„SMART CITY" CONCEPT AS A POSSIBLE ANSWER TO NEW CHALLENGES IN POST-COVID ERA

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ABSTRACT

The "Smart City" concept and "smart digitalization" represent implementation of information and communication technologies in local government units. This is a new approach to local governance in managing various local government services and delivery of goods. Local government represents a form of political and administrative territorial organization, with specific local tasks and services regarding the local community. It has a separate jurisdiction and specific autonomy and functions mostly independently of the central government administration. Different administrative and political systems have different models of local government organization. The position of local government units depends on the degree of centralization present in the political system. Local government organization and public authorities are focused on delivery of goods and maintaining various public services for the local community, and their services usually have a local character. Their radius of influence is territorially limited in local units and social communities connected with these units. Services and tasks provided from local government units are specific because they usually influence daily life and quality of living in the local community. The concept of "Smart City" and implementation of "smart digitalization" in managing local public tasks and delivery of local services and goods can improve local governance and help in establishing an efficient model of local government administration. In this paper a comparative and deductive approach is used to explain main elements of the "Smart City" concept and their application to local government tasks and obligations. Second, it uses a synthetic approach to explore how implementation of "smart digitalization" and the "Smart City" concept can be used as an efficient tool for social, economic, and political challenges in the post-Covid era.

Keywords: challenges, digitalization, local self-government, smart cities

1.   INTRODUCTION

The Smart City model is new approach in local governance, established as a result of implementation of information and communication technologies in managing local government administration. This model represents a unique approach in the

administration of various local government activities, from political participation of the citizens and other subjects in local society, to delivery of local public goods and services. "Smart City" is not only a digital platform for the connection of various local activities. It is a model which provides the institutional answer of local government bodies with possible solutions for many various political problems and challenges in the local community. In that sense, the digital platform is a basic tool for implementation of information and communication technology to support local government services and tasks. The second aspect of the implementation of digital technologies is a proactive approach in implementation of different digitalizing public services important for daily life in the local community. This proactive approach needs to ensure flexible digital services, which can be adopted according to the interests of local users and promote the possibility of political and democratic participation of citizens in the local community. It can detect two main approaches in the development of "Smart City" government. The first is in relation to the participation of citizens in the political, social and economic life of the local community.[1] Implementation of the "Smart City" model needs to ensure opportunity of participation, which includes interaction between local government bodies, non-government organizations and other citizens in local community. That includes various forms of e-government services such as e-referendum, e-election, e-participation, possibility of discussion in social networks and digital platforms developed for such purposes, etc. All of these services represent implementation of the e-democracy concept in organization and functioning of the local community.[2] The second approach is related to delivery of public goods and services provided from local public bodies and institutions. The implementation of e-administration services can improve the quality and availability of those services and ensure interaction between citizens as users and local public authorities as providers. That can ensure the possibility of two way-communication, where local authorities have feedback from citizens, which helps in improving local government services. On the other hand, citizens can impact on the quality and efficiency of delivering services and goods through interaction with local government bodies and other local services providers.

The implementation of "Smart City" government depends on the organization of the local government system. Different countries have different models of local government organization implemented in their territorial organization. Some countries prefer territorial organization with large local government units, other

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[1]   Irvin, R.; Stansbury, J., *Citizen Participation in Decision Making: Is it Worth the Effort?,* Public Administration Review, Vol. 64, No. 1, 2004, pp. 55–65

[2]   Anderson, L.; Bishop, P., *E-Government to E-Democracy*, Communicative Mechanisms of Governance, Vol. 2, No. 1, 2005, pp. 5 – 26

countries develop organization of territory with small local units. According to this, jurisdiction and authorities of the local government units are not the same as their fiscal and administrative capacity. Large local government units usually have large institutional capacity with more administrative, personal and material resources. They can manage many different local public tasks or organize delivery of local public services and goods. Also, they organize various social and economic activities which connect many of the local interests of citizens in the community. The size of local government units can be important in determining what type of services and local public tasks can be the jurisdiction of local governments in their relationship with central government administration and their decentralized territorial bodies. The balance between central government administration and local self-government units depends on the organizational model of local self-government and level of decentralization in managing public services and disposition of public authorities between central and local government bodies. The implementation of the "Smart City" model and application of smart digitalization in local self-government can be easier if local government units have personal, institutional, and administrative capacity for their application.[3]

In the post-Covid era, two main processes can be predicted which could be caused in local self-government. The first process is consolidation related to the economic and social impact on the development of society, including local self-government. That includes implementation of adoptive measures for the harmonization of the negative influence of measures for protection against spreading disease in the community. Local self-government was the supporting factor to the central government administration in implementation measures against Covid-19, and first affected by their negative effects. Measures against Covid-19 were centrally managed, but local government units were observed and supported their implementation on the local community. The second process is advancing in implementation of new digital technology, as a result of implementation of Covid measures such as self-isolation and quarantine. The extension of technical limits with physical measures such as quarantine, isolation, self-isolation, limitation of interpersonal contacts to prevent spread of disease opened up the possibility of implementation of digital technology for distance communication. Many people were prompted to use digital technology to manage daily tasks and obligations and to communicate with other people. That situation encouraged rapid expansion of the application of new digital technologies, including developed digital platforms with incorporated models of e-government. A special type of those models was the "Smart City" model, which is a form of smart digitalization for implementation in local

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[3]   Halegoua, G., *Smart Cities, The MIT Press Essential Knowledge Series,* The MIT Press, Cambridge Massachusetts, 2020, pp. 14 – 15

self-government organization. In this paper, how the application of the "Smart City" model and smart digitalization can help local government units in overcoming consequences conditioned by the influence of protective Covid measures on daily life in the local community will be analyzed.

2.   METHODS

Methods used in this paper are deductive analysis and inductive presentation of contemporary "Smart City" models and their implementation in local self-government institutions. Basic elements and main aspects of the "Smart City" model and their implementation in local government institutions will be analyzed. Special attention will be dedicated to implementation of various aspects of "Smart Cites" in many elements of their application to citizens, business subjects and government and non-government institutions. After deductive analysis of e-government solutions and "Smart City" model application, the possibility of implementing the "Smart City" model true smart digitalization of local self-government units will be actualized. This implementation would describe the true inductive synthesis of basic elements which describe e-government models and the main aspects in the functioning of the "Smart City" model true implementation smart digitalization in local government units.

3.   RESULTS

3.1.   Basic elements of "Smart City" model in local self-government

Implementation of the "Smart City" model represents the application of information and communication technologies in local governance with the aim of interconnecting different public tasks and delivery of public goods to provide citizens a better quality of public services.[4] The Smart City model also needs to ensure easier possibility of participation of citizens in social, political and economic life of the local community.[5] In that sense, the Smart City model represents a type of e-government, with specific elements adopted for implementation on local government units.[6] The main difference between the e-government model implemented on central government administration and the "Smart City" model implemented on local government units is in the type of implementation. National e-government

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[4]   Buffat, A., *Street-Level Bureaucracy and E-Government*, Public Management Review, Vol. 17, No. 1, 2015, pp. 149 – 161

[5]   Söderström, O.; Paasche, T.; Klauser, F., *Smart cities as corporate storytelling*, City: Analysis of Urban Change, Theory, Action, Vol. 18, No. 3, 2014, pp. 307 – 320

[6]   Albino, V.; Bernardi, U.; Dangelico, R., M*., Smart Cities: Definitions, Dimensions, Performance, and Initiatives*, Journal of Urban Technology, Vol. 22, No. 1, 2015, pp. 3 – 21

services include digitalization of public services and availability of public tasks provided by central government and their institutions. These services have a global impact on the functioning of the state and life of citizens at a national level. Their effects have a national impact for the citizens no matter where they live. Local e-government services are oriented towards the local community and its local public needs.[7] In the local community, public needs have a local character, and they are mostly oriented towards local services important for daily life in the community. Those services are oriented towards delivering services and goods managed by local government bodies and institutions. Providing local digital services depends on the institutional capacity of local government units. If they have strong capacity because of large fiscal, administrative, and political autonomy, they can implement various digital services for the coordination of local public tasks and activities. The second aspect of digital services is a digitalized form of political participation of the citizens in the local community. This includes implementation of e-democracy services such as e-referendum or e-elections. Another element can be developing digital platforms for using local social networks to stimulate discussions on many of social and political matters in the community important for social, cultural and economic development. Local digital platforms can be a useful tool for acceleration and dynamization of social interactions in local community.[8]

Elements of "Smart City" government can be described with different dimensions of e-government implementation. Application of these dimensions defines the possibilities of the "Smart City" model and the possibility of using smart digital technologies at a local level.[9] There are four dimensions of e-government implementations: government to government, government to citizens, government to business and government to non-governmental organizations.[10] Implementation of e-government elements on local self-government units predicts some specific adjustment to local peculiarities. Application of the government-to-government dimension includes interaction between various parts of local government units and central government administration. These interactions mean that the "Smart City" digital platform must ensure a connection between different participants in digital communication. Platform must assure vertical and horizontal communication between various parts of central and local government bodies. Central government bodies ensure availability of public digital services which can be provided

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[7]   Ruano de la Fuente, J., M., *E-Government Strategies in Spanish Local Governments*, Local Government Studies, Vol. 40, No. 4, 2014, pp. 600 – 620

[8]   Hollander, R., G., *Will the real Smart City please stand up? Intelligent, progressive, or entrepreneurial? City: Analysis of Urban Change,* Theory, Action, Vol. 12, No. 3, 2008, pp. 303 – 320

[9]   Wang, D., *Foucault and the Smart City*, The Design Journal, Vol. 20, No. 1, pp. S4378 – 4386

[10] Menash, I. C.; *Impact of Government Capacity and E-Government Performance on the Adoption of E-Government Services*, International Journal of Public Administration, Vol. 43, No. 4, 2020, pp. 303. – 311

from central government authorities.[11] These services are additional support to local government services managed by local government authorities and represent vertical communication between central and local government levels. Horizontal communications existing between various local government institutions and local subjects which participate in delivery of local government services. This interconnection needs to ensure an interactive approach in managing and using digital services, with additional tools which can facilitate access and using digital services available from the digital interface. Government to citizens' dimension represents the relation between local government bodies and other participants that provide local digital services on the one hand and citizens on the other, who are daily users, with feedback which can help in improving of local digital services. In this type of correlation, it is important to ensure two-sided communication between users and providers of local digital government services.[12] This is important in measuring the process of quality of local public service delivery and customer satisfaction with provided services. The main characteristics of public services are continuity in delivery of goods and services, availability to all citizens and other public consumers, responsiveness and efficiency in delivery to the consumers. They are also characterized by the existence of public interest, which is an additional constitutional element of their maintenance. Digitalization of these services aims to improve all constitutional elements and ensure better coordination in their managing and delivery. Government to business are the third dimension of e-government services. It represents implementation of communication and information technologies in improving public services important as an institutional and regulatory framework in development of utilities and other business entities in society.[13]

Local implementation of e-government services includes broad support to business entities in local community, especially local oriented economic subjects. This support is important for their efficiency and ability to perform services and goods to fulfill needs of citizens in the local community. Implementation of government to business in the "Smart City" model means creating of stimulating framework for development for start and development of local business solution. Usually, this type of service is connected with central government services for support of economic activities and maintaining business entity.[14] In that sense, "smart gov-

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[11]   Wyld, D. C.; *The 3Ps. The Essential Elements of a Definition of E-Government*, Journal of E-Government, Vol. 1, No. 1, 2004, pp. 17 – 22

[12]   Atkinson, R. D.; Leigh, A., *Customer-Oriented E-Government*, Journal of Political Marketing, Vol. 2, No. 3 – 4, 2003, pp 159 – 181

[13]   Awan, M. A., *Dubai e-Government: An Evaluation of G2B Websites*, Journal of Internet Commerce, Vol. 6, No. 3, 2007, pp 115. – 129

[14]   Yang, K.; Rho, S., *E-Government for Better Performance: Promises, Realities, and Challenges*, International Journal of Public Administration, Vol. 30, No. 11, 2007, pp. 1197 – 1217

ernment" platform can ensure unique and integral approach to the central and local public services and tasks which are needed for successful development of economic activities. The fourth dimension is government to the non-governmental organizations. That includes implementation of smart digitalization in promoting social, cultural, and political activities and participation of citizens and social institutions in community life. Implementation at local level means creation of regulatory framework for institutional engagement citizens and non-governmental institutions in daily life of local community. Non-governmental organizations can participate in provision of various public services and their provision can be improved by implementation of digital technologies important for their support to the local community. That means creation of a digital platform which can connect services provided by central and local government authorities, non-governmental institutions, and different utilities with various regimes of public and private partnership. The dimension "Government and non-governmental organization" also includes possibility for participation of different interest groups in the community. These groups can shape their interests in society, which depends on their current economic, social and cultural position in local community. This dimension promotes their possibility to participate in local public services, especially in some social, educational and cultural activities.

A special aspect of the Smart City concept is the possibility of local digital political participation or local e-democracy. This includes implementation of digital technologies in the democratic life of the local community. In that sense, the "Smart City" concept is a part of e-government doctrine with specific implementation at the local level. It can be also divided into two main elements: e-administration and e-democracy. E-administration as a component of "Smart City" is oriented towards promoting local digital public services provided by local government authorities. Local digital public services are usually integrated with the common interface with a unique quality of service to all users in the local community. E-democracy includes citizen's participation in the local community in daily political and social life. That means various forms of formal and informal citizen activities in political and social processes. The process of digital communication ensures better communication and visibility between citizens in the local community.

Formal citizen activities include using institutional channels on interaction between citizens, political institutions, and local administrative bodies. These channels can be useful tools as a support to formal citizen's initiatives such as public discussions and initiatives important in process of adoption and implementation of legal documents and regulations important for development and daily life of the local community such as general urbanistic planning and other urbanistic documents important for development of urban society, legal acts regarding com-

munal order and other regulations important for quality of life and environment protection in the local community. In that sense, public discussions and interaction of different ideas and opinions can be made much easier by using digital applications developed as a part of the "Smart City" digital platform. Digital tools for implementation of digital elections are developed as one of the possible elements of digital democracy. These tools need to provide formal participation of citizens in the local community by using digital application at "Smart City" platform, and secure increased opportunity for citizens' participation and their visibility in democratic processes, especially younger voters and people who already use new digital technologies in daily life.

Informal citizens' activities are connected with the possibility of participants in the local community to explore and present their ideas and opinions related with social, political and economic happenings and processes important for daily dynamic of life in local society. Those opinions are important for dynamics of political and social life in community. Application of digital channels by implementation of "Smart City" platform smart digitalization can improve local interaction and ensure better connection of people in local relations. Implementation of digital technologies ensures better possibility of communication between local community members and visibility of their ideas, plans and intentions. This can be helpful in support development of local civic society and better inclusion of community members.

Development of the "Smart City" model is important element of implementation e-government solutions in providing local public services and managing social and political processes in local community. These solutions always include implementation of tools needed for improving interaction of users and providers in public service delivery, but also tools for interaction of community participants in local collective actions.[15] Some of the facts show that modern cities use 75 % of global energy and produce 80 % of CO_2 emissions.[16] For sustainable development of urban areas, it is important to develop projects for integration of various organizational parts of contemporary cities such as transportation, energetic, wa-

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[15]   Komninos, N., *et al., Smart City Planning from an Evolutionary Perspective*, Journal of Urban Technology, Vol. 26, No. 2, 2019, pp. 3 – 20

[16]   Development of smart cites model presents challenge for public administration and local government reform and their implementation on local communities because of requirement for energetic and ecological sustainability. Some of the EU programs are supporting development of smart cities model such as Intelligent Energy Europe Program, which includes trainings on new construction technics, that leads to energy savings, improving the effectiveness of support schemes for electricity generation from renewable energy sources across Europe and helping Europe's cities to develop energy-efficient and cleaner transport. Lazaroiu, G. C.; Roscia, M., *Definition technologies for the smart cities model*, Energy, Vol. 47, No. 1, 2012, pp. 326. – 332

ter supply management, waste management and communal services and services which provide democratic participation such as elections, referendums and public discussions.[17]

The Smart City model provides integration of different aspects of smart digitalization in local implementation of e-government models. In that sense, it can be facilitating digital integration of public services provided by city administration, corporate services provided by private enterprises or mixed public-private utilities, services provided from social and political institutions at regional and local level and public services created from citizens or private utilities and corporations incorporated in local digital platforms. The main goals in integration of this platform are quality of life, administrative efficiency, health and wellness, economic development, ecological and energetic sustainability, public safety and traffic mobility.[18] Achievements of the Smart City model usually are acceleration of innovation and economic progress, improving local governance, management and working operations in public authorities, open society with available data which leads to connectivity, accessibility and security.[19]

3.2. Key elements for development of "Smart City" platform

Development of the "Smart City" model depends on elements important for building a Smart City platform. These elements are values, innovation, governance, finances, information management, connectivity and accessibility and local infrastructure.

Values are elements which describe benefits from implementation of the "Smart City" platform to the local community.[20] These benefits can be described by the main aspects of "Smart City" implementation.[21] The first aspect is provision of "Smart City" services from private and public utilities and other organizations which create services and information with useful outcomes for their stakeholders. Those services are commercial services useful in the daily life of community such

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17 Lom, M.; Prybil, O., *Smart City evaluation framework (SMACEF): Is a Smart City solution beneficial for your city?*, Journal of Systemics, Cybernetics and Informatics, Vol. 15, No. 3, 2017, pp. 60 – 65

18 Wallis, J.; Zhao, F., *E-Government Development and Government Effectiveness: A Reciprocal Relationship*, International Journal of Public Administration, Vol. 47, No. 7, 2018, pp. 479 – 491

19 See more in: Lombardi, P., *et al., Modelling the Smart City performance*, Innovation: The European Journal of Social Science Research, Vol. 12, No. 2, 2012, pp. 137 – 149

20 Grimsley, M.; Meehan, A., *E-Government information systems: Evaluation-led design for public value and client trust*, European Journal of Information Systems, Vol. 16, No. 2, 2007, pp 134 – 148

21 Caragliu, A.; Del Bo, C.; Nijkamp, P*., Smart Cities in Europe*, Journal of Urban Technology, Vol. 18, No. 2, 2011, pp. 65 – 82

as traffic services, taxi services, supply services and delivery services.[22] The second aspect are smart communities as part of the "Smart City" platform such as local neighborhoods, university campuses, business districts etc., which function as unique micro digital units in providing "Smart City" digital services. They develop specific smart digital services to fulfill the needs of their users and stakeholders. The third aspect represents citizens and community residents who can also be Smart City providers in the local community and contribute to the development of the "Smart City" platform. These residents can participate in the "Smart City" platform with additional information which helps in daily living of the community.[23] That information is related to public security, daily events in neighborhoods and the dynamics of living in local organizational units such as parishes, city districts and other forms of sub-municipal units.

Innovation is another element to describe development of "Smart City" platform as a part of implementation of the e-government model in the local community. Local public needs are the main element which push forward innovations on the "Smart City" platform. Those needs induce many innovating applications to support daily activities in local communities such as training, various workshops, public discussions etc.[24] Innovations also contribute to developing cooperation between local community, business, and academic society in implementation of smart digital solutions on daily life of citizens.[25]

Governance is one of the elements important for the functioning of central and local government authorities. It presents application of contemporary administrative doctrines to improve functioning of central and local government administration.[26] Governance introduces good practices and principles important for the organization and functioning of public administration. It also defines relations and interactions with citizens and political institutions.[27] In that sense, gover-

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[22] Example of those services are: Waze/Google Traffic for traffic services information, Uber or Bolt for personal mobility, Glovo or Wolt as food delivery services, etc.

[23] Caird, S. P.; Hallett, S. H., *Towards evaluation design for Smart City development*, Journal of Urban Design, Vol. 24, No. 2, 2019, pp. 188 – 209

[24] Holzer, M.; Manoharan, A., *Digital governance in municipalities worldwide (2011-12),* National Centre for Public Performance, Newark, 2012, pp. 81 – 89

[25] How innovation can contribute to development of the "smart cities" model see more in: Deakin, M.; Al Waer, H., *From intelligent to smart cities*, Intelligent Buildings International, Vol. 3, No. 3, 2011, pp. 140. – 152

[26] Ingrams, A., *et al., Stages and Determinants of E-Government Development: A Twelve-Year Longitudinal Study of Global Cities*, International Public Management Journal, Vol. 23, No. 6, 2020, pp. 731 – 769

[27] Husar, M.; Ondrejička, V.; Varis Ceren, S., *Smart Cities and the Idea of Smartness in Urban Development – A Critical Review*, IOP Conference Series: Materials, Science and Engineering, Vol. 245, No. 8, 2017, pp. 1 – 6

nance describes the interaction and interplay between citizens and administrative institutions on one hand and political bodies on the other hand.[28] Digitalizing of public services and establishing a "Smart City" platform is also at the focus of governance, as a key element for implementation of good practices in modernization of public administration.[29] Digitalization of public services are an important part of governance reforms and improves implementation of principles and good practices characteristic for contemporary administrative doctrines such as "New Public Administration", "New Public Management" or "Good Governance". Implementation of governance in local community true smart digitalization and implementation of the "Smart City" platform opening up space for organizational and functional decentralization of local government administration and possibility for further development of local government units. This development, according to prevailing principles in administrative practice characteristic for "Good Governance" doctrine, leads to the strengthening of political, fiscal and administrative autonomy of local government units. Digitalization of local public services encourages and improves that process and helps in transformation of local government units.[30]

Finances are an important part of digital transformation of local government administration and local political authorities. Two moments are important in the application of this element. The first is the possibility of transparent control of financing local political institutions which can provide true digitalization of working processes and maintaining of fiscal activities of administrative bodies and other local public institutions.[31] The second is interaction between citizens, inhabitants, public and private utilities and various institutions in local community with local government bodies and other specializing institutions competent for collecting and spending of public funds.[32] This includes digitalizing of financial services and cash flow monitoring, which is helpful in preventing tax evasion.

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[28] Viale Pereira, G. *et al., Increasing collaboration and participation in Smart City governance: a cross-case analysis of Smart City initiatives*, Information Technology for Development, Vol. 23, No. 3, 2017, pp. 526 – 553

[29] Mulder, I., *Sociable Smart Cities: Rethinking Our Future through Co-creative Partnerships*, in Streitz, N; Markopoulos, P. (eds.), Distributed, Ambient, and Pervasive Interactions. Second International Conference 22. – 27- June 2014, Springer International Publishing, 2014, pp. 566 – 574

[30] Tomor, Z., *et al., Smart Governance for Sustainable Cities: Findings from a Systematic Literature Review*, Journal of Urban Technology, Vol. 26, No. 4, 2019, pp. 3 – 27

[31] Stortone, S.; De Cindio, F., *Hybrid Participatory Budgeting: Local Democratic Practices in the Digital Era*, in: Foth, M.; Brynskov, M.; Ojala, T. (eds.), Hybrid Participatory Budgeting: Local Democratic Practices in the Digital Era, Springer Science + Business Media, Singapur, 2015, pp. 177 – 178

[32] Joshi, S.; Saxena, S.; Godbole, T.; *Shreya, Developing Smart Cities: An Integrated Framework*, Procedia Computer Science, Vol. 93, 2016, pp. 902 – 909

Information management is another element of the "Smart City" model important for the functioning of smart digitalization at the local level. High information flow is a crucial element in architectonic structure of "Smart City" model, especially in modern approach to organization of local digital services. For efficient implementation of this element, it is important to assure infrastructure possibilities and technologic prerequisites. Technological aspects include horizontal and vertical integration of digital services. Horizontal integration ensures an equal approach to all digitalizing services from a unique digital platform, designing to support various digital services providing from different private and public providers. A vertical approach ensures availability of different e-government services by implementing and using the "Smart City" platform.[33] That includes the integration and compatibility of central and local government digital services. Information management of "Smart City" model assures access to local oriented digital services, but also connection to the central government digital services. The main task in the implementation of this element is the prevention of collision and harmonization of application. Implementation of information management solutions need to ensure an interactive interface with integrated services and applicable possibilities of smart digitalization.[34]

Connectivity and accessibility of local infrastructure is another important element which follows information management. Local digital infrastructure is a limiting factor in developing the "Smart City" model, and development of digital technologies depends on technical possibilities. It can be predicted that implementation of 5G networks in mobile infrastructure with high digital flow can ensure application and services important for digital transition of local government services.[35] That also reduces the need for standard cable network in using daily digital services provided by the "Smart City" platform. Infrastructure also includes telecommunication utilities with people, technological processes, adequate technology and technological solutions which create elementary conditions for development of digital platforms and their applications in implementation of e-government.[36]

The Smart City platform must be adopted to the specific public needs and interests of the local units where it will be applied. Those needs are different and

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[33] Al Sharif, R.; Pokharel, S., *Smart City Dimensions and Associated Risks: Review of literature*, Sustainable Cities and Society, Vol. 77, 2022, pp. 2 – 11

[34] Tranos, E.; Gertner, D., *Smart networked cities?*, Innovation: The European Journal of Social Science Research, Vol. 25, No. 2, 2012, pp. 175 – 190

[35] Wirtz, B., W.; Müller, W., M.; Schmidt, F., *Public Smart Service Provision in Smart Cities: A Case-Study-Based Approach*, International Journal of Public Administration, Vol. 43, No. 6, 2020, pp. 499 – 516

[36] Halegoua, R. G.; *The Digital City. Media and Social Production of Place*, NYU Press, New York, 2020., pp. 25 – 28

depend on economic, social, political and other aspects of the city. It is important to build a Smart City network which will be adjusted according to the strategy of development of the city and execution of the plans of city administration. It is also important to identify current capabilities and gaps which lead to problems in implementation of smart digital technologies.[37]

3.3. Smart digitalization of local self-government units and new challenges in post-Covid era

Implementation of the "Smart City" platform solutions represents modernization of local government institutions and administrative bodies, and their transformation to modern and efficient tools for economic, political, and social interaction with the local community. This process characterizes some specific elements such as smart digitalization, territorial determination of applied applications, interactive digital interface with integrated digital services and development of digital governance true implementation of e-democracy solutions such as presentations and discussions on local digital networks, e-election, e-referendum, etc. These solutions open up opportunity for developing more transparent and efficient local government institutions, with more visibility in the daily life of the local community.[38]

Post-Covid era challenges can be described as social occasions caused by the Covid 19 pandemic with economic, social, and political consequences in civic society. These consequences strongly impact on the daily life of citizens in the local community as a part of national civic society. Post-Covid challenges are complex and need a specific approach that includes implementation of various solutions in economic, social, and administrative fields, which could be applied from local government institutions. Those measures represent a new regulatory framework for delivery of goods and various services to citizens from local government authorities, institutions, and public utilities. An additional aspect of this process is developing a democratic framework that includes implementation of democratic tools which increase participation of citizens and interaction between institutions and local community in strengthening social activities in the local community. In that sense, the Smart City model is a possible answer in strengthening local society and local self-government units, because it helps in three main directions:

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[37] Angelidou, M., *The Role of Smart City Characteristics in the Plans of Fifteen Cities*, Journal of Urban Technology, Vol. 24, No. 4, 2017, pp. 3. – 28

[38] Paulin, A., *Smart City Governance*, Elsevier, Amsterdam, 2019., pp. 39 – 58

- supporting communication activities in society, which is interrupted and limited with specific epidemiological measures such as isolation and avoiding of social contacts between individuals in the community.

- possibility for strengthening of social cohesion, which is achieved with communication solutions implemented via the Smart City platform, as a technological tool for integration of the community in times of reduced social contact.

- improving availability public services and delivery of various goods with strengthening other activities important for the citizens in local community, especially true implementation of regulatory framework for digitalization of local public institutions and local political bodies.

Communication activities in society were interrupted with the implementation of epidemiological measures adopted with the aim of protecting citizens from disease and prevent spreading of Covid-19 in population. This situation accelerated the implementation of modern technological solutions to support broken communications. That approach led to intensive development and implementation of interactive services and platforms such as Google Meet, Zoom or MS Teams, with application in various aspects of social communications such as learning and teaching processes, conferences, meetings, discussions, debates and other forms of public communications. In that sense, direct physical communication between citizens was replaced with interactive communication by digital platforms form communication support. Social cohesion in the community can be possibly improved by using smart digital technologies. In that sense, smart digitalization can be an effective technological tool to support community interaction, while in the situation of physical blockade of social communication amongcitizens, digital communication on communication platforms ensured support for social contact of people in the community. In that environment, implementation of the "Smart City" model was accelerated because of interests of citizens and other users and subjects in the local community for better availability of public services and possibility of interactive communication with local public authorities. The third aspect is oriented towards the possibility of the use and availability of public services and delivery of goods from public utilities and local administrative bodies. Regulatory framework regulates conditions for access and usage of different local public services. The Smart City platform ensures the possibility of an interactive approach to national or local oriented public services. Those services are oriented towards the citizens, but also to business users, central and local governmental institutions and other institutions of civic society. Implementation of smart digitalization and Smart City digital solutions contributes to efficiency and availability of local public services, but also can strength democratic control over functioning of

local government administration and local public authorities with transparency and openness in procedures of using and delivery. This approach can improve the functioning of local self-government units and support development of the local community. Smart digitalization and implementation of the Smart City concept, with development of other aspects of e-government services at the national level represents facilitation of post-Covid challenges by implementation of modern digital technologies.

Development of the "Smart City" model represents multi-stakeholder effort to create an interactive platform for services developed from various subjects in community[39]: services designed and created from the city (such as waste management, traffic, public transport, water supply etc.), corporations (various commercial services such as taxi and private transport services, traffic information, food delivery, additional services information with commercial elements, etc.) community (neighborhoods, city districts, universities and public schools, cultural and social institutions, primary and secondary health services, etc.) and citizens (discussions, forums, social networks for community interaction, petition lists, non-profit organizations). In the delivery of Smart City services, they are usually integrated with elements such as innovative creations and solutions for maintaining digital services, public governance and management, local public policies with different forms of application such as concessions, public - private partnership or other models of cooperation between the public and private sector, possibility of data sharing for improving local digital services and implementation of technologic infrastructure as a condition for applying Smart City platform solutions.[40] These elements are necessary to establish efficient and effective model of sustainable Smart City model which facilitates functioning of local government institutions in local community.

4. DISCUSSION

One of the main questions in the functioning of contemporary public administration is how to improve different levels of administrative activities, from central government to local self-government administration.[41] Modernization of public administration is always one of the current questions for discussion, which includes various measures of administrative policy. One of the approaches to modernization is smart digitalization, which includes implementation of digital

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[39]   Paulin, A. *op. cit*, note 39, pp. 81 – 82

[40]   Mehra, S., *Stadtbauphysik. Grundlagen klima- und umweltgerechter Städte*, Springer Vieweg, Wiesbaden, 2021, pp. 337 – 343

[41]   Gilbert, P.; Thoenig, J., *Assessing Public Management Reforms*, Palgrave Macmillan, Cham, 2022, p. 47

technologies true application of e-government solutions to central and local government levels. At the local level, smart digitalization depends on the capacity of local self-government units and their preparedness to implement the "Smart City" platform with various local digital services. The capacity of local self-government usually depends on the organizational aspect of local self-government and the ability of local units to manage local public services and fulfill local public needs. The possibility of organization of the "Smart City" platform can be limited by their organizational, personal and administrative capacity. On the other hand, big cities can delegate the organization of some digital local services on sub-municipal units, according to their organizational capacities. The implementation of smart digitalization at central government level depends on e-government public policy, which is conducted centrally from the government authorities.

The application of digital technologies to local self-government services depends on the initiative of self-government units and their wellbeing and preparedness to adopt "Smart City" models in their development projects. The possibility of the application of the "Smart City" platform and smart digital solutions is great to many local government services, but it is also limited by the interest and willingness of local self-government units for implementation. Digitalization of local government services can contribute to efficiency and effectiveness, which is important in the daily functioning of local self- government. The other thing is social interaction in digital networks and services, which stimulates citizen's participation and ensures democratic supervision of public institutions in the local community. These two aspects can be the possible answer to social, political and economic challenges, and help with the prevailing difficulties caused by the Covid-19 pandemic. These circumstances suggest that the "Smart City" model can be a tool for managing the social, economic and administrative challenges of the local community in a post-Covid society.

5.   CONCLUSION

The Smart City model with smart digitalization represents a relatively new concept in the development of e-government solutions in public administration. Development of this type of digitalization of public services started as part of e-government solutions, to support implementation of digital technologies on central and local government administration activities. Smart digitalization of cities with development and application of the "Smart City" platform was part of the implementation of e-government, which includes two dimensions of application: e-democracy and e-administration. Differences between central and local level in the implementation of e-government technologies is in the circle of users of public

services. Central government administration provides services organized centrally, and local government administration is focused on services provided to citizens in local community. The possibility of application to public services is limited with the circle of possible users, where local government units provide services and delivery of goods to local community members. On the other hand, digital technology enables integration of central and local government platform and an interactive approach to all services at one place. The main division is in the circle of users and design of digital public services, where the digital approach to local public services depends on local self-government units and their preparedness to implement digital technologies in the daily functioning of the local community. In some big cities, with large urban areas, smart digitalization also can potentially depend on sub-municipal government, and its organizational and administrative capacity.

Implementation of e-government solutions and the "Smart City" platform in practice was increasingly significant in the Covid-19 Pandemic, where epidemiological measures prevented and limited physical personal contacts between individuals in society. Smart digitalization facilitated communication between citizens and ensured the possibility of direct interaction without direct physical contact, which assured efficient implementation of epidemiological measures and limited disease spreading.

The implementation of the "Smart City" platform in the post-Covid Era established an efficient canal of interactive communication between citizens in the local community and local government units. This communication helps to connect people in the local community, contribute to social cohesion and improve citizen participation and supervision regarding the functioning of local government institutions and local public authorities. Modernization of local government by the application of smart digitalization can improve efficiency and effectiveness of local self-government units and ensure better dynamics of economic and social development in the local community. Implementation of smart digital solutions in combination with returning to normal social activities can improve the necessary conditions for development, and that can be useful in overcoming consequences caused by Covid-19. Also, it can be one of appropriate answers to challenges in post-Covid times in prevailing economic and social disorders in the community. In that sense, the "Smart City" model cannot be the exclusive solution for all problems and dysfunctions in the local community, but it can contribute to solving complex social and economic challenges in the post pandemic era.

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