41. SMART CITIES DEVELOPMENT AND THEIR IMPACT ON URBAN INFRASTRUCTURE

Khajynava K.A.

Belarusian State University of Informatics and Radioelectronics
Minsk, Republic of Belarus

Shchekotovich E.N. – Senior Lecturer

The rapid advancements in technology have paved the way for the emergence of smart cities, which aim to leverage data, connectivity and automation to enhance the quality of life for citizens, increase sustainability and optimise resource allocation. The paper delves into various aspects of smart cities, including their key features, implementation challenges.

Smart cities are known as cities that use advanced technology and data to improve the quality of life, manage resources, infrastructure and services for residents [1]. The development of tech-enabled cities is of great importance in modern society for the following reasons:

1. Effective improvement of urban infrastructure. Technologies make it possible to optimise the use of resources and infrastructure. This optimisation helps cities function more efficiently [2].

2. Quality improvement of residents' life. Intelligent cities provide more comfortable and safer living conditions by providing access to improved city services and communications.

3. Promoting environmental sustainability. The use of technology helps to reduce energy costs, reduce emissions of harmful substances and contribute to a cleaner environment.

4. Attracting investment and economic development. The development of smart cities attracts investment, creates new jobs and stimulates economic growth in the region.

It is worth noting that three pivotal technologies that have a substantial impact on technology-enabled cities are Artificial Intelligence (AI), Big Data, and the Internet of Things (IoT).

AI enables smart cities to analyse and interpret vast amounts of data to make informed decisions and automate processes. It can be used for predictive analytics, optimising resource allocation and enhancing various services.

Big Data refers to the collection, storage and analysis of large volumes of data from various sources. Big Data analytics helps city authorities understand patterns, trends and correlations to make data-driven decisions.

The IoT involves connecting various devices to the Internet to collect and exchange data. In intelligent cities the IoT devices are used extensively to gather real-time information about the environment, infrastructure and citizens.

Combining AI, Big Data and the IoT technologies allows data-driven cities to optimise various aspects of urban life, including transportation, energy consumption, waste management, public safety and citizen engagement [3]. These technologies enable cities to become more sustainable, efficient and responsive to the needs of their residents.

It should be mentioned that people also face many contradictions in the implementation of smart cities. The development of tech-enabled cities entails a number of challenges and problems that need to be solved for the successful implementation and implementation of such innovations:

1. Cybersecurity: the need to provide reliable protection against cyber threats and hacker attacks to prevent possible threats to smart city systems.

2. Privacy and data protection: guaranteeing the confidentiality and security of personal data of citizens participating in the intelligent city space.

3. Availability of technology for all segments of the population: ensuring equal access to smart technologies for all city residents, in order to provide inclusiveness and equal opportunities for a vast majority of inhabitants.

In conclusion, the development of smart cities using advanced technologies has a profound impact on urban infrastructure. It presents a range of benefits, including optimised resource utilisation, enhanced quality of life for citizens, environmental sustainability, and economic growth. While challenges such as cybersecurity, data protection, and technology accessibility exist, the potential of smart cities to further advance urban development and enhance resident well-being is undeniable.

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