

**Innovative solutions of improving efficiency in public management**  
*Soluciones innovadoras de mejora de la eficiencia en la gestión pública*

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**Abstract**

The paper reflects the analyzing of current trends in the use of innovation, technical and technological potential of different countries in the context of optimizing the interaction of government and the public to stimulate the effectiveness of public management. As a result of correlation analysis, it has been proven that the basic factors, determining the effectiveness of the outlined management model, are the level of development of online services and the availability of the necessary information data infrastructure. Perspective for e-government lies in the ability to improve and adapt innovative tools to public management systems around the world by using the existing digital, research and technological potential of governments of different countries. The practical implementation of the measures stipulated in the scientific article will ensure the maximum social-economic effect of the transformation of traditional approaches to the organization of management models.

**Keywords:** E-Government, Public Management System.

**Resumen**

El trabajo refleja el análisis de las tendencias actuales en el uso del potencial de innovación, técnico y tecnológico de diferentes países en el contexto de optimizar la interacción del gobierno y el público para estimular la efectividad de la gestión pública. Como resultado del análisis de correlación, se ha comprobado que los factores básicos que determinan la efectividad del modelo de gestión esbozado son el nivel de desarrollo de los servicios en línea y la disponibilidad de la infraestructura de datos de información necesaria. La perspectiva del gobierno electrónico radica en la capacidad de mejorar y adaptar herramientas innovadoras a los sistemas de gestión pública en todo el mundo utilizando el potencial digital, tecnológico y de investigación existente de los gobiernos de diferentes países. La implementación práctica de las medidas estipuladas en el artículo científico garantizará el máximo efecto socioeconómico de la transformación de los enfoques tradicionales en la organización de modelos de gestión.

**Palabras clave:** Gobierno Electrónico, Sistema de Gestión Pública.



## Introduction

Nowadays, the global social-economic space is a multicomponent structure: it includes a set of strategically important activities and requires a high level of coordination of the participants' needs. Innovative mechanisms for optimizing the system of public management are the basic factors stimulating the effectiveness of communicative models of government and the public, which guarantees the protection of interests and rational distribution of functional responsibilities of the subjects of such interaction.

Modern transformational measures in the structure of public management are aimed at increasing the role of the principles of democratization (Wilson, 2019) and public confidence (Warren, 2017a). The society, built on democratic principles, more effectively uses the existing social-economic potential, because it is able to influence not only the protection of its own interests, but also to ensure the structuring of the powers of government managers through the prioritization of regulatory measures and the strength of their influence on the achievement of the strategic goal - sustainable development.

Currently, traditional approaches to the organization of interaction between government and the public do not have a pronounced social and economic effects; further democratization of society is not effective without the use of high-tech models of cooperation between global space participants. The level of innovative communication between the population and public authorities is determined in two dimensions: the level of democracy and the quality of presentation of the results of management activities of public managers (Martel et al., 2020). Accordingly, a system's construction of public administration on the basis of public self-management will help systematize the needs and interests of participants in the social-economic environment, stabilize the expectations of the population from the existing practice of government. Innovation and processibility in the structure of determined processes play the role of optimization mechanisms, potentially effective tools for simplifying interaction at the national, subnational and global levels of management. The most striking manifestation of the use of innovations in the communication of government and citizens is the use of e-government, the main function of which is to coordinate relations between the population and the state and public institutions on the basis of high cooperation and low corruption (Roseth & Reyes, 2020). Thus, the importance of the results obtained during the study lies in intensifying the use of innovative tools in public management, as well as

stimulating the development of e-government in accordance with the capabilities of national economies around the world on the way to optimize public management.

## Literature review

The issue of efficiency level of the public management system in different countries of the world has been studied by numerous scientists. Currently, the concept of good governance (Good governance theory) is becoming increasingly important (Keping, 2018; Ongaro & van Thiel, 2018); it becomes the dominant paradigm of administrative and political processes in the context of stimulating the effectiveness of interaction between government and the public. Researchers define the outlined theory as a set of legal, justified and effective ways to use resource potential in the implementation of state powers. Accordingly, the strategic goal of the public management system is to maximize the public interest in the processes and results of government management (Johnston, 2018). State regulatory policy is impractical, insomuch it neither has a significant impact on the efficiency of the social-economic sector, nor uses innovative mechanisms to influence strategically important processes; on the way to establishing productive interaction between the government and the public, its result will be insufficient or lacking (Kotnik et al., 2020, p. 136).

The theories of modern scientists are based on different views concerning the feasibility, importance and prospects of using innovative mechanisms in the communication of government and the population. Conducted studies (Pollitt, 2011) do not define the role of innovation in the structure of public management, although they describe them as "strategically important, but not sufficiently justified" tools for public management. The most common method of implementing innovations in the structure of public management is the digitalization of government and the development of the e-government model. Digitization is a regulated process, it requires coordination with various spheres of society (Groß & Krellmann, 2019). Accordingly, the gradual introduction of innovative mechanisms stimulates the transformation of the traditional system of public management, as well as improves the quality of life of the public, increases the productivity of cooperation between the parties and enhances their initiative (Groß & Krellmann, 2019, p. 3-4). The key role in the structure of the reform processes is played by the creation of infrastructure support for e-government, during the development of which "the concept of a national data infrastructure – NDI" was introduced (Estermann et al., 2018; Klievink, 2017; Neuroni et al., 2016). The scholars



(Estermann et al., 2018) have determined that the national data infrastructure involves the organization of information flows, as well as services related to the exchange of information between public authorities and the public. The basic purpose of creating the data infrastructure is to stimulate effective cooperation between the population and government, as well as information support for new business models, which in turn promotes the development of innovative mechanisms to influence the social-economic sector and digitize the economy at national, interstate and global cooperation (Estermann et al., 2018, p. 43-44).

The introduction of innovation and e-government aims to maintain a high level of democratization of the society. Democracy, in the opinion of modern researchers, presupposes the existence of the latest political institutions and innovative tools through which the public participates in collective self-government, influences the level of self-identification (Warren, 2017b) and controls the functioning of those spheres of life that directly affect their quality of life (Pettit, 2012).

The level of democratization is reflected in two aspects. The first determines the accessibility of citizens to power, taking into account the following factors:

- the opportunity to participate in the free choice of government's structure;
- the freedom of expressing their viewpoints;
- the general level of political stability as a harmonization factor of functioning strategically important spheres of the population's living abilities.

The second vector determines the method of power implementation, in particular:

- the level of involvement of innovative tools in the processes of interaction with society;
- relevance of anti-corruption approaches and methods of preserving the rule of law in the implementation of joint projects of the public and the state in the face of public administrators (Martel et al., 2020, p. 132-133).

In addition, the level of public confidence to state regulators is important: trust relationships expand collective opportunities; they help reduce the cost of control measures and sanctions in the long run (Warren, 2017b). Innovative mechanisms in the structure of communicative models play the role of tools for regulating cooperation between the parties by increasing trust and transparency of legal, economic and political relations.

The works of some researchers determine the use of innovative mechanisms not only as a means of establishing communication, but also as a tool for structuring information flows between the government and the public. Excessive democratization contributes to discouraging political stability by reducing the coherence of interests of the parties: on the one hand, all the requirements of the population should be considered by the authorities, however, on the other hand, each management decision of public administration bodies should be mutually coordinated with the needs of the population. The excess of opportunities for citizens to express their views and the lack of their systematization overloads the political sector (Dryzek et al., 2019).

However, the transformation of the model of interaction between government and society has certain obstacles of administrative, institutional, technical-technological and organizational nature (Roseth & Reyes, 2020, p. 28), in particular:

- global bureaucratization, which ensures the resilience of administrative, political and managerial processes to change, while maintaining the traditional mechanisms of interaction of participants in the social-economic environment;
- low level of inter-institutional coordination;
- differentiation of views of public officials and the public, lack of coherence of interests, needs and capabilities of the parties;
- organizational obstacles to the introduction of e-government in the practice of interaction between the government and society;
- technical and technological obstacles to the application of innovations in the structure of public management.

Quantitative and qualitative substantiation of the results of innovations' application in the structure of interaction between the government and the public, as well as the impact of innovative models on the effectiveness of public management is reflected in statistical and analytical data. The results of relevant investigations are summarized in the information booklets of the World Bank and United Nations.

The present academic paper is an original study of current trends in the use of innovation potential in different countries in the context of optimizing the interaction of government and the public in order to stimulate the effectiveness of public management. Within the framework of the purpose outlined it is expedient to analyze the theoretical and methodological basis of introduction of innovations in structure of public management, to characterize the newest tools of establishment of interaction of

the power and the public, to study the quantitative and qualitative indicators of e-government development as a strategically important direction of stimulating the innovation of the public management system, to determine the dependence of the level of innovation of interaction between citizens and state managers on stimulating and disincentive factors of social-economic environment.

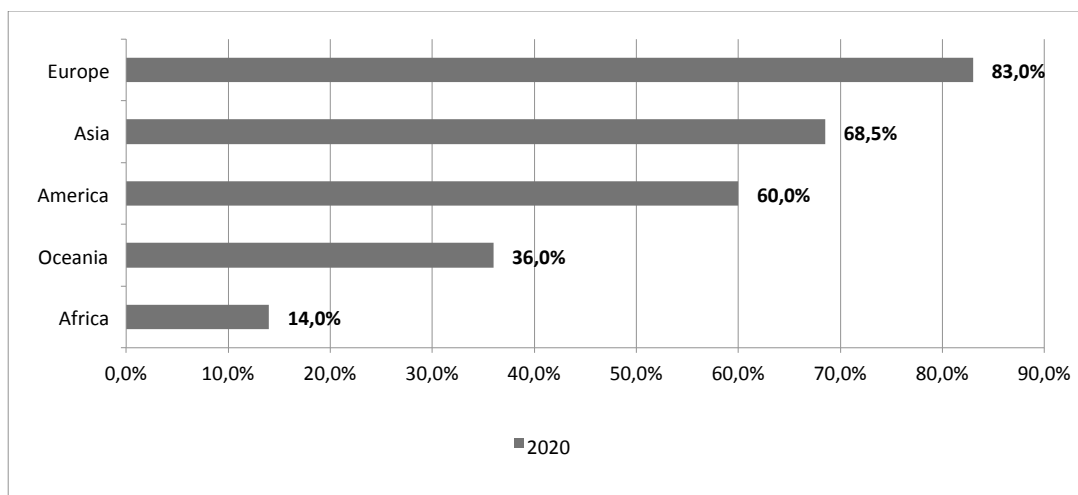
### Results

The introduction of innovations in the structure of public management is a multicomponent process that requires not only the development of a methodology for introducing new technologies in the cooperation of social-economic environment, but also the formation of appropriate institutional and infrastructural support. Nowadays, the center of information data is the national information infrastructure, which also serves as the basis of the e-government system. The effectiveness of innovative mechanisms for managing information flows in the process of participants' interaction in the social-economic environment is measured with the help of the following:

- firstly, the determination of the subjects and purposes of using electronic platforms for cooperation;
- secondly, the determination of the quality

of responsibilities' redistribution between the participants - in particular, the government and the public in the context of the agreed issues (Estermann et al., 2018, p. 43).

Citizens' participation in the system of public management is the basis for sustainable development of the social-economic environment. Information exchange processes are becoming more formal, inasmuch as innovative communication mechanisms are used in every sphere of society (in particular, the health, education, employment, social protection and support, environment and justice sectors). Electronic participation of the population in public processes expands opportunities for access to the public management system, creates preconditions for effective interaction of participants of the social-economic environment. However, the effectiveness of the practical application of innovative mechanisms in the process of establishing cooperation is characterized by significant differentiation in different regions of the world in accordance with the general level of social-economic development, political stability and public perception of the latest information and communication developments. The level of use of electronic means of communication in the context of stimulating the innovation of public management in different regions is reflected in Figure 1.



**Figure 1.** The level of application of electronic means of communication between the government and the public in the structure of public management in different regions of the world (2020, %)

**Source:** Compiled by the author according to the data of United Nations (2020)

The development of e-government is a complex concept of optimizing the interaction between the government and the public, as it involves not only the introduction of innovative but technical and technological developments in public management processes. The outlined mechanism aims to change the worldview of citizens on the management processes of public power, on the one hand, and to create an integrated model of digital government

management, on the other one. Accordingly, the fundamental aspects of the introduction of innovations in the traditional model of interaction between government and society are the following aspects (United Nations, 2020):

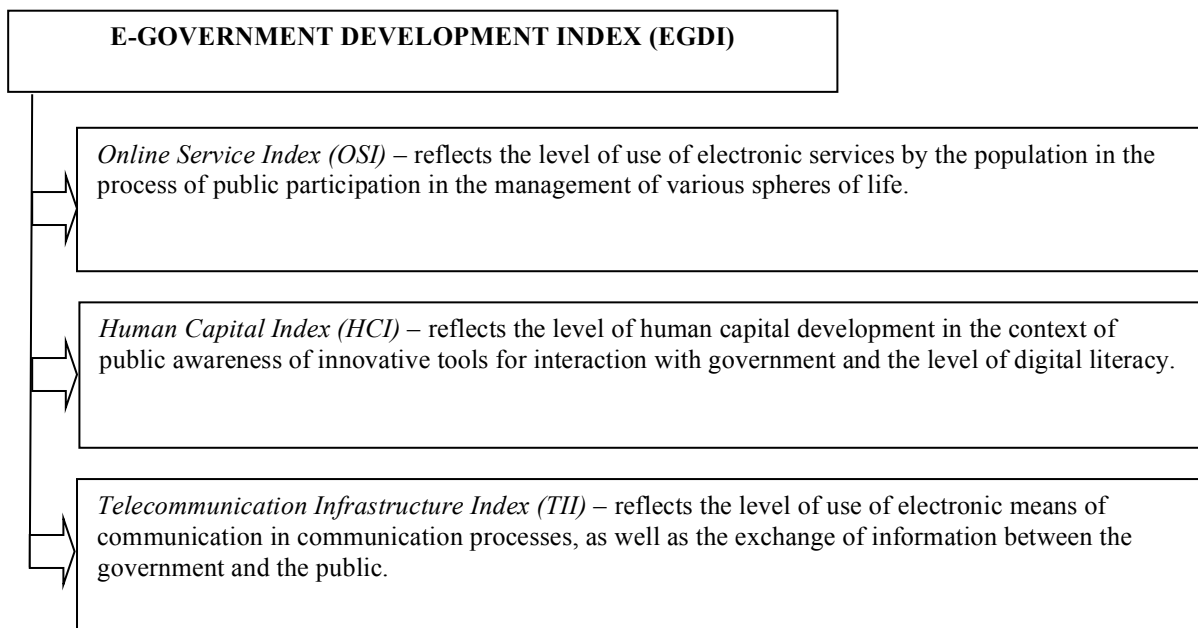
1. transformation of the worldview of the participants of social-economic cooperation - the perception of the gradual digitalization of public



- management at the individual level;
- 2. formation of a system of institutional and regulatory support for the use of innovative mechanisms in the structure of public management;
- 3. creation of an effective organizational structure and culture of interaction between government and the public on the basis of innovation and digitalization;
- 4. development of system thinking and integrated approaches to optimization of state regulatory policy in the context of providing services to the population;
- 5. data management by expanding the opportunities for citizens to access public information and use it according to individual needs;
- 6. improvement of the national information data infrastructure;
- 7. resource potential management - efficient

- use and distribution of resource base in the context of stimulating public-private partnership;
- 8. development of social potential as a means of minimizing the stratification of society, the emergence of which is possible as a result of the active introduction of innovative, digital tools for interaction between citizens and the government.

Widely used tools for determining the quality of e-government and innovative interaction between the government and the public in the context of government management are international rankings, including the E-Government Survey, which is formed according to data structured by United Nations and determines the E-Government Development Index for different regions and countries. E-Government Development Index is a multicomponent indicator and includes three indicators (Figure 2).



**Figure 2.** The structure of E-Government Development Index

**Source:** It has been compiled by the author according to the data of United Nations (2020)

The specified model provides the assessment of the integration of public authorities and the population in the processes of collective management decisions on the processes that are implemented within the national social-economic space. The concept is based on the principles of high importance of individual opinion of citizens and identifies the level of democratization of society by determining the range of rights and opportunities of society.

The structure and dynamics of e-government development indicators have a stable tendency to improve (Table 1), which is the result of active implementation of innovative mechanisms in social-economic, political-administrative and economic processes. Also, correlation coefficients have been calculated in order to determine the level of influence of each of the components on the overall level of the indicator.

**Table 1.** The level of E-Government Development Index in terms of individual components and correlation coefficients between variables (2020/2018)

Country	OSI value (x <sub>1</sub> )	HCI value (x <sub>2</sub> )	TII value (x <sub>3</sub> )	EGDI value, 2020 (y)	EGDI value, 2018	Absolute increase, 2020/2018
Denmark	0,9706	0,9588	0,9979	0,9758	0,9150	0,0608
The Republic of	1,0000	0,8997	0,9684	0,9560	0,9010	0,0550

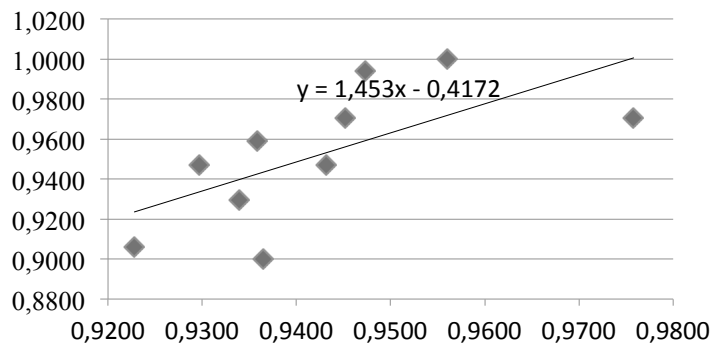


Korea						
Estonia	0,9941	0,9266	0,9212	0,9473	0,8486	0,0987
Finland	0,9706	0,9549	0,9101	0,9452	0,8815	0,0637
Australia	0,9471	1,0000	0,8825	0,9432	0,9053	0,0379
Sweden	0,9000	0,9471	0,9625	0,9365	0,8882	0,0483
The UK	0,9588	0,9292	0,9195	0,9358	0,8999	0,0359
New Zealand	0,9294	0,9516	0,9207	0,9339	0,8806	0,0533
The USA	0,9471	0,9239	0,9182	0,9297	0,8769	0,0528
The Netherlands	0,9059	0,9349	0,9276	0,9228	0,8757	0,0471
Correlation coefficients	$r_1 = 0,6479$	$r_2 = 0,0918$	$r_3 = 0,6177$			

**Source:** It has been compiled by the author according to the data of United Nations (2020)

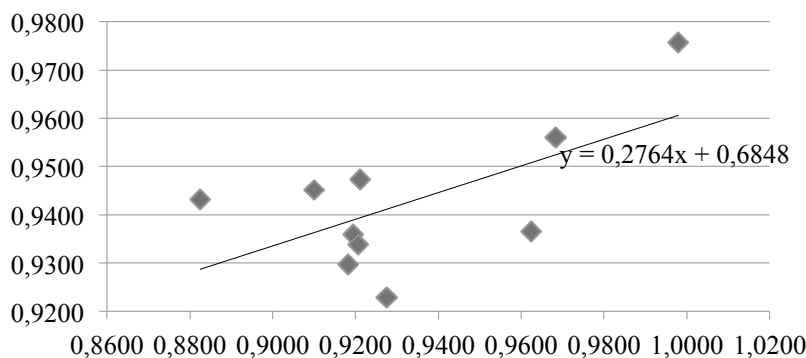
The data of Table 3 show that the level of development of electronic services to citizens (x1) and the quality of telecommunications infrastructure (x3) are the most significant in the processes of interaction between government and

the public. The characteristic correlation between the variables and the general level of development of e-government is reflected in Figure 3 and Figure 4 respectively.



**Figure 3.** Correlation dependence of e-government development (EGDI) on the quality of online services of citizens (OSI)

**Source:** It has been compiled by the author according to the data of United Nations (2020)



**Figure 4.** Correlation dependence of e-government development (EGDI) on the quality of information and telecommunication data infrastructure (TII)

**Source:** It has been compiled by the author according to the data of United Nations (2020)

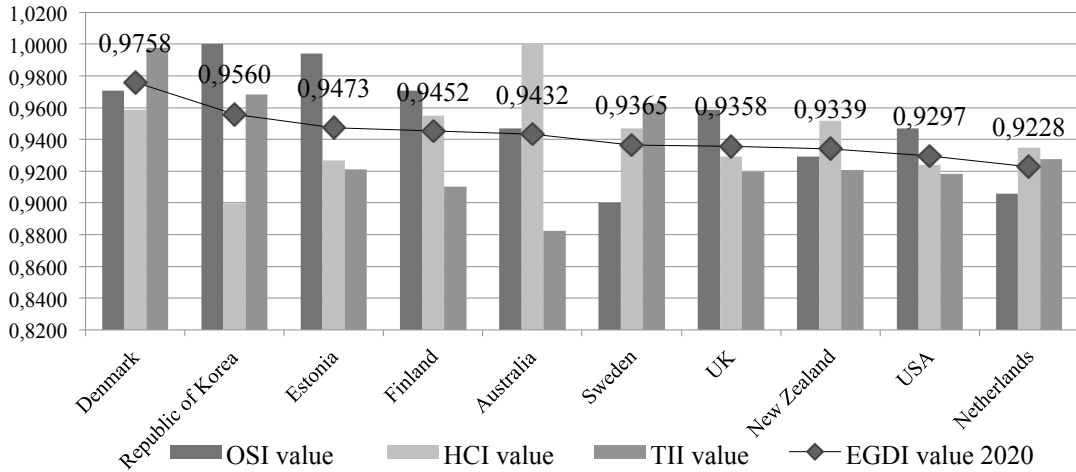
A positive aspect of optimizing the communication processes of government and the public is the structuring of the public management system at the levels of national and global public management, as evidenced by the high level of the studied indicator in the leading countries in the course of implementation of e-government (Fig. 5).

Thus, the introduction of innovative mechanisms of interaction between government and the public can be characterized as a promising vector on the way to optimizing the system of public management. The current activities of public administration entities aim to structure cooperation with citizens



according to their needs, opportunities and interests. In particular, the development of the national data infrastructure regulates the social-economic processes, taking place in various spheres of life of citizens. The use of e-government can become the basis of transformational trends and coordinate the actions of the parties.

The conducted study has revealed that the development of innovative mechanisms of interaction between government and the public is based on the active introduction of digital and electronic communication tools between the parties. Such trends give rise to new categories, in particular, the concept of e-government.



**Figure 5.** Leading countries according to the level of e-government development based on the E-Government Survey (as of 01.01.2020)

**Source:** It has been compiled by the author according to the data of United Nations (2020)

Modern scholars have comprehensively substantiated the research problem and established the following:

- firstly, the fundamental principle of introducing innovations and technologies into the structure of public management is the desire to adapt to a modernized social, economic and political space. Accordingly, the transformation processes cause changes in public values, among which democratization, equality of citizens and authorities, trust in the administrative and political sector, freedom of choice and thinking, as well as participation in regulatory processes are currently the basic ones in the structure of public management (Farias et al., 2017, p. 2);
- secondly, the updated concepts of public management focus on increasing the value of human resources in the structure of e-government. In particular, the activities of public management bodies should be aimed at integrating the society into public management processes through the renewal of infrastructure and expanding the use of the Internet, online services, electronic data in order to participate in management activities, and not only at the stage of monitoring their implementation (Janssen & Helbig, 2016, p. 100). The strategic goal of the application of innovative mechanisms in public management should be focused on creating public value by meeting the expectations of citizens and the implementation of

the managerial potential of government with maximum efficiency (Panagiotopoulos, Klievink & Cordella, 2019).

In the context of the outlined tendencies, the study of the state of e-government development has been conducted and it has been proven that the development of information data infrastructure and the quality of electronic interaction of the parties has a significant impact on the effectiveness of the use of innovations and technologies in management processes. The correlation between the level of development of e-government and the level of development of online public relations services is reflected in Fig. 3.

In our opinion, the improvement of the e-government system in the future will lead to a dynamic improvement in the quality of e-government. The basic factors, stimulating development, may be the improvement of government online services, expanding the range of services for the population in electronic mode (which is especially relevant in the context of the COVID-19 pandemic), establishing effective feedback mechanisms for public requests or proposals (which will make the interaction not only effective but also resultative).

The quality of infrastructure support for innovative mechanisms of interaction between government and



the public is equally important; its impact on the state of development of e-government is reflected in Figure 4.

In our opinion, further modernization of e-government infrastructure will expand the possibilities of information exchange between the government and the public and increase the productivity of communication processes. The basic directions of infrastructure refresh may be the offer of multicomponent mobile services for citizens, the use of which will simplify the implementation of management ideas, as well as expanding the use of the Internet in the context of remote access to public management processes.

### Conclusions

The conducted analysis shows that the state of development of innovative mechanisms of interaction between government and the public in highly developed countries is at the stage of practical implementation, adaptation and adjustment. However, the possibilities of using the latest technologies in the structure of public management in developing countries have certain technical and technological, organizational, institutional and financial obstacles. Therefore, further investigations should be carried out in the direction of forming concepts for the implementation of innovations in a limited financial and economic, infrastructural and resource provision. In particular, it is appropriate to expand access to adapted, proven innovative mechanisms of interaction between government and the public (primarily through stimulating the development of e-government) based on the high value of citizens' interests and the strategic importance of public management.

### References

Dryzek, J. S. et al. (2019). The crisis of democracy and the science of deliberation. *Science*, 363, 1144-1146.

Estermann, B., Fraefel, M., Neuroni, A. C. & Vogel, J. (2018). Conceptualizing a national data infrastructure for Switzerland. *Information Polity*, 23(1), 43-65.

Farias, P. et al. (2017). *Governments that serve: innovations that improve service delivery to citizens*. Washington: Inter-American Development Bank.

Groß, M., & Krellmann, A. (2019). Das Ökosystem der Digitalisierung. In J. Stember, W. Eixelsberger, A. Spichiger, A. Neuroni, F.-R. Habbel, & M. Wundara (Eds.), *Handbuch E-Government* (pp. 3-18). Wiesbaden: Springer Gabler.

Janssen, M., & Helbig, N. (2016). Innovating and

changing the policy-cycle: Policy-makers be prepared! *Government Information Quarterly*, 35(4), 99-105.

Johnston, M. (2018). Good Governance: Rule of Law, Transparency, and Accountability. Retrieved from <http://unpan1.un.org/intrdoc/groups/public/documents/un/unpan010193.pdf>

Keping, Y. (2018). Governance and Good Governance: A New Framework for Political Analysis. *Fudan Journal of the Humanities and Social Sciences*, 11(1), 1-8.

Klievink, B., Neuroni, A., Fraefel, M., & Zuiderwijk, A. (2017). *Digital Strategies in Action, proceedings of the 18th Annual International Conference on Digital Government Research*, pp. 129-138.

Kotnik, Ž., Umek, L., Kovač, P., Stanimirović, D., & Vintar, M. (2020). Analysis of the Key Factors for Successful Public Policy Implementation: A Qualitative Study in Slovenia. *DANUBE: Law, Economics and Social Issues Review*, 11(2), 113-140.

Martel, F., Greve, B., Rothstein, B., & Saari, J. (2020). The Nordic Exceptionalism: What Explains Why the Nordic Countries are Constantly Among the Happiest in the World. In J. F. Helliwell et. al., R. Layard, J. D. Sachs, & J. E. De Neve (Eds.), *World Happiness Report 2020* (pp. 128-145). Sustainable Developments Solutions Network.

Neuroni, A. C., Fraefel, M., Estermann, B., Jarchow, T., & Golliez, A. (2016). Exploring the Notion of a National Data Infrastructure and the Governance Issues Surrounding It. *EGOV Conference*, 23, 191-199.

Ongaro, E. & van Thiel, S. (Eds.). (2018). *The Palgrave Handbook of Public Administration and Management in Europe*. London: Palgrave Macmillan.

Panagiotopoulos, P., Klievink, B., & Cordella, A. (2019). *Public value creation in digital government. Government Information Quarterly*, 101421.

Pettit, P. (2012). *On the People's Terms: A Republican Theory and Model of Democracy*. Cambridge: Cambridge University Press.

Pollitt, C. (2011). Innovation in the Public Sector: An Introductory Overview. In: V. Bekkers, J. Edelembos & B. Steijn (eds.), *Innovation in the Public Sector*. Basingstoke, United Kingdom: Palgrave Macmillan.

Roseth, B., & Reyes, A. (2020). *Wait No More: Citizens, Red Tape, and Digital Government*. Washington: Inter-American





- Development Bank.
- United Nations. (2020). *E-Government Survey 2020. Digital government in the decade of action for sustainable development*. New York: United Nations. Retrieved from <https://publicadministration.un.org/en/Research/UN-e-Government-Surveys>
- Warren, M. E. (2017a). A problem-based approach to democratic theory. *American Political Science Review*, 111, 39-53.
- Warren, M. (2017b). Trust and Democracy. *Oxford Handbooks Online*. <https://doi.org/10.1093/oxfordhb/9780190274801.013.5>
- Wilson, J. (2019). *Democratic Equality*. Princeton, Oxford: Princeton University Press. <https://doi.org/10.2307/j.ctvdf0kn3>