DIGITAL TOOLS IN THE PUBLIC SECTOR AS AN ELEMENT OF FORMING A DEMOCRATIC SOCIETY

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Abstract *The evolution of modern society, accompanied by radical social transformations in the world and in Ukraine, is moving in the direction of the concept of an information society. At present, completely new relationships are being formed in the economic, social and spiritual lives of people, which are encapsulated in this concept.*
Given the degree of elaboration of this problem, as well as its multifaceted nature, this study aims to explore the problem of implementing digital tools in the public sector as a phenomenon of the information society, and to suggest ways to improve the efficiency of the public sector. The subject of research is modern society, which is developing in the context of the globalization of the information space. The object of research is the range of phenomena and processes that take place in the public sector through the formation of the information society. The research methods are determined by the specifics of this research work and the need for a comprehensive and interdisciplinary analysis of the topic. In the study, the author relied on general scientific methods: the comparative-critical method and the principle of typology, the structural-functional method, the systematic approach, the methods of analysis and synthesis, the historical method, the graphic method, and the methods of comparison, generalization and classification. The paper analyzes the features of regulatory and legal support for development in the field of digital participation in Ukraine as one of the 13 important aspects of statehood. The digital tools that can contribute to the involvement of more people at the local, regional and national levels in decision-making processes are highlighted. A number of pilot local and regional concepts in the field of digital democracy are analyzed, and a general idea of the legal framework for the development of digital democracy in Ukraine is formed. The analysis of foreign experience reveals a global trend in the formation of digital participation processes, namely: in most EU countries and the US, integrated platforms for the simultaneous combination of different online and offline activities that encourage more citizens without using additional resources are being created.

Keywords: *digitalization, democracy, decision-making, smart city.*

Introduction

The historical development of society is the cause of the formation of the information society, and this is a natural phenomenon. All spheres of public life are undergoing transformations and we are entering a new era, among the most important features of which are the accelerated informatization and computerization of all spheres of social production and the formation of a global network of communication links. Today, the activity of public associations is an integral part of the process of democratization of society. Public associations use in their work the principle of involving socially active citizens in the reform of society on a democratic basis. The information age is a fundamentally new stage in the development of civilization, characterized by new qualitative features compared to previous periods of human history. Most importantly, in our time, information and knowledge are of key importance.
The Internet has a special place in the process of formation of the information society. In addition to unprecedented opportunities to improve the material well-being of mankind, modern IT has led to the emergence and intensive spread of fundamentally new models of social integration, communication, socio-political activity, lifestyle, education, etc.
The modern world is characterized by rapid progress in the spread and development of information and communication technologies. New means of telecommunications, in particular

the Internet as a powerful global information resource, attract a wide range of people regardless of age, education, and social status.

In developed countries, the field of information and communication technologies is the key to social, economic, and political prosperity. Since the 1990s, the development of the information society has been a priority of public policy in the world's leading countries.

Various aspects of the information society – in particular, the role and place of people in the processes of globalization and information interactions, and the specifics of the information society in some highly developed countries and developing countries – are analyzed in Ukrainian literature in the works of I. Yu. Alekseev, M. S. Demkov, T. A. Berezi, L.V. Berezovets, O. L. Vartanova, S. T. Kara-Murzi, A.W. Kolodyuka, I. B. Koliushko, V. I. Lysytskoho, L. G. Melnyk, A.I. Rakitova, G. L. Smolyan, D. S. Chereshkina, A. A. Chernova and others.

Well-known researchers of digital tools and their implementation in various areas of organizational activity include K. Young, I. Goldberg, M. Griffiths, J. Grohol, J. Suler and others.

The issues of the activities of public organizations and their role in the process of forming civil society were covered in works by both domestic and foreign scholars: G. Domanski, I. Vitkovska, A. Galai, I. Yevdokimova, V. Kovalenko, J. Laville, A. Lyasota, D. Lewis, V. Kravchuk, A. Matviychuk, R. Patnam, T. Parsons, E. Ponomarenko, S. Ponomarev, P. Plau, E. Reverse, D. Stone, I. Tkachuk, A. Tocqueville , M. Shevchenko, S. Feldman, J. Fischer, R. Haye, O. Yuldashev and others.

The aim of this research is to explore the problem of implementing digital tools in the public sector as a phenomenon of the information society, and to suggest ways to improve the efficiency of the public sector.

The subject of research is modern society, which is developing in the context of the globalization of the information space.

The object of research is the range of phenomena and processes that take place in the public sector through the formation of the information society. Research methods are determined by the specifics of this research work and the need for a comprehensive and interdisciplinary analysis of the topic. In the study, the author relied on general scientific methods: the comparative-critical method and the principle of typology, the structural-functional method, the systematic approach, the methods of analysis and synthesis, the historical method, the graphical method, and the methods of comparison, generalization and classification.

The tasks of the research were as follows:

1. To analyze the features of regulatory and legal support for development in the field of digital participation in Ukraine.
2. To consider pilot and current local and regional concepts in the field of digital democracy and form a general idea of the legal framework for the development of digital democracy in Ukraine.
3. To provide a consideration of the impact of the introduction of digital tools in the activities of local self-government and the impact on democratic processes in the country.

The evolution of modern society, accompanied by radical social transformations in the world and in Ukraine, is moving in the direction of the information society. This concerns the formation of the global information industry, the increasing role of knowledge and information in economic and socio-cultural development, the emergence of new forms of democracy, structural changes in employment and other spheres of society. Now, completely new relationships are being formed in the economic, social, and spiritual lives of people, which are described by the concept of the information society.

In the early 1960s, the most important methodological framework to consider the formation of a new social state was formed from the standpoint of a departure from traditional industrialism

and the development of the service economy. This was associated with the increasing role of technology, science, and education, expanding new class managers and technocrats and a qualitative change in the place of theoretical knowledge and information in social production.
Initially, researchers in the information society focused on improving the means of disseminating and providing access to information, and the discussion was dominated by technological, infrastructural, and economic aspects. This was naturally due to the explosive development and convergence of information and communication technologies, which led to significant changes in the global market (Prins et al., 2017) of the information society was the development of computer and information technology. There were other features: the global nature of information, free from state borders, and the spread of information flows; a significant increase in the ability to collect, process, store, transmit, and access information; the increasing impact of information on the development of various spheres of human activity; the transition to new forms of employment, etc.
Socio-humanitarian aspects of the new information society began to be actively explored as a result of the realization that another qualitative leap in technological development had given rise to a new global social revolution that was not inferior to past revolutions in terms of its scale and impact on human society.
Today, the problems of the further technicalization of society, as it was considered a few years ago, have come to the fore, but the problems of intellectualization and the creation and implementation of new social technologies are based on effective use of the main strategic resource of the knowledge society.
There are several approaches to the definition of the information society. For example, A. Duff (1998) identifies three ways of understanding the information society: in terms of information and the economic approach, the approach from the standpoint of information flows, and the information technology approach. Well-known theorist F. Webster (2014) identifies five main approaches, each of which is based on one or another criterion of the information society that underlies it. First of all, these are technological and economic criteria (based on the most obvious changes in these areas of human life, most researchers build their definitions of the information society on them), the criterion associated with changes in employment (professional), and spatial and cultural criteria (Webster, 2014). Analyzing different approaches to the definition of the information society, F. Webster (2014) notes the existence of another definition, radically different from the previous ones; it is not based on the fact that in our time there is more information, but on the fact that the nature of this information has changed the way we live. This definition assumes that our behavior today is based on theoretical knowledge and information, and therefore relies not on quantitative criteria that are difficult to account for, such as previous definitions, but on qualitative ones.
These approaches are not necessarily mutually exclusive, although information society researchers, according to their ideas, bring to the fore mostly one or another definition. The basis of most approaches is the belief that quantitative changes in the field of information lead to a qualitatively new type of social order. In many respects, theorists proceed from similar considerations: in our time, in almost all spheres of society there is more information, so the society in which we live is informational.
Thus, agreeing with the great importance of such a component of the information society as information technology, we find it very simplistic and incorrect to recognize them as separate, each playing leading roles in social change.
Another approach to the definition of information society, which is no less common, is related to economic transformation. This approach involves taking into account the growing economic value of information activities. If there is an increase in the share of information business in gross national product, it is logical to conclude that the economy has become informational. If in the economic sphere information activity prevails over activity in the field of agriculture and

industry, then we can therefore talk about an information society. Accordingly, the information society is understood here as a society in which the main role is occupied by the production of information products and information services (Al-Dalou & Abu Shanab, 2013). However, recognizing the objectivity of the increase of the information sector in the economy as a whole and the growing economic significance of information, one cannot fail to note the complexity of this approach in trying to identify the size and components of the information sector of the economy.

In addition, the modern economy cannot be considered fully informational – the development of the information sector is logically combined with the existence of traditional industries, which also raises some doubts in an attempt to make the information-economic criterion dominant in the analysis of the information society.

Third, a professional approach to the definition of information society relates to employment. This approach is closely related to the work of D. Bell, the most prominent theorist of post-industrial society. This term is almost synonymous with the term *information society*, and it is used in the works of this author in this sense. Considering the structure of employment and the model of observed changes, D. Bell (1976) suggested that humanity is entering an information society, where most employees work in the information sphere. Decrease in employment in the sphere of production and increase in employment in the sphere of services are considered by Bell as a replacement of manual labor by white-collar work. Since the raw material for non-physical labor is information (as opposed to physical strength, manual labor skills, and its machine characteristics), a significant increase in the share of labor in the information sphere can be seen to represent the emergence of information society (Duff, 1998).

It should be noted that this approach to the definition of the information society is fundamentally different from the technological and economic. The emphasis on change in the field of employment emphasizes the transformational potential of information as such, rather than the action of information technology, where information is promoted and created in the field of employment and implemented in people through training and experience. A number of authoritative authors, from R. Reich to M. Castells, believe that the driving forces of the modern economy are people whose main ability is to use information: today, the main drivers of the economy are those whose work requires the creation and use of information.

Indeed, in developed countries, more than 70% of the workforce is employed in the service sector. The disadvantages of this approach are primarily due to the difficulty of dividing classes into categories such as informational and non-informational. “Such a methodology gives us huge amounts of information employment, but does not provide a tool for differentiating the most significant amounts of information work” (Webster, 2014, p. 122).

The fourth approach to the definition of the information society, although based on economics and sociology, is based on geographical or spatial principles. The main focus here is on global information networks which connect different parts of the planet, and therefore affect the organization of time and space. This concept has become especially popular in recent years due to the increasing role of information networks in the social organization of society and the development of the Internet. One of the leading proponents of this approach, M. Castells (Stalder, 2006), argues that the main feature of the information age is the presence of networks that connect people, institutions and states. Since the 1970s, a new form of capitalism that has emerged as a result of the development of information technology (in the author’s words, “information capitalism”) has used information networks both in production and for marketing around the world. Thus, the information society in this approach is considered as a global network society in which networks permeate the entire social and economic structure (Stalder, 2006).

The advent of electronic superhighways has drawn attention to the revision of the ratio of space-time. Indeed, in a networked society, the challenges of time and space have been largely

overcome, and corporations and even individuals have been able to conduct their business effectively on a global scale. Therefore, many suggest that all of this marks a serious transformation of the social system, which may even be a sign of revolutionary change. At the same time, the recognition of the development of information networks as a leading factor in the formation of the information society requires some reservations.

The availability of information networks is not sufficient to recognize society as informational. This approach also deals with vague definitions – first of all, the vague concept of the network, as it is unclear whether the network should mean only technological systems or all social information relations built on the network principle. In addition, information networks in the form of post, telegraph and telephone have existed for a relatively long time, and if we recognize their existence as leading in the information society, it becomes unclear what the information society is about now, not decades ago.

The approach to defining an information society that uses the criterion of culture is perhaps the easiest to recognize as complete and relevant to modern realities, but cultural artifacts are even more difficult than others to measure and formalize. Indeed, modern culture is clearly more informative than any previous one. People exist in a media-saturated environment: our lives are essentially symbolized, they take place in the process of exchanging and receiving messages about ourselves and others. Recognition of the explosive growth of cultural meanings leads many authors to say that humanity has entered the information society. They seldom attempt to quantify this development, but simply point out how obvious it is that there are far more signs and information today than in previous epochs. First of all, the concepts of postmodern authors who study the information society within text and hypertext, simulacra and rhizomes, hyperreality and pastiche, meaning, sign and other categories of postmodern discourse are descriptive.

The next approach to the definition of the information society is related to changes in the political sphere of society and the nature of international relations in the context of globalization. According to this approach, the state and various political forces are becoming the main actors in the formation and further development of the global information society. Information and knowledge in such conditions are some of the main resources of the state, the scale of which today can be compared with the use of traditional resources, access to which is one of the main factors of socioeconomic development. It is emphasized that the development of information and communication technologies brings about radical changes in the political life of society, especially in terms of its democratization. However, this approach to the definition of the information society, despite all of its importance in highlighting the future prospects of the global community as a global information community, also seems somewhat one-sided because of its attention to only one aspect of this problem.

Thus, the analysis of these approaches to the definition of the information society shows that they are either underdeveloped or one-sided. All of these approaches give very problematic notions of what, in fact, is the essence of the information society and how it can be defined. This is mainly due to the fact that most of these definitions of the information society are based on its quantitative characteristics and suggest that at some point, when information criteria begin to dominate in various spheres of society, it enters the information stage of its development. Thus, the quantitative increase in the amount of information is transformed into a qualitative change in the social system.

Undoubtedly, the ability to quantify the dissemination of information is useful, but it is clearly not enough. We can agree with F. Webster (2014) that for true knowledge of the information society, how it is similar to other social systems and how it differs from them, it is necessary to comprehensively study the qualitative transformations. Thus, the information society can be defined as a society in which theoretical knowledge plays a dominant role. According to this approach, the information society or knowledge society is arranged in such a way that priority

is given to theory, and this is considered to be the hallmark of modernity. Indeed, theoretical knowledge plays a key role in modern society – unlike in previous epochs, when practical and situational knowledge dominated. Today, innovations, on the other hand, originate mainly from basic theoretical knowledge, most clearly in science and technology, although the priority of theoretical knowledge exists in politics, economics and even everyday life. According to this approach, modern society is formed on the basis of reflection and decisions in which risk assessment plays an important role, respectively, and theoretical knowledge is given a central place because it gives rise to reflection.

However, the position of the priority of theoretical knowledge as a determining factor in the information society is also denied and cannot be considered fully valid because of its one-sidedness and inattention to the necessary quantitative analysis of the information society and the meaning of information in the modern world.

Thus, considering the main approaches to the definition of the information society in modern discourse, it becomes clear that none of them can serve as the only reliable methodological basis for studying such a complex phenomenon. The solution of this methodological problem is possible only in the case of integrated use in the definition and analysis of the information society of elements of all of the above approaches, taking into account their strengths and weaknesses. In addition to acknowledging this fact, the author's approach to defining the information society is based on the following provisions.

First of all, it should be noted that it is impossible to understand the essence of the information society without analyzing the meaning-forming category of this concept – the category of information. Today, there is no universal concept of information. According to the theory of semiotics, information is a measure of eliminating the uncertainty of the recipient's knowledge of the state of an object or an event. There are two main approaches to determining information: attributive and functional. The attributive approach considers information as an objective property of all material objects, while the functional one states that information is a condition and result of active activity and is possible only at the social level (Ariola, 2013). In addition, information is considered as all the information, knowledge, and messages that help in solving a problem. Information in this study is broadly understood to include all aspects of the above definitions, as well as audiovisual, entertainment information and databases with specialized information (narrow understanding of information).

According to most scientists, the information society has made information its basic parameter. Information becomes the basis of social and information development, and the main resource of social and economic relations. D. Robertson (1998), based on the idea of the interdependence of civilization and information processes, put forward the formula that "civilization is information." Using quantitative measures of mathematical information theory, the scientist ranks the history of civilization by the criterion of the amount of information produced, highlighting the following levels: zero level of information capacity in the brain of an individual – 10 bits; the first level of oral communication within a community, village or tribe circulating information ~ 10 bits; the second level is written culture, a well-known example of which is the Library of Alexandria, which had 532,800 scrolls that contained 10 bits of information; the third level is that of book culture, where there are hundreds of libraries and tens of thousands of books, newspapers, and magazines are published, the total capacity of which is estimated at 10 bits; the fourth level is the information society, with electronic information processing of 10 bits (Isaac-Henry, 2000).

Another important component of the approach to the definition of the information society is the recognition of the high dynamics of its development and the profound nature of changes in all spheres of human life. The dominant factor in the current stage of civilization is a phenomenon that some authors define as the information revolution. Thus, according to M. Vershynin (2001), the information revolution is the result of two processes that have developed

in parallel throughout human history – the process of the ever-increasing role and increased amount of information needed to ensure human life, and the development and improvement of information accumulation and dissemination technologies. M. Vershynin (2001) singles out several information revolutions in the history of civilization (as a result of radical changes in information processing): the first information revolution took place around 25,000 years ago and was associated with the emergence of language as a means of communication and interaction in society; the second revolution is related to the invention of writing, which made it possible to transmit information and knowledge between people from generation to generation; the beginning of the third revolution dates back to the middle of the 16th century, the time of the invention of printing; the fourth revolution took place at the end of the 19th century and was associated with the advent of electricity, which made it possible to use technologically new ways of transmitting information, such as telegraphs, telephones, and radio; the fifth information revolution, from the 1950s to the 1970s, is associated with the invention of the microprocessor and the advent of the computer (Vershynin, 2001).

Through information and telecommunication infrastructure it became possible to transmit a huge amount of information, which led to an unprecedented increase in information flows. The result of the information revolution was the emergence of a new type of information society.

In addition, in defining the essence of the information society, it is necessary to use the term *informatization*. Sharing the point of view of some researchers, we note that the informatization of society is a global social process of production and widespread use of information as a social resource that intensifies the economy and accelerates scientific and technological progress and the democratization and intellectualization of society. Informatization involves the mass introduction of methods and means of collecting, processing, transmitting and storing information on the basis of microprocessor and computer technology. Informatization is the intellectual and humanistic restructuring of human life in order to create a new social order, and information is becoming an important factor in social progress (Charalabidis & Loukis, 2011).

Informatization, thus, is a socio-technical and socio-cultural process of changing the life of society, its subsystems and structures by dramatically increasing the efficiency of production, preservation and dissemination of all types of information and knowledge. It is important to note that the informatization of society is one of the laws of modern social progress, and this term is not identical to *computerization*. In the computerization of society, the main attention is paid to the development and implementation of the technical base of computers that provide prompt receipt of the results of processing and accumulation of information. During the informatization of a society, basic attention is paid to a complex of actions directed towards the maintenance and full use of timely knowledge in all kinds of human activity.

Having identified the general methodological basis for the study of the information society, it is advisable to proceed to the definition of its essential characteristics. Obviously, one cannot but agree with the views of a number of foreign and domestic authors that the main features of the information society include: the formation of a single global information space and the deepening processes of information and economic integration of countries and peoples; the formation and further dominance in the economy of the countries that have the most advanced information society, new technological systems based on the widespread use of technological innovations, network information technologies, and advanced means of computer technology and telecommunications; the expansion of services; the dominance in the social structure of the class of intellectuals; the creation of the market of information and knowledge as factors of production in addition to the markets of natural resources of labor and capital, as well as the transition of information resources of society into real resources of socioeconomic development by expanding access to them; the growing role of infrastructure (telecommunications, transport, organization) in the system of social production and the

strengthening of trends towards the joint functioning of the economy of information and cash flows; the actual satisfaction of society's needs in information products and services; raising the level of education by expanding the capabilities of information exchange systems at the international, national and regional levels and, accordingly, increasing the role of skills, professionalism and creativity as the most important characteristics of labor services; and the creation of an effective system of ensuring the rights of citizens and social institutions to freely receive, disseminate and use information as the most important condition for democratic development, improving the interaction of the population with authorities.

Based on the above, it is difficult to analyze the approaches and definitions of the information society of different authors due to their extreme diversity, but it is obvious that all authors consider information and communication links the key to understanding modern society. Perhaps the shortest definition of an information society can be: an information-based society. In fact, this position is the basis of most definitions of the information society.

In general, the concept of information society can be defined in at least three ways. First, by listing the characteristics of this type of society. However, the list of these characteristics depends on the approach to understanding the essence of the information society. In addition, a complete and exhaustive list cannot be achieved, because life will constantly make adjustments. Secondly, one can go the other way by pointing out that the information society is the next stage in the historical development of mankind along the chain of agrarian, industrial, then post-industrial society, linking the formation of the information society with the concept of sustainable development or Vernadsky's noosphere.

A third, compromise option is possible, which combines the methodological foundations of the first two ways of defining the information society.

Summarizing the existing approaches to the interpretation of the concept of information society, we can say that currently this means:

- a new type of society, formed as a result of a new social revolution, generated by the explosive development and convergence of information and communication technologies;
- knowledge society, i.e., a society in which the main condition for the well-being of each person and each state is the knowledge obtained through unimpeded access to information and the ability to work with it. Information in such a society is the most important social and economic resource, the main source of productivity and power, and a condition of well-being of people and the state;
- a global society in which the exchange of information will have no temporal, spatial or political boundaries, which, on the one hand, promotes the interpenetration of cultures and, on the other hand, opens new opportunities for the self-identification for each community.

These characteristics of the information society are enough to understand what we are talking about, and further filling out the content of the concept of the information society should be carried out with the consideration of the leading concepts of the information society.

The emergence of the Internet was a revolution in intellectual activity, cognition and communication. This fact is recognized by the whole global community. The Internet represents the freedom of communication, the provision of information, and the absence of geographical, political, temporary, and ethnic provinces. The evolutionary possibilities of the Internet are endless. Even the smallest nodes of the network are autonomous, which combines globality with independence; maximum publicity does not interfere with almost complete freedom of expression. Network customers are also free to choose the information they need from a variety of sources, not limited to local or national borders.

Only language and cultural barriers remain. According to psychologists, the use of computer networks leads to significant functional changes in mental activity that disrupt the cognitive, communicative and personal spheres.

The use of the Internet also levels the system of traditions, rules, and values that have developed historically and characterize the affiliation of the individual to any community, such as a nation, class or religious denomination. It can be noted, to some extent, that the network strengthens all kinds of relationships and connections between people through information, regardless of social barriers.

At first glance, the Internet is similar to conventional global networks. However, it in fact has a number of very specific features and a unique structure. While a normal global computer network can be considered as a set of geographically distributed local area networks, which are usually connected to each other via telephone network, satellite channels, etc. and are fully supported and managed by one group of specialists from a single center, the Internet consists of many hundreds of freely connected networks. However, there is no single control center responsible for the development and operation of the Internet. Therefore, any enterprise or institution, having its own independent local computer network, can easily access the common information space. To obtain such an output, there is no need to change the internal network structure – it is enough to meet a number of requirements for Internet connection and the organization of internal network address space.

The Internet is a unique conglomerate of local, territorial, global and other computer networks connected into a single information space, for which neither the structure nor the methods of combining its local components matter.

Each of these networks connects to the Internet using special hardware – a router. This device generally performs many functions, including the ability to send directly to the destination information that operates on the Internet. When building territorial and global networks that connect local area networks with the same data transmission technology (Ethernet, ARCNet, etc., 2019), other hardware devices are used – bridges. The functions of such devices include the analysis of all data packets operating in the interconnection in order to deliver them to a predetermined network address from one local network to another.

Unlike a bridge, a router is a device that allows users not only to connect to networks with the same information technology, but also to organize the association of different networks with different topologies and specific communication technologies.

Routers are one of the most important components of the Internet. They are used in almost every Internet connection in order to limit and streamline network traffic and to determine the most efficient way to deliver packets of information to the destination.

To get a better idea of the Internet in terms of its technical and technological nature, as well as the methods and prospects for its use, it would be useful to dwell briefly on the history of the origin and development of the Internet.

In the late 1960s, the US Department of Defense conducted promising research on the creation and military use of computer networks that would have a sufficient margin of technological strength to function in wartime. The concept of building such networks, which was developed as part of this research, today underlies the construction of most global networks, including the Internet. Within the framework of this project, the ARPAnet network was developed – the network of the Advanced Research Projects Agency. The main task in designing and creating this network was to provide the necessary reliability and flexibility to work in special conditions, which would allow operators, if necessary, to replace computers in the network without additional reconfiguration of the network itself (Science Museum, 2018).

As this project developed, the most important components of the new network were identified. Particular attention was paid to ways to optimize the possible way of delivering messages, building e-mail services and offering breaking news services. None of the network's new features were developed as commercial products. The software and technical solutions developed were initially based on the principle of open standards, which could be used by anyone if necessary.

It is due to the fact that the concept, technology and standards of information exchange (with the exception of only some classified elements) were and are open that this network has become so popular. The main idea of network openness was that such an approach to the design and development of such a large-scale software and hardware complex provided maximum stability and reliability of the entire network, making it more accessible and useful.

Therefore, the ARPAnet, originally developed exclusively for military purposes, began to be used more often for peaceful purposes in the mid-1970s. It is at this time that it acquired a general education direction. Most of the users of this network were university research centers and university scientists. However, the most striking changes in the ways and methods of using the new global network have occurred in the last decade. The ubiquitous commercialization of the network today allows anyone to buy access to the global information space, while receiving a full range of information, advertising, entertainment and other services provided by a variety of companies and firms.

In the 1990s, the network, already known as the Internet, underwent the greatest changes and began to cover truly global spaces, spreading around the world and providing users with new types of information sources and services. There is no need to provide an overview of the development and use of the network by the US Agency for Policy Studies. A group of organizations, such as the US National Science Foundation, has undertaken the long-term development and support of the Internet. However, even after seemingly fundamental transformations that could radically change the very essence of the network, the basic elements laid down as the technical and organizational foundations for the creation of the ARPAnet network remained unchanged (Science Museum, 2018)

The most significant difference between the Internet and other territorial and global computer networks, as already noted, is that there is no single point of management of this network, which would coordinate its work as a specific control center. In terms of technical and organizational structure, the Internet is the whole set of computers and individual local area networks, a set of telecommunications equipment (telephone networks, communication satellites, dedicated communication channels, etc.) connected into a single information space around the world. Any personal computer or user can rightly be considered an integral part of a single cyberspace, which covers more and more areas every day and attracts more and more users to its field.

Another important aspect of the existence and development of the Internet is the fact that this network does not and cannot have a single owner who manages the entire network and has sole property rights. Any company that provides information services on the Internet, any research or training center, has only a certain, very limited part of the network in the form of hardware and software, which is responsible for combining disparate computers into a single whole. In terms of the information content of the Internet, it should be noted that all information circulating in the bowels of this network has no owner and is distributed freely.

However, this does not mean that the Internet is a meaningless accumulation of information pollution, among which it is difficult to find useful and necessary data. There are considerable misconceptions about the Internet as a spontaneous union of a huge number of computers which cannot be organized. There are specialized voluntary and public associations and organizations that monitor the development of the network and coordinate its work. The main group of such Internet enthusiasts is the Internet Society or ISOC – the Society of Internet Advocates. This organization has no official authority to manage the network, but has become an unofficial center that determines the main directions of the development and improvement of the Internet. The unofficial Internet engineering center for the development, development, implementation and maintenance of new Internet technologies, specifications and standards is the Internet Engineering Task Force – the IETF. The main functions of this center can be formulated as follows:

-solving urgent technical and technological problems of the Internet;
- developing rules for the use of network protocols;
- developing and standardizing terminology for solving the technical problems of Internet operation;
- developing recommendations related to the standardization of data exchange protocols on the Internet;
- monitoring the significant spread of new technologies on the Internet;
- conducting various events on the exchange of information between users, researchers, distributors of information services and network administrators of the Internet.

During the COVID-19 pandemic quarantine, all organizations realized that the process of digital transformation is not a beneficial element, but a necessity for NGOs. Many underestimated the digital component in their work, so they were unprepared for active communication in a socially distant environment.

In this period we all faced new challenges, but we also faced new opportunities. The main question for everyone was how to adapt and effectively continue their activities in the new reality.

According to research by Ridde et al. (2020), 79.4% of NGOs have shown their flexibility and adaptability and switched to an online format of work, using all possible digital tools and applications. Quarantine restrictions became the catalyst for the implementation of digital solutions for public organizations. However, unfortunately, the implementation of these tools began chaotically and unreasonably. Each organization has its own characteristics, needs and opportunities, areas of work and target audience, which is why the implementation of digital solutions requires analysis and an individual approach. Modern information technologies expand opportunities in access to information, the development of personal competencies, interaction and communication, as well as for expressing one's own opinion, creativity, self-realization, the protection of one's rights and civic activism. This not only concerns messages on social networks, but also the adaptation of traditional formats to new realities. Here it is important to let go of old habits, proven methods, stereotypes and not be afraid to experiment.

A digital communication strategy can be defined as planning the most effective use of information and digital technologies in the organization to raise awareness of the organization, change the behavior and thinking of a target audience, solve a problem or bring to the public certain topics and more. The essence of this strategy is not to make maximum use of various technologies and tools, but to effectively solve urgent problems with their help. Organizations that have made use of digital technologies in a system or part of their development strategy tend to assess their future more confidently.

The digital communication strategy allows organizations to give reasonable answers to the questions of why, to whom, when, what, where and how to provide information about their organization, its activities, new projects or initiatives. This is done based on objective data – the trends and attitudes of civil society, partners, target audience, stakeholders, etc. As a rule, it is developed simultaneously with the communication strategy and covers issues related to ways of disseminating information about the organization and its activities on the Internet.

In order to form their own digital communication strategy, organizations need to answer 6 questions:

1. WHY: who they are and why. Formulate the goals of the digital communication strategy taking into account the key goals of the organization. Here it is important to clearly understand the purpose of the organization, its values, differences from others, and so on. The result of answering this question will be:

1.1 Identification of opportunities and challenges for the organization as a whole and, more specifically, where digital applications and solutions can help.

1.2. After defining values, it is important to describe the target audience for whom this value is important and to understand whether the organization can build digital communication with them.
1.3. Analyzing and prioritizing the needs of the target audience, which the organization can help solve or meet.
1.4. Identifying partners. An analysis of organizations working in the same field will provide important data for a digital communication strategy – the organization can adopt successful solutions, establish effective partnerships, initiate joint flash mobs, hashtags, thematic frameworks and more.
1.5. Determining the organization's positioning. It is important to take a position that will distinguish the organization from others. Positioning is based on individual strengths – functional and emotional.
1.6. Forming a unique value proposition. This should be clear, accurate, and short – literally 5 seconds, because that is all the time that an organization has to attract and hold a user's attention. What value this is to the audience depends on what the organization can provide. This is done by creating a list of benefits, and then combining all these benefits into one unique value. This analysis is easily accomplished via brainstorming, and the following tools can be used: Padlet, Jamboard, Coggle.it, Mind42, XMind and more.
2. WHO: study the target audience and define the main and additional target audience. To build an effective digital communications strategy, an organization needs to know its target audience well. It is necessary to understand whether what they know about their target audience is still relevant, whether their assessment and attitude towards the organization changed, and how the organization can meet new expectations.
2.1. This involves needs and opportunities, as an organization must clearly understand the needs, capabilities and characteristics of each target audience. A deep understanding of the target audience will allow the organization to build truly individual communication. However, the target audience cannot be all of civil society or all of the community, because by communicating with everyone the organization will not be able to communicate its message effectively to anyone.
3. WHEN: understand the path of the target audience. This involves analyzing when (at what time: morning, evening, Saturday or Wednesday, etc.) and where (in which social networks or platforms, messengers or sites, etc.) the target audience is, how it decides what materials, articles, and posts to read, what sites they visit, etc.
4. WHAT: what is the organization talking about. Quality content is the key to success. This involves thinking about content strategy, determining the tone, audience, method and time of distribution of content. The goal is to communicate appropriately, timely and effectively. There are times when one approach or tone resonates more in one audience than in another, and this is worth remembering. Every target audience needs to be addressed in its own language. For example, Facebook highly values unique content created specifically for this social network, so for successful promotion it is very important to pay attention to the quality of content, publishing something original and authentic. What matters is not so much the frequency of publications and the number of posts as the value for the target audience, so the preparation of content for publications on Facebook should be taken seriously and responsibly.
Text should be structured, diverse, easy to read, interesting, have relevant illustrations and pictures. Information that is presented in a continuous stream is perceived negatively. If an organization has a lot to say, they should use a method such as storytelling to capture the reader's attention and provide them with the necessary emotion.
To be effective in social networks, organizations need to stand out, be clear, concise and useful. Of course, they must also remember that most people are visual, so photos, videos,

infographics, animations are necessary. One-dimensional content for all platforms (Facebook, Instagram, Tik-Tok, Messenger) cannot exist – each platform requires an individual approach.
5. WHERE: selection of promotion channels. At this stage, the organization chooses a relevant channel for the target audience to convey information. This involves analyzing the organization's external and internal digital tools and channels, evaluating those that are available, acceptable, but not yet used, and formulating the goals, objectives and main challenges for each channel (website, social networks, blogs, e-mail, chatbots, mobile applications, messengers, etc.). The rules often change on social networks, which means that organizations should review their content strategy, and not assume that it will work for many years. This is especially true now that most people spend more and more time online, especially on social media, after quarantine restrictions. This trend should also be reflected in the digital communication strategy, taking into account the moods, preferences and needs of each audience, any age group, status, etc.
6. HOW: implementation. This is a question of implementing strategy. Here, the organization must:
6.1. Prescribe goals and key performance indicators.
6.2. Make a to-do list. Once the organization has identified the tools and their key performance indicators, they prescribe a work plan for each digital channel used – with deadlines, steps and responsible people. Project management solutions (task managers) can help with this, in which each employee can add their own tasks and write comments that other colleagues will see. The most common options include: Trello, Asana, Miro, Mural, and Worksection. Most of these tools can be customized to the organization's own needs and preferences – from design to synchronization with messengers and other services.
It is important to understand the algorithm of how the organization will check and evaluate the results of each step and the overall success of digital communications. This involves analyzing the results and adjusting the next steps. Analysis, social media statistics, online surveys, etc. will help with this. Tools that can be used for surveys include: Polleverywhere, Kahoot, Mentimeter, Padlet, Google Forms, Sli.do, etc. With analytics, the organization will gain insights that can be used to improve their digital communications.
The strategic approach avoids many mistakes, unnecessary steps and the inefficient use of resources. Modern realities are rich in both challenges and opportunities for public organizations, which is why it is necessary to transform and adapt to new technologies and needs of society to offer better services and have a greater impact on creating quality change.
The following are the author's recommendations for public organizations for the effective implementation of digital solutions:
• Do not try to start implementing digital tools or technologies used by others without first determining what is necessary in the organization's case. The success of the implementation of digital transformation in a public organization requires a deep understanding of stakeholders;
• Introduce and deepen the digital competencies of representatives of public organizations. This requires a rethinking of functions, the training of employees, and perhaps it would even be useful to attract new people to help the rest of the organization to introduce a more digital mentality and gradually adapt the global organizational culture to this new environment;
• Start digitizing all possible processes immediately. However, keep in mind a holistic approach to digitization, including visions and priority steps, tools and techniques. This process can be facilitated through cooperation, exchange of knowledge and experience, pooling of funding and partnership with other NGOs, etc.;
• Effectively use social networks to promote their public organization and activities and the dissemination of key messages;
• Use digital tools to communicate with a wide audience, involving partners, potential partners, donors and volunteers.

Table 1. Tools for NGOs for working in an online environment
Source: compiled by the author

Tools for visualization	Tools for sites creation	Digital timing tools
● canva.com (pictures for social networks, presentations, reports, short animated videos, etc.); ● pictochart.com (creating infographics); ● easel.ly (from text to infographics); ● venngage (creating posters, billboards and infographics by dragging template elements); ● viewbix.com (a marketing tool that allows you to create interactive videos very quickly); ● vyond.com (to create videos with animated characters); ● slide.ly (to create slideshows); ● wistia.com (a convenient service for inserting video on various pages). ● TurboScan is a mobile application that allows users to scan/photograph documents and images and convert them to PDF.	• Drupal • WordPress • Joomla • Textpattern • Tilda • Google Sites • Wix.com	Timeline JS – a tool that allows users to quickly and easily create an interactive chronicle and add hyperlinks, maps, photos, data, quotes, tweets, etc. TimeToast – for creating interactive timelines and share them online. Navigating the site is very simple, the timeline can look like a sequence of event points where descriptions appear when the user hovers over a date, or as a list with a long description.

The tools of digital democracy provide an opportunity to bring the decision-making process closer to the population, increase its efficiency and transparency, create a digital culture of responsibility, implement cooperation between government and its community, and constantly search for new participatory forms and methods for sustainable community development.

There are many tools, methods and forms of involving citizens in the processes of formation and implementation of management decisions. However, it is worth paying attention to the situation in each locality, because sometimes the tools that work effectively at the national level may not work as effectively at the local level and vice versa (Gorokhova, 2019).

Consider the example of the Mariupol United Territorial Community (UTC). According to the Monitoring of the Implementation of e-Government Instruments in Local Self-Government Bodies (hereinafter – MHI) conducted by the NGO Podilsk Regional Development Agency together with the Association of Local Self-Government Bodies "Cities of e-Government in Ukraine," Mariupol Council took 1st place in "The degree of implementation of electronic participatory instruments in local governments."

This ranking examined three aspects of digital participation at the local level: the availability of public feedback tools on the city council's website, the level of implementation of electronic petitions, and the availability of information on the budgets of civic initiatives (Petrushenko, 2014).

As of December 1, 2019, Mariupol had 157 e-democracy tools (map of appeals, local e-petitions, budget of public initiatives, online chats, online polls, online appeals on the website of Mariupol City Council, https://mariupolrada.gov.ua/) – a sufficient number. However, among the existing tools there is a lack of those that monitor the implementation of electronic petitions and the degree of influence on local government decisions. There is no information on the website of the city council about changes in resolving the issues that became the subject of petitions, which received the required number of votes of city residents and were supported by the city council.

The tool of electronic petitions in Mariupol began operating in 2015. Here, users can submit or sign an existing petition on the e-petitions portal: https://edet.ip.ca/mippuizia. In order for the e-petition to be considered, it must receive 350 votes within 14 days.

Since 2015, city residents have been able to address e-petitions to the Mariupol City Council. If a petition does not receive the required number of votes, it is still considered, but as a collective appeal. For example, in 2015, city residents submitted 331 petitions, of which 66 received the required number of votes, and all others were considered collective appeals. As of December 2019, 1,385 petitions had been submitted, of which 175 petitions had received the required number of signatures for further consideration. A total of 176,911 votes (signatures) were cast for the petitions submitted to the Mariupol UTC.

The digital tool of petitions has been seen as a problem-solving mechanism since the beginning. It was found that the effectiveness of such a tool largely depends on the political will and resource capacity to implement the decision. Today, such a tool is an indicator of the problems and needs of residents, which should be taken into account by government officials.

On the other hand, residents often lack an understanding of the powers of certain institutions, so the incorrect addressing of issues can often discredit the instrument itself (especially at the national level). In Vinnytsia, most petitions concern 158 housing and communal issues.

Another participatory instrument operating in Mariupol is the participation budget. Online submission and voting for projects online takes place on a nationwide platform at: https://mariupol.pb.org.ua/.

The key problem of the public budget in Ukraine, as well as a number of other democratic instruments introduced in the state (consultations, public councils, etc.), is not in the formation of additional legislative initiatives (budgets, expenditures, instruments), but is related to the approach to key inquiries from society and public administration as to what results are desired within these instruments.

Usually, in the formation/functioning of the public budget, the emphasis is more on the use of budget funds, not on teaching people the responsibility for decision-making and participation in the formation of their own quality space.

However, there are real obstacles to the effective functioning of this tool:

- the low level of digital competencies and understanding of citizens on the role and objectives of the draft public budgets;
- the lack of a unified approach in the perception of both the organizer and the executor of the public budget both in the settlement and in Ukraine;
- the lack of ethical standards for the implementation of public budgets;
- the threat of politicians using public budgets as steps to implement their own strategies;
- a formal approach to evaluating the effectiveness, monitoring, control and support of public budget projects.

The example of the Mariupol UTC can be traced to how this instrument changed. The first pilot stage of the competition started in February 2016. Funding in the amount of 5 million UAH was provided for 159 projects under the Participation Budget. During the first pilot stage, 174 projects were submitted to the competition, the vast majority of which concerned the improvement of the city. According to the terms of the competition, the projects were divided into two categories: small (up to 200,000 UAH) and large (from 200,000 UAH to 1 million UAH) in the ratio of 50905 to 50905. In total, 80 projects were put to a citywide vote, 43 of which were small.

Voting took place from April 1 to 11, 2016, both in paper form and online on the website of the Mariupol City Council in the “Participation Budget” section by filling out a questionnaire through identification in the electronic office of the resident.

The second stage of the tender for the implementation of the “Participation Budget” tool took place in 2016. In fact, the tender budget for 2017 has already amounted to 6.5 million UAH with a ratio of 8,590 for large projects and 1,590 for small projects. From July 15 to September 5, 2016, users continued to submit projects for the City Day 2016, and voting took place from October 1 to 10, 2016.

The third stage took place during 2017. It is planned to spend 7 million UAH on the implementation of projects in 2018. The relationship between project funding remained the same. The submission of projects took place from April 1 to May 15, 2017. One author had the opportunity to submit one large and one small project, and voting took place from October 1 to 10, 2017.

The fourth stage of the competition was held in 2018. The budget for the implementation of the ratio between project financing in 2019 remained the same. One innovation was the ability to submit a project and vote through the all-Ukrainian platform "Participation Budget." Developments were submitted from April 1 to May 15, 2018. In addition, seminars on project writing and the Project Fair were held, where authors presented 160 of their own works. A total of 76 projects were submitted, 2 of which were removed at the request of the authors, and 41 projects were put to a vote. Voting took place from October 1 to 15, 2018. The innovation was that each resident of the city was given the opportunity to vote for 4 projects – two large and two small.

The fifth stage of the competition took place during 2019 – the submission of projects took place from April 1 to May 15, 2019, and their evaluation took place from May 16 to August 1, 2019. As part of the information campaign of the competition, 3 authors and potential authors of projects met and held a Project Fair. Here, they presented their works and presented ideas for citizens and executive bodies to adjust the components of the project to allow more developments to vote and real opportunities for their implementation in the territory of Vinnytsia city OTG. In 2019, 36 projects were admitted to voting with the opportunity to vote for 4 projects – two large and two small. Thus, the residents of Vinnytsia cast 32,262 votes for the draft Budget of Public Initiatives, of which 20,510 were cast via paper voting (6,490), and 11,752 via electronic voting (369).

During the entire period of the instrument's operation, 485 participation budget projects were submitted, of which 62 were winning projects and 124,090 votes were cast for them. In general, it should be noted that the Participation Budget tool is amended each year, according to new proposals and the needs of residents and the public, to make the participation process more effective for all stakeholders. In addition to electronic petitions, on the website of the Vinnytsia City UTC there is the opportunity to submit an address to the representatives of the city council in order to obtain a prompt solution to issues.

Thus, as of the beginning of 2020, almost 17,000 appeals had been officially registered. According to focus group discussions held in November 2018 by representatives of the NGO Podilsk Regional Development Agency within the development of the Concept of digital participation of the Mariupol UTC 2019–2025, one of the tools that would be easy to use was termed the "Map of appeals," on which it would be possible to leave appeals or problematic questions using CP5 coordinates. This map of citizens' appeals, which is located on the geoportal of Mariupol (available at https://kkc-mariupol.bissoft.org/contactcenter/map) allows users to leave appeals regarding problems or emergencies. Despite the fact that from 2016 to 2021 residents left more than 156,662 appeals, this tool needs additional promotion.

In order to make digital tools inclusive and available for use by different target audiences, the city has introduced an online chat function for direct communication with representatives of the Mariupol City Council. In fact, the idea of forming this chat was primarily to supplement the existing tool of the round-the-clock availability (24/7 telephone consultations on city issues) for people with hearing and speech impairments. However, the chat has become very popular and in 2019 there were almost 3,500 consultations. The issue of effective communication and receiving targeted messages from local governments with the ability to provide a response or suggestion was the idea behind the creation a mobile application: "Accessible Mariupol."

The “Accessible Mariupol” application allows residents to use a variety of information and services. It can be downloaded on Android and iOS. The development of the application was made possible by the Department of Social Protection and the US Agency for International Development under the USAID Democratic Governance in Eastern Ukraine project.
Here, anyone can learn about the work of public transport, choose a club for their child, pay for utilities, register for kindergarten, receive free legal aid or psychological advice online, leave a review about a school or kindergarten, find the nearest pharmacy with a ramp, read the news about the activities of city services and look for vacancies.
In July 2021, a pilot version of the application was launched together with the Mariupol City Council. Today, the tool can be downloaded for the Android and IOS operating system. In order to make the tool more user-friendly, in demand, and easier to use, city council representatives jointly updated the service through integration with messengers, chatbot development and the planned possibility of integration with a number of other services.
The issue of public consultation is still one of the most important issues at both the national and local levels. A survey is conducted by the authorities on the website of the Mariupol City Council on various issues directly related to the life of the settlement.
In addition, the Mariupol UTC became one of the pilot settlements that began to use the platform of digital democracy. One of the tools offered on the established platform of digital democracy is the possibility of interactive consultations, but at the moment this is sporadic and not systemic. According to the above information, it is obvious that Mariupol has a significant number of working tools of digital democracy, but not all services are sufficiently popular among citizens. Hence, the following problems of digital participation in the city of Mariupol can be observed:
- the low level of demand for products and the e-participation system due to the low awareness of residents and integrated services;
- the insufficient level of legitimacy of decision-making processes, transparency and efficiency;
- the low level of systematic attempts to effectively implement e-participation tools, and a number of others.
Because of these factors, the idea of a smart city with smart citizens became the basis for the formation of the Mariupol Strategy – 2030, where residents will use 163 digital tools to shape the design of their future in the city.
Analyzing the functioning of digital democracy tools in Mariupol according to the proposed model, it should be noted that each tool has a back office, the product itself, as well as a front office – i.e., a person or group of people responsible for the product (Figure 1).

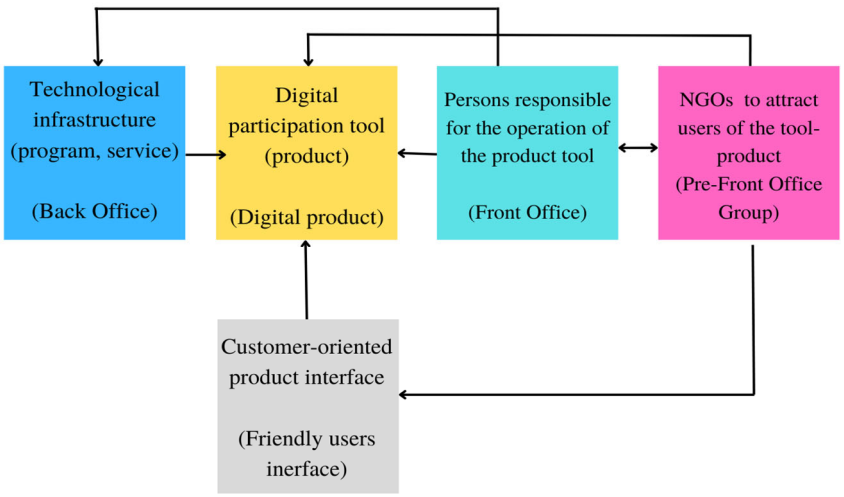

Figure 1. Digital participation ecosystem model
Source: compiled by the author based on Ridde et al. (2020); Stancu et al. (2017)

Thus, due to the changing demands and needs of residents, the evolution of technology is taking place, and the implementation process takes into account the two components of the following model, which were not used in other cities and regions together.

The first is the user-friendly interface. At the same time, in addition to accessibility and clarity, personal data security will be taken into account.

If this aspect is more technological, the other, which is not sufficient for the effectiveness of the tools themselves, depends on the available resources and methods available for use.

Second is the front-office group – a group of people who will stimulate the involvement of citizens in decision-making processes and, consequently, in the use of digital democracy tools. This is a component that is proposed to be added so that the government can receive feedback from citizens. In addition, this component involves ongoing activities (various animation processes) that would teach residents to co-create policies, solutions and specific products to make the community better. In this case, this will be a high-quality functional system that has requests from society, that is ready to change and, most importantly, that will bring effective change.

Paying attention to the functioning tools, it should be noted that digital democracy is not only a tool for controlling power, but also a tool for reducing the distance between power and the citizen. At the moment, thanks to digital technology, citizens do not need to be physically present at government sessions to understand how voting takes place and what issues are raised. The tools of digital democracy should encourage participation in decision-making and become tools of analysis for the changes that society expects. Digital democracy aims to move from an anonymous or unidentified consumer to a responsible conscious user who knows of existing problems and is ready to join in solving them. Digital democracy encourages the use of information technology, but focuses on the transition from citizens who criticize the government on social media to those who want to change something, who become smart citizens, who are willing to invest time, resources and energy and who affect the environment and decision-making in it.

However, this is possible only when a high-quality ecosystem of digital participation with the involvement of citizens has been formed. It should be understood that the modernization of instruments must go hand-in-hand with the government's willingness to be open to the development of public consultation. In addition, there is a demand for the creation of comfortable products to improve living standards, as well as services that need to be modified. This may include quality control of condominiums and road services and other services that improve living standards.

Another example is air quality sensors, which are currently in demand, because these are tools that will lead to some changes in environmental quality. In addition, for digital participation tools to work effectively, there must be constant communication with other actors in the digital economy. In fact, this means giving back data and encouraging the intensification of the open data process, including the preservation of human rights, Internet security and many others. It is the digital economy that can provide the resources for this and use the tools of digital democracy in partnership. After all, a person, first of all, should be perceived not as a user of a smartphone, but as a user of the environment and a subject of socio-political relations. The main approach should be to focus on a person who is ready to learn and to join the existing processes of digital transformation.

In order to effectively involve residents in decision-making processes, the following model of balance of levers of intercommunicative influence of the subjects of digital participation is proposed (Figure 2).

This scheme demonstrates that in the interaction of public authorities or local self-government the method of this interaction is important, i.e., the instrument of digital participation, as well as constant communication that promotes balance in these relations.

Digital tools of participation are the optimal mechanisms for ensuring effective inter-subject communication to solve the problems of citizens and optimize the needs of public authorities (balance of levers). Citizens' use of digital tools of participation as levers of influence on the authorities will depend on how simple and accessible they are. The more optimal these levers are, i.e., the less functionality is embedded in the concept of tool management and the more effort citizens will need to spend on its use, the less effective the digital participation tool will be and the fewer problems it will solve.

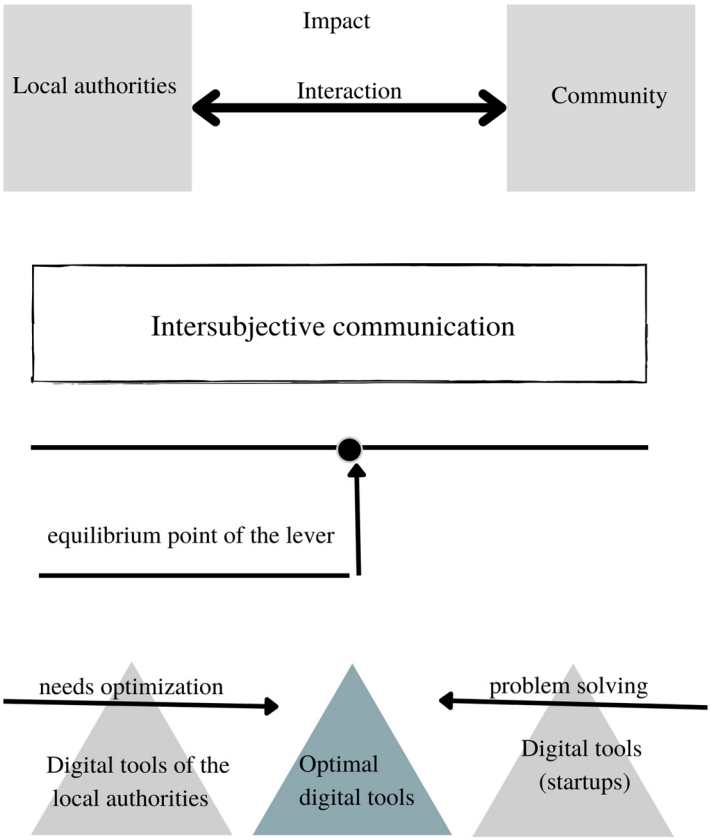

Figure. 2 Model of balance of levers of intercommunicative influence of subjects of digital participation
Source: compiled by the author based on Stancu et al. (2017); Chappelet & Kilchenmann (2005)

Digital tools of participation in this case become opportunities to reduce the path and time interval to resolve citizens' issues. If this lever is not effective, accordingly, citizens will not use it. The use of digital tools of participation to ensure the process of effective interaction between citizens and the authorities is intended to create a situation where both citizens and the authorities are on the same plane. Otherwise, this will not provide proper involvement of residents and joint decision-making.

A number of practical recommendations for public authorities on mechanisms of interaction through digital participatory instruments are proposed, which would be effective levers for interaction between citizens and public authorities both at the stage of formation and development of digital participatory instruments and at the stage of their implementation:

1. Identifying the analysis of citizens' problems through sociological research, focus group surveys, online surveys and other methods.
2. Carrying out joint activities on the capabilities and functioning of digital participation tools.
3. Preparing the design of a digital participation tool for the specific requests of citizens, in particular on the procedure, implementation process and specific social groups targeted by the specific tool (in particular, for people with disabilities, youth, organizations that contribute to community decision-making).

4. Developing digital services and their architecture.
5. Integrating related participatory tools for interaction with other components of digital governance.
6. Evaluating the effectiveness of service activities of public authorities in the process of using digital tools of participation.
At the stage of the formation and development of digital participatory instruments, the central executive bodies are recommended to:
1. Involve a wide range of stakeholders to develop the design.
2. Ensure coherence in the functioning and cost of managing the digital instrument by local governments before its implementation.
3. Ensure the presence of a front office and the principle of product universality as a basis for its development.
At the stage of implementation (realization) of digital participatory instruments in public authorities and local governments, it is recommended to:
1. Carry out testing, adjustment and its adaptation in accordance with the needs of citizens and together with them.
2. Promote the tool for individual target groups and for the entire target audience.
3. Create and disseminate information on successful cases and practices of digital participation tools.
4. Promote the standardization of digital democracy instruments, in particular in legal documents (strategies, programs, regulations, etc.) of public authorities and local governments.
5. Develop a plan for the life cycle of the digital tool, in particular with: the implementation of animation processes (creation of events and the inclusion of these events in the process of using the tool); the formation of sustainable information drives (creation of working groups to improve the tool, adapt to local conditions, etc.); the training of both representatives of local self-government bodies and members of territorial communities on the use of digital participation tools and dissemination of new experience in their modernization; the organization of working meetings on the development of new participatory services, the expansion of functions, and the improvement of the tool interface; the creation of local groups of activities that will work together on the support, networking and activation of this tool; and linking these groups to target audiences.
6. Create conditions for the integration of the digital instrument of participation in national, regional and local systems of digital democracy in accordance with common standards and approaches.
7. Replicate, launch and implement digital participatory tools in other areas in line with the effectiveness of pilot projects.
In addition, an extremely important element of effective involvement of citizens in the use of digital tools of participation is constant information support – namely, the activities of positioning and support of the product with the blogosphere and media. Also, a very important aspect is the combination of activities in the digital world and physical events (competitions, hackathons, various activities to stimulate attention to the problems and needs of residents, including the use of digital technologies).

Conclusions

This research has identified the peculiarities of normative and legal support of development in the field of digital participation in Ukraine as one of 13 important aspects of state formation. It should be noted that digital tools can contribute to the involvement of more people at the local, regional and national levels in decision-making processes.

The research has systematized a number of pilot local and regional concepts in the field of digital democracy, and a general idea of the legal framework for the development of digital democracy in Ukraine has been provided.
It is substantiated that the legal framework in the field of digital participation needs to be improved. Existing documents have laid the foundation for the development of digital processes involving citizens in the development and implementation of strategic and operational decisions at various levels. However, it is necessary to create an ecosystem of digital participation for territorial communities, based on the national concept and pilot regional and local concepts with the use of additional recommendations according to the needs of a particular locality.
The analysis of foreign experience revealed a global trend in the formation of digital participation processes, namely: in most EU countries and the US, integrated platforms for the simultaneous combination of different online and offline activities are being created that encourage more citizens without using additional resources. It is noted that the phenomenon of digital participation is associated with the actualization of citizens' participation on their initiative in the formation and implementation of public policy, public administration and local government, which provides interactive interaction of management decision-makers with digital technologies in cyberspace according to established rules and digital hygiene standards.
It is justified that regional or municipal (local) Concepts of Digital Democracy should become legal acts that will define clear mechanisms of digital participation. To this end, principles have been defined and recommendations for their development have been proposed: first, the principle of having expert groups that will monitor trends in the development of digital transformations; second is a security principle for the development of digital democracy, which must be used to ensure the protection of personal data by authorities; third is the principle of transformation, according to which e-democracy is transformed into digital democracy; finally, fourth is the principle of manufacturability, which is the formation of integrated digital platforms with a single point of access to content and a variety of services and tools for digital participation, which will save time.

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References

1. Al-Dalou, R., & Abu Shanab, R. (2013). *E-participation levels and technologies.* The 6th International Conference on Information Technology (ICIT 2013), Amman, Jordan. https://www.researchgate.net/publication/273632293_E-participation_levels_and_technologies
2. Ariola, A. (2013). *Participation of citizens and civil society in decision making*. Center for Change and Conflict Management. https://partnersalbania.org/wp-content/uploads/2015/12/study_citizen_participation.pdf
3. Bell, D. (1976). *The Coming of Post-Industrial Society*. Basic books.
4. Isaac-Henry, K., & and Barnes, C. (2000). *Information and Communication Technologies: assessing public attitude and local government resolve*. Public Policy and Administration, 15(3), pp. 20–31.
5. Chappelet, J., & Kilchenmann, P. (2005). *Interactive tools for e-democracy: Examples from Switzerland*. In M. Böhlen, J. Gamper, W. Polasek, & M. A. Wimmer (eds.), *E-government: Towards electronic democracy. TCGOV 2005. Lecture Notes in computer science* (Vol. 3416, pp. 36–47). Berlin, Heidelberg: Springer. https://doi.org/10.1007/978-3-540-

32257-3_4
6. Charalabidis, Y., Loukis, E. (2011). Transforming government agencies approach to eparticipation through multiple social media exploitation. In L. Mola, F. Pennarola & S. Za (eds.), *From information to smart society. Lecture Notes in Information Systems and Organisation* (Vol. 5, pp. 251–268). Cham: Springer. https://doi.org/10.1007/978-3-319-09450-2_22.
7. Duff, A. S. (1998). Daniel Bell's theory of the information society. *Journal of Information Science*, *24*(6), pp. 373–393. https://doi.org/10.1177/016555159802400601
8. Gorokhova, T. (2019). Management of business communication processes in companies using digital tools. In *Theoretical and methodological principles of development of the financial system of Ukraine on the basis of innovation and investment strategies: a collective monograph*. DonNUET.
9. Prins, C., Cuijpers, C., Lindseth, P. L., & Rosina, M. (eds.). (2017). *Digital democracy in a globalized world*. Elgar Publishing. https://doi.org/10.4337/9781785363962
10. Ridde, V., Dabiré, S., & Dagenais C. (2020). Use of research by NGOs: A call for reflection and action. *Humanitarian Alternatives*, No. 13, 86–101.
11. Robertson, D. S. (1998). *The new Renaissance: Computers and the next level of civilization*. Oxford University Press.
12. Science Museum. (2018). *From ARPAnet to the Internet*. https://www.sciencemuseum.org.uk/objects-and-stories/arpanet-internet
13. Stalder, F. (2006). *Manuel Castells: The theory of network society*. Polity.
14. Stancu, A., Nordh, A., Riedel, A., et al. (2017). *eDemocracy and eParticipation: The precious first steps and the way forward*. European Liberal Forum. https://liberalforum.eu/publication/e-democracy-and-e-participation-the-precious-first-steps-and-the-way-forward/
15. Vershynin, M. (2001). E-government in the XXI century. *PRnews*, No. 6, 28–35.
16. Webster, F. (2014). *Theories of the information society.* Routledge.