TECHNOLOGIES OF "SMART CITY" IN THE REPUBLIC OF UZBEKISTAN

Dr. Prof. Uljaeva Shohistahon, *Uzbekistan , Tashkent institute of irrigation and agricultural mechanization engineers, head of department sh.uljayeva@tiiame.uz*
Djumaniyazov Rahimboy, *Uzbekistan, docent of Tashkent institute of irrigation and agricultural mechanization engineers, iq-iqtidor1960@mail.ru*
Khafizova Zukhra, Uzbekistan, *Tashkent institute of irrigation and agricultural mechanization engineers, senior lecture sh.uljayeva@tiiame.uz*
Xudoyberganova Marg'uba, Uzbekistan, *Tashkent institute of irrigation and agricultural mechanization engineers, safievamarguba@gmail.com*
Khudayberganov Ganisher, *Uzbekistan, Tashkent institute of irrigation and agricultural mechanization engineers g.xudayberganovganisher@gmail.com*

Abstract: The article analyzes new technologies of a smart city in the Republic of Uzbekistan. Now it is very convenient and traditionally considered new innovative cities. History also had some kind of smart cities, they were somewhat similar to each other. They were protected by walls, all streets connected to the main street. Historical experience today is very important for the development of a smart city. The authors studied the historical aspects of smart cities, examined the example of Central Asian urban planning from a historical perspective. Today the demographic development of cities requires careful and potential use of urban resources. A number of measures have been taken in Uzbekistan to form a "smart city" until 2030
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1. INTRODUCTION

The concept of "smart city [1]" is diverse, but it always means a place where technology is enriched. The essence of such technologies is that devices interact with the outside world without the presence of a person, but for their own well-being. A simple example is the use of a street lighting system that can be activated with a lack of natural light.

In Smart City [2], a single database can compare and use various information when necessary. For example, when contacting the rescue service, you can find the whereabouts of the victim, and during hospitalization - the patient's medical book. On the street, anyone can shoot a pistol, and information can be automatically sent to the police with a photograph of the suspect [3].

In Smart Cities, all the information that citizens need is combined into information databases. With its help, a resident of a smart city can call a taxi, make a payment, inform the authorities about the sidewalks on the road and at the same time find out in which parts of the city there is no traffic and parking spaces.

Similar "smart" forms should now be used in large and small cities and long-distance telecommunication networks in Uzbekistan.

Today, urban development systems in modern Uzbekistan do not respond to the parameters of the Smart City. The acceleration of urbanization processes, globalization, an increase in the number of buildings and structures in the city contributed to an increase in demand for infrastructure, food, energy and much more. Unified information systems play an important role in their management and transparency.

National historical values should also be taken into account when creating modern smart cities.

The medieval population was not so much. They also created their eastern systems of the "smart city". In history, in particular, in the cities of Uzbekistan, management, taxation, infrastructure, marketing, education, medicine and other spheres have also formed eastern "smart" systems.

Especially in cities, it has become a tradition to create unified and regular architectural ensembles. For example, the ensembles 0f Registan, Shahizinda [4] in Samarkand, Ichan Kala in Khiva, ansaml of the Shakhrisabz [5] the inner and outer cities, their socio-political, economic, spiritual and educational functions were well thought out by our farts. All streets in these cities were either centered or spaced from the center. In the middle ages, public buildings, markets, caravanserais, hospitals and residential quarters were specialized and each district was even named after artisans, clearly defined places of residence and places of work or seeds of citizens. The city center was called Chorsu and it also served as a community center. Local communities-makhallas organized self-government system by citizens - were responsible for cleanliness, spiritual and peace. They paid attention a saving and maintaining clean water in the canals. Makhallas were literally a source of solidarity and spirituality. Although humanity today lives in better conditions than in the Middle Ages and even 50-100 years ago, centuries-old national values are being destroyed as a result of spiritual degradation and "mass culture", which primarily affects urban life and especially youth. Uzbekistan has long been one of the centers of eastern civilization and its historical roots are deep, in the decision to build the Smart City, we must take into account its historical experience in the face of such global immorality. That is why customs preserving historical monuments should play an important role in the concept of "smart city".

"Previously, there were no locks on the doors, and no one could plunder the property of another person. The proverbial "Seven Parental Waves" provides an overview of the urban life of the Uzbek people. In the modern "smart city" in Uzbekistan, a high level of spirituality and enlightenment, an aesthetic culture of citizens should be formed. Uzbekistan is also one of the region's most at risk of religious extremism and terrorism. Therefore, it is necessary to work on the concept of "smart city", how to solve the problem - "smart defense". Global networks also increase threats against parenting, spirituality, the human heart and mind. In modern smart cities, it is also necessary to create the concept of "smart person".

In our national history, three-layer walls were built[6] in large cities, which are divided into internal and external cities. The outer city wall is surrounded by trenches filled with water. They are named "khandak". They were built on top for security reasons. For example, Samarkand is located at an altitude of 700 meters above sea level. The reconstruction of this experience on the modern basis of building a "smart city" in Uzbekistan can bring positive results.

Later, wars between khanates and other crises-old experiences in urban planning were forgotten. As a result of the invasion of the Russian Empire, Tashkent became the center of the governorship of Turkestan and by the end of the 19th century it was divided into new and old parts of the city. These processes, of course, influenced the urbanization processes in Tashkent. It was old and new parts in the city about 100-130 years ago, but with the creation of the Soviet state, these differences did not become noticeable.

On 1924 years was national-territorial division, the Soviet republics were replaced by three khanates. After Uzbekistan became the capital of the Uzbek Soviet Socialist Republic, Tashkent was considered the political center and during this time many buildings were built.

2. MATERIALS AND METHODS

The government and society of Uzbekistan, especially those that are far from austerity, inherited the Soviet style and uniform urban planning, have more problems than others, and they need to find solutions. The population of Tashkent is growing rapidly. Previously, Tashkent was located on a relatively small territory compared to large cities such as Samarkand and Bukhara. Due to its role as the capital, it is developing rapidly.

Although Uzbekistan has made significant changes to the development of cities since independence, they will not be able to answer to modern requirements.

In the modern "smart city" creating a comfortable and economic environment with minimal space, "smart management", "smart homes", "smart hotels", "smart education", "smart tourism", "smart utilities". The need to expand cooperation with politicians and scientists in a number of other areas, such as access to convenience and comfort with minimal opportunities, efficient energy supply, protection of the urban environment and much more.

Today in Uzbekistan, a new innovative approach to smart cities is being formed. At the same time, savings, comfort, convenience, architectural and artistic solutions and the creation of comfortable conditions for citizens are taken into Concepcion.

Uzbekistan is one of the leading countries in the world in terms of population growth. Today its population is 34 million people. Most of the population lives in cities such as Tashkent, Samarkand, Bukhara, Khiva, Andijan, Fergana, Namangan, Termez and others. Today's population has grown significantly more than the population that lived 20 years ago. The city today is growing in latitude and height. Demographic processes continue. Demographic growth alone requires greater use of social and political potential by government. At the same time, the growth of production and technology also creates serious environmental problems in large cities. The current development of cities in Uzbekistan is greatly influenced by the problems of the Aral Sea, global climate change, inefficient use and lack of water, and environmental risks. In such conditions, the correct solutions to the problems of preserving historical monuments are required, especially in times of acute environmental problems.

In our opinion, the implementation of the Smart City program requires the growth of the intellectual potential of the population, legal, political and environmental culture. All educational institutions and the media should carry out large-scale activities to efficiently use water and other energy resources, to preserve and save available resources. To solve this problem, they must develop an effective smart legal approach. It also requires the introduction of intelligent systems for the distribution of electricity and water, as well as consumer protection. These areas are still not integrated into digital systems. There are uncertainties and sometimes inaccuracies in the payment of utilities.

Growing consumer potential and lack of resources have led to the need for a planned digital economy [7]. Today, as in the rest of the world, the need to improve and modernize cities is on the agenda.

Today, the main attention is paid to the development of smart cities of Uzbekistan at the level of state policy. Our country has developed a concept for introducing smart city technologies in the Republic of Uzbekistan. According to him, the initial stage of implementation of innovative technologies "Smart City" in Uzbekistan continues. Planning and implementation of dense projects for the implementation of Smart City technologies in the following areas: Safe City, Smart Meters, Smart Transport, and Smart Medicine. Large-scale work is underway in the city of Nurafshan to introduce modern urban infrastructure under the Tashkent City and Delta City projects [8].

At the same time, the underdeveloped infrastructure of information and communication technologies, a significant physical and moral deterioration of urban infrastructure is one of the main obstacles to the effective implementation of smart city

technologies. All this requires the adoption of measures to modernize telecommunication networks and search for the main sources of investment for the reconstruction of urban infrastructure.

The introduction of smart city technologies will increase the efficiency of urban governance by creating a single digital environment, as well as allowing the city to function more fully.

Implementation of measures aimed at creating a modern urban engineering infrastructure through the introduction of smart city technologies, a constructive approach to each district, in particular, creating favorable conditions for the urban population and visitors, ensuring a stable growth in living standards, and favorable conditions for entrepreneurial activity. Creating conditions, increasing government spending, including through public-private partnerships, all Smart City technologies, the planned implementation of their innovative decision-making by creating urban services and road infrastructure in order to increase the efficiency of the increase.

In 2019, over 7 million tourists visited Uzbekistan [9]. It also requires the creation of a "smart tourism" system. This shows the need to implement a cluster system.

Creation of an effective regulatory, organizational and institutional framework for the introduction of digital infrastructure in the development of smart city technologies, creation of mechanisms to stimulate demand for intellectual services, the formation of a state support system for the development and implementation of intellectual services, the quality of services and the population. The solution of the engineering and communication situation in cities, as well as inadequate and outdated urban infrastructure is one of the main tasks of Smart City.

Uzbekistan needs a "smart information and communication infrastructure". A characteristic feature of urban planning is the formation of a system for creating favorable conditions for Internet access and access to it.

As Internet systems become more powerful, programs should be adopted to increase the position and activity of the smart city. The creation of the Smart City platform is important for improving public and public life, improving governance by meeting their needs and requirements, in particular, providing feedback to the urban population regarding the assessment of the provision of urban services and the exchange of experience in all areas of urban development. Concepts such as "safe city", "peaceful city", "international city" should be the main priorities of the "smart city".

Smart Transportation is a complete technology solution for interconnecting all vehicles and infrastructure. This system allows you to track traffic conditions, as well as control the flow of traffic using mobile data and GPS signals.

Digital technology not only improves the quality of products and services, but also reduces costs. Public administration, both in the public and social sectors, can be achieved through the introduction of digital technology and increased efficiency and, in a word, a significant improvement in people's lives.

Today, the digital economy is an information society in which a large number of people are engaged in the production, storage, processing and sale of information, especially its highest form. The importance of information, knowledge and information technology in society is becoming increasingly important at this stage in the development of society and the economy. Economists use various technological, economic, labor, spatial, consumer, and creative criteria to describe the information economy, in which the digital economy dominates. It is important to ensure close cooperation between government bodies and business in the implementation of innovative ideas, technologies and developments for the further development of the digital economy. Currently, given the massive transfer of documents and messages to digital media, electronic signatures and government messages are also being transferred to electronic platforms. Digitalization of economic processes is

becoming a widespread trend, covering not only the information and communication sector, but also all areas of the country's economic activity. Using smart city technology, e-commerce, digital agriculture, smart energy, smart transportation, smart medicine will have a strong impact on the development of the digital economy [10].

The concept of "smart city" includes automation of traffic control systems and monitoring of traffic flows, including monitoring of traffic conditions in real time, software for managing public transport, road conditions and conditions for road users, as well as public transport schedules, providing information on public transport, ensuring the safety of public transport systems and data transfer technologies; introducing standard devices and devices in connection with 5G, broadband Internet access and other elements for ensuring storage and transfer to storage, the implementation of urban Internet platforms for "smart city", "smart placement" that determines the distance and distance for transport ", the creation of electronic payment systems for using roads and roads, continuous monitoring of passenger traffic, geographic information technology and navigation. Solving the problem of Asia remains an urgent issue on the agenda.

Smart construction is an important part of a smart city. Intelligent construction is an innovative technology that includes organizational, research, design, construction and commissioning related to the creation, modification or demolition of objects in the construction industry.

A smart home is an intelligent control system that allows a home network to connect, integrate and integrate all communication networks with artificial intelligence, based on the wishes and needs of the host.

Smart authorities are innovative solutions and systems for the development and submission of relevant proposals to local authorities on pressing issues of concern to the public. Introducing technological solutions of "smart power", it is envisaged: good functioning of the system of interaction between executive authorities and the population of the city, widespread use of high-tech high-speed Internet, electronic identification with a payment tool n access, Wi-Fi access, availability and quality of urban mobile applications, local systems payment of taxes and fees, the use of transmitting devices and applications for appeal.

The Concept will be implemented through timely, high-quality and full implementation of the measures set forth in the Action Plan for the implementation of the Smart City Technology Implementation Concept.

Coordination of the integration of a modern municipal system of urban and regional infrastructure, including the integration of housing and communal services, transport logistics and emergency services in the Smart City complex.

Creating conditions for attracting international organizations and foreign investors in the implementation of the Concept, organizing regular monitoring of the implementation of the Concept's activities, supporting local developments in the technologies of the smart market and developing the export potential of Smart City. Participation in the implementation and monitoring of software technology development systems.

High-quality development, implementation of the Conceptual framework for the implementation of the Concept, timely and high-quality implementation of activities in accordance with the terms and volumes, targeted and efficient use of resources for the implementation of activities in the Action Plan quarterly provision of information and monitoring to the Ministry of Innovative Development of the Republic of Uzbekistan on the implementation of the plan, the examination is carried out and the deadlines are set[11].

Funding for the implementation of the Concept will be financed by attracting financial, technological and managerial resources, as well as private sector resources through public-private partnership mechanisms.

Sources of financing for the Concept are sources of the state budget of the Republic of Uzbekistan, grants and loans from international financial institutions and foreign organizations, donations from individuals and legal entities, including non-residents of the Republic of Uzbekistan, and other sources not prohibited by law.

The following four-stage model should be used to implement this concept of innovative sustainable development:

Stage 1: 2019 - 2021 - Definition of the baseline - Formation of a region, assessment of existing infrastructure, determination of development indicators, analysis of existing assets, existing problems and achievements;

Stage 2: 2022 - 2024 - Development strategy for implementing the concept of a "smart city" - engaging stakeholders, identifying activities and plans, assessing risks, financial strategy, setting key goals and improving efficiency [12];

Stage 3: 2025 - 2027 - detailed planning - budgeting, forecasting efficiency, automation capabilities and implementation of information systems;

Stage 4: 2027 - 2030 - Implementation and evaluation - Implementation (together with all interested parties), monitoring, evaluation and re-evaluation of effectiveness (trends, analysis of investment parameters), provision (expansion) of placement.

3. RESULTS

The following results will be achieved through the implementation of this Concept:

raising the level of education of the urban population by expanding education and training in all available forms, including via the Internet;

increasing the activity of the population using modern information and communication technologies in cooperation with city services and government bodies;

increasing energy sustainability, reducing costs and costs;

increasing the efficiency of energy distribution and consumption;

improving the quality, efficiency and interactivity of services for consumers, as well as improving access to certain tariffs;

creating an environment for the application of innovative technologies in the future;

reducing water consumption and water shortages, improving the quality of wastewater treatment and improving solid waste management;

reduction in the cost of urban services for the population and a reduction in public debt for the services provided;

Reduce response time to emergencies and criminal situations, reduce crime and the number of victims;

traffic congestion reduction;

Providing savings on the maintenance of roads and stops;

improving mobile access for pedestrians and public transport users.

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