the field of healthcare”. 3) Education – regional projects “Digital infrastructure”, “Digital educational environment”. 4) Public administration – regional projects “Digital public administration”, “Staff for digital economy”.

In legislation there were identified some problems which are devoted to digital inequality:

1. high level of differences in the use of information technology in organizations and institutions;
2. unsolved problem of broadband access;
3. low level of basic digital skills, especially adults;
4. inconsistency of federal departments and state programs, unavailable reliable official information

In order to overcome digital inequality in St. Petersburg it is implemented the following policies in the framework of the listed regional projects.

Access to Internet is provided in state organizations (hospitals, schools, administrations), public Wi-Fi zones there are in every district and in public transport (regional project “Digital infrastructure”).

Awareness of population about available online services is implemented by improving of information processes of population about services; information citizens about the results of service and about new available services via account in “Gosuslugi” and e-mail; information about online services in official sites of authorities and in public transport.

Improving digital **skills** is ensured by education of civil servants; updating and posting on the website of the St. Petersburg State Autonomous Institution “Center for Employment of the Population of St. Petersburg” list of professional education programs, including those in the competencies of the digital economy; developed and implemented educational courses of digital literacy for adult population.

In order to increase **trust** in technologies it is necessary to increase safety. Thus, domestic program systems in state organizations are used.

The sources of financing of digital transformation policies are federal and regional budget. For example, in order to improve the quality of public services it is planned the provision of operation and procurement of automation equipment, spare parts, consumables and accessories to them, as a consequences it will ensure the achievement of such indicators as the proportion of the population who positively assess the work of executive authorities and "Digital maturity" of state authorities of the subjects of the Russian Federation, local authorities and organizations in the field of healthcare, education, urban economy and construction, public transport, implying the use of domestic information technology solutions by them. Each committee of St. Petersburg government is responsible for achieving the goals within its competence. As for the local level – districts' administrations – they are responsible for operation and purchase of automation equipment. The allocation of total budget between districts to implementation of goal is presented in Fig.2.

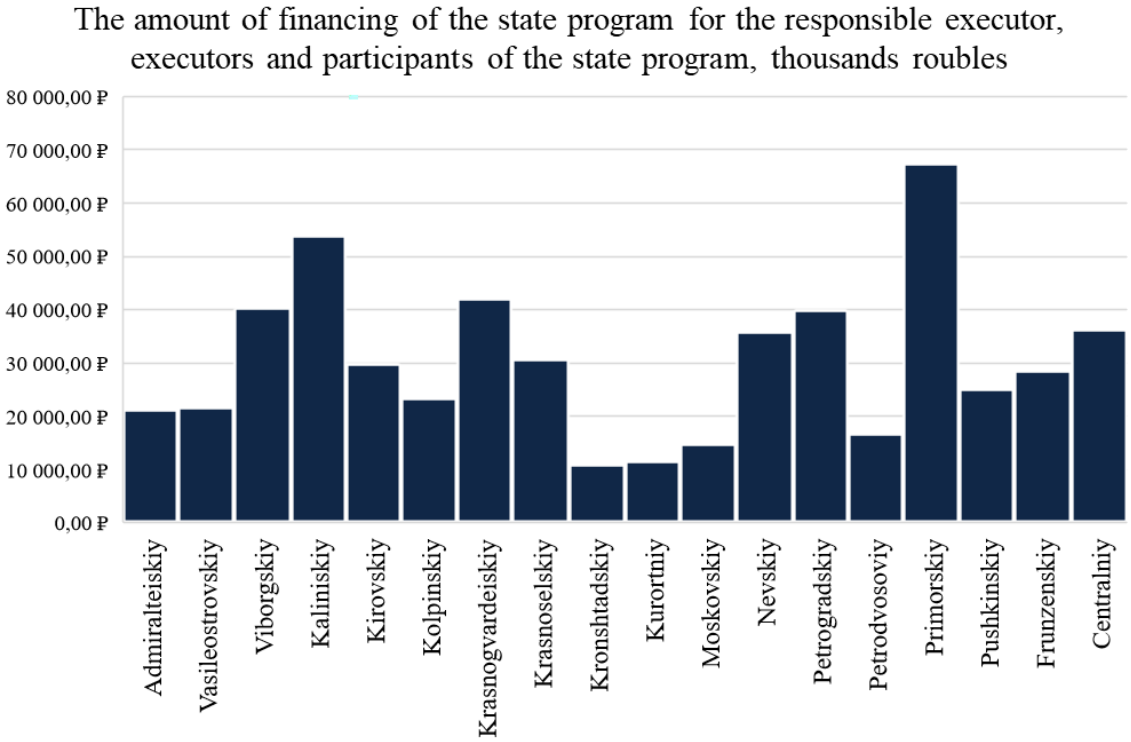

Figure 2 – the amount of financing of state program for the responsible executor, participants of state program (State Program "Improving the efficiency of public administration in St. Petersburg", 2022)

It is observed unequal budget allocation between districts of St. Petersburg. It is supposed that this distribution is linked with the level of fond of wage of districts, because distribution of regional budget between municipalities is based on income tax. And those districts which have more income from income tax in municipal budget have more share of allocated budget.

Also, in legislation noted that information technologies provision is based on list of needs, which must be justified.

At the local level in every district there is a department of Informatization and Communication. In the field of digitalization, it realizes provision and distribution of information contained in the state information systems of St. Petersburg and protects information.

Implementation of State Program and Federal, Regional projects has ensured the operation of number of services in Saint-Petersburg.

Firstly, the application “Gosuslugi” offers the list of e-services:

- health (doctor's appointment/ medical examination/ medical and social expertise/ choice of insurance company/ med.documents);
- services related to COVID-19 (observation diary, test results, registration of arrivals from abroad);
- obtaining certificates and statements (employment records; category of pretensioners; FSB, etc.);
- benefits payment/ pensions (parent capital; child benefits; pensioners; benefits for disabled);
- auto / law/ transport (vehicle registration; copyright; permission for transportation);
- Children (kindergarten/school);
- Education (results of the USE; submission of documents to the university);
- Passports / registration (Russian, foreign passports; registration of residence)
- Payment of Fines / Debts
- Payment Of Taxes
- Business Services
- Security/ law (contacting law enforcement agencies; issuing a security guard certificate);
- Real Estate/ Construction (rights to the site; construction; engineering surveys; commissioning;).

Furthermore, over the past 3 years the digital platforms have been developed.

- Unified Information and Reference Service of St. Petersburg “122”;
- Portal “Health of a Petersburger” includes “Electronic medical card of a Petersburger”;
- portal “Petersburg education” includes “Electronic diary”;
- Interdepartmental automated information System for the provision of state and municipal services in electronic form in St. Petersburg (IAISPSMES) - increasing the level of satisfaction of applicants with the quality of public services, improving the quality, accessibility and transparency of public service delivery processes, reducing paperwork and applicants' time when receiving public services;

- "Unified system of the construction complex" that increases the efficiency of interaction of all participants in the investment and construction sector at all stages of construction. The stakeholders in this project are the business community, urban resource supply organizations; federal authorities (Federal Tax Service and Federal Service for State Registration, Cadastre and Cartography);
- The project "Unified St. Petersburg Card", which provides for the receipt by residents of St. Petersburg of electronic smart cards that combine the capabilities of banking, discount and bonus cards, as well as an electronic travel card and an electronic signature carrier;
- automated systems of the state information system "Hardware and software complex "Safe City".

Thus, resuming the 1st chapter it was identified that digital inequality is defined the socio-economic inequality in society, where the socio-demographic features of population (age, geographic location, education, etc.) influence on access to Internet, level of digital skills, level of trust to technologies and benefits.

In St. Petersburg in the context of digital transformation, introduction technologies, online services the problems of digital inequality and policies of overcoming digital inequality are represented in legislation.

But based on analysis of legislation, it was identified the weakness: unequal budget allocation in districts of St. Petersburg in implementation digital transformation.

To understand the successful of achieving the national goal "digital transformation" in St. Petersburg it is necessary to analyse current situation in the city.

CHAPTER 2. ANALYSIS OF THE EMPIRICAL DATA OF DIGITALIZATION OF SPHERES OF URBAN LIFE IN DISTRICTS OF SAINT-PETERSBURG

2.1 Descriptive statistics of socio-economic characteristics of districts of St. Petersburg

Since the thesis that the digital inequality is a reflection of socio-economic inequality was put forward in the theoretical part, and the districts of St. Petersburg are also considered in the study, it is appropriate to discuss the socio-economic inequality in the districts of St. Petersburg before analyzing the usage of information technologies.

In St. Petersburg there is an inequality in the structure of the distribution of residents in districts by number of population, labour force, average wage. For better understanding, below there are graphs compiled according to Petrostat data.

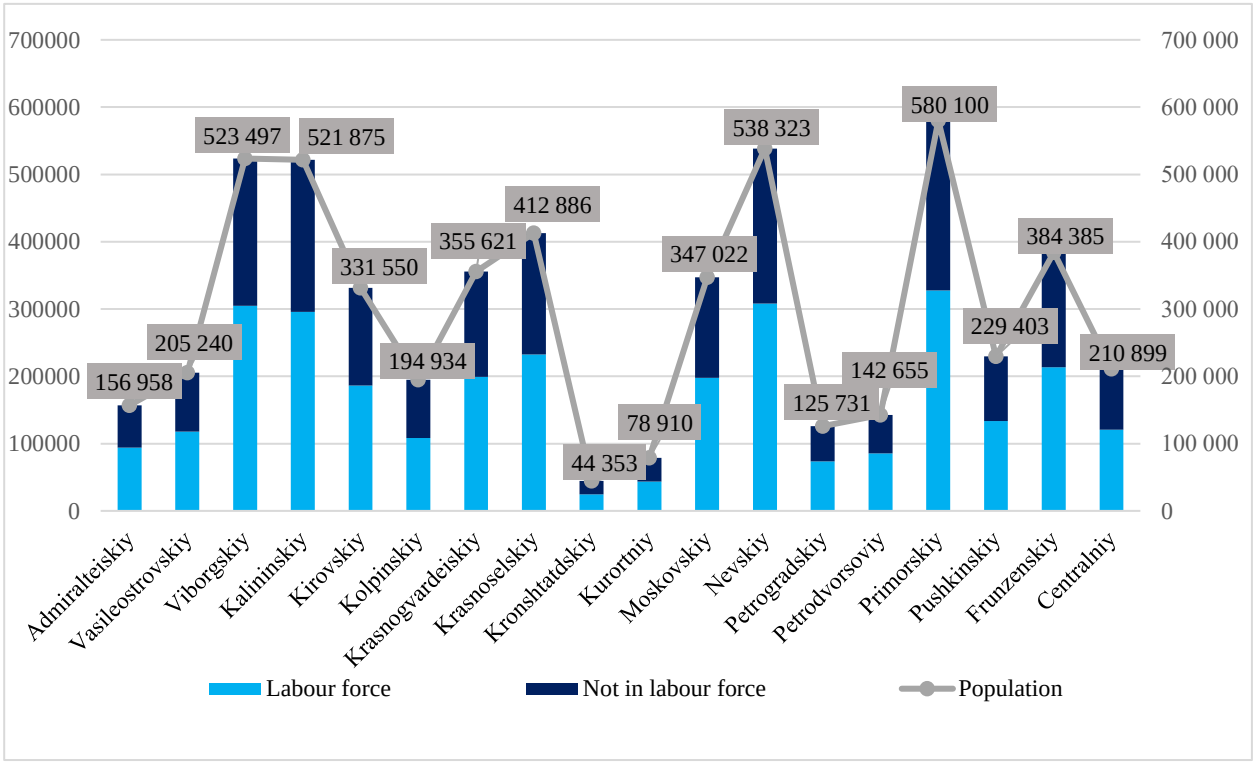

Figure 3 – Distribution of total population and labour force in districts of St. Petersburg, people (Petrostat, 2022)

It is observed that in Primorskiy (327 728 people), Nevskiy (308 343 people), Viborgskiy (304 665 people) the greatest number of labour force are concentrated due to the fact, that in these districts there is the most number of population. On the contrary, Kronshtadskiy (24 637 people), Kurortniy (43 600 people) and the central districts, such as Petrogradskiy (73 780 people) Admiralteiskiy (93 996 people), or Vasileostrovskiy (117 849 people), are distinguished by low

rates of the economically active population. It means that areas with a predominance of the labour force are more economically active.

Fig. 4 presents data on the not in labour force population before and after working age. In Russia, a citizen under the age of 16 is classified as not labour force, and men and women after 65 and 60, respectively, enter the retirement age.

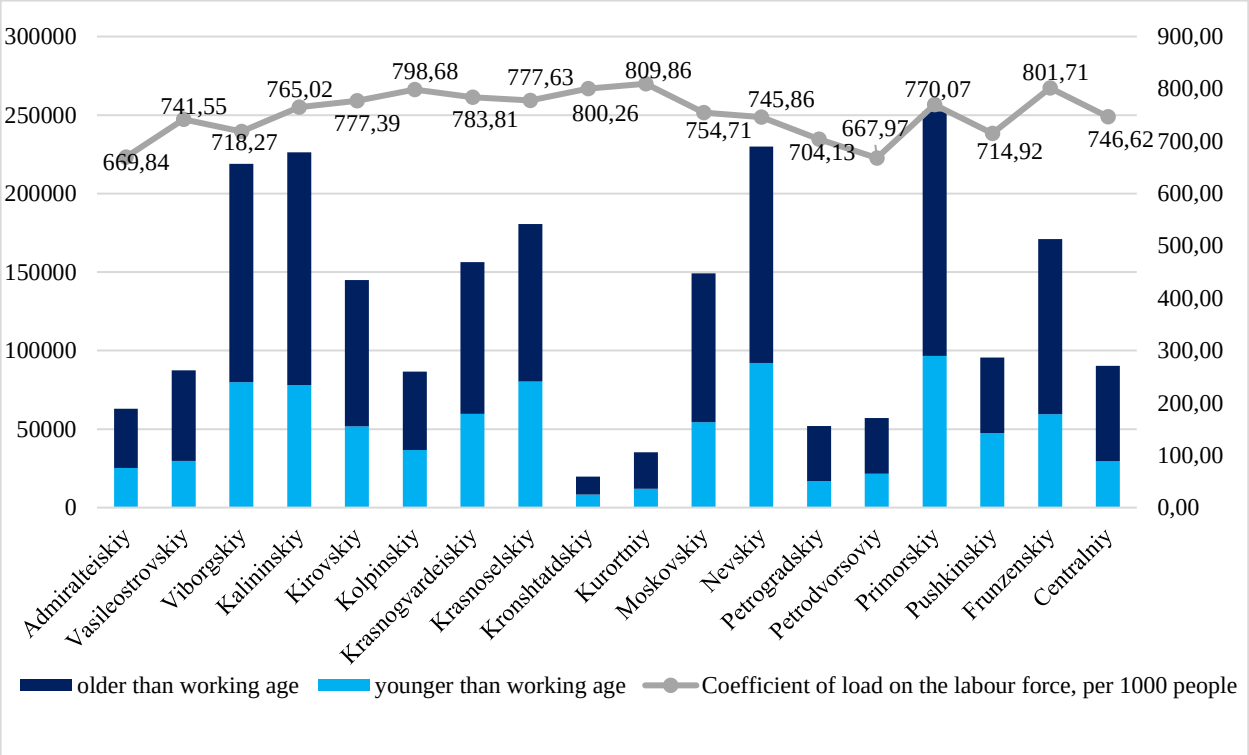

Figure 4 – Age groups of not labour force population by districts of St. Petersburg, people (Petrostat, 2022)

It can be observed that there is a significant difference between the older and younger generations in the city in the ratio of 36% to 64%, respectively. This imbalance contributes to the fact that there is a large burden on the labour force population, which will be the younger generation, and subsequently unfavorable conditions are formed in the field of pension provision.

In this case, it is necessary to refer to the load factors. The load factor for the labour force population is the value of how many not working residents there are per 1000 people who are in labour force. The greatest load was observed in Kurortniy (809,86 people), Frunzenskiy (801,72 people) and Kronshtadtskiy (800,26 people) districts.

Also, according to Fig.4, it can be determined that the lowest load is present in Petrodvorsoviy (667 people) and in central districts Admiralteiskiy (669 people), Petrogradskiy (704 people).

As a result, it turned out that the most densely populated are Primorskiy, Nevskiy and Viborgskiy districts.

As for the wage, the following picture has developed: in the Petrogradskiy, Admiralteiskiy, Centralniy and Vasileostrivskiy districts, where the total population is small, the highest wages are observed: 170 thousands rubles, 147 thousands rubles and 137 thousands rubles, respectively (fig.5), in contrast to remote areas with a large population. Moreover, there is a tendency that wages increase proportionally annually, and do not become balanced in comparison with other districts.

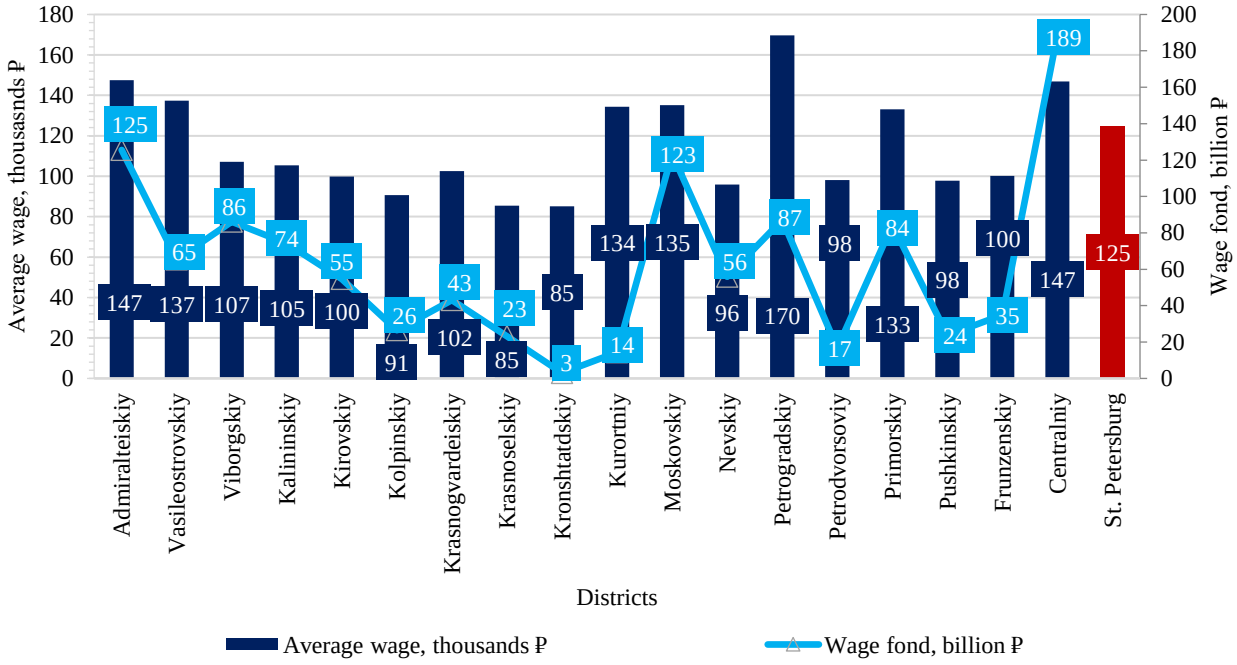

Figure 5 – Average wage and wage fond in districts of St. Petersburg (Petrostat, 2022)

According to the data, districts can be divided into 2 parts: 1) districts with average wage lower than average wage in St. Petersburg (<124 thousands ₽): Kronshtadtskiy (85 thousand ₽), Krasnoselskiy (85 thousand ₽), Kolpinskiy (91 thousand ₽), Nevskiy (96 thousand ₽), Pushkinskiy (98 thousands₽), Petrodvorsoviy (98 thousands₽), Kirovskiy (99 thousands₽), Frunzenskiy (100 thousands₽), Krasnogvardeiskiy (102 thousands₽), Kalininskiy (105 thousands₽), Kirovskiy (100 thousands₽), Viborgskiy (107 thousands₽); 2) districts with higher average wage than average wage in St. Petersburg: Petrogradskiy (170 thousands₽), Admiralteiskiy (147 thousands₽), Centralniy (146 thousands₽), Vasileostrovskiy (137 thousands₽), Moskovskiy (135 thousands₽), Kurortniy (134 thousands₽), Primorskiy (133 thousands₽).

Thus, the districts (Admiralteiskiy, Petrogradskiy, Vasileostrovskity) where there is less labour force (and total population) are more welfare due to high average wage. As a result, segregation zones are formed, where wealthy population has access to social benefits, including technologies (Perekatova, 2019).

2.2 Analysis of the secondary open data of distribution of digital goods and usage of online services in districts of Saint-Petersburg

St. Petersburg is the 2nd region in Russia with high level of digital maturity. The following secondary data has been requested in Information Analytic Center of St. Petersburg and has been founded in open sources of Internet.

In St. Petersburg 86,1% of households have personal computers, 88,6% have Internet access; 83,8% have Internet access in personal computer.

As for usage of devices with Internet access, more than half of population use laptop – 59,5%; 45,6% use personal computers; 44,6% tablets; 22,4% smart TV and most citizens use smartphones - 83,2%.

But at the same time more than 10% of households do not have Internet access. One of the main reasons of lack of access is no need to use it (or no desire) – 9,4%. The second reason is the lack of digital skills – 4,2%; 1,8% note that they do not have Internet access due to high cost of devices and Internet tariffs.

As for those who have Internet access, 89,7% of them have ever used Internet, 80,9% are active users and use Internet every day. Moreover, 75% of active users are people from 15-54 years (figure 6).

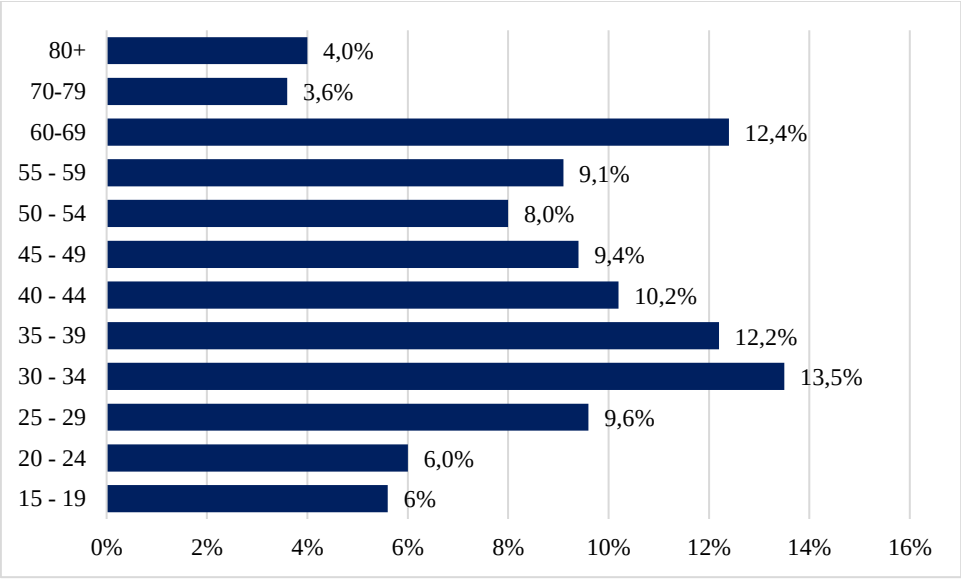

Figure 6 – Distribution of active Internet users in age groups, 2021 (Rosstat, 2021)

As a result, it is observed that adults are not involved in Internet usage. There are a lot of reasons of it, but the most popular reason is lack of need to use Internet (figure 7).

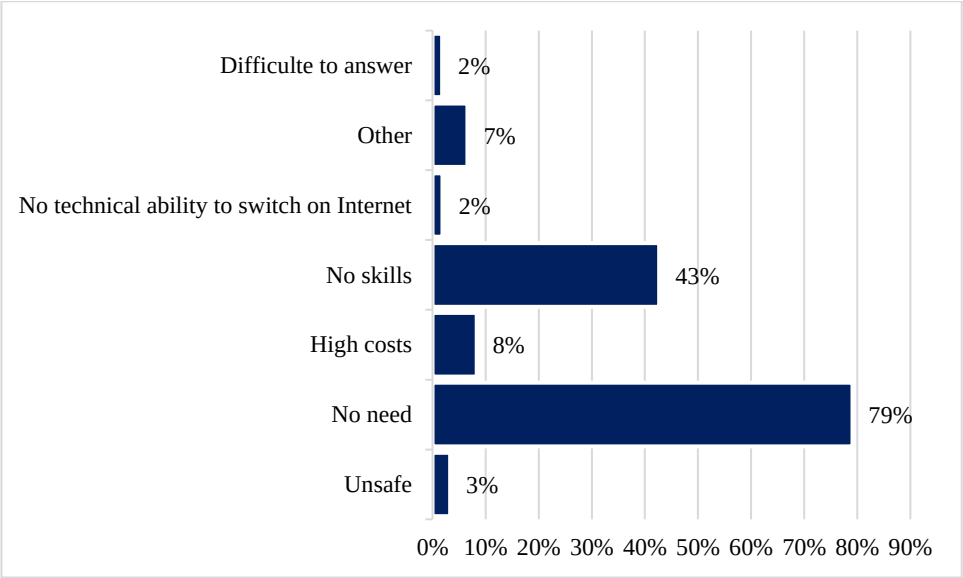

Figure 7 – Distribution of active Internet users in age groups, 2021 (Rosstat, 2021)

Also, more than 40% note that they do not have enough skills to use Internet, for 8% Internet is expensive.

Thus, it is possible to make the conclusion that adult people (55+), who are the less share of active users, do not prefer use Internet because they do not have need, skills, and money.

Online shopping is one of purpose of Internet usage - 72,9% of population older 15 years make online shopping. Another purpose of Internet usage is communication with authorities – 89,5% of population communicate with authorities via Internet.

According to the data, healthcare is the most popular online services (70,6%), where people make a doctor's appointments. 38,9% use online public services to pay taxes, 33,8% to communicate with Home department and Road safety department, 30% to pay bills for housing (figure 8).

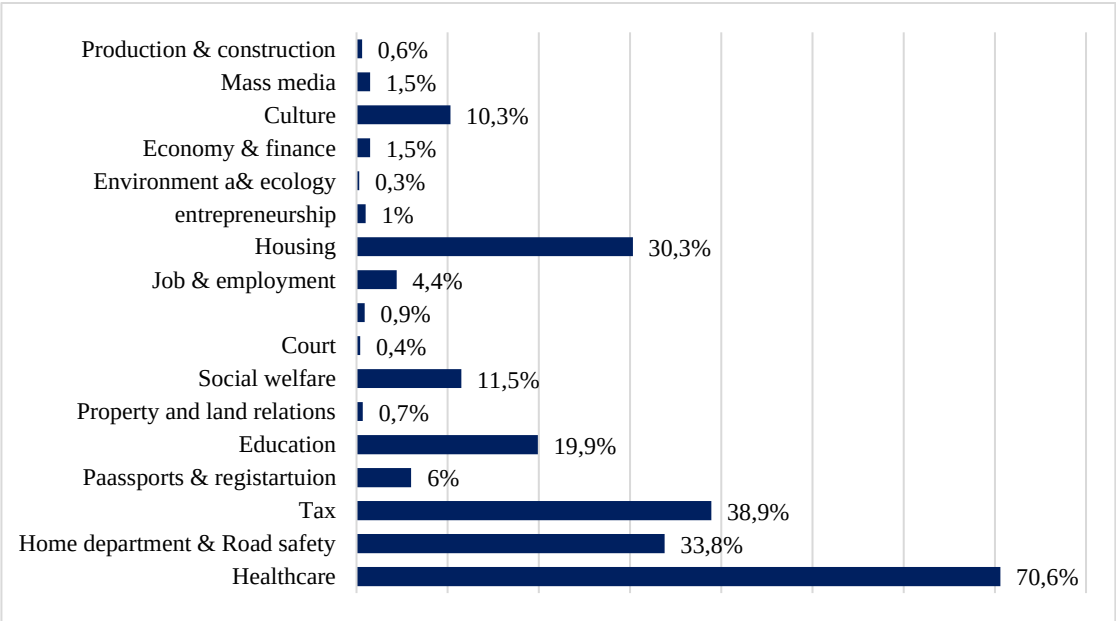

Figure 8 – Distribution of online public services usage, 2021 (Rosstat, 2021)

Also, there is information about activities of online public services users (figure 9).

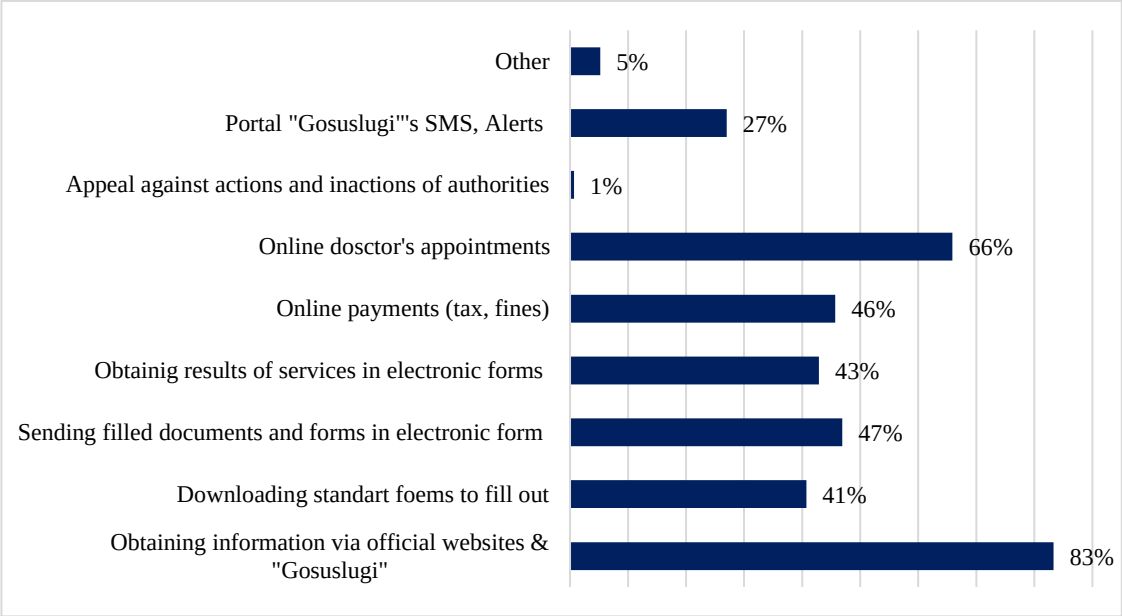

Figure 9 – Distribution of activities of online public services users, 2021 (Rosstat, 2021)

As it was mentioned the most popular spheres is healthcare and correspondently one of the most popular activities is online doctor's appointment (63%). But the most popular activity is obtaining information via online portal "Gosuslugi" (83%). Also, users download, fill out and send documents online.

Thus, in St. Petersburg more than 80% of population use Internet and moreover they use Internet in order to get online public services. According to the distribution of Internet users in age groups, it is observed that population older 55 years old are not active users due to such reasons as lack of need, skills, and expensive Internet tariffs.

But this statistical data is calculated at the city level, and thus it is not possible to identify the territory (districts), where population is mostly vulnerable. The administrative division of St. Petersburg is special, it is divided into 18 districts and 111 municipalities. As it was analysed in previous paragraph, territory in St. Petersburg is not homogenous, the number of population in different districts is different and this population have different average wage in different districts. Income, geographic location as it was identified in literature review, are one of the factors of digital inequality. That's why, it is reasonable to analyse digitalization of St. Petersburg at local level in order to identify the problematic zones in terms of digital inequality and operatively solve it.

Based on defined spheres of urban life, it is proposed to identify indicators, which can be used to analyse the digital inequality in districts of St. Petersburg. These indicators have defined

according to State, Federal and Regional programs, projects and available data. Indicators are divided into 2 types: supply side and demand side. Supply side is represented by the number of existing services and the development of infrastructure that provides operation of services and use it.

Demand side shows level of usage of services (figure 10). Also, the results of conducted surveys of citizen awareness, usage of e-services will be illustrated as part of demand side.

Supply side	Demand side
Share of medicine organizations of state and municipal healthcare system connected to Internet, %	Share of online doctor's appointments, %
Share of state (municipal) educational organizations implementing educational programs of secondary and vocational education, %	Share of online enrolments in first class, %
Share of public services provided by public authorities in electronic format, %	The share of online public services users, %
Number of terminals of the emergency communication system "Citizen – Policy"	The number of requests in portal "Our St. Petersburg"

Figure 10 – Indicators

Healthcare

The 1st urban sphere is Healthcare. The data of share of medicine organizations of state and municipal healthcare system, connected to Internet has proposed by the Committee of Informatization and Communications of the Government of St. Petersburg – 100%. It means that all medicine organizations in all 18 districts of St. Petersburg are switched on.

As for the demand side, it is proposed to analyze the proportion of online doctor's appointments via different tools. In St. Petersburg there are a lot of possibilities to make an appointment with a doctor: Internet, when person can use "Gosuslugi" or digital portal "Zdorovie Peterburzhsa"; Infomats, which are in hospital near the register office; local medical appointment center or virtual call center, where person have to call by phone, and traditional way is register office.

According to statistical data, in St. Petersburg the largest share of appointments is made via Internet – 42,9% (figure 11).

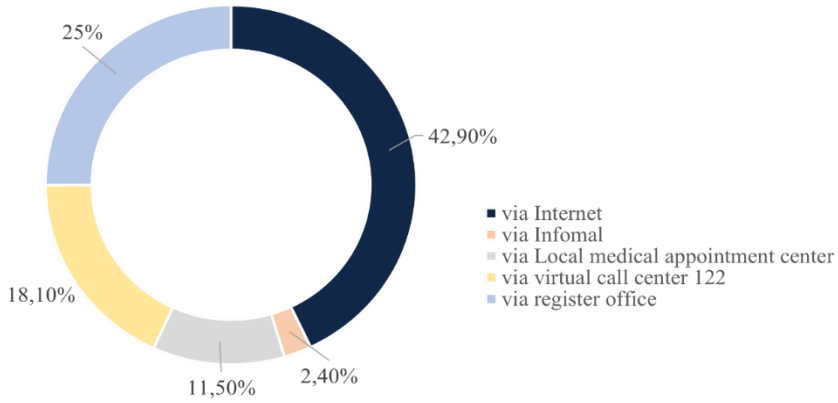

Figure 11 – Proportion of doctor appointments via different appointment tools in St. Petersburg (SPB MIAC, 2021)

In total, we can see that online services (42,9%) and call centers (29,6%) are the most preferred way. It is supposed that informat (2,4) is not so popular, because it takes time to arrive and personal presence. And then it is easier to apply to register office.

Another question, which can be analysed is share of doctor appointments via different appointment tools in districts of St. Petersburg (Figure 12).

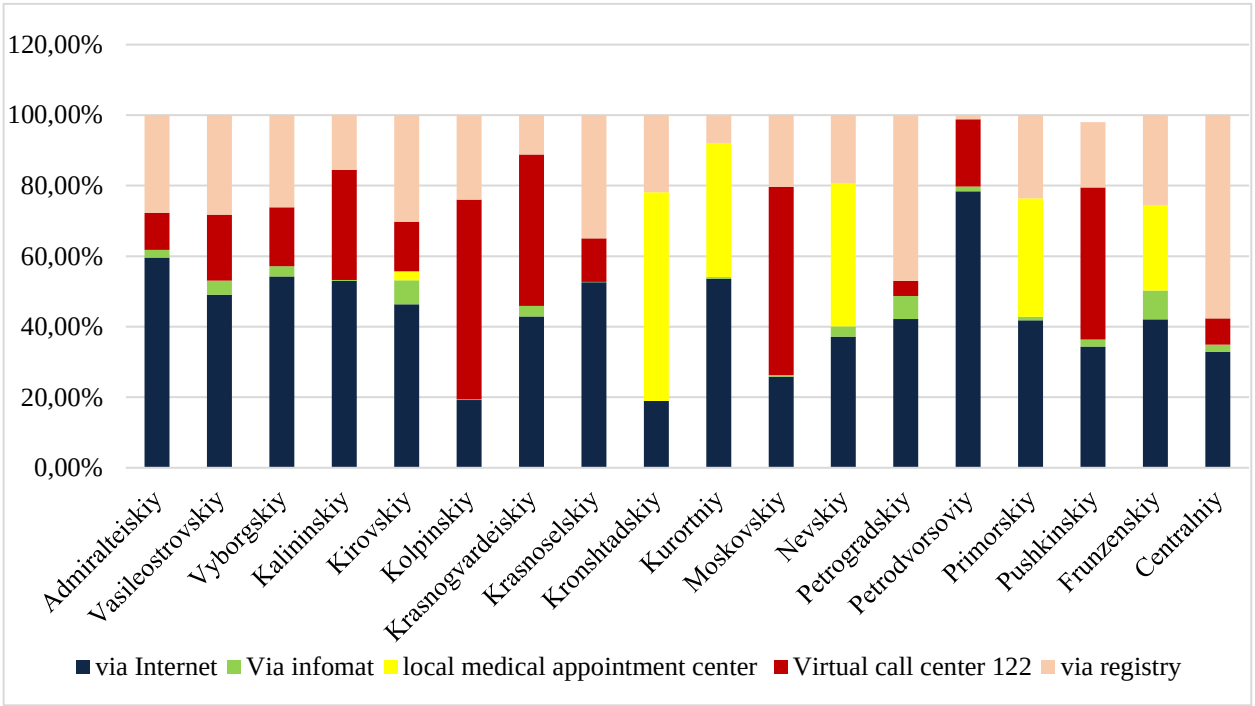

Figure 12 - Share of doctor appointments via different appointment tools in districts of St. Petersburg (SPB MIAC, 2021)

In all districts residents use Internet to make an appointment. The largest proportion of Internet appointments in total number of appointments is observed in Pertrodvorsoviy district – 78,4%. But there are districts where Internet appointment doesn't prevail. For instance, virtual call center is the most popular way in Kolpinskiy 56,6%, Moskovskiy 53,4 and Pushkinskiy 43,1%. The local medical appointment center prevails in Kronshtadskiy 59,2% and Nevskiy 40,7%. And appointment via register office is the most popular way in historical central districts of city Petrogradskiy 46,8% and Centralniy 57,6%. In Krasnogvardeiskiy both virtual call center 42, 9% and Internet 42,9%.

It is proposed that Petrogradskiy and Centralniy districts have the most share of appointments via register office due to expensive housing, and mostly adult people live in this housing. According to the Petrostat data, the average age of population in Petrogradskiy and Centralniy districts is 43,2 and 43,54, also the share of population older 55 years is 32% and 33% respectively (Figure 13).

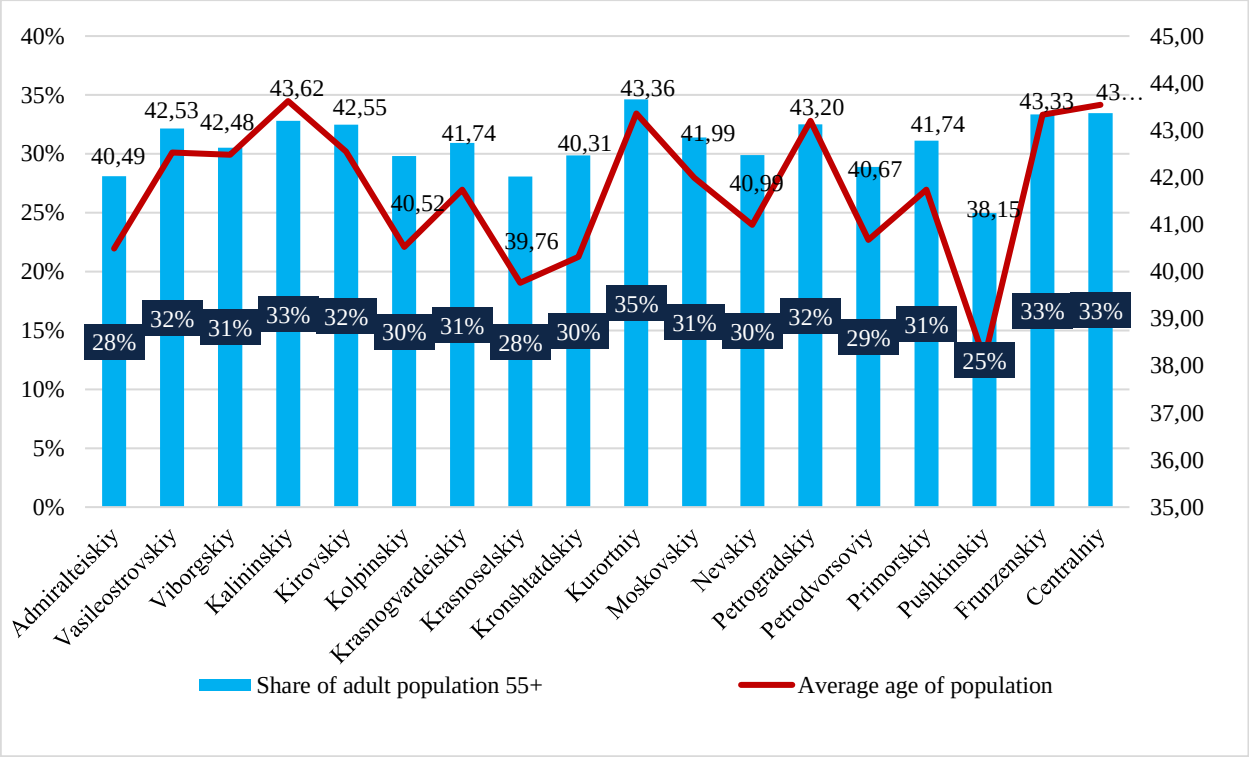

Figure 13 – Share of population older 55 years and average age of population in districts of St. Petersburg (Petrostat, 2022)

Thus, based on this analysis it is proposed hypothesis.

H1: the older population, the lower level involvement in online services.

Education

The 2nd sphere of urban life is education. According to the indicator of regional project “Digital Infrastructure”, the share of state (municipal) educational organizations implementing educational programs are connected to the Internet is 0%. It is planned to completely cover this indicator by 2023 year.

But in St. Petersburg there is another regional project “Digital educational environment”. And according to indicators of this project, 100% of state (municipal) educational organizations are connected to Internet at a speed of 100Mb/s in 2021 year. In this case, the question arises of the consistency of public authorities in the field of informing.

For residents, there is a digital portal "Petersburg Education", which allows parents to check their children's grades, schedule, assignments and school attendance, as well as enroll children in the 1st grade (figure 14).

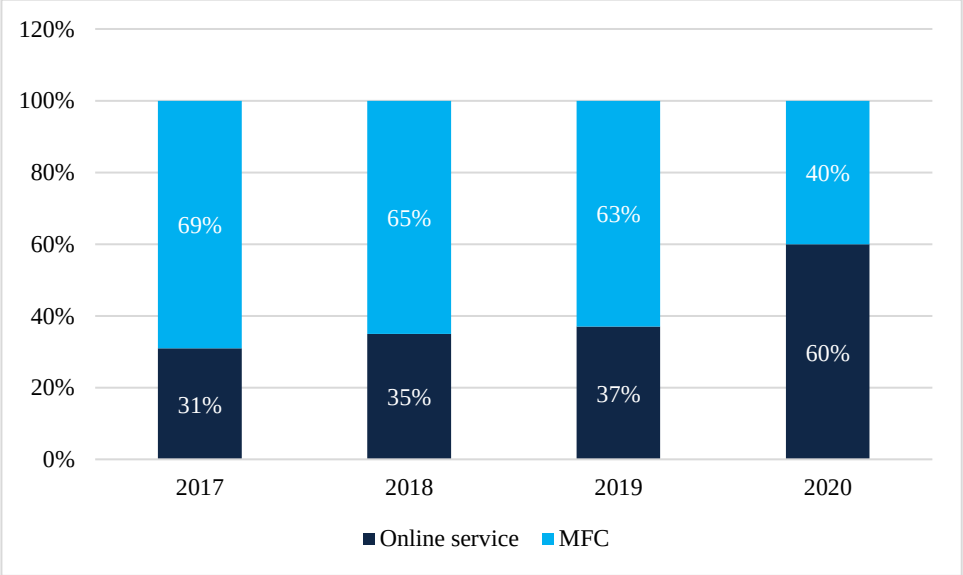

Figure 14 – Share of online enrollments in 1st grade in 2020-2021 schoolyear,% (IAC SPb, 2021)

Every year, the share of applications submitted online is growing compared to a personal appeal to the MFC. In 2020, the share of online applications increased by 23% due to the pandemic and the remote mode. As for the data in districts, there was not available open data. That’s why a request was made to the Information analytic center of St. Petersburg, but the requested data was not available.

Public administration

The sphere of public administration means the transfer of services to an electronic format.

According to open data of St. Petersburg, 214 services are provided in electronic format, which is 50.7% of the total number of services in the registry, among which 75 services are

provided directly by district administrations, and the other - by specialized committees, services, inspections in the field of housing and communal services, healthcare, education and etc.

At the same time, there are 15 services that are provided only in electronic format. But these services are related to information, construction and forestry.

Also, a list of mass socially significant services has been defined, which are provided in the field of social support for the population, land relations, informing, issuing passes, etc. The Ministry of Digital Development has set a goal - to achieve the availability of mass socially significant services in electronic form up to 95% by 2024. Thus, in St. Petersburg, the share of available social mass services in electronic form is 94%.

As for users, 5 252 161 St. Petersburg citizens have account in portal “Gosuslugi”, 89,5% of population use online public services and level of satisfaction with the use of electronic services in St. Petersburg equal to 4.65/5.00 points. Also, the data of online public services users in districts were requested in Information analytic center of St. Petersburg, but the requested data was not available.

Urban environment

The digitalization of the urban environment involves many sectors: housing and communal services, construction, landscaping, but for the most comfortable existence in the city, it is necessary to ensure public safety. In St. Petersburg, as part of the hardware and software complex “Safe City”, all districts of the city are provided with a video surveillance system that allows to detect violations not only on the roads, but also keep order on the streets, parks, and yards. In case of crime when filing a report with the police, violators of law can be quickly detected and tracked by cameras.

However, there are problems when filing a report with the police. So, if a citizen applies to the police station at the place of residence, and not at the scene of the crime (for example, phone theft), then this application will be redirected from one district police station to another police station in another district for 1.5-2 weeks Russian Post in paper form. And before taking advantage of digital opportunities and finding the violator, it is necessary to go through lengthy bureaucratic processes that reduce the likelihood of a case being solved. But this problem of interaction between authorities can be solved by an internal information system.

In addition to surveillance cameras, Citizen-Police emergency communication terminals have been installed in the city to ensure security. Unlike cameras, they are not located in all districts of the city (Figure 15).

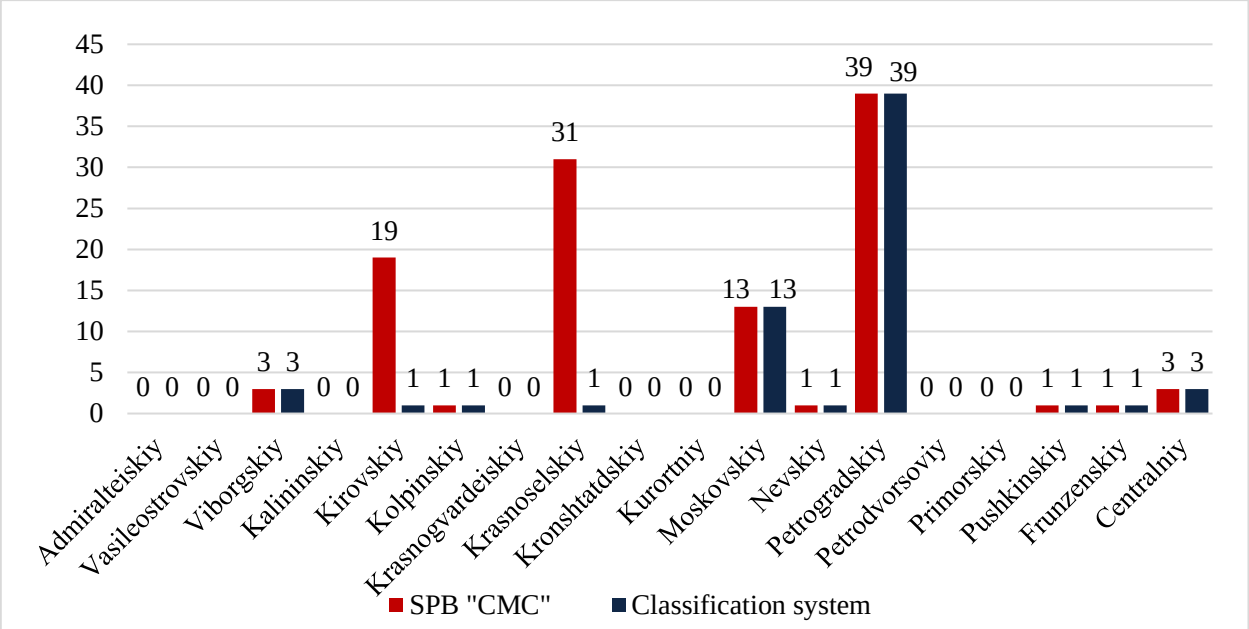

Figure 15 – The number of terminals “citizen-police” in districts of St. – Petersburg based on two sources “CMC” and “Classification system”

The graph shows data on the placement of terminals from two official sources: open data of St. Petersburg (Classification System) and the City Monitoring Center. There are differences in the data - the Kirovskiy and Krasnoselskiy districts have a different number of terminals, which indicates the inconsistency of the authorities in the field of informing, as a result, this affects the quality of decision-making, the awareness of citizens about the availability of these terminals and the quality of research conducted by scientific communities, universities etc. Also, according to the CMC, 10 out of 18 districts of the city are equipped with emergency communication terminals. If consider the districts from the point of view of street crime and the anxiety of residents (Figure 16), we can see that in the most dangerous areas of the city, there is not even a single terminal.

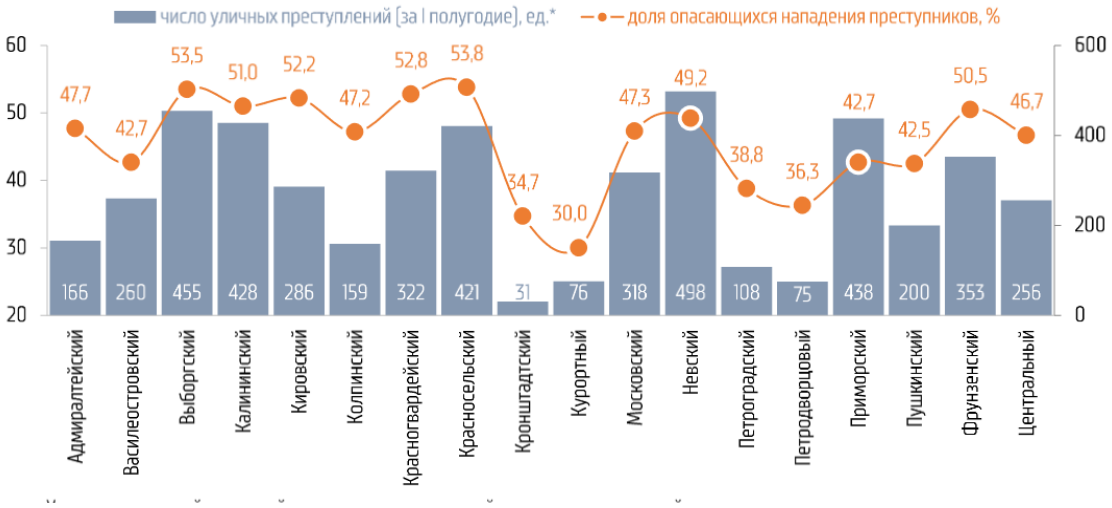

Figure 16 – The level of anxiety about street crime and the number of street crimes committed in the districts of St. Petersburg (IAC SPb, 2021)

The most criminal districts are Nevskiy, Vyborgskiy, Primorskiy. However, in these districts, there are either no terminals at all, or from 1–3 terminals. In this case, there is an inequality in the digitalization of the spheres of urban life of the population in the context of districts. But the number of terminals should depend not only on the actual level of crime in the districts, but also on the population in the districts, on the area of the district. Since more population requires more terminals, longer distances require more frequent deployment of equipment.

In addition, residents of St. Petersburg have the opportunity to take part in the improvement of the urban environment and apply to regional / local authorities in order to notify them of existing problems in the field of improvement, housing and communal services through the Our St. Petersburg portal, which has both its own website as well as a smartphone app.

The number of registered users is 248,734 or 4.6% of the city's total population. Compared to 2021, the number of portal users increased by 39,845 people. The total number of complaints is over 3.9 million, the most number of complaints in Nevskiy (571 611), Centralniy (411 318) and Vybirgskiy (341 907).

Summing up the results based on the analysis of legislation, secondary data the following problems were identified:

Weakness 1. Inconsistency of public authorities and state programs.

Weakness 2. Unavailable reliable official information.

Weakness 3. The differences in distribution of digital infrastructure and usage digital services in districts of St. Petersburg.

Weakness 4. Low level of basic digital skills, especially adults.

The listed problems are required the complex approach of solving. It is important to organize the coordinate work of authorities in the field of digitalization (supply side) and increase readiness of people to use online service and digital infrastructure of urban life (demand side).

2.3 Analysis of the survey results of digital inequality between St. Petersburg citizens

The survey is devoted to identifying digital inequality of St. Petersburg citizens. It includes set of questions which are presented 4 factors of digital inequality: access of Internet and devices; awareness about online services; level of digital skills; trust the online services and communication with authorities via online services; deliberate benefits on online services usage.

309 respondents took part in survey. The respondents aged 14-24 were 9%, 25-34 – 18%; 35-44 – 25%; 55 and older – 31%. As for gender, the share of women is greater – 82, 5%, men – 17, 5 %.

63,8% of respondents have the higher education; 27,2% - secondary professional education (46% of them are older 55 years); 6,1% have secondary education; 2,9% have PhD.

The most share of people 63,4% is represented by hired employees; 20,7% - unemployed retirees; 6,8% - entrepreneur; 6,1% - working retiree; 5,8% - temporarily unemployed; 5,2% of students; 3,2% - housewives and 2,6% those who both entrepreneur and hired employees.

The respondents who assess their material status as “Enough money for food and clothes, but buying of refrigerator and furniture is a problem” are 38,8%; 25,1% notes that “We can buy refrigerator and furniture, but no more”; those who can buy food, but the buying of clothes is a problem are 16,6%; 10,1% found it difficult to answer; for 4,9% it is a problem to buy even food and 3,3% can buy car.

As for the geographic location, in survey respondents from 17 districts (except Kronshtadtskiy) of St. Petersburg took part: Admiralteiskiy – 1%; Vasileostrovskiy – 6%; Vyborgskiy – 1,3%; Kaliniskiy – 1%; Kirovskiy – 28,6%; Kolpinskiy – 13%; Krasnogvardeiskiy – 0,3%; Krasnoselskiy - 5,6%; Kurortniy - 4,7%; Moskovskiy – 1,3%; Nevskiy – 15,9%; Petrogradskiy – 15,9%; Petrodvosoviy – 1,3%; Primorskiy – 2,7; Pushkinskiy – 1,3%; Frunzenskiy – 1,3%; Centralniy – 2,7%.

Because the survey focused on identification of problems of digital inequality, the following descriptive statistics will divided into 4 blocks: access; awareness; skills; trust; benefits.

Access

The greatest number of respondents who asked the question about availability Internet access – yes - is 96% and 4% do not have internet access (Fig.17).

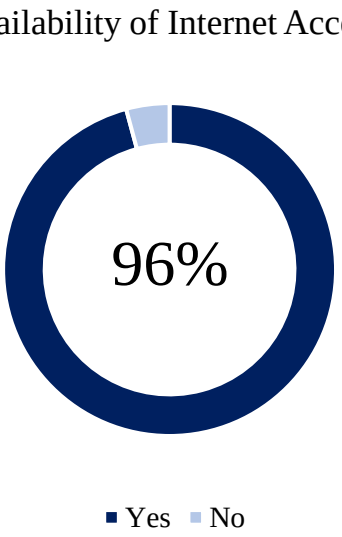

Figure 17 – The share of respondents who have Internet access, %

All respondents who do not have Internet access live in districts where the average wage of population is lower than average wage of St. Petersburg (Vyborgskiy, Kirovskiy, Nevskiy, Kurortniy, Krasnoselskiy). And all of the are older 55 years. The most share of respondents live in Nevskiy -76%.

If study the Internet access in age groups, it is observed the respondents 55 years old and older have problems with access, because 12% of adult population do not have access (fig. 18).

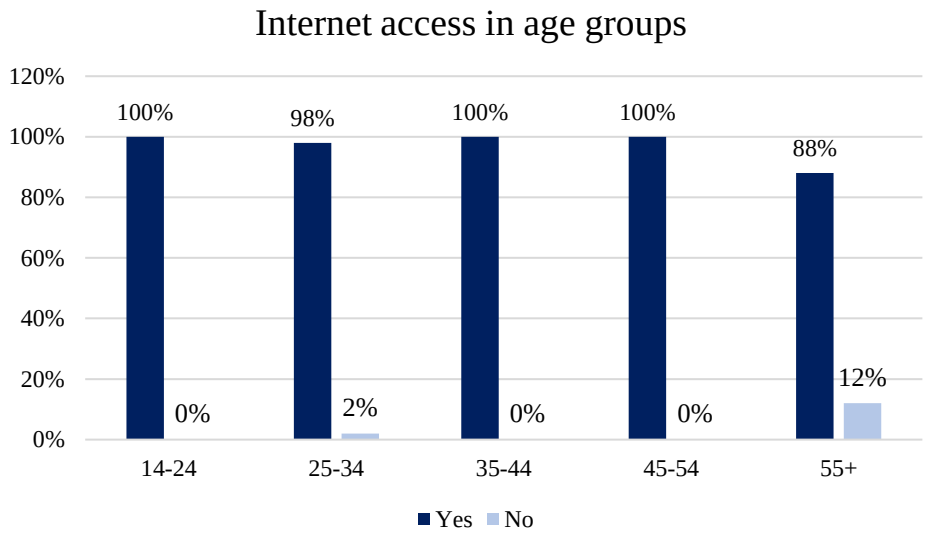

Figure 18 – The Internet access in age groups

The lowest level of access is observed among respondents with secondary professional education. In general, with an increase in the level of education, the number of respondents with access to the Internet increases (Fig. 19).

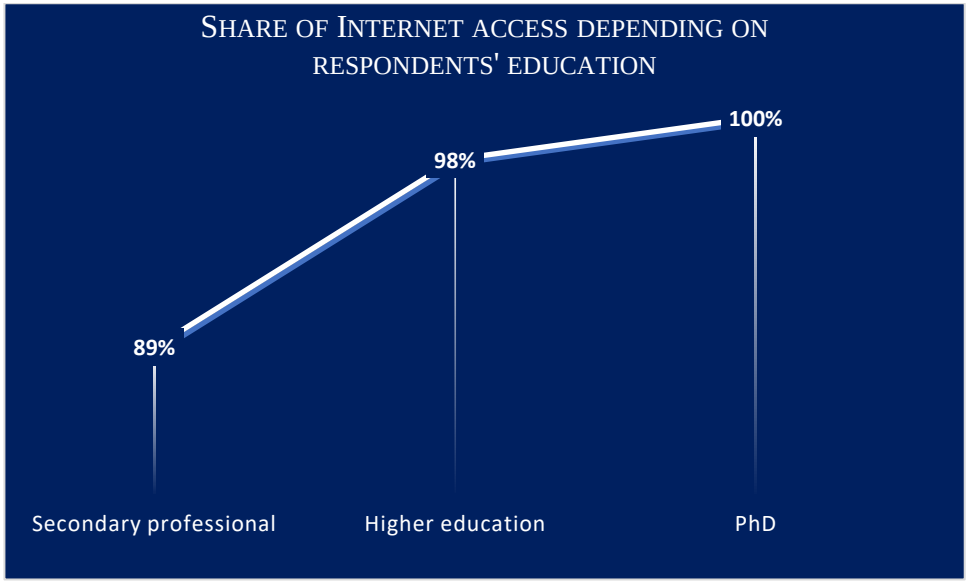

Figure 19 – Share of Internet access depending on respondents' education

Nevertheless, those who have access use Internet often (89%) (Fig.20).

Structure of respondents' frequency Internet use

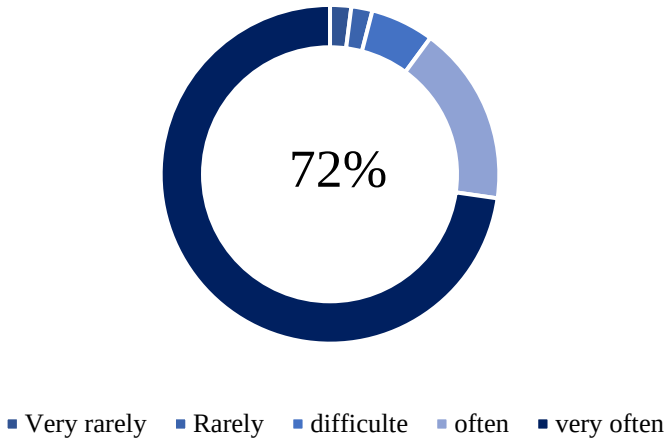

Figure 20 – Structure of respondents' frequency Internet use

Respondents from all age groups, except the older ones, noted a high frequency of Internet use. The most active users in the group are 14-24 years old. In the older age group, the differentiation in frequency of use is more noticeable - 13% rarely use the Internet, and 15% could not give an unambiguous assessment. Thus, the older age group is less involved in the use of the Internet (Fig. 21).

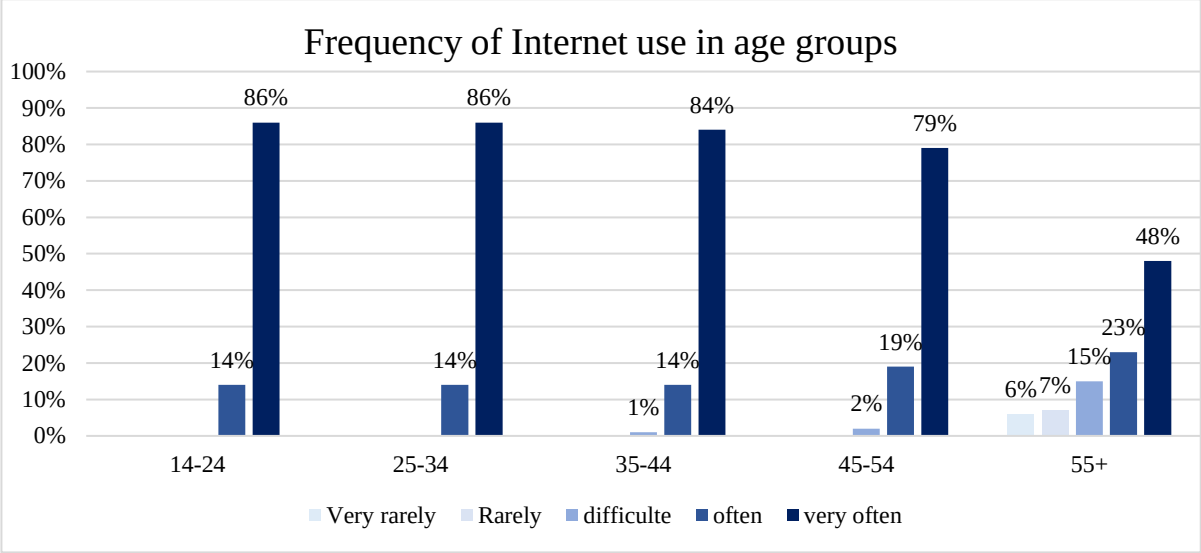

Figure 21 – Structure of respondents' frequency Internet use

Awareness

In this block respondents answered the questions about their awareness about digital portal “gosuslugi”, the registration and satisfaction of usage “gosuslugi”.

98% know about portal “gosuslugi”, but 2% do not know. It is only 5 people aged 72, 73, 76, 82 and 84. Two of them (40%) live in Petrogradskiy and 3 (60%) of them in Nevskiy, but it is important to note that the personal questioner was in these two districts.

As for raising awareness of older people about e-services, according to the results, the five most popular channels are:

1. Advertising on television (54%);

2. Information stands in MFC, hospitals, post office, etc. (48%);

3. News report on television (46%);

4. Alerts in public places (40%);

5. Articles in newspapers (34%).

For respondents over 55, the channels they most want to use are:

1. News report on television (44%);

2. Advertising on television (42%);

3. Recommendations of representatives of organizations (30 times);

4. Information stands at the MFC (31%);

5. Alerts in public places (18%).

Television, public places are the most familiar and simple channels for elderly people to receive information, and MFCs, banks and other public places are places where elderly people often go. Therefore, the relevant government departments should focus their attention on the above-mentioned promotion channels.

Among those who have known about portal, 87% have registration (Fig. 22).

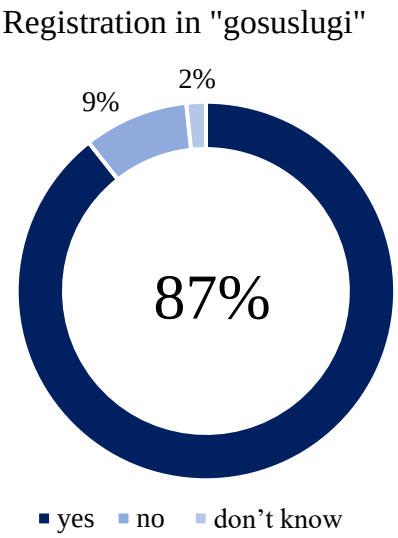

Figure 22 – Share of "gosuslugi" users, %

Nevertheless, 9% do not have registration and 2% do not know whether they have registration or no.

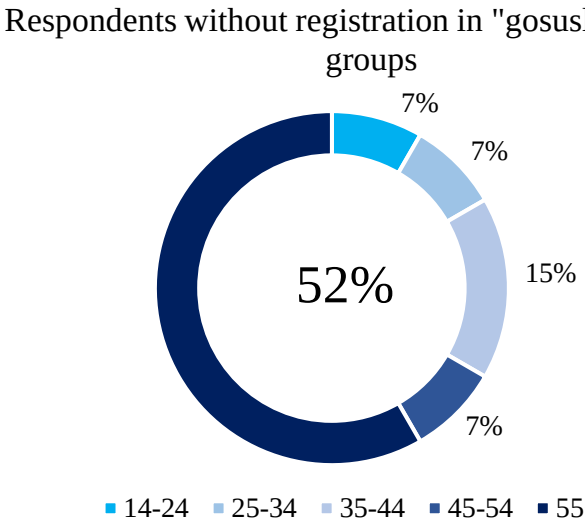

Figure 23 – Respondents without registration in "gosuslugi" in age groups, %

52% of respondents who do not have registration are older 55 years. 51% of unregistered are unemployed retirees. 37% have secondary professional education, 40% - higher.

77% live in districts with low average wage (Kolpinskiy, Kirovskiy, Kurortniy, Nevskiy).

Respondents also mentioned the reasons why they are not registered. The most preferred is:

1. no need to use the portal (48%);

2. do not want to share personal data (33%);

3. preference for personal appeal to the authorities (30%).

This result shows that these respondents prefer offline service models.

In addition, registered respondents assessed the degree of satisfaction with the use of the portal. As shown in Figure 24, almost half of the respondents indicated that they were rather satisfied.

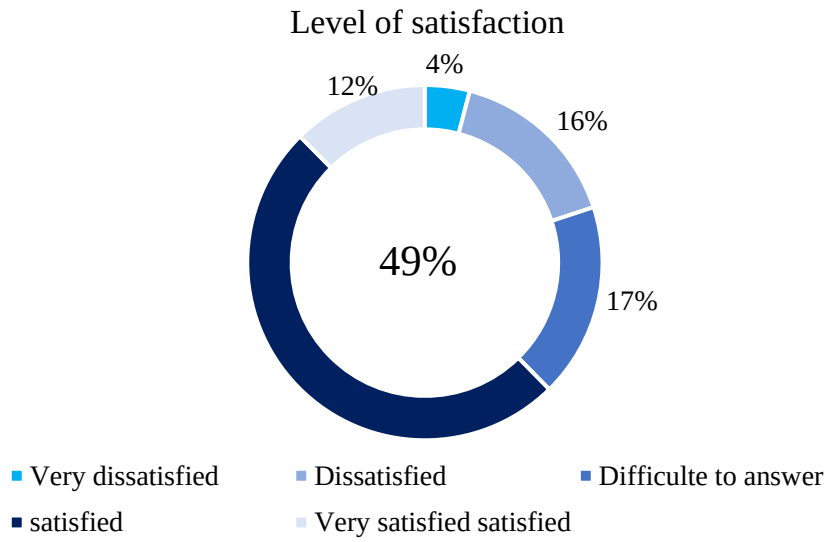

Figure 24 – “Gosuslugi” level of satisfaction in, %

On a scale from 1 to 5, the average satisfaction score of “Gosuslugi” among respondents is 3.51 points. According to the analysis of different ages, it can be established that the average satisfaction is 3.64 for 14-24 years, 3.59 for 25-34 years, 3.63 for 35-44 years, 3.58 for 45-54 years, and 3.20 for respondents over 55 years. Older people have the lowest level of satisfaction among all age groups. This may be due to the fact that the procedures are too complicated.

Skills

In this block respondents were asked to assess their level of skills.

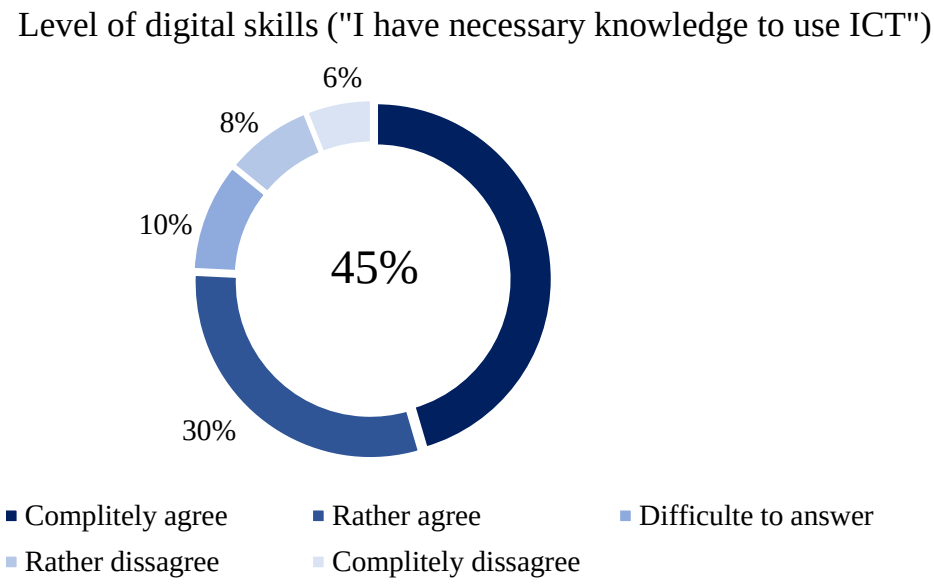

Figure 25 – Level of digital skills ("I have necessary knowledge to use ICT"), %

45% of respondents considered that they fully possess the skills of using electronic services, 30% rather agree with this statement, 10% found it difficult to answer, 8% rather disagree that they have all the necessary skills, and 6% believe that they do not possess the necessary skills at all (fig. 25)

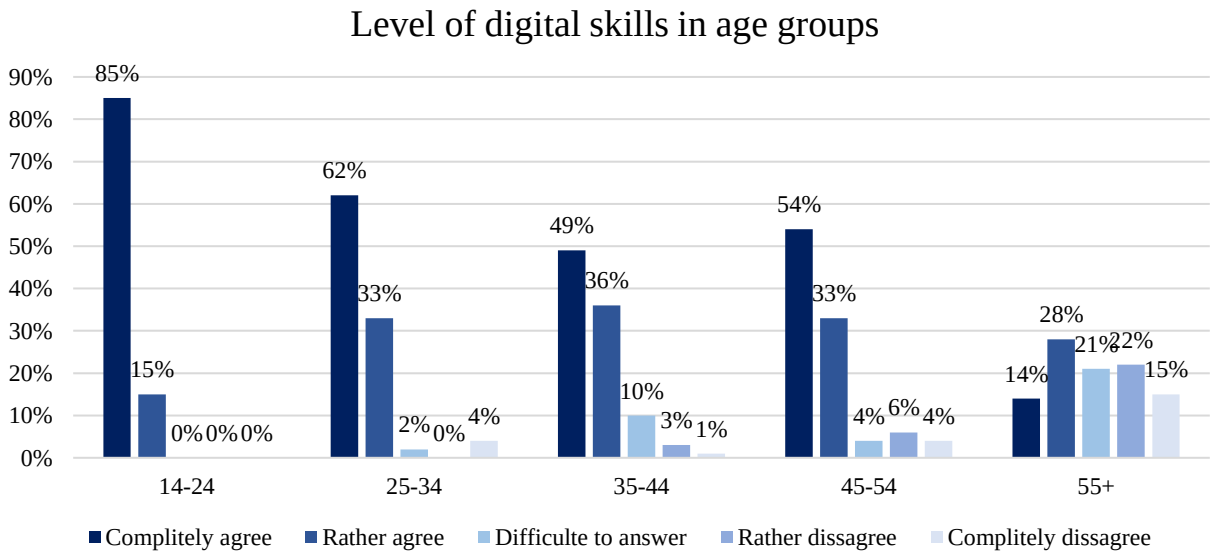

Figure 26 – Level of digital skills in age groups, %

In each age group, except for the older one, more than 85% believe that they have enough skills to use electronic services. there is a noticeable trend that with an increase in the age group,

the proportion of respondents who are not confident in the sufficiency of skills increases. In the older age group, only 44% believe that they possess skills at a sufficient level (fig. 26).

74% of respondents with low level of digital skills live in districts with low average wage and 78% of them are older 55.

Trust

In this block respondents answered the question about their trust online services and communication with authorities via online services.

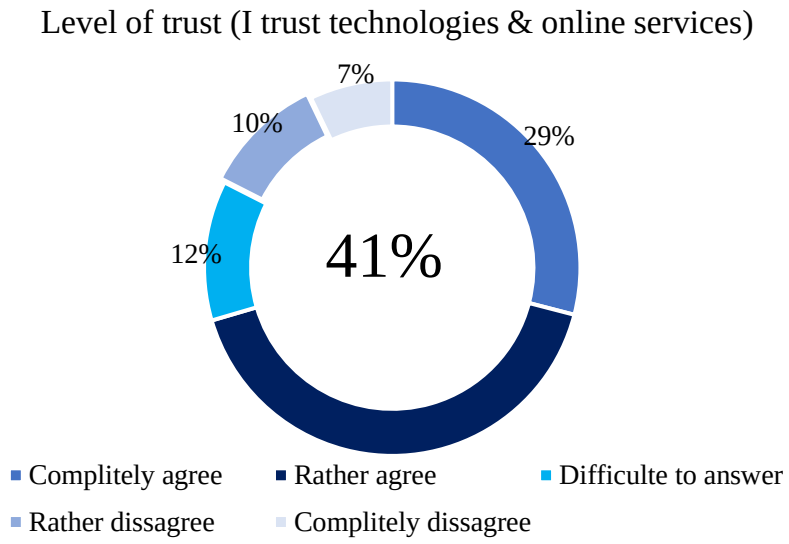

Figure 27 – Level of trust (I trust technologies & online services), %

If analyse the data obtained from the point of view of public confidence in receiving online services, it will become clear that most of the respondents (41% - completely, and 30% - completely agree) trust in receiving services and services through Internet channels (Fig. 27).

Also, 76% of respondents who do not trust, live in districts with low average wage.

Among the main reasons for distrust, respondents most often indicated a low level of transparency in the process of receiving services (59.2%), lack of guarantees of information confidentiality and security (48.9%).

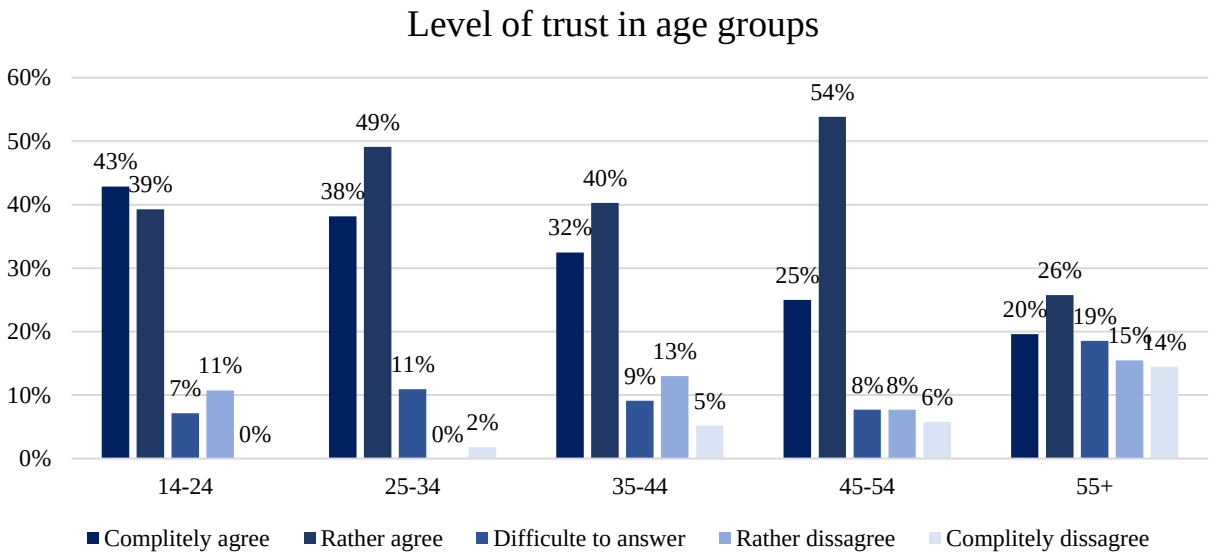

Figure 28 – Level of trust in age groups (I trust technologies & online services), %

As for the trust in age groups, it is again observed, that in all groups except the adult the level of trust is about 80% and higher. 46% of people older 55 trust technologies, 29% do not trust and 19% found difficult to answer.

The reasons for citizens' distrust of electronic services are similar for different categories of citizens. The main concern is for the safety of personal data (more than 150 responses). No less significant was the personal experience of receiving electronic services: the previous experience of using electronic services influenced the responses of more than 170 respondents). In addition, respondents believe that increasing the transparency of the process of receiving services could significantly affect their confidence in receiving services in electronic format.

In addition, respondents indicated the reasons for distrust of the services - loss of access to the site and their own data during the use of the services (for information technology reasons, in case of equipment outages or in case of third–party interference in databases).

Thus, the problem of trust in electronic services is most relevant for the older generation. However, the reasons for the distrust of all respondents are more similar.

Benefits

In this block respondents assessed the benefits of online services.

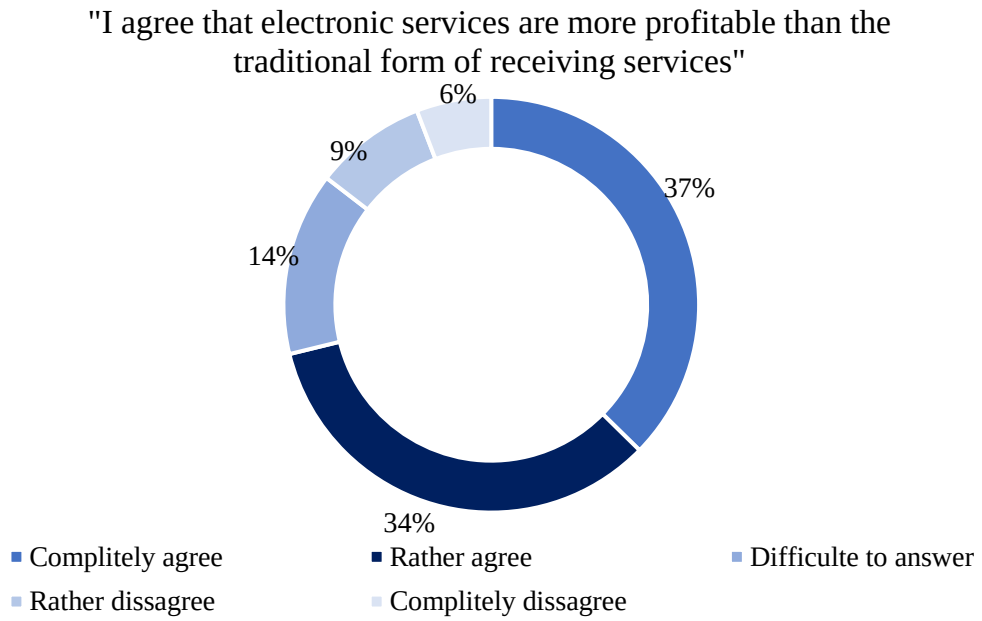

Figure 29 – “I agree that electronic services are more profitable than the traditional form of receiving services”,%

Among respondents, 70% consider electronic services to be a more profitable form of receiving services than the traditional one. 15% found it difficult to answer, and 15% do not agree that electronic receipt of services is a profitable way.

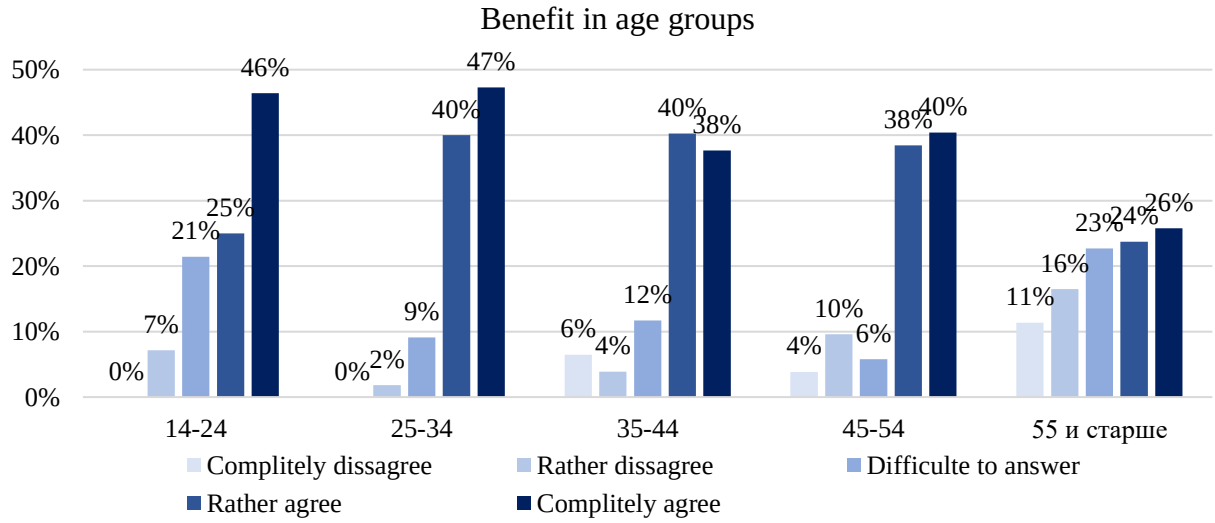

Figure 30 – “I agree that electronic services are more profitable than the traditional form of receiving services” in age groups,%

In general, in all age categories, the majority recognizes the benefits of using electronic services, but in adult group – 50%.

78% of those who do not recognize the benefit live in districts with socio-economic disadvantage. 57% of them are older 55 years.

Summarizing the results of survey, it is proposed to list the findings:

1) 100% of those who do not have Internet access are respondents older 55 years and live in district with low average wage (Nevskiy, Vyborgskiy, Kurortniy, Kirovskiy, Krasnoselskiy).

2) 100% of those who have never heard about "Gosuslugi" are older 72 years and live Petrgradskiy and Nevskiy districts.

3) 52% of respondents who do not have registration are older 55 years. 77% of them live in districts with low average wage (Kolpinskiy, Kirovskiy, Kurortniy, Nevskiy).

4) 74% of respondents with low level of digital skills live in districts with low average wage and 78% of them are older 55.

5) 76% of respondents who do not trust, live in districts with low average wage. 54% of those who.

6) 78% of those who do not recognize the benefit live in districts with socio-economic disadvantage. 57% of them are older 55 years.

Thus, the most vulnerable group to technologies is older 55 years old and live in districts with low average wage (weakness 5)

Also, the following hypothesis were proposed:

H2: the older population, the lower level of digital skills

H3: the lower level of digital skills, the lower level of trust

2.4 Regression analysis of survey results of digital inequality among St. Petersburg citizens

In order to test the hypotheses, a regression analysis of the survey results was carried out. In regression analysis it was used the following variables (table 4, table 5).

Table 4

Data description

Variable	
Access	Access to Internet
IntUsage	Frequency of Internet usage
SatisfGU	Satisfaction by portal "Gosuslugi"
TechSkills	Level of digital skills
TechTrust	Trust in technologies
Involve	Preference for online services over traditional methods
Gender	Gender
Age	Age
Educ	Level of education
IncomeLvl	Level of inciome

309 people participated in the survey (N=309), the minimum age of the respondent is 14 years, the maximum is 84. 18% of men took part in the survey (in the table, the binary variable is zero if the respondent is a woman, and one if the respondent is a man).

Table 5

Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Access	309	4.369	.974	1	5
IntUsage	309	4.553	.861	1	5
SatisfGU	309	3.443	.977	1	5
TechSkills	309	3.984	1.213	1	5
TechTrust	309	3.751	1.187	1	5
Involve	309	3.602	1.195	1	5
Gender	309	.175	.38	0	1
Age	309	45.932	15.875	14	84
Educ	309	3.634	.644	1	5
IncomeLvl	309	3.068	.882	1	5

The Polychoric Correlation analysis was used to calculate the correlation between ordinal categorical variables. And has shown the following results (Table 6).

Table 6

Correlation matrix

Polychoric correlation matrix

	Access	IntUsage	SatisfGU	TechSkills	TechTrust	Involve	Educ	IncomeLvl
Access	1							
IntUsage	.60088263	1						
SatisfGU	.27255492	.31283008	1					
TechSkills	.4884935	.70763613	.39967863	1				
TechTrust	.4352365	.40238423	.25655049	.52008926	1			
Involve	.39239846	.49806727	.38693757	.60116704	.44979571	1		
Educ	.192844	.19117852	.19699894	.23881709	.10061917	.23018168	1	
IncomeLvl	.45553195	.38097536	.18167218	.35199328	.27915832	.20780559	.29001032	1

High level of correlation was observed between such variables as:

– Internet access and frequency of Internet usage (Access & IntUsage), that is obvious. If person has constant Internet access the more possibilities to use it more often.

– The digital skills and frequency of Internet usage (IntUsage & TechSkills).

– Involvement and Skills.

Further, linear regression models were constructed. And thesemodel checked the hypothesis, which were proposed in research:

H1: the older population, the lower level in involvement in online services.

H2: the older population, the lower level of digital skills

H3: the lower level of digital skills, the lower level of trust

Regression model 1. Identification of factors affecting digital skills.

$$y(TechSkills) = \alpha + \beta Access + \beta Involve + \beta SatisfGU + \beta Gender + \beta Age + \beta Educ + \beta IncomeLvl + \varepsilon$$

Table 7

Linear regression model 1

TechSkills	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Access	.105	.057	1.83	.068	-.008	.219	*
Involve	.276	.049	5.67	0	.18	.371	***
SatisfGU	.143	.055	2.62	.009	.036	.251	***
Gender	.398	.134	2.97	.003	.134	.661	***
Age	-.032	.004	-8.98	0	-.039	-.025	***
Educ	.173	.081	2.13	.034	.013	.333	**
IncomeLvl	.037	.065	0.57	.572	-.092	.165	
Constant	2.701	.439	6.14	0	1.836	3.565	***

Mean dependent var	3.984	SD dependent var	1.213
R-squared	0.498	Number of obs	309
F-test	42.734	Prob > F	0.000
Akaike crit. (AIC)	797.832	Bayesian crit. (BIC)	827.699

*** p<.01, ** p<.05, * p<.1*

The regression model is statistically significant and has average level of explanation. The following variables are statistically significant – Involve, SatisfGU, Gender, Age, Educ. Thus, there are such results:

- Involvement positively effect on level of digital skills. So, online public services and usage of its help citizens increase their skills.
- Satisfaction by portal "gosuslugi" increases digital skills. It can be explained by the fact that positive experience of usage of portal helps development of digital skills on order to use these online services.
- Men have more digital skills.
- The older respondent the lower level of digital skills.
- Respondents with the higher education have higher level of digital skills.'

Regression model 2. Identification of factors affecting trust in usage of technologies and online services.

$$y(TechTrust) = \alpha + \beta Access + \beta Involve + \beta SatisfGU + \beta Gender + \beta Age + \beta Educ + \beta IncomeLvl + \varepsilon$$

Table 8

Linear regression model 2

TechTrust	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Access	.205	.068	3.01	.003	.071	.34	***
Involve	.293	.058	5.06	0	.179	.406	***
SatisfGU	.111	.065	1.71	.088	-.017	.239	*
Gender	.12	.159	0.76	.45	-.193	.434	
Age	-.008	.004	-1.91	.057	-.017	0	*
Educ	-.071	.097	-0.73	.464	-.261	.119	
IncomeLvl	.113	.078	1.46	.145	-.039	.266	
Constant	1.679	.522	3.21	.001	.651	2.707	***

Mean dependent var	3.751	SD dependent var	1.187
R-squared	0.260	Number of obs	309
F-test	15.138	Prob > F	0.000
Akaike crit. (AIC)	904.537	Bayesian crit. (BIC)	934.403

*** p<.01, ** p<.05, * p<.1*

The regression model is statistically significant and has low level of explanation. The following variables are statistically significant – Access, Involve. Thus, there are such results:

- Internet access positively effects on trust in technologies.
- Involvement positively effects on trust.
- Thus, it is possible to make conclusion, that portal “gosuslugi” has a good quality, and that people who do not trust, they are not aware or didn’t use online services.

Regression model 3. Identification of factors affecting involvement in public online services.

$$y(Involve) = \alpha + \beta Access + \beta IntUsage + \beta SatisfGU + \beta TechSkills + \beta TechTrust + \beta Gender + \beta Age + \beta Educ + \beta IncomeLvl + \varepsilon$$

Table 9

Linear regression model 3

Involve	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Access	.114	.066	1.73	.084	-.015	.243	*
IntUsage	.091	.081	1.13	.26	-.068	.251	
SatisfGU	.181	.06	3.00	.003	.062	.299	***
TechSkills	.257	.067	3.84	0	.125	.389	***
TechTrust	.2	.054	3.74	0	.095	.306	***
Gender	-.139	.15	-0.93	.354	-.433	.155	
Age	-.009	.004	-2.01	.045	-.018	0	**
Educ	.186	.09	2.06	.04	.009	.362	**
IncomeLvl	-.1	.072	-1.39	.164	-.242	.041	
Constant	.363	.574	0.63	.527	-.766	1.492	

Mean dependent var	3.602	SD dependent var	1.195
R-squared	0.377	Number of obs	309
F-test	20.088	Prob > F	0.000
Akaike crit. (AIC)	860.013	Bayesian crit. (BIC)	897.346

*** p<.01, ** p<.05, * p<.1

The regression model is statistically significant and has average level of explanation. The following variables are statistically significant –SatisfGU, TechSkills, TechTrust, Age, Educ. Thus, there are such results:

- Positive experience of usage of online public services positively effects on involvement.
- Respondents with more developed digital skills are more involved in usage of online services.
- Respondents who trust online services are more involved.
- The older respondent the lower level of involvement.
- Respondents with higher education are more involved.

Thus, in order to overcome digital inequality in St.Petersburg it is necessary to increase involvement, increase satisfaction (quality) of online services, increase access to services, and help adult people and less educated population to adapt these technologies.

CHAPTER 3. DISCUSSION OF RESULTS AND DEVELOPING RECOMMENDATIONS TO OVERCOME DIGITAL INEQUALITY

3.1 Discussion the results of digital inequality in St. Petersburg

The results of study have shown that despite the fact that St. Petersburg one of the most successful regions of Russia in digitalization, there are several problems.

Firstly, it is imperfect legislation, because there is inconsistency of departments and state programs, inconsistency of indicators of regional projects and a lot of time is spent on the exchange of information between the authorities.

Due to the problem of legislation which also proposed analysis city level, there is such problem as unavailable reliable official information, which can create obstacles in finding vulnerable territories in St. Petersburg.

As a result, there is unequal budget allocation in districts of St. Petersburg in implementation digital policy or the differences in distribution of digital infrastructure and usage digital services in districts of St. Petersburg. The connection between the lack of available data and unequal distribution of budget and infrastructure is following – without data it is not possible to define the needs of territories and problems, which cannot be observed in daily life. Sometimes it takes time to find some negative trends and reasons.

Moreover, one of the reasons of negative trend - digital inequality in St. Petersburg is low level of basic digital skills, trust and involvement in online services, especially adults.

The survey has shown, that in St. Petersburg people older 55 years who live in districts with low average wage have obstacles:

1) 100% of those who do not have Internet access are respondents older 55 years and live in district with socio-economic disadvantage (Nevskiy, Vyborgskiy, Kurortniy, Kirovskiy, Krasnoselskiy).

2) 100% of those who have never heard about “gosuslugi” are older 72 years and live Petrgradskiy and Nevskiy districts.

3) 52% of respondents who do not have registration are older 55 years. 77% of them live in districts with low average wage (Kolpinskiy, Kirovskiy, Kurortniy, Nevskiy).

4) 74% of respondents with low level of digital skills live in districts with low average wage and 78% of them are older 55.

5) 76% of respondents who do not trust, live in districts with low average wage. 54% of those who do not trust are older 55 years.

6) 78% of those who do not recognize the benefit live in districts with socio-economic disadvantage. 57% of them are older 55 years.

Thus, the most vulnerable group to technologies is older 55 years old and live in districts with low average wage.

The full list of problems is represented below:

Weakness 1. Inconsistency of public authorities and state programs.

Weakness 2. Unavailable reliable official information.

Weakness 3. The differences in distribution of digital infrastructure and usage digital services in districts of St. Petersburg.

Weakness 4. Citizens older 55 years old who live in districts with low average wage have problems with access to Internet, awareness, usage of online public services and skills.

The listed problems are required the complex approach of solving. It is important to organize the coordinate work of authorities in the field of digitalization (supply side) and increase readiness of people to use online service and digital infrastructure of urban life (demand side).

3.2 Recommendations of overcoming digital inequality in St. Petersburg

In order to eliminate **weakness 2** associated with the lack of official statistical information, it is necessary to create a unified information statistical system (cloud storage), which will include an assessment of the digitalization of the urban environment at the district level, containing indicators of the supply side, they exist in regional projects, as well as demand sides:

– the share of population, which has internet access, %

– the share of population, which satisfied by the quality of Internet, %

– the share of people, who are aware of online services (in all spheres), %

– the share of services received online in the total share of services provided (online and offline),%;

– the share of population, which know about benefits of online services, %

– the share of population, who are confident in own digital skills, %

– the share of population, who trust in technologies and online services, %

– the share of population, who trust in communication with authorities via online services, %

In addition to digitalization indicators, this system should include all reports from administrations, committees, state and non-state organizations of St. Petersburg, and survey results. And most of the information should be available to scientific communities, universities for research purposes.

This suggestion can be implemented by amending the regional projects (and state programs). Precisely, the implementation of measures to create a unified information statistical

system of St. Petersburg, where static data should be maintained according to the above indicators in each district of St. Petersburg.

The efficiency of the proposal regarding the elimination of the **weakness 2**:

Subject: unified information statistical system.

Implementor: regional authorities

The openness and accuracy of information will allow both the authorities to make the right decisions, and researchers to develop more relevant recommendations in order to improve digitalization policies, which will solve the digital inequality.

So, instead of many sources of information, there will be one reliable source that will include all information in the field of digitalization of districts and urban spheres. Also, this site will be able to provide unloading of data in Excel format for easy processing. To transfer data to a digital format, the authorities can create places for internships for students or attract members of the youth personnel reserve of St. Petersburg.

Weakness 1. The inconsistency of public authorities is the consequence of weakness 2 and shown in 2 aspects: a) differences in the information provided by different authorities b) bureaucracy and the length of time of interaction between authorities. In solving the problem under point “a”, recommendations for weakness 2 can help. The unified system (cloud storage), which will allow to avoid errors in providing information, and notify of the discrepancy if information is dissimilar.

To solve the problem “b” it is also necessary to turn to information systems. In order to reduce the time for sending complaints about offenses between district departments of St. Petersburg, the Home department should introduce an information system with a database that will allow one-click exchange of information.

The efficiency of the proposal regarding the elimination of the **weakness 1**:

Subject: information system.

Implementor: Home department of St. Petersburg, Information and Analytical Center of St. Petersburg.

As a result, this decision will affect the of detection of crimes, the level of crime in the city and will reduce the time for investigation and paper costs. Similar systems have already been implemented in such industries as education, healthcare, housing and communal services, and the Information and Analytical Center of St. Petersburg (IAC SPb) can provide the development and installation of information systems.

The defines unequal distribution of digital equipment in the districts of St. Petersburg (**weakness 3**) can be solved by conducting a socio-economic analysis of the districts. It will locally identify existing problems, shortcomings, avoid inefficient budget allocation, as well as increase

citizen satisfaction and ensure public consent through timely problem solving. Data for socio-economic analysis can be used from a unified information system proposed for implementation above.

The efficiency of the proposal regarding the elimination of the **weakness 3**:

Subject: socio-economic analysis of districts of St. Petersburg.

Implementor: federal and regional authorities, Petrostat.

The implementation of this proposal can be implemented by amending the federal and regional projects (and state programs). The measures to assess the digital maturity of St. Petersburg districts in federal legislation should be approved. As a result, changes in regional legislation should be made. Also, socio-economic data at the district level can be collected by Petrostat. And enter in the unified information statistical system (the 1st suggestion).

In addition, in an unstable economic situation, lack of budget, it is necessary to prioritize budget expenditures between the administrative units of the city. Since the analysis of the survey results revealed that residents of districts where wages are lower than average wage in city have problems when interacting with digital services, it is necessary to allocate budget for the policy of overcoming the digital inequality in the first place in the following districts: Vyborgsky, Kurortny, Kirovsky, Petrodvortsovy , Nevsky, Krasnogvardeisky, Frunzensky, Kolpinsky, Krasnoselsky.

And to finance the installation of digital equipment to ensure security should be in areas with the highest crime: Vyborgsky, Nevsky, Primorsky.

Thus, increasing the level of digitalization of the urban environment at the city level will occur due to the equal distribution of digital equipment in all districts of the city.

Weakness 4. Generation over 55 living in districts with low average wages have difficulty accessing the Internet, are less aware of online services, do not use online services; do not trust, and do not realize the benefits.

1. In order to increase the availability of the Internet, it is necessary to provide a) preferential tariffs for retirees (during a personal survey, residents noted the reason for not using the Internet - the lack of pensions to pay tariffs); b) availability of computers with Internet access on the 1st floors of apartment buildings; c) adaptation of digital devices in the city and online services for people with auditory, visual, physical disabilities (the option of large print on public equipment and online services, the presence of a loudspeaker and convenient location of equipment for people in wheelchairs and the visually impaired).

2. To raise awareness of the older generation about the availability of online opportunities, it is necessary to use the following information and communication tools: a) advertising on regional television about the availability of digital literacy courses; b) advertising on television, in

public transport, informative stands with pictures and readable text in government organizations about the availability, benefits and security of digital services

3. Since there are already courses to improve digital literacy, it is necessary to adapt them to individual courses for the older generation with auditory, visual, physical (it is difficult to leave the house) features.

4. In order for the public to be aware of the benefits of online services, they should be made aware of the following opportunities: a) advertising with positive feedback from people and explaining the benefits (for example, an advertisement for vaccination against COVID 19) b) Provide the user with the benefit when receiving the service for the first time, for example, a discount on tests, booking out of turn, a temporary discount on public transport (positive experience affects further use, the person realizes the benefit); c) Another aspect of the benefit is ease of use. To do this, it is necessary to simplify the interface, not to make frequent updates, the use should be intuitive (for example, the process of searching for the necessary service will greatly simplify the search function, which can be activated by one swipe (the user should avoid numerous transitions from one section to another as much as possible and not experience discomfort, when a chatbot pops up in front of him, which he did not call, and because of which the application hangs).

The efficiency of the proposal regarding the elimination of the **weakness 4**:

Subject: policy of adaptation of the older generation to the digital environment.

Implementor: regional authorities.

This suggestion will have social effect – overcoming of digital inequality among citizens. The adult population will have access to Internet and devices and will be able to use technologies without obstacles.

CONCLUSION

Based on the study, it is possible to answer the research questions: 1) there is digital inequality among population of districts of St. Petersburg; 2) the main factors are age (adult population) and geographic location (districts of St. Petersburg with low level of income, where live population) and income.

Thus, the main conclusions and proposals were formulated.

Digitalization of urban environment is represented in the smart city concept, which supposes availability of digital infrastructure and online services in all spheres of urban life. But with the technologies introduction not all people have the possibility to use it due to unequal distribution of digital benefits, that depend on relations in society. It is proved that there is digital inequality, that is represented by socio-economic inequality in society. Such features as gender, age, occupation, education, geographic location influence on levels of digital divide: access, skills, trust, and benefits – digital inequality.

In St. Petersburg in the context of digital transformation, introduction technologies, online services the problems of digital inequality and policies of overcoming digital inequality are represented in legislation. In general, the studied spheres of urban life (healthcare, education, public administration, urban environment) have high level of digitalization and citizens use these online services. But it is observed unequal distribution physical digital infrastructure among districts and in several districts citizens less use online services. The digitalization policy is realized in regional projects and implemented at the regional and local level.

As for the local level, according to the data, districts can be divided into 2 parts: 1) districts with average wage lower than average wage in St. Petersburg (<124 thousands ₽): Kronshtadtskiy (85 thousand ₽), Krasnoselskiy (85 thousand ₽), Kolpinskiy (91 thousand ₽), Nevskiy (96 thousand ₽), Pushkinskiy (98 thousands₽), Petrodvorsoviy (98 thousands₽), Kirovskiy (99 thousands₽), Frunzenskiy (100 thousands₽), Krasnogvardeiskiy (102 thousands₽), Kalininskiy (105 thousands₽), Kirovskiy (100 thousands₽), Viborgskiy (107 thousands₽); 2) districts with higher average wage than average wage in St. Petersburg: Petrogradskiy (170 thousands₽), Admiralteiskiy (147 thousands₽), Centralniy (146 thousands₽), Vasileostrovskiy (137 thousands₽), Moskovskiy (135 thousands₽), Kurortniy (134 thousands₽), Primorskiy (133 thousands₽).

Thus, the districts (Admiralteiskiy, Petrogradskiy, Vasileostrovskity) where there is less labour force (and total population) are more welfare due to high average wage. As a result, segregation zones are formed, where wealthy population has access to social benefits, including technologies.

The survey has shown, that in St. Petersburg people older 55 years who live in districts with low average wage have obstacles:

1) 100% of those who do not have Internet access are respondents older 55 years and live in district with socio-economic disadvantage (Nevskiy, Vyborgskiy, Kurortniy, Kirovskiy, Krasnoselskiy).

2) 100% of those who have never heard about “gosuslugi” are older 72 years and live Petrgradskiy and Nevskiy districts.

3) 52% of respondents who do not have registration are older 55 years. 77% of them live in districts with low average wage (Kolpinskiy, Kirovskiy, Kurortniy, Nevskiy).

4) 74% of respondents with low level of digital skills live in districts with low average wage and 78% of them are older 55.

5) 76% of respondents who do not trust, live in districts with low average wage. 54% of those who do not trust are older 55 years.

6) 78% of those who do not recognize the benefit live in districts with socio-economic disadvantage. 57% of them are older 55 years.

Thus, the most vulnerable group to technologies is older 55 years old and live in districts with low average wage.

As a result, there were identified such weaknesses:

Weakness 1. Inconsistency of public authorities and state programs.

Weakness 2. Unavailable reliable official information.

Weakness 3. The differences in distribution of digital infrastructure and usage digital services in districts of St. Petersburg.

Weakness 4. Citizens older 55 years old who live in districts with low average wage have problems with access to Internet, awareness, usage of online public services and skills.

And according to these problems, it was proposed the following decisions:

1. Creation of unified information statistical system (cloud storage), which will include an assessment of the digitalization of the urban environment at the district level, containing indicators of the supply side, they exist in regional projects, as well as demand sides.
2. Creation of information system with database in Home department of St. Petersburg.
3. Providing socio-economic analysis in districts of St. Petersburg.
4. Ensuring policy of adaptation of the older generation to the digital environment.

But practice has shown that the forced transition to digital interaction with residents is not effective, since part of the population is not ready. It is necessary to adapt the population to new technologies.

Moreover, in conditions when the Russian information technology market depends on foreign production, and supplies are limited, which led to failures on the websites of state authorities and the inability to make online transactions by the population, and as a result, the growth of distrust, it is necessary to leave alternative (traditional forms) interactions. In addition, there are people among the older generation who do not want to use the Internet and technologies, moreover, experienced users may be exposed to fraud regarding electronic devices and personal data, as a result, they will temporarily be unable to use electronic devices. As a result, a person is cut off from city life. However, digitalization should create comfort for a person both in everyday life and in unforeseen situations, and not create additional barriers.

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Appendix 1

The composition of indicators characterizing the implementation of the target indicator "achieving digital maturity of key sectors of the economy and social sphere, including healthcare and education, as well as public administration for the subject of the Russian Federation

Развитие городской среды			
1.1	Доля общих собраний собственников помещений в многоквартирных домах, проведенных посредством электронного голосования, от общего количества проведенных общих собраний собственников	уточняется	80%
1.2	Доля услуг по управлению многоквартирным домом и содержанию общего имущества, оплаченных онлайн	нет данных <**>	80%
1.3	Доля коммунальных услуг, оплаченных онлайн	нет данных <**>	80%
1.4	Доля управляющих организаций, раскрывающих информацию в полном объеме в ГИС ЖКХ	уточняется	100%
1.5	Доля ресурсоснабжающих организаций, раскрывающих информацию в полном объеме в ГИС ЖКХ	уточняется	100%
1.6	Доля ЕДДС муниципальных районов и городских округов, подключенных к единой системе мониторинга инцидентов и аварий на объектах ЖКХ	46%	100%
1.7	Доля аварийного жилого фонда, внесенного в цифровой реестр аварийного жилья	0%	100%
1.8	Доля жителей городов в возрасте старше 14 лет, принявших участие с использованием цифровых технологий в принятии решений по вопросам городского развития	уточняется	80%

Транспорт и логистика			
2.1	Доля перевозок грузов воздушным транспортом, оформляемых в электронном виде	5%	90%
2.2	Доля пассажиров, обслуживаемых в аэропортах с использованием биометрических данных	0%	30%
2.3	Доля воздушных судов, выполняющих перевозки грузов, управляемых в беспилотном режиме	0%	50%
2.4	Доля перевозок грузов железнодорожным транспортом, оформляемых в электронном виде с использованием сервисов ОАО "РЖД"	50%	90%
2.5	Доля перевозок пассажиров железнодорожным транспортом, оформляемых в электронном виде с использованием сервисов ОАО "РЖД"	50%	90%
2.6	Доля перевозок грузов морским и внутренним водным транспортом, оформляемых в электронном виде	50%	90%
2.7	Доля перевозок грузов высоко- или полностью автоматизированными транспортными средствами, управляемыми в беспилотном режиме	0%	5%
2.8	Доля вновь вводимых и реконструируемых участков опорной сети автомобильных дорог, оснащенных инфраструктурой, обеспечивающей взаимодействие с высоко- или полностью автоматизированными транспортными средствами, управляемыми в беспилотном режиме	0%	85%

Здравоохранение			
3.1	Доля записей на прием к врачу, совершенных гражданами	уточняется	90%

	дистанционно, в том числе с использованием ЕПГУ		
3.2	Доля граждан, у которых сформированы интегрированные электронные медицинские карты, доступные на ЕПГУ	уточняется	100%
3.3	Доля граждан, находящихся под диспансерным наблюдением, по которым обеспечен дистанционный мониторинг состояния здоровья, в том числе с использованием ЕПГУ	уточняется	50%
3.4	Доля медицинских организаций, осуществляющих централизованную обработку и хранение в электронном виде результатов диагностических исследований	уточняется	50%
3.5	Доля консилиумов врачей, проводимых субъектами Российской Федерации с НМИЦ Минздрава России с использованием видео-конференц-связи	уточняется	10%
3.6	Доля консультаций, проводимых врачом с пациентом посредством ЕПГУ с использованием видео-конференц-связи	уточняется	50%
3.7	Доля граждан, которым выписанные рецепты на лекарственные препараты доступны в форме электронного документа на ЕПГУ	уточняется	100%
3.8	Доля станций (отделений) скорой медицинской помощи, подключенных к информационной системе управления службой скорой медицинской помощи единой центральной диспетчерской службы скорой медицинской помощи	уточняется	100%

Образование (общее)			
4.1	Доля учащихся, по которым осуществляется ведение цифрового	уточняется	100%

	профиля		
4.2	Доля учащихся, которым предложены рекомендации по повышению качества обучения и формированию индивидуальных траекторий с использованием данных цифрового портфолио учащегося	уточняется	80%
4.3	Доля педагогических работников, получивших возможность использования верифицированного цифрового образовательного контента и цифровых образовательных сервисов	уточняется	100%
4.4	Доля учащихся, имеющих возможность бесплатного доступа к верифицированному цифровому образовательному контенту и сервисам для самостоятельной подготовки	уточняется	100%
4.5	Доля заданий в электронной форме для учащихся, проверяемых с использованием технологий автоматизированной проверки	уточняется	70%
Государственное управление			
5.1	Доля видов сведений в информационных системах, доступных в электронном виде, необходимых для оказания массовых социально значимых услуг	уточняется	100%
5.2	Доля электронного юридически значимого документооборота в органах исполнительной власти, внебюджетных фондах и подведомственных учреждениях	уточняется	100%
5.3	Сокращение времени фактического предоставления государственных и муниципальных услуг в 3 раза	уточняется	сокращение в 3 раза
5.4	Доля государственных и муниципальных услуг, предоставленных без нарушения регламентного срока	уточняется	не менее 98%

5.5	Доля проверок в рамках контрольно-надзорной деятельности, проведенных дистанционно, в том числе с использованием чек-листов в электронном виде	уточняется	50%
5.6	Доля обращений за получением государственных и муниципальных услуг в электронном виде среди услуг, не требующих очного посещения	уточняется	90%
5.7	Доля массовых социально значимых государственных и муниципальных услуг, доступных в электронном виде.	уточняется	95%

Appendix 2

Questionnaire

1. Есть ли у Вас доступ к Интернету (с любых носителей)?

1. Да (к №2)
2. Нет (к №6)

<u>Если 1 – 1</u>

2. Оцените суждение от 1 до 5 «У меня есть все необходимые устройства (компьютер/мобильное устройство) для доступа к Интернету»

Точно нет
Скорее нет
Трудно сказать
Скорее да
Абсолютно да

3. Уточните, пожалуйста, какими устройствами Вы предпочитаете пользоваться для выхода в Интернет? (вы можете указать несколько вариантов ответов)

1. Личный мобильный телефон
2. Личный компьютер, планшет, ноутбук
3. Семейный компьютер, ноутбук, планшет
4. Рабочий компьютер, ноутбук (на работе)
5. Общественный компьютер, ноутбук (в общественном месте)

Другое ___

4. Актуально ли для Вас размещение оборудования с доступом в госуслуги в МФЦ и органах власти?

Да
Скорее да
Трудно сказать
Скорее нет
Нет

4. Оцените суждение от 1 до 5 «Я доволен качеством/ скоростью Интернета»

Точно нет
Скорее нет
Трудно сказать
Скорее да
Абсолютно да

5. Как часто Вы пользуетесь Интернетом? *(к №8)*

Очень редко
Скорее редко
Трудно сказать
Скорее часто
Очень часто

<u>Если 1 – 2</u>

6. Уточните, пожалуйста, по какой причине у Вас нет доступа к Интернету? (Вы можете указать несколько вариантов ответа)

1. У меня нет своего компьютера (ноутбука, смартфона)
2. Использовать интернет – это дорого
3. Нет необходимости в Интернете
4. Нет навыков для использования Интернета
5. Считаю Интернет небезопасным

Другое___

7. Что бы Вас мотивировало иметь постоянный доступ к Интернету? (Вы можете указать несколько вариантов ответа)

1. умение пользоваться Интернетом
2. Необходимость использовать Интернет
3. Более дешевая стоимость подключения к Интернету/ Тарифа
4. Более безопасное использование Интернета
5. ничего, я не хочу иметь доступ к интернету

Другое

8. Скажите, пожалуйста, знаете ли Вы о существовании портала ГОСУСЛУГИ, на котором можно получить доступ к широкому спектру государственных услуг?

1. Да (к №9)
2. Нет (к №12)

Если 8 – 1

9. Зарегистрированы ли Вы на портале ГОСУСЛУГИ?

1. Да (к №10)
2. Нет (к №11)
3. Не знаю (к №12)

Если 9 – 1

10. Оцените, насколько Вы удовлетворены Вашим опытом использования портала ГОСУСЛУГИ: *(к №12)*

1 – совсем не доволен
2 - Скорее не доволен
3- Трудно сказать
4 - Скорее доволен
5 - очень доволен

Если 9 – 2

11. Почему Вы НЕ зарегистрированы на портале «ГОСУСЛУГИ»? (вы можете указать несколько вариантов ответов)

1. Нет необходимости в использовании портала
2. Нет времени дойти до МФЦ, чтобы подтвердить учетную запись
3. Я не хочу, чтобы мои личные данные хранились на портале
4. Отрицательные отзывы пользователей портала
5. Я не вижу преимуществ портала

6. Я не знаю, как зарегистрироваться на портале
7. Я не знаю, как пользоваться порталом и получать электронные услуги
8. Я предпочитаю лично обращаться в гос.органы для получения госуслуг
Другое___

12. Какие из нижеперечисленных информационных источников органы власти должны использовать, на Ваш взгляд, чтобы повысить осведомленность старшего поколения о возможностях получения электронных услуг и их преимуществах? (можно несколько вариантов ответа)
1. Реклама по телевидению
2. Новостной репортаж по телевидению
3. Рекомендации представителей организаций (банков, поликлиник, почтовых отделений и др.)
4. Официальные страницы органов власти в соц.сетях
5. Реклама в социальных сетях
6. Положительные отзывы блогеров, певцов, спортсменов и т.д. в соц.сетях
7. Оповещения в общественных местах (метро, автобусы)
8. Рекламные стенды на улицах
9. информационные стенды в МФЦ, больницах, почте и тд.
10. статьи в газетах
11. брошюры в библиотеках
Другое____

13. Оцените следующе суждение от 1 до 5 «Я обладаю необходимыми знаниями и навыками для использования электронных сервисов»
точно нет
Скорее нет
Трудно сказать
Скорее да
Абсолютно да

14. Оцените следующе суждение от 1 до 5 «Я доверяю современным технологиям (не боюсь совершать Интернет-платежи и др.)»
Точно нет
Скорее нет
Трудно сказать
Скорее да
Абсолютно да

15. Оцените следующе суждение от 1 до 5 «Я доверяю электронным способам коммуникации взаимодействия с органами власти (например, мое заявление будет принято и рассмотрено, если я предоставлю его электронным способом)»
Точно нет
Скорее нет
Трудно сказать
Скорее да
Абсолютно да

16. Что из нижеперечисленного способно повысить Ваше доверие получению госуслуг в электронном виде?
1 – рекомендации родственников, знакомых или других значимых для меня людей

2 – гарантии информационной конфиденциальности и безопасности
3 – личный положительный опыт получения услуг в электронном виде
4 – прозрачность процесса получения госуслуг в электронном виде (например, возможность отслеживать статус заявления)
5 - обеспечение должного уровня поддержки пользователя (возможность обращения в колл-центр за консультацией по получению услуги в электронном виде)
Другое

17. Оцените следующе суждение от 1 до 5 «Я согласен(а), что электронные сервисы более выгодны, чем традиционная форма получения услуг»
Точно нет
Скорее нет
Трудно сказать
Скорее да
Абсолютно да

18. Что бы Вас мотивировало перейти с традиционного получения услуг на электронное? (можно несколько вариантов ответа)
1. Если я буду более уверенным пользователем в работе с электронными технологиями
2. Более широкий спектр возможностей (разнообразие сервисов)
3. Если будет больше позитивных отзывов о том, что получение онлайн услуг выгоднее личного получения
4. Более понятный процесс получения услуг
5. Отсутствие необходимости обращаться к кому-то за помощью
6. Более быстрое получение
7. Экономия денежных средств при получении онлайн услуг
8. Полное отсутствие необходимости лично присутствовать в местах оказания услуги (как в случае с получением паспорта или внесением инициативы в органы местного самоуправления)
9. Уверенности в безопасности моих персональных данных
10. Если я смогу вовремя получать информацию и полностью отслеживать процесс оказания услуги (от уведомления о подачи заявления до получения услуги)
11. Если это станет обязательным
12. Ничего, я останусь верен(а) традициям и привычкам
Другое

19. Предпочитаете ли Вы электронные сервисы для получения госуслуг традиционным способам?

Совсем не приемлю их использование
Скорее не приемлю их использование
Трудно сказать
Скорее использовал(а) бы только их
Использовал(а) бы только их

20. Скажите, пожалуйста, электронные сервисы каких сфер жизни в наибольшей степени упростили бы Вам жизнь, сделали бы ее более удобной? (можно указать несколько вариантов)
1. Транспорт (например, покупка проездных билетов)
2. Здравоохранение (например, запись к врачу)
3. Образование (обучающие онлайн-курсы)
4. Правовая сфера (участие в жизни района и города)

5. Коммунальное хозяйство (как поиск мест для выгула собак или участие в жизни дома, например)
6. Взаимодействие с органами власти (подать жалобу, прошение и т. п.)
Напишите Ваш вариант

21 Предложите услугу, которую бы Вы хотели получать в электронном виде: ___

22. Ваш пол:
Мужской
Женский
23. Ваш возраст_____

24. Ваше образование
1. Среднее общее образование
2. Среднее профессиональное образование
3. Высшее образование (бакалавриат, специалитет, магистратура)
4. Ученая степень (кандидат/доктор наук)

25. Основное занятие
Работаю по найму
Являюсь индивидуальным предпринимателем
Работаю по найму и являюсь индивидуальным предпринимателем
Работающий пенсионер
Неработающий пенсионер
Занимаюсь домашним хозяйством
Временно не работаю, ищу работу
Студент, учащийся
26. Как вы оцениваете свое финансовое положение?
Низкое
Ниже среднего
Трудно сказать
Выше среднего
Высокое

27. Вы проживаете в городе или в области?
1. В Санкт-Петербурге
2. В Ленинградской области
3. В другом регионе РФ
4. В другой стране

28. В каком районе города Вы проживаете?
1. Адмиралтейский
2. Василеостровский
3. Выборгский
4. Калининский
5. Кировский
6. Колпинский
7. Красногвардейский
8. Красносельский
9. Кронштадтский
10. Курортный

11. Московский
12. Невский
13. Петроградский
14. Петродворцовый
15. Приморский
16. Пушкинский
17. Фрунзенский
18. Центральный

29. Имеются ли у Вас слуховые, зрительные и иные особенности, осложняющие использование гаджетов?

1. Зрительные
2. Слуховые
3. Речевые
4. Мышечной системы
5. Нервной системы
6. Особенностей нет