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URBAN DEVELOPMENT BASED ON THE CONCEPT OF "SMART CITIES" IN THE DIGITAL ECONOMY: THEORETICAL AND METHODOLOGICAL PRINCIPLES OF IMPLEMENTATION

The article is devoted to the study of the theoretical and methodological foundations of the implementation of urban development based on the concept of "smart cities". The **subject** of the study is a set of theoretical, methodological and practical aspects to ensure balanced management of urban development based on the concept of "smart cities" in a digital economy. The **purpose** of the article is to develop theoretical and methodological provisions and substantiate practical recommendations for the formation of a model of balanced management of the development of smart cities in a digital economy. **Objectives**: to analyze the key problems of the development of the concept of "smart cities" in Ukraine; to study and systematize the conceptual apparatus of ensuring the formation of a model of balanced management of the development of smart cities in a digital economy; to generalize the international standards of formation of information support of the development of smart cities; to offer strategic directions of formation of organizational maintenance of management of development of smart cities on principles of partnership in the conditions of the digital economy. In the course of the research, the following methods were used: abstract-logical analysis, theoretical generalization, and systematization. The paper summarizes the problems of development of the concept of "smart cities" in Ukraine; based on the systematization of approaches to the definition of the concept of "smart cities", an approach to the definition of the conceptual model of "smart city" in a digital economy is proposed. It is proved that information and analytical support of balanced management of the development of smart cities in the digital economy should be carried out based on international standards of management of Smart Cities. The strategic directions of the formation of organizational maintenance of management of the development of smart cities on the principles of partnership in the conditions of the digital economy are proved. **Conclusions**. Based on the systematization of the conceptual apparatus to ensure balanced management of smart cities in a digital economy, an approach to defining a conceptual model of "smart city" with the allocation of such areas as smart economy, smart mobility, smart environment, smart people, quality of life and smart management; the expediency of introduction of the international standards of management of Smart Cities for information support of the development of the long-term strategy of development of smart cities in the conditions of the digital economy is proved; According to the results of the study of international experience, the need for its application in the process of improving the organizational support of smart city development management on the principles of partnership to improve the quality of local government and public services by involving citizens in active cooperation.

Keywords: smart cities; digital economy; smart city development management; international standards of Smart Cities management; digital transformations; co-production models; municipal councils.

Introduction

The growing level of urbanization in the world determines the feasibility of transforming municipal governance on the basis of the concept of "smart cities" by integrating systems and data, modernizing urban infrastructure, implementing effective municipal management, increasing innovation and human capital.

To make such decisions, cities need reliable background information to measure their effectiveness, which determines the feasibility of implementing international standards of the XXI century for the management of smart cities.

However, today Ukrainian cities are not able to fully use the potential and capabilities of the technology "smart city", primarily due to lack of understanding of this concept and strategic vision of municipal governance in a digital economy.

Thus, in the modern realities of mobile, continuously transforming, information-rich urban environment, the search for new models of management influence is relevant and timely, taking into account the speed of information dissemination, the complexity of communication flows, digitalization of the urban environment.

Analysis of recent research and publications

It is worth noting that the model of "smart cities" is becoming more widespread in the world. According to the United Nations (UN) 2018 Revision of World Urbanization Prospects, more than half of the world's population lives in cities, and that number is expected to grow to almost 70% by 2050. In this regard, the European organization "European Smart Cities" notes that globalization is leading to economic changes that have a large-scale impact. In particular, globalization and the growth of urbanization are forcing cities in both developed and developing countries to look for new ways to ensure competitiveness.

However, the generally accepted definition of the concept of "smart cities" has not yet been established. One of the most cited concepts was developed by European Smart Cities, an initiative of the Vienna University of Technology in Austria. According to the European model of Smart Cities, a smart city is characterized by six key "smart" features: smart economy, smart mobility, smart environment, smart people, smart life and smart governance. In this context, "smart" refers to a progressive, inclusive, sustainable and forward-looking policy based on the use of information and communication technologies, human capital and social responsibility [1].

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Given the importance of implementing a balanced management of urban development in the context of comprehensive digitalization, the problems of its implementation are devoted to the research of a wide range of scientists, especially foreign ones. Thus, theoretical and methodological approaches to the implementation of the concept of "Smart Cities" are comprehensively covered in the works of such foreign scientists as L. Buys, D. Genari, J. Graham, I. Zubizarreta, T. Ygitkanlar, P. Evans, G. Eckowitz, M Kamruzzaman, L. Costa, L. Leidesdorf, J. Lazaroy, R. McQuide, M. Marshall, G. Maske, C. Oberg, D. O'Brien, S. Osborne, M. Roskia, T. Savaris, A. Seravalli, K. Strokos, B. Hutchinson, P. Hennelly and many others. The work of A.O. Andrienko is devoted to the study of the prospects for the introduction of "smart" (SMART) approaches to the development of large cities. The research of O.S. Korepanov is devoted to substantiation of theoretical and methodological bases of statistical support of management of development of "smart" sustainable cities in Ukraine caused by wide introduction of information and communication technologies and informatization of a society.

Many authors study the problems of sound management of modern urban development in the context of public management of economic development of cities. However, in practice, the introduction of balanced governance for cities that choose the path of smart development remains for many cities, especially Ukrainian, only a long-term perspective, which led to the feasibility of this study.

Goals and objectives of the study

The **purpose** of the article is to develop theoretical and methodological provisions and substantiate practical recommendations for the formation of a model of balanced management of smart cities in a digital economy. Achieving this goal led to the solution of the following tasks: to analyze the key problems of the development of the concept of "smart cities" in Ukraine; to investigate and systematize the conceptual apparatus of ensuring the formation of a model of balanced management of the development of smart cities in a digital economy; generalize international standards for the formation of information support for the development of smart cities; to offer strategic directions of formation of organizational maintenance of management of development of smart cities on the basis of partnership in the conditions of digital economy.

Materials and methods of research

The theoretical and methodological basis of the study were the scientific works of leading domestic scientists and foreign economists, international standards of the XXI century for the management of "smart cities". The study used such methods as: abstract-logical analysis, theoretical generalization and systematization.

Results of the studies and their discussion

The "smart cities" model provides an understanding of urban space (both real and virtual) as an open platform for interaction between government, business structures and the urban population. In a "smart city" information becomes the main resource and basis for the regulation of "smart" urban systems, the creation of projects based on open data using information and communication technologies (ICT) for city management.

With the process of decentralization in Ukraine, the topic of urban development is being actively discussed on the basis of the concept of "smart cities" (Smart Cities), which is rapidly spreading around the world. However, among the key problems in the development of the concept of "smart cities" in Ukraine are the following:

- lack of a holistic approach both in cities and at the national level requirements for ICT - architecture, security systems, identification and compliance with international standards "smart cities" - technical and management;
- non-conceptual vision of development and fragmented approach to decision implementation;
- under the brand "smart cities" are implemented solutions and projects that are only the automation of current processes in the city, but do not ensure the transformation of management, improving the quality of services and quality of life in accordance with XXI century standards (ISO-37120, 37101);
- risks of disintegration of the national digital model - through the creation of autonomous ICT - architectures - own data centers, identification systems, data collection and exchange, approaches to cybersecurity and more;
- unequal access of citizens to digital technologies and new opportunities (digital gaps).

Taking into account these problems, the systematization of theoretical and methodological principles of ensuring balanced management of urban development on the basis of the implementation of the concept of "smart cities" is relevant and timely. The study systematized approaches to defining the concept of "smart cities" with the identification of key areas that characterize the areas of smart urban development (table 1).

Table 1. *Systematization of approaches to defining the concept of "smart cities"*

No.	Source / authors	The essence of the concept	Sphere
	Ukrainian Institute of the Future "Ukraine 2030E - a country with a developed digital economy" [2]	The concept of "smart city" is a model of the city based on the full-scale use of digital technologies to address the current problems of the city, its sustainable development and improve the quality of life of citizens.	Digital technologies, sustainable development, quality of life

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	A.O. Andrienko [3]	A smart city is a city of knowledge, a digital city, a cyber city or an eco-city in which communal systems are organically coordinated. This is a system that allows the most efficient use of available resources of city services and ensure maximum security of city life. Such a city is constantly increasing the number and quality of services provided to the population, providing a sustainable environment that promotes the well-being and health of citizens, improving comfort and quality of life.	Digital city, security, quality of services, quality of life
	O.S. Korepanov [4]	A conceptual model of statistical support for the management of the development of "smart" sustainable cities, based on an integrated system of urban functioning and contains six components: "smart" people, "smart" life, "smart" mobility, "smart" environment, "smart" management, "smart" economy. This made it possible to determine the system of indicators of "reasonableness" of cities and communities in accordance with the needs of municipal government.	"smart" people, "smart" life, "smart" mobility, "smart" environment, "smart" management, "smart" economy
	T. Ygitkanlar, L. Buys, M. Kamruzzaman [5]	The ideal model of urban construction of the XXI century, which provides a systematic approach and sustainable and balanced development in the economic, social, environmental and institutional spheres.	Communications, technology, innovation, sustainability, planning
	D. Genari, L. Costa, T. Savaris, G. Maske [6]	Smart cities are cities that invest in social and human capital, urban mobility, modern communications infrastructure and technology, including smart natural resource management based on participatory governance.	Urban mobility, smart people, smart environment, participatory management
	K. Oberg, J. Graham, P. Hennelly [7]	Smart cities are those developed settlements that are characterized by at least one of the following features: smart economy (innovation, productivity, private initiative), smart mobility (accessibility, sustainable transport system), smart environment, smart people, skill level, creativity, flexibility), smart life (quality of life), intellectual management (public and social services, institutional transparency).	Smart economy, smart mobility, smart people, quality of life, intelligent management
	I. Zubizarreta, A. Seravalli, S. Arrizabalaga [8]	Smart cities are characterized by factors such as citizens who are fully involved in public life; quality of life and participatory management; transparency in the use of public resources.	Citizens, quality of life, participatory governance, transparency in the use of state resources
	ITU [9]	A smart sustainable city is an innovative city that uses information and communication technologies (ICTs) and other tools to improve the quality of life, efficiency and services in cities and competitiveness, while meeting the needs of present and future generations in economic, social and environmental aspects.	Technology, productivity, innovation, community, prosperity, sustainability
	A. Alcandari, M. Alnashit, I. Alshaikhli [10]	A smart city is a city that uses a smart system, characterized by the interaction between infrastructure, capital, behavior and cultures, achieved through their integration.	Technology, productivity, community, management
	J. Lazaroy, M. Roskia [11]	An ecological environment and an efficient urban center of the future, equipped with developed infrastructure such as sensors, electronic devices and networks that stimulate sustainable economic growth and a high quality of life.	Technology, productivity, resilience, prosperity
	Caragliu, Del Bo, Nijkamp [12]	Reasonable manifestations as a result of investment in human and social capital, as well as due to traditional transport infrastructure and modern IT technologies that contribute to sustainable economic growth and high standards of quality of life.	Community, technology, management, sustainability, accessibility
	British Standards Institution (BSI) [13]	A smart city is the effective integration of physical, digital and human systems in an artificial environment in order to ensure a sustainable, prosperous and comprehensive future for citizens.	Technology, smart people, resilience, community
	IBM Smarter City Assessment Tool [14]	IBM defines smarter city as making the best use of all the interconnected information available today to better understand and manage its operations and optimize the use of limited resources.	Information, management, technology
	Business Dictionary [15]	The developed urban area, which creates sustainable economic development and a high quality of life, is noted in several key areas: economy, mobility, environmental protection, people living, and government. High levels of expertise in these key areas can be achieved through strong human capital, social capital and / or ICT infrastructure.	Economic development, quality of life, economy, mobility, environmental protection, smart people, government

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	P. Neirotti, A. De Marzo, A. Tsagliano, G. Mangano, F. Scorrano [16]	The concept of Smart cities as a means of improving the quality of life of citizens is becoming increasingly important on the agenda of politicians. The main components of smart city is: (1) The use of ICT to provide energy, improve entrepreneurship and ensure the exchange of information about consumption between providers and users to reduce costs and increase reliability and transparency of power supply systems. (2) Public lighting, natural resources and water resources management. (3) Waste management: using innovation to manage people, enterprises and city services. This includes removing trash, recycling and recovery. (4) Environment: technology used to manage environmental resources and related infrastructure This is done with the aim of improving sustainable development. (5) Transportation: use of sustainable public transport based on clean fuel and innovative propulsion systems. (6) Health: use of ICT and remote assistance to prevent and diagnose diseases. Improved access to health care. (7) Public safety: using ICT to assist in matters of security, such as a fire. ICT can also help the police Department. (8) Education and culture: using ICT to create opportunities for students and teachers, and promotion of cultural events, tourism and hospitality. (9) Public administration and management: promoting digitised public administration, e-ballots and transparency of government activities through ICTs to enhance empowerment of residents and bringing them to management.	TIC, public lighting, natural resources and water management, waste management, environment, transport, health, public safety, education and culture, public administration and management

Thus, the concept of "smart city" should be considered as a model of the city based on the full use of information and communication technologies by integrating physical, digital and human systems in an artificial environment to solve current problems of the city, ensure its sustainable and balanced development and improving safety, comfort and quality of life in cities.

Urban expert B. Hutchinson described a smart city as "a city where doctors are called by video, where there is no corruption, and cars drive without drivers" and proposed a classification of smart cities according to versions 1.0, 2.0 and 3.0., namely [17]:

- In the "smart city" 1.0 there is no general strategy, automation has affected individual, unrelated components.
- Version 2.0 combines and interconnects previously independent initiatives and as many different sources of information as possible.
- Version 3.0 assumes that the integration of all components is complete, and the entire infrastructure is literally imbued with intelligent technology.

As evidenced by the analysis of digital technology has become the basis for the creation of new products, values, properties, and, accordingly, the basis of competitiveness of modern cities. The development of the Internet of things (Internet of things, IoT, IIoT), that is, a network consisting of interconnected physical objects (or things) or devices that have built-in sensors and software that enables the interaction of physical things with computer systems and networks, particularly the Internet, plays an increasingly prominent and important role in the development of smart urban spaces. The obtained data about the inhabitants of cities become an asset. However, international experience shows at the end of 2010-ies there was a question about data protection, cyber security.

Digital transformation leads to the emergence of new unique systems and processes (e-commerce and business infrastructure, cashless economy, etc.), which constitute their new value essence and helps to increase the competitiveness of sectors of the economy of smart cities.

Transformations in industry are taking place according to the concept of "Industry 4.0" and with the advent of cyber production, cybersystems and cyber machines. Thus, a "smart economy" is seen as an economy based on high-tech industries, including ICT, and those industries that use ICT at different stages of the production cycle.

"Smart mobility" involves sustainable, innovative and safe transport systems based on ICT infrastructure that improve urban traffic and the mobility of urban residents in everyday urban life.

A barrier to urban development based on the concept of "smart cities" is the lack of sufficient competences of citizens to work with data (digital skills), relevant education, professions, etc. Therefore, an important feature of a smart city is "smart people" that is the residents of the city who have a high level of education and skills and are actively integrated into the social life of the city. It is worth noting that in the context of digital transformations, the principle of learning "know everything" changes to "know how to learn throughout life and become self-fulfilling and competitive", which makes it appropriate to reform education in all areas, including high school and higher education. In this context, T. Nem and T. Pardo (2011) emphasize that really smart solutions are those that put people at the center of smart cities, not technology [18].

The ability to innovate also provides cities with a competitive advantage, so investing in human and social

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capital are also important elements for the development of smart cities.

An important area of smart cities is the "smart environment", which includes attractive natural conditions for life, as well as the implementation of environmental measures.

Most smart city concepts also focus on sustainability, with information and communication technologies being seen as one of the main means of achieving this goal.

Some models emphasize the importance of civic participation in governance and the need for equitable use of available resources by city dwellers and businesses. "Smart management" is seen as diversified management. Delegation of functions and diversification of power is the basis of social interaction of social institutions in the "smart city", because for the transition of individual and group cognitive and value attitudes to the intersubjective sphere is important common (general) social context formed by various practices of institutional and personal interaction between the state and citizens.

The transition to the concept of a smart city provides new opportunities to improve law and order, comfortable and safe life of city citizens. "Smart living" means a high level of development of the various components of the phenomenon of quality of life (safety, health, housing, tourism, culture, etc.). In this context, important areas of public safety are digital projects in the field of road safety, ensuring the protection of life and health of everyone through specialized web services, improving public access to emergency services, etc.

In the field of healthcare, the quality of life in a smart city is ensured through the development of digital medicine, which allows for online interaction between patients, healthcare professionals and institutions through digital technologies.

To make smart decisions, cities need reliable information support to measure their effectiveness, which determines the feasibility of implementing international standards of management of Smart Cities (ISO-37120, ISO-37101 and others). The ISO 37100 series of standards defines the basic indicators for achieving the Sustainable Development Goals (SDGs) at the regional level, which is a guideline for developing a long-term strategy for smart urban development aimed at building public relations based on trust, solidarity, equality, and a safe environment.

The standards are part of the ISO 37100 series. The international standard ISO 37100 (Sustainable Cities and Communities - Vocabulary). The International Standard ISO 37120 (Sustainable Urban and Community Development. Indicators for City Services and Quality of Life in Communities) is the first standard with a set of international standardized indicators and guidelines for assessing urban development that provides a single approach to measure and compare relevant indicators. The standard was first published in 2014. For the first time, cities began to compare achievements with each other, using globally standardized comparative data, which allowed them to gain best practices. In 2018, the standard was updated to offer even more indicators to help city administrations effectively improve the quality of life of their citizens and plan for a more sustainable future. It updated a number of new and relevant indicators, including indicators for assessing culture, urban agriculture and food. The standard contains effective leadership methods, the latest technologies and practices that will help improve the quality of life of citizens and achieve environmental goals, while promoting innovation.

According to the representatives of ISO/TC 268, almost 100 cities are currently implementing or have already implemented the ISO 37120 standard. and so on).

In addition, two additional international standards for smart and sustainable cities are being developed, providing a comprehensive set of internationally agreed guidelines for urban development, namely: ISO 37122 (Sustainable Development in Communities - Sustainable Development in Communities - Indicators for Smart Cities), ISO 37123 (Sustainable Development in Communities - Indicators for Resilient Cities). In addition, another new standard has already been published, which provides all stakeholders with recommendations for developing an effective model of work for a specific city - ISO 37106: 2018, (Sustainable Cities and Communities - a guide to creating intelligent models of urban work for sustainable communities - Sustainable Cities and Communities - Guidance on Establishing Smart City Operating Models for Sustainable Communities). The standard offers a toolkit consisting of "smart" methods for managing public services, data, and systems across the city through collaboration and digital technology [19].

Therefore, the international experience of standardization development for smart and sustainable cities testifies to the constant development of information and analytical support for the implementation of balanced management of smart city development in a digital economy.

However, the implementation of digital transformation in cities is not possible without ensuring changes in the public administration through the introduction of digital technology for the public sector, including the creation of digital jobs, ensuring multi-channel awareness and engagement of citizens, developing the open data system, the creation of a digital public platform, the introduction of electronic identification of citizens (e-ID), development of decentralized blockchain systems, allowing to provide an unprecedented level of data protection and gives the opportunity to use them in such sensitive areas as e-Finance, procurement, electronic budgets, and the like. In this context, the most important is the concept of the smart city by D. Gennari, L. Costa, T. Savaris, J. Mask [6], which stands for participatory management (participatory governance) or management based on partnership of all interested groups of stakeholders. The results of the study found that one effective way of providing public services is a partnership with private companies and public organizations, as well as the involvement of citizens directly. Here are the different interpretations of the concept of partnerships [20]. Thus, by the approach of MacQuaid G. (2000) partnership is characterized by a relationship of interdependence in the use of resources to achieve common goals [21]. D. Lewis (1998) links the

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partnership with an exchange of ideas and values to establish long-term relationships [22]. In addition, it is a form of unity between different groups of stakeholders to achieve the objectives associated with the management of shared resources [23], the fight against poverty, or for solving more urgent problems of development [24].

In this study, the concept of partnership is seen as the voluntary cooperation of different groups of stakeholders involved in joint affairs, projects, programs by combining different resources to achieve common goals and solve social problems. Thus, it should be noted that in the urban space "smart city" there are several interest groups (stakeholders) that play an important role in the implementation of specific areas and initiatives "smart city" in partnership. First, it is the city government, which possesses enormous administrative, managerial resource in the field of regulation of urban life. Secondly, that prominent representatives of the business environment of enterprises, which carry out the development and introduction into the urban environment "smart solutions", i.e. solutions that allow systematic use of innovative digital technologies in all spheres of urban life. Thirdly, it is the urban community of citizens who act as (should be) an important source of initiatives in the field of decision-making problems of the urban environment. What the community act as catalysts for change from below. However, it should be noted that this requires specific prerequisites (a real possibility to participate in decision-making, development of civil consciousness of citizens, high level of civic engagement). V. Castelnovo (2016) believes that the citizens are users of intelligent infrastructure and services, therefore, the willingness and ability of citizens to innovate is the most obvious means of influence on the success or failure of smart city initiatives [25]. D. O'Brien (2016) believes that the citizens are "the eyes and ears of the city, which identify problems and report them to the government" [26].

Continuous communication of each of the participants with other stakeholders, the search for common interests and mutually beneficial solutions to emerging problems through cooperation and pooling of available resources (primarily intellectual) are the basis for the formation of a smart urban space. An important resource is digital platforms as sources of value formation in the digital economy, the application of which involves the transition from an emphasis on the quality of internal business processes to improving external communications between users of the platform; from maximizing consumer value alone to the overall value of the entire digital ecosystem.

Continuous communication of each of the participants with other stakeholders, the search for common interests and mutually beneficial solutions to emerging problems through cooperation and pooling of available resources (primarily intellectual) are the basis for the formation of a smart urban space. At the same time an important resource is digital platforms as sources of value formation in the digital economy, the application of which involves the transition from an emphasis on the quality of internal business processes to improving external communications between users of the platform; from maximizing consumer value alone to the overall value of the entire digital ecosystem [18].

In modern conditions of dissemination of business models belonging to the ideology of the sharing economy, which works on the basis of digital technologies, conditions are created for more effective development of joint production (coproduction) of public services. In the process of joint production of public services of the city, the leading role belongs to the public or socially active part of society, which on a voluntary basis participates in the life of the city, acts both directly and through various associations of citizens. In this case, public services are considered as the activities of public authorities, associations of citizens, individuals and other entities of different levels, carried out at the expense of public and private funds for the provision (transfer) to individuals and legal entities of certain tangible or intangible benefits that are socially significant and benefit society and the state [29].

In international practice, the joint provision of public services can be defined as a strategy for the provision of public services on the basis of general responsibilities and powers. Entities sharing responsibilities and powers may be public authorities and private organizations and citizens [30].

S. Osborne and K. Strokosh (2013) distinguish three types of co-production: consumer co-production, which improves the quality of public services; co-production, which improves the planning of existing public services and, in many cases, involves citizens; expanded co-production that combines consumer experience, participation and innovation planning, creating new approaches to public service delivery [31].

According to M. Marshall (2004), joint production occurs only when there is an opportunity and willingness of the citizen to take an active part in this process [32].

Thus, the commitment to co-production in the context of smart cities relies on providing opportunities for citizen participation in an accessible and simplified format, especially as co-production is a topic still unknown to much of society. It is important to create strategies both for the dissemination of joint production projects and for persuading, involving and encouraging citizens to cooperate in the public sphere, including by disseminating information on social networks and holding public hearings.

D. Salm and M. Menegasso (2010), based on a study of different types of public participation, proposed five models of joint production of public goods, which are summarized in table 2 [33].

Table 2. *Models of co-production*

Model	Description
Nominal coproduction	Strategy for the provision of public services through the division of responsibilities between the community (mostly volunteers) and public authorities and local governments to improve the efficiency of public services

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Symbolic coproduction	Strategy to involve citizens in the provision of public services in order to demonstrate the presence of public authorities
Functional coproduction	A strategy used by public authorities to provide more efficient and effective public services to individuals, groups or communities
Representative coproduction with sustainability	This is the result of synergy in the provision of public services with the participation of citizens, NGOs, public authorities in order to work together to achieve a common result
Coproduction of public services using community mobilization	It is a strategy for the provision of public services with the participation of the whole community on the basis of ethical norms and democracy to ensure the constant mobilization of cooperation.

According to the data obtained, the functional model of co-production is quite effective to ensure an effective partnership, where citizen participation can occur with mutual benefits, expressed through both functional and material incentives [34].

In order for functional co-production to become viable, it is necessary to ensure interaction between the public and public authorities [35]. One way to stimulate this process is to create a common environment between public authorities and citizens. In this process, in addition to traditional formats, it is advisable to use new technologies, including social networks and incentives using educational or training content or training.

The strategy of municipal councils is used in international practice to ensure the direct involvement of citizens in active cooperation with local self-government bodies in order to realize the possibilities of joint production. Municipal councils are the most democratic way to create conditions for cooperation, as they allow to create a space for dialogue. Municipal councils are state bodies that are created not as a legal organization, but as a space where citizens, civil servants and government officials discuss mediation in the interests of the population and local authorities. Municipal councils are an arena for developing public policies that meet local needs.

Thus, in a volatile business environment characterized by variability, uncertainty, complexity and ambiguity (the environment of VUCA - volatility, uncertainty, complexity, and ambiguity), the search for smart solutions in a digital economy should be based on partnership through joint efforts and resources of public authorities, business and the public to solve the city's problems, ensure its sustainable and balanced development and improve safety, comfort and quality of life in cities.

Conclusions

According to the results of the study, digitalization is one of the main factors of growth of the world economy in the next 5-10 years, which will be the main tool for achieving the Sustainable Development Goals of the country and its regions. Therefore, the development of Ukrainian cities on the basis of the concept of "smart cities" is a priority. However, the analysis of key issues in the development of the concept of "smart cities" in Ukraine shows that there are a number of problems of institutional, infrastructural and ecosystem nature, which determines the feasibility of research and systematization of international experience of urban development based on the concept of "Smart Cities".

Analysis of the conceptual apparatus to ensure the formation of a model of balanced management of smart cities in a digital economy, their key areas and features showed that the concept of "smart city" should be considered as a city model based on full use of information and communication technologies by integrating physical, digital and human systems in an artificial environment in order to solve the current problems of the city, ensure its sustainable and balanced development and improve safety, comfort and quality of life in cities. According to existing approaches, the concept of "smart city" on the basis of digital technologies combines areas of activity such as smart economy (innovation, productivity, private initiative), smart mobility (accessibility, sustainable transport system), smart people (skill level, creativity, flexibility), smart environment, quality of life, security, intellectual management (public services, participatory management, institutional transparency).

The generalization of international management standards Smart Cities ISO 37120 indicates the feasibility of their implementation in Ukraine to provide information for the development of long-term strategy for smart cities by identifying blocks of indicators adapted to existing sources of information, improving their calculation, which expands statistical analysis of sustainable urban development and territorial communities based on their structuring. Information support based on international standards is the basis for the development of effective programs for the implementation of world best practices in a wide range of urban services and facilitates the study of community experience aimed at building public relations based on trust, solidarity, generational equality, safe environment.

The generalization of foreign experience indicates the need for its comprehensive application and use in the process of improving the organizational management of smart urban development in partnership in the digital economy to improve the quality of local government and public services to local communities by involving citizens in active cooperation with local governments and making management decisions.

In this context, the analysis of the best world practices of smart city management to identify problems and develop proposals for the development of digital technologies in the cities of Ukraine is promising.

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РОЗВИТОК МІСТ НА ОСНОВІ КОНЦЕПЦІЇ "SMART CITIES" В УМОВАХ ЦИФРОВОЇ ЕКОНОМІКИ: ТЕОРЕТИКО-МЕТОДИЧНІ ЗАСАДИ ВПРОВАДЖЕННЯ

Стаття присвячена дослідженню теоретико-методичних засад впровадження розвитку міст на основі концепції "розумні міста". **Предметом** дослідження є сукупність теоретичних, методичних і практичних аспектів щодо забезпечення збалансованого управління розвитком міст на основі концепції "розумні міста" в умовах цифрової економіки. **Метою** статті є розробка теоретико-методичних положень та обґрунтування практичних рекомендацій щодо формування моделі збалансованого управління розвитком розумних міст в умовах цифрової економіки. **Завдання** роботи: проаналізувати ключові проблеми розвитку концепції "розумні міста" в Україні; дослідити та систематизувати понятійний апарат забезпечення формування моделі збалансованого управління розвитком розумних міст в умовах цифрової економіки; узагальнити міжнародні стандарти щодо формування інформаційного забезпечення розвитку розумних міст; запропонувати стратегічні напрямки формування організаційного забезпечення управління розвитком розумних міст на засадах партнерства в умовах цифрової економіки. У ході дослідження використано методи: абстрактно-логічний аналіз, теоретичного узагальнення та систематизації. В роботі узагальнено проблеми розвитку концепції "розумні міста" в Україні; на основі систематизації підходів до визначення концепції "розумні міста" запропоновано підхід до визначення концептуальної моделі "розумне місто" в умовах цифрової економіки. Доведено, що інформаційно-аналітичне забезпечення збалансованого управління розвитком розумних міст в умовах цифрової економіки має здійснюватися на базі міжнародних стандартів управління Smart Cities. Обґрунтовані стратегічні напрямки формування організаційного забезпечення управління розвитком розумних міст на засадах партнерства в умовах цифрової економіки. **Висновки**. На базі систематизації понятійного апарату забезпечення збалансованого управління розвитком розумних міст в умовах цифрової економіки запропоновано підхід до визначення концептуальної моделі "розумне місто" з виокремленням таких сфер діяльності як розумна економіка, розумна мобільність, розумне середовище, розумні люди, якісне життя та інтелектуальне управління; доведено доцільність впровадження міжнародних стандартів управління Smart Cities для інформаційного забезпечення розробки довгострокової стратегії розвитку розумних міст в умовах цифрової економіки; за результатами дослідження міжнародного досвіду доведено необхідність його застосування у процесі вдосконалення організаційного забезпечення управління розвитком розумних міст на засадах партнерства щодо покращення якості здійснення місцевого самоврядування і надання публічних послуг шляхом залучення громадян до активної співпраці.

Ключові слова: "розумні міста"; цифрова економіка; управління розвитком розумних міст; міжнародні стандарти управління Smart Cities; цифрові трансформації; моделі спільного виробництва; муніципальні ради.

РАЗВИТИЕ ГОРОДОВ НА ОСНОВЕ КОНЦЕПЦИИ "SMART CITIES" В УСЛОВИЯХ ЦИФРОВОЙ ЭКОНОМИКИ: ТЕОРЕТИКО-МЕТОДИЧЕСКИЕ ОСНОВЫ ВНЕДРЕНИЯ

Статья посвящена исследованию теоретико-методических основ внедрения развития городов на основе концепции "умные города". **Предметом** исследования является совокупность теоретических, методических и практических аспектов по обеспечению сбалансированного управления развитием городов на основе концепции "умные города" в условиях цифровой экономики. **Целью** статьи является разработка теоретико-методических положений и обоснование практических рекомендаций по формированию модели сбалансированного управления развитием умных городов в условиях цифровой экономики. **Задачи** работы: проанализировать ключевые проблемы развития концепции "умные города" в Украине; исследовать и систематизировать понятийный аппарат обеспечения формирования модели сбалансированного управления развитием умных городов в условиях цифровой экономики; обобщить международные стандарты формирования информационного обеспечения развития умных городов; предложить стратегические направления формирования организационного обеспечения управления развитием умных городов на принципах партнерства в условиях цифровой

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экономики. В ходе исследования использованы методы: абстрактно-логический анализ, теоретического обобщения и систематизации. В работе обобщены проблемы развития концепции "умные города" в Украине; на основе систематизации подходов к определению концепции "умные города" предложен подход к определению концептуальной модели "умный город" в условиях цифровой экономики. Доказано, что информационно-аналитическое обеспечение сбалансированного управления развитием умных городов в условиях цифровой экономики должно осуществляться на базе международных стандартов управления Smart Cities. Обоснованы стратегические направления формирования организационного обеспечения управления развитием умных городов на принципах партнерства в условиях цифровой экономики. **Выводы**. На базе систематизации понятийного аппарата обеспечения сбалансированного управления развитием разумных городов в условиях цифровой экономики предложен подход к определению концептуальной модели "умный город" с выделением таких сфер деятельности как умная экономика, умная мобильность, умная среда, умные люди, качество жизни и интеллектуальное управление; доказана целесообразность внедрения международных стандартов управления Smart Cities для информационного обеспечения разработки долгосрочной стратегии развития умных городов в условиях цифровой экономики; по результатам исследования международного опыта доказана необходимость его применения в процессе совершенствования организационного обеспечения управления развитием умных городов на принципах партнерства по улучшению качества осуществления местного самоуправления и предоставления публичных услуг путем привлечения граждан к активному сотрудничеству.

Ключевые слова: "умные города"; цифровая экономика; управление развитием умных городов; международные стандарты управления Smart Cities; цифровые трансформации; модели совместного производства; муниципальные советы.

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