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CHALLENGES FOR SMART CITIES DEVELOPMENT

Bella Khasanovna Rakhimova (a)*, Lalita Musaevna Idigova (b, c),
Huseyn Gelanievich Chaplaev (d)
*Corresponding author

(a) Kh. Ibragimov Complex Institute of the Russian Academy of Sciences, 2 a, Staropromyslovskoe shosse, Groznyy, Russia, ya210412@yandex.ru,
(b) Chechen state University, 32a, Sheripova str., Grozny, 364024, Russia, mail@chesu.ru,
(c) Kh. I. Ibragimov Complex research Institute of the Russian Academy of Sciences, 21 a, Staropromyslovskoe shosse, Grozny, 364051, Russian Federation, 010885@list.ru,
(d) Chechen state pedagogical University, 62, Kh. Isaeva Ave., Grozny, 364068, Russia, maret_fil@mail.ru

Abstract

In recent years, the Smart City concept deserves special attention, aimed at creating favourable conditions for the population and business and solving urban problems. This is especially true in the context of an increase in the number of cities and the concentration of socio-economic and political life of the country in them. Urbanization, on the one hand, contributes to the further development of humanity, the development of new technologies and scientific and technological progress. On the other hand, urbanization presents humanity with new problems associated with the deterioration of the environmental situation (deforestation for road construction; ensuring safety in the streets), traffic regulation, optimization of street lighting; lack of jobs (an increase in the unemployment rate and, accordingly, the crime rate); low wages (an increase in the level of migration flow). More than once, scientific publications have emphasized the leading role of projects to create "smart cities" as a tool to increase the competitiveness of regions and labour productivity, create favourable conditions for the development of domestic enterprises, mutually beneficial cooperation between various organizations at the regional and international levels, create a comfortable urban environment for people of all ages and guests of the region. Today, in some regions, the Smart City project is just beginning to be implemented; in other cities, conditions have already been created for the digitalization of the urban environment.

1. Introduction

The use of digital technologies in the development of cities should be aimed at creating conditions for the use of digital technologies by the population, ensuring the competitiveness of the region and implementing national programs, as well as allowing enterprises to establish mutually beneficial cooperation regardless of territorial location (Matern et al., 2019).

The digitalization of the urban economy has a positive effect on various spheres of society: improving the quality of life, improving the well-being of the population, receiving education remotely, which is especially important for remote regions. At the same time, in the process of digitalization, the availability of technical means and the level of digital literacy of the population are essential (Herraiz-Faixó, 2020).

2. Problem Statement

По According to the authors of the study, the main problems that society faces on the path to creating smart cities are:

1. Lack of qualified personnel. According to the "Smart City" project, at the first stage, it is planned to develop and implement a digital platform "Active Citizen" in order to involve citizens in solving the city's problems. This platform assumes that citizens will be aware of renovation work in the city, tourists – about the city's attractions. However, in reality, further development of the platform is faced with a shortage of qualified personnel. One of the reasons is low wages. According to the website https://russia.trud.com/, the average salary of IT specialists in Russia is 40,793 rubles per month. As of July 14, 2020, the profession of an IT specialist in Russia, and only 16.4% with a salary of 30 thousand rubles or more opened 615 vacancies. The highest level of wages is in Moscow (71,201 rubles), followed by Nizhny Novgorod (64,667 rubles) and Krasnodar (48,929 rubles) (Trud, 2020).

2. Information security in the implementation of an intelligent system of intelligent video surveillance. On the one hand, the use of an intelligent video surveillance system ensures safety. It allows monitoring of emergencies, which allows the population to be warned of an impending natural disaster. On the other hand, the question of the observance of human rights guaranteed by the Constitution arises, because the use of such systems implies an invasion of a person's privacy (Idigova et al., 2019a).

3. Lack of funds. Many of the cities faced the problem of a lack of financial resources. Some went bankrupt due to the crisis that erupted in 2008. Companies' resources are limited, investors are in no hurry to invest in such projects, and banks are in no hurry to give loans. In search of funds to continue construction, prices for goods and services are increasing, which leads to an outflow of the population (Idigova et al., 2019b).

3. Research Questions

In 2008, IBM developed the Smart Planet system to improve the living standards of the population in a highly urbanized environment. The first city to implement the Smart City concept was the South Korean city of Songdo. The implementation of the project began in 2001 and amounted to $ 35 billion.

The first objects in the city were commissioned in 2009, and it is planned to complete the creation of the "smart city" by 2025. Despite such ambitious goals, today the city is home to about 70 thousand people, and over time, this number will only decrease, and the city itself risks becoming a "ghost town". The main problem is the lack of funding and the high cost of services for the local population.

Another city that was supposed to personify the eco-city of the future with the use of digital technologies is Masdar in the UAE. The city was to become an example of the world's first city, which is powered by renewable energy, minimal carbon dioxide emissions into the atmosphere and recycling of all human waste. It was planned that the city would be environmentally friendly, "green" technologies would be developed here, and only environmental technologies would be used in production and everyday life. The car will become a rarity, and the population will move using automatic vehicles. There will be a complete rejection of harmful technologies that cause environmental damage. According to various estimates, the cost of creating such a city is more than $ 22 billion, the implementation began in 2006, and the completion date is 2030. Today, students live in the city, and several shopping centres are open. The formation of the city of the future faced many problems: the financial crisis and the impossibility of zero carbon emissions into the environment (Lynch, 2020).

Other cities are also in the planning stage: "The Great City" in China, which should tackle the problem of environmental pollution; "Floating Green" in Japan, which implies the creation of six islands with low seismic levels; "Cloud Dweller" in China using innovative technologies, where the towers will be connected using a particular technology; "Zemleskreb" in Mexico – the city will go underground and be provided by geothermal energy sources; Japan's Ocean Spiral will be the first underwater city to be completed by 2035.

In Russia, an example of a successful city of the future is Innoplis in the Republic of Tatarstan. The city covers an area of 1200 hectares with a population of 3,800. A Special Economic Zone has been created on the territory of the city, which provides high-tech campaigns with preferential terms for doing business. There is also a university and kindergartens in the city. The population is expected to reach 155 thousand by 2030.

4. Purpose of the Study

The purpose of this study is to consider the problems of forming smart cities using digital technologies.

5. Research Methods

In the course of the study, a comparative analysis of the implementation of projects of cities of the future in different countries was used as a tool for ensuring environmental safety and the development of innovative technologies.

6. Findings

The main task in the process of forming a "smart city" is to use digital technologies to create a comfortable urban environment. The standard infrastructure of a smart city includes urban management,

smart housing and communal services, intelligent systems of urban management, smart transport, and tourism.

Digitalization of the urban environment implies the creation of digital platforms ("Active Citizen"), the use of intelligent systems for managing utilities, the creation of an urban Wi-Fi network and smart lighting, intelligent management of urban transport and monitoring of emergencies, and other projects.

7. Conclusion

Based on a comparison of projects to create smart cities, we can state that today the Smart City project is being implemented in Singapore, the United Arab Emirates, Tokyo, Barcelona, Beijing and other cities. On the territory of Russia, the "Smart City" project is being successfully implemented in Moscow, Grozny, Samara, Taganrog, Sochi, Kazan and other cities. Innoplis is the most prosperous city using digital technologies in Russia.

Acknowledgments

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