

State authorities' service function implementation under epidemic threats with the use of legal technologies

ABSTRACT

Research purpose of the paper is to determine current issues and prospects of state authorities' service function implementation under epidemic threats with the use of legal technologies in pandemic and post-pandemic world conditions. Research methods: General-scientific and special-legal methods of cognition have been used. By using the dialectical method, theoretical background and current issues of state authorities' service function implementation under epidemic threats with the use of legal technologies have been investigated and the modern challenges concerning this issue have been outlined. Formal-legal and comparative methods gave the opportunity to suggest the directions of state authorities' service function implementation ensuring under epidemic threats with the use of legal technologies in conditions of the global changes, digitalization and social transformations in pandemic and post-pandemic world. The paper concluded that the future communication between states and their inhabitation will include bots-public officers, the use of Blockchain for open recording and change of information, registration of state information, ownership rights, including intellectual property rights, notary acts, voting during elections and referenda in the Blockchain, smart-contracts, offline, online applications, aggregators, and modern search systems. A human of the future was represented as a posthuman-cyborg that combines his/her natural construction with technical ones. Thus, state authorities to provide their service effectively have to be morally and technically prepared to meet a new participant of their service and activity.

KEYWORDS: Service function. State authorities. Posthuman-cyborg. Bots-public officers. Legal technologies.

Yuriy Pyvovar

National Aviation University,
Kyiv, Ukraine.

<http://orcid.org/0000-0001-8258-7930>
pyvovaryi@gmail.com

Svitlana Bevz

National Technical University of
Ukraine "Igor Sikorsky Kyiv
Polytechnic Institute", Kyiv, Ukraine.

<http://orcid.org/0000-0003-1331-3930>
svitlanabevz@i.ua

Valerii Kolpakov

Zaporizhzhya National University,
Zaporizhzhya, Ukraine.

<http://orcid.org/0000-0002-8580-3261>
kolpakovvaleri@i.ua

Oksana Myronets

National Aviation University,
Kyiv, Ukraine.

<http://orcid.org/0000-0002-5035-2384>
myronetsoksi@i.ua

Sergiy Ostrovskiy

Kyiv Faculty of the National
Academy of the National Guard of
Ukraine, Kyiv, Ukraine.

<http://orcid.org/0000-0001-9520-4732>
ostrovskiyserg@i.ua

INTRODUCTION

COVID-19 has acted as an accelerator for digital transformation in public service delivery (AGOSTINO *et al.*, 2021). This century will be a turning point for the future of humanity. The status quo is not acceptable considering the risk for human health and survival, created by our current way of organizing our societies. COVID-19 has created the political space for allowing us to imagine our society differently (BROUSSELLE *et al.*, 2020).

As in the normal mode of operation of the state apparatus, and especially in quarantine conditions associated with the spread of coronavirus disease, it is necessary to maintain the effectiveness of the basic functions of modern public administration. In the context of the people's service, it is possible to distinguish the following directions: a) ensuring a high level of satisfaction of social, spiritual, intellectual and "vital" needs of citizens; b) transformation, activation, rationalization and organization of social ties, which are responsible for maintaining the existing ideals, values, norms, standards, guarantees in society (for example, state-guaranteed services to everybody who needs them); c) development and adaptation of modern means for the information obtaining to the national socio-political system' real conditions, mechanisms of selection, broadcast and application within a system of public administration and local self-government and in all areas of social practice and, accordingly, life of society (VASYLIEVA; EVSIUKOVA, 2017).

In the current conditions of the fight against COVID-19 pandemic, it is difficult to determine whether the state's activities in the field of public services are effective, on the one hand, due to the lack of a formed and adopted service concept of state development, and on the other, due to constant conditions of provision of these services by the state in connection with the accepted quarantine restrictions (HNATOVSKA, 2021).

In pandemic conditions, the shortcomings of the state service activity expressed themselves in various spheres of state functioning, affected not only the scope of public services but also influenced the service component of all governing activities of public authorities. In addition, ensuring the implementation of quarantine measures required not only urgent organizational and managerial changes, but also legal support of decisions of direct heads of bodies; service centers in the situation associated with the pandemic, and in one way or another affected the quality of public services and a level of protection against the disease during the pandemic (KOLOHINA, 2020).

Thus, the purpose of the article is to determine current issues and prospects of state authorities' service function implementation ensuring in the pandemic, post-pandemic world's order conditions under epidemic threats with the use of legal technologies. To achieve this aim it is needed to perform the following tasks: 1) to consider theoretical-legal fundamentals of state authorities' service function implementation under epidemic

threats with the use of legal technologies; 2) to analyze the current state, issues, and challenges for state authorities' service function implementation in modern conditions of the fights against epidemic threats with the use of legal technologies; 3) to investigate particularities and suggest prospects of the state authorities' service function implementation ensuring under the fight against epidemic threats with the use of legal technologies in pandemic and post-pandemic reality.

The mentioned tasks are to investigate the subject of the article that is state authorities' service function implementation ensuring under the fight against epidemic threats with the use of legal technologies taking into account the legally regulated relations and activity in the sphere of state authorities' service function implementation ensuring and fight against epidemic threats with the use of legal technologies that is the object of the paper.

METHODOLOGY

To achieve the aim of the paper, general-scientific and special-legal methods of cognition have been used. By using the dialectical method, theoretical background and current issues of state authorities' service function implementation under epidemic threats with the use of legal technologies have been investigated and the modern challenges concerning this issue have been outlined. The formal-dogmatic method contributed to the development of the author's explanation of state authorities' service function implementation ensuring under epidemic threats with the use of legal technologies in pandemic and post-pandemic reality. Formal-legal and comparative methods gave the opportunity to suggest the directions of state authorities' service function implementation ensuring under epidemic threats with the use of legal technologies in conditions of the global changes, digitalization and social transformations in pandemic and post-pandemic world.

RESULTS AND DISCUSSIONS

The paper investigated state authorities' service function implementation ensuring under the fight against epidemic threats with the use of legal technologies in modern conditions of global changes, the digitalization, and the increasing development of cyber-technologies in the modern world. Special attention has been paid to the current state and issues of state authorities' service function implementation. In this concern, modern challenges to the state authorities' service function implementation ensuring in conditions of the fight against epidemic threats with the use of legal technologies have been outlined. The need to modernize the current system of state authorities' service function implementation ensuring within the constant fight against epidemic threats with the use of legal technologies has been proved. To provide the further effective and progressive implementation of state authorities' service function under the fight against epidemic threats with the use of legal technologies in

conditions of pandemic and post-pandemic world's order, the directions of its ensuring improvement have been suggested.

Juridical fundamentals of state authorities' service function implementation under epidemic threats with the use of legal technologies

The increasing operationalization of cyberspace by the public administration driven by COVID-19 gives rise to innovations, challenges, vulnerabilities and lessons (MEDEIROS *et al.*, 2020). To ensure that we continue to meet the needs of government and the public, we have to be open to change in the ways we work and deliver public services – as we have just demonstrated in our response to the Covid-19 pandemic, we are capable of doing so (WATT; PERKINS, 2020). Solutions exist for addressing our environmental and health challenges, and this crisis has shown that our governments can reduce health risks, protect vulnerable communities and populations, and ensure that our societies thrive (BROUSSELLE *et al.*, 2020).

In Ukraine, during the presentation of the mobile application “Diia” on February 6, 2020, the Prime Minister announced the launch of this tool as the start of construction of “State in a smartphone”, which provides digitization in the coming years all government services and minimize visits to administrative institutions. At the same time, this year it is planned to translate into electronic format 50 basic services, for which most (up to 80%) are for citizens. As of May 2020, Portal Diia provides 27 administrative services in electronic format, almost all of which are provided by central executive bodies (ECOLOGY ..., 2020).

Nowadays, the only rational way of quality public service is the electronic format, which needs to be developed, disseminated, and improved in order to achieve full digitalization and automation of processes as the most effective way of remote service, especially in epidemic and post-epidemic conditions.

Even small changes in service delivery arrangements challenge the knowledge base in professional work, which addresses a so far untested hypothesis that quality in service provision depends more on how tasks, routines and priorities are being organized to support public servants' situational knowledge than on their autonomy understood as a legal room for manoeuvre (MOLLER, 2020). Thus, the whole state system to provide public service rights now is on its own way of development and improvement to be effectively implemented in every country for the functioning under new challenges.

Conceptual understanding of state authorities' service function implementation in pandemic conditions with the use of legal technologies

Theoretical determination of state authorities' service function implementation under epidemic threats with the use of legal technologies

is based on its general understanding concerning this issue. At the same time, its specific is explained by extraordinary conditions of its implementation that are represented by epidemic threat, of the one hand, and the need to use not ordinary legal technologies, on the other hand.

In our point of view, it is possible to define the mentioned above as the complex of measures and procedures to provide a number of state services in the fight against COVID-2019 and post-epidemic times, as the threats for human's health and life, with the use of digitalized technologies of modern mankind development. We think that state authorities' service function implementation under epidemic threats is based on its functioning in ordinary conditions but enriched with the specially developed mechanisms for the human staff activity that are mostly public officers with the gradual use of modern legal technologies in their working routine.

For political leaders and public administration practitioners, this agenda requires much more than incremental changes. Seriously addressing current and forthcoming risks implies reconfiguring the responsibilities of different levels of governments and how they intersect and coordinate – essentially rethinking the architecture of the state... (BROUSSELLE *et al.*, 2020). It is imperative that public sectors consider the technical and social vulnerabilities of that environment and take measures to combat them (MEDEIROS *et al.*, 2020).

Role and significance of state authorities' service function implementation under epidemic and post-epidemic threats with the use of legal technologies

Just the proper implementation of service by state authorities may create a possibility for the entire state service system's functioning. At may provide a stable country's development according to state targets within its programs and policies, on the one hand. At the same time, it ensures stable life for its inhabitants, their personal and professional development in safe conditions. States as providers of public service exist for the implementation of their differently-directed functions, where service activity is directly concentrated into its population. Under the differently-natured challenges, including epidemiological, just a constructive dialogue between every state and its inhabitation may give them to survive and get a chance for common prosperity. In providing and support of such a dialogue in pandemic and post-pandemic times with the help of modern legal technologies, we see the role and significance of state authorities' service function implementation.

As a result of the public administration spheres analysis (VASYLIEVA; EVSIUKOVA, 2017), subjectively focused on the consumer of public services, it should be noted that the most vulnerable in the current environment may be represented by: 1) the possibility of obtaining: a) public services in electronic form; b) public services in multifunctional centers-organizations on the principle of "a single window"; c) public services in a timely manner

and in accordance with the standard of public service provision; d) complete, up-to-date and reliable information on current changes in the procedure for providing services, including in electronic form; e) obtaining by an applicant with the use of information and telecommunication technologies and improved information and methodological support of the public service results; g) payment by an applicant (a consumer) of the state duty for the provision of public services; h) payment by an applicant (a consumer) for the provision of public services remotely, id est in electronic form; 2) provision of: a) public services by bodies in accordance with administrative regulations; b) public services in accordance with the established register of public services; 3) use of information-telecommunication technologies and advanced information and methodological support adapted to the networks used at different levels during the provision of public services; 4) availability for copying and filling in the electronic form of the request and other documents necessary for receiving public services.

It is necessary to provide a single centralized approach to budget financing of additional payments to wages, incentives for employees who work overtime during the quarantine period. The increase in the workload of workers, which has increased due to the pandemic and quarantine restrictions, requires the introduction of new staff units in the relevant institutions (centers). These additional costs should be financed from local budgets, or due to lack of funds, from additional subventions for these needs from the central budget.

Nowadays, the relations concerning the organization of remote work in the conditions of quarantine turned out to be unregulated, which had an extremely negative effect on the implementation and protection of the rights of workers and employers. Therefore, among other things, we suggest developing recommendations at the level of the State Labor Service on optimizing the work of vulnerable workers, the possibility of redistribution of powers, and optimizing work in such a way as to provide them with remote work while maintaining their salaries. It is also worth reflecting that the evolution of the digital tooling, as well as the learning resulting from the crisis, raise the progressive awareness about the role of technology in the urban environment and about the community-governance relationship (FARINIUK, 2020).

Currents issues and prospects of state authorities' service function implementation under epidemic threats with the use of legal technologies

The issues of the state authorities' service function implementation are predisposed by modern challenges to the state service and security systems. The urgent need to transform a traditional form of state governing into modern, which is based on the first but definitely includes digitalized elements, technical modernization of state authorities and procedures for state service providing, the rapid increase of their staff informational

literacy and culture, determined the objectively predisposed requirement to provide new governing in the pandemic and post-pandemic conditions. The epidemic threat changed the possibility and way of state services, gave an important conclusion for societies and states to provide service electronically.

Under the mentioned conditions every state has to provide gradually new technologies that are suggested by the possibilities of the world's cyber development. At the same time, even the use of, for example, Blockchain, bots, smart-contracts, etc. in state service activity should be provided exclusively within the cybersecurity policy of every state and the constant fight against corruption to ensure the further existence of countries as sovereign subjects in the international arena.

Internet infrastructure plays a crucial role in a number of daily activities. The pervasive nature of cyber systems ensures far-reaching consequences of cyberattacks. Cyberattacks threaten physical, economic, social, and political security. The effects of cyberattacks can disrupt, deny, and even disable the operation of critical infrastructure including power grids, communication networks, hospitals, financial institutions, and defense and military systems (BAKDASH *et al.*, 2018). That is why, on the one hand, modern legal technologies represent a new possibility for every state to provide a number of public services. On the other hand, threats of epidemic nature do not reduce well-known threats for every country such as corruption and cyberattacks.

The mentioned requires appropriate directions in these issues. In their further perspective, today's state decisions have to be the base for digital states functioning within complex governing, which may be effective in its ordering and service expression for ordinary humans and physically changed ones due to the integration of new technologies in their bodies.

Current challenges for the implementation of the state authorities' service function in modern conditions

In current pandemic conditions, the state authorities' service function implementation met an extraordinary circumstance that is represented by an urgent need for rapid transformation of its providing with a required involvement of digital achievements of mankind. Unfortunately, neither psychically, nor technically almost all societies and countries were not prepared for such an unexpected challenge. This situation generated a number of risks and negative consequences related to the epidemic threats for health and even life of state authorities' employees that provided state services.

In our opinion, the risks in the work of state services in the context of the COVID-19 pandemic include the following: 1) risks to be infected by the respiratory disease COVID-19; 2) risks of staff overload; 3) risks associated with insufficient technical support of the process of receiving electronic services by both their providers and recipients; 4) risks associated with un

financing of all additional needs of material-technical nature arising from the fight against the COVID-19 pandemic.

The mentioned risks became challenges for bodies of state power, their employees, and inhabitants that visit the service centers to get this or that public service. At the same time, we should not forget about constant ordinary challenges for state service function implementation that were before, in times of pandemic and will be visible in post-pandemic world. Of them is represented by corruption as “the abuse of public office for private gain” (FARRALES, 2005).

Traditionally, national governance and corruption challenges have been seen as a) particularly daunting in the poorer countries, with the richer world viewed as example or benchmark, b) anchored within a legalistic framework and focused on the quality of formal institutions, c) a problem of the public sector, and d) divorced from global governance or security issues, which are regarded as separate fields (KAUFMANN, 2004). Thus, to ensure the effective implementation of the state authorities’ service function every country has to fight constantly corruption even in pandemic and post-pandemic times and epidemic threats. One more issue is represented by cyber-threats, the increase of which is promoted by epidemic situation due to the pandemic in the whole world. Thus, the question of cybersecurity is still topical in pandemic and post-pandemic times.

These all call our attention to basic and interconnecting security situations: 1) any member of information and communication networks – whether international, state or civilian – can be a potential victim of cyberattacks, 2) cyberattacks can have serious national security and economic consequences, and can endanger the everyday life of a society, 3) defence against threats is a task at the international, national and individual user level as well (SZABO, 2019).

Cyberattacks are dangerous for the sphere of public service and may have negative consequences that are connected with the loss of valuable information about a separate person and a whole state, such as personal data, state, commercial, service information loss, etc. Thus, the challenge to provide proper protection of cybersecurity remains to be important even in times of pandemic for every country in the world.

Prospects of the implementation of the state authorities’ service function under epidemic threats with the use of legal technologies

Totally in every country of the world pandemic conditions required the introduction of quarantine measures. We think that their providing still requires urgent organizational changes, which can be divided into several directions: 1) changes in the organization of communication with visitors; 2) making changes in the organization of interaction with customers in quarantine; 3) making changes in the organization of labor; 4) increase of technical equipment of service process.

At the beginning of the epidemic situation related to the spread of coronavirus disease, there was an urgent need for financial support for the functioning of medical institutions in the new conditions, prompt purchase of appropriate drugs, special equipment for beds, special medical devices and medical care. On the mentioned and other needs related to the treatment of acute respiratory disease COVID-19 and prevention of its spread funds from the central and local budgets, as well as international financial assistance, were allocated. At the same time, in the context of ensuring the continuity and quality of public services by state bodies and institutions, we consider it appropriate in the state and local budgets to provide among the protected items for the purchase of personal protective equipment, re-equipment of workplaces according to distance requirements (for example, the installation of protective glass).

In the current reality of technical, personnel, and institutional unpreparedness for partial (full) transfer of customer service online it is needed to provide financial support for the necessary technical equipment, as well as training courses for staff on new software.

Not only the above-mentioned measures but also others, which will be needed during the further fight against the COVID-19 pandemic, need financial support. Therefore, as an effective tool of financial planning, we suggest at the national level to develop and implement an appropriate state targeted service program for public authorities for the period of quarantine and post-pandemic times, which provides a list of necessary measures for safe and full operation of bodies, responsible structures and resources.

To optimize the pre-registration of public services customers, we believe that the Standards of the procedure for the provision of public services should cover the maximum number of such services in order to calculate the time and number of employees involved in serving one visitor. We consider it expedient to provide directly in the organizations in personnel documents, namely in job instructions of inspectors on labor protection the corresponding duties concerning control over the execution of personnel of quarantine measures. The further development of the public services complexity in the pandemic period will undoubtedly serve to ensure accessibility, convenience, minimization of procedures for their provision. In the case of pandemics, a common view is that the power and resource advantage of the central government means that it is best positioned to implement an effective response. However, there are considerable potential gains from an effective intergovernmental response to pandemics (HUYNH *et al.*, 2020).

To our point of view, in post-pandemic and cyber times even a form of human's communication is on the way of its transformation from being digital partially to become digital fully. It has to generate a proper reaction from the side of the state's authorities in order to ensure the implementation of their service function. Taking into account the mentioned above, we insist that the gradual transformation of a regime to

provide state service function has to be supported by modern states. Especially in pandemic and in the future post-pandemic conditions, this regime has to be more or even fully digital that, on the one hand, will let keeping a proper physical distance, and, on the other hand, guarantees a safe mood of the service in a whole. At the same time, such a step needs a complex of measures that are based on countries' economic possibilities and a strong strategy of states' digital transformation to build a digital form of governing on their territories.

This process is two-sided and includes internal and external components. The internal one requires the preparation of a proper state's staff of public officers and assisting personal with appropriate informational literacy and culture that is capable to provide digitalized state service. The external component is embodied in the change and modernization of the informational infrastructure that will be the technical base to provide the mentioned digitalized service by state authorities.

At the same time, jurisprudence plays a great role in the mentioned process due to its unique possibility of legislative-making influence on the two components mentioned above. We mean that adoption of modern laws that will provide a general legal requirement for, on the one hand, the training a proper public officers staff with informational skill and, on the other hand, the modernization of not just technical infrastructure but even state's service procedures and their providing regimes with the obligatory use of legal technologies, involving the possibility to use Artificial Intelligence. For this purpose, so-called "LegalTech" and "AI" have to become ordinary measures to provide state's service in a whole country.

Nowadays, AI is neither magic nor is it intelligent in the human-cognitive sense of the word. Rather, today's AI technology is able to produce intelligent results without intelligence by harnessing patterns, rules, and heuristic proxies that allow it to make useful decisions in certain, narrow contexts. However, current AI technology has its limitations (SURDEN, 2019).

We really understand that in today's conditions not every state is strong economically enough to provide them. At the same time, we insist that a world's community has to be aware of the need to build not just local "digital governments" but a model that will let providing service of state nature on the whole planet with the purpose of security first of all. Of course, in such a case we have to be very careful dealing with the issue of state sovereignty in order not to limit it and not to create a planetary empire. At the same time, the Internet with its rapid progressive development functions on Earth, and in the future, as we may logically predict, no public officer will be out of the network and its impact. Thus, in the future just common planetary governing that is provided under constant social control, on democratic principles with the use of modern legal technologies may be determined as an effective form of countries'

communication with their inhabitants, including the providing of state's services.

In our point of view, soon or later the mentioned communication will include bots-public officers, the use of Blockchain for open recording and change of information, registration of state information, ownership rights, including intellectual property rights, notary acts, voting during elections, and referenda in the Blockchain, smart-contracts, offline, online applications, aggregators, and modern search systems. More else, in the era of digitalization and the increasing use of mankind's cyber achievements we may suggest that a "face" of a human may be changed with time. We mean that today's population is more and more digitalized and with time it will not have the possibility to live and function without technologies. Today's users of cyber devices determine them as some form of their own continuation that generates the idea of their integration into humans' bodies. Within transhumanism as not just a theoretical concept but gradually accepted reality all over the world, implementation of morphological freedom will be definitely reflected on human's body transformation with the use of technologies. ...Humans have inevitably already crossed over into the realm of cyborg... (GALLOWAY, 2020).

We think that the main reason for the mentioned above is not aimed to test practically a theoretical possibility for a human and technique symbiosis but make life activity of an ordinary human more comfortable and effective. A human of the future, to our vision, is a posthuman that combines his/her natural construction with technical ones. Thus, state authorities to provide their service effectively have to be morally and technically prepared to meet a new participant of their service and activity.

At the same time, in the conditions of cyber reality, first, the complexity of the target software itself could render an attack unpredictable simply by obscuring what would happen when the software systems are interfered with or disrupted. Second, because most computer systems are connected to other computer systems via the Internet, some kinds of attack could spread across these computers. The complexity of each system and how they are connected mean that it is hard to make predictions about the extent and speed of spread and the impact on each computer. Third, corruption of computers could generate physical effects that cascade well beyond cyberspace and are themselves difficult to predict (FARRELL; GLASER, 2017). The mentioned above promotes the mankind of new digitalized era not to forget about cybersecurity constant measures that requires an appropriate state policy concerning this issues. We have always remember that security is a critical concern around the world that manifests in problems such as protecting our cyber infrastructure from attacks by criminals and other nation-states... (SINHA *et al.*, 2015).

CONCLUSIONS

It has been proved that state authorities' service function implementation under epidemic threats is based on its functioning in ordinary conditions but enriched with the specially developed mechanisms of for the human staff activity that are mostly public officers with the gradual use of modern legal technologies in their working routine.

The risks in the work of state services in the context of the COVID-19 pandemic are represented by: 1) risks to be infected by the respiratory disease COVID-19; 2) risks of staff overload; 3) risks associated with insufficient technical support of the process of receiving electronic services by both their providers and recipients; 4) risks associated with un financing of all additional needs of material-technical nature arising from the fight against the COVID-19 pandemic. Due to the constant impact of corruption and cyber-threats on the functioning of state service, the challenges to provide the proper protection of cybersecurity and fight against corruption remain to be important even in times of pandemic for every country in the world.

In accordance with the recommendations for establishing effective public services for the full implementation of inhabitants' rights and interests through the service functions of public authorities have been systematized and represented by: 1) changes in the organization of communication with visitors; 2) making changes in the organization of interaction with customers in quarantine; 3) making changes in the organization of labor; 4) increase of technical equipment of service process.

The future communication between states and their inhabitation will include bots-public officers, the use of Blockchain for open recording and change of information, registration of state information, ownership rights, including intellectual property rights, notary acts, voting during elections and referenda in the Blockchain, smart-contracts, offline, online applications, aggregators, and modern search systems.

A human of the future was represented as a posthuman that combines his/her natural construction with technical ones. Thus, state authorities to provide their service effectively have to be morally and technically prepared to meet a new participant of their service and activity.

The materials in this paper may be useful for researchers in the sphere of state authorities' service function implementation ensuring in conditions of the fight against epidemic threats under the use of legal technologies with the purpose to modernize a current state authorities' service function implementation, for specialists focused on developing the suggestions and improving its quality under modern challenges of the pandemic and post-pandemic reality.

In the research process, new questions and issues arose that are needed to be solved. It is necessary to continue the investigation of

methods and details of the effective practical implementation of state authorities' service function ensuring its development and improvement in conditions of the fight against epidemic threats under pandemic and post-pandemic circumstances with the use of legal technologies.

AUTHORS CONTRIBUTIONS

The authors' contributions are equal.

Conceptual-methodological determination, juridical fundamentals and conceptual understanding of state authorities' service function implementation under epidemic threats with the use of legal technologies were developed by **YP**. The idea concerning the role and significance of state authorities' service function implementation under epidemic and post-epidemic threats with the use of legal technologies belongs to **SB**. The analysis of the current issues and challenges for the implementation of the state authorities' service function in modern conditions was developed by **VK**. Conclusions, the ideas and their development about prospects of the implementation of the state authorities' service function under epidemic threats with the use of legal technologies in post-pandemic times with the use of LegalTech and AI, with the involvement of posthumans-cyborgs in the transhumanism era and digitalized common planetary governing, belong to **OM**. The justification and the ideas about prospects of the implementation of the state authorities' service function under epidemic threats with the use of legal technologies in pandemic times belong to **SO**.

Implementação da função de serviço das autoridades estaduais sob ameaças de epidemia com o uso de tecnologias legais

RESUMO

O objetivo da pesquisa é determinar as questões atuais e as perspectivas da implementação da função de serviço das autoridades estaduais sob ameaças epidêmicas com o uso de tecnologias legais em condições mundiais de pandemia e pós-pandemia. Método de pesquisa: Aplicou-se os métodos científicos gerais e métodos jurídicos especiais de cognição. Usando o método dialético, investigou-se o contexto teórico e as questões atuais da implementação da função de serviço das autoridades estaduais sob ameaças de epidemia com o uso de tecnologias legais e delineou-se os desafios modernos relativos a esta questão. Os métodos formal-legais e comparativos deram a oportunidade de sugerir as direções da implementação da função de serviço das autoridades estaduais garantindo, sob ameaças epidêmicas, o uso de tecnologias legais em condições de mudanças globais, digitalização e transformações sociais no mundo pandêmico e pós-pandêmico. O artigo concluiu que a comunicação futura entre os Estados e seus habitantes incluirá *bots*-oficiais públicos, o uso do *Blockchain* para registro aberto e alteração de informações, registro de informações do Estado, direitos de propriedade, incluindo direitos de propriedade intelectual, atos notariais, votação durante as eleições e referendos no *Blockchain*, contratos inteligentes, aplicativos offline e online, agregadores e modernos sistemas de busca. Um humano do futuro foi representado como um pós-humano-ciborgue que combina sua construção natural com a técnica. Assim, para que as autoridades estaduais prestem o seu serviço de forma eficaz têm que estar moral e tecnicamente preparadas para atender a um novo participante do seu serviço e atividade.

PALAVRAS-CHAVE: Função de serviço; Autoridades estaduais; Pós-humano-ciborgue; Bots-oficiais públicos; Tecnologias legais

REFERENCES

- AGOSTINO, Deborah, ARNABOLDI, Michela, LEMA, Melisa D. New development: COVID-19 as an accelerator of digital transformation in public service delivery. **Public Money & Management**, v. 41, p. 69-72. 2021. Available in: <<https://doi.org/10.1080/09540962.2020.1764206>>. Access in: 05/03/2021.
- BAKDASH, Jonathan Z., HUTCHINSON, Steve, ZAROUKIAN, Erin G., et al. Malware in the future? Forecasting of analyst detection of cyber events. **Journal of Cybersecurity**, v. 4, issue 1, p. 1-10, dec. 2018. Available in: <<https://doi.org/10.1093/cybsec/tyy007>>. Access in: 05/03/2021.
- BROUSSELLE, Astrid, et al. Beyond COVID-19: Five commentaries on reimagining governance for future crises and resilience. **Canadian Public Administration**, v. 63, issue 3, p. 369-408, 2020. Available in: <<https://doi.org/10.1111/capa.12388>>. Access in: 05/03/2021.
- ECOLOGY OF THE INDUSTRIAL REGION. **State in a smartphone in quarantine**, special project, 21 apr. 2020. Available in: <<https://ecoindustry.pro/specproekty/derzhava-u-smartfoni-v-umovah-karantynu>>. Access in: 05/03/2021.
- FARINIUK, Tharsila Maynardes D. Smart cities and the pandemic: digital technologies on the urban management of Brazilian cities. **Revista de Administração Pública**, v. 54, n. 4, p. 860-873, 2020. Available in: <<https://doi.org/10.1590/0034-761220200272x>>. Access in: 05/03/2021.
- FARRALES, Mark J. **What is Corruption?: A History of Corruption Studies and the Great Definitions Debate**. (June 2005). Available in: <<http://dx.doi.org/10.2139/ssrn.1739962>> Access in: 05/03/2021.
- FARRELL, Henry, GLASER Charles L. The role of effects, saliencies and norms in US Cyberwar doctrine. **Journal of Cybersecurity**, v. 3, issue 1, p. 7-17, march 2017. Available in: <<https://doi.org/10.1093/cybsec/tyw015>> Access in: 05/03/2021.
- GALLOWAY, K. The COVID cyborg: Protecting data status. **Alternative Law Journal**, v. 45, issue 3, p. 162-167, june 2020. Available in: <<https://doi.org/10.1177/1037969X20930431>> Access in: 05/03/2021.
- HUYNH, Dat, TOSUN, Mehmet S., YILMAZ, Serdar. All-of-government response to the COVID-19 pandemic: The case of Vietnam. **Public Administration and Development**, v. 40, p. 236-239, 2020. Available in: <<https://doi.org/10.1002/pad.1893>> Access in: 05/03/2021.
- HNATOVSKA, Alona. The concept of "service state": the experience of foreign states and features of implementation in Ukraine in conditions of digitalization. **Scientific papers of the National University "Odessa Law Academy"**, v. 28, p. 37-43, 2021. Available in: <<https://hdl.handle.net/11300/15473>> Access in: 11/17/2021.
- KAUFMANN, Daniel. **Corruption, Governance and Security: Challenges for the Rich Countries and the World**. (Oct. 2004). Available in: <<http://dx.doi.org/10.2139/ssrn.605801>>. Access in: 05/03/2021.
- KOLOHINA, Anna. How to get administrative services in a pandemic? **LIGA.NET**. (March 2020). Available in: <<https://blog.liga.net/user/akolokhina/article/36277>>. Access in: 11/17/2021.
- MEDEIROS, B.P., GOLDONI, L.R.F., BATISTA JUNIOR, E., ROCHA, H.R.D. The use of cyberspace by the public administration in the COVID-19 pandemic: diagnosis and vulnerabilities.

Revista de Administração Pública, v. 54, p. 650-662, 2020. Available in: <<http://dx.doi.org/10.1590/0034-761220200207>>. Access in: 05/03/2021.

MOLLER, Marie O. The Dilemma between Self-Protection and Service Provision under Danish COVID-19 Guidelines: A Comparison of Public Servants' Experiences in the Pandemic Frontline. **Journal of Comparative Policy Analysis: Research and Practice**, v. 23, n. 1, p. 95-108, dec. 2020. Available in: <<https://doi.org/10.1080/13876988.2020.1858281>>. Access in: 05/03/2021.

SINHA, Arunesh, NGUYEN, Thanh H., KAR, Debarun, et al. From physical security to cybersecurity. **Journal of Cybersecurity**, v. 1, issue 1, p. 19-35, 2015. Available in: <<https://doi.org/10.1093/cybsec/tyv007>>. Access in: 05/03/2021.

SURDEN, Harry. Artificial Intelligence and Law: An Overview. **Georgia State University Law Review**, v. 35, n. 4, p. 1305-1337. 2019. Available in: <<https://readingroom.law.gsu.edu/gsulr/vol35/iss4/8>>. Access in: 05/03/2021.

SZABO, Zcabo. The Effects of Globalization and Cyber Security on Smart Cities. **Interdisciplinary Description of Complex Systems**, v. 17, n. 3-A, p. 503-510, 2019. Available in: <<https://doi.org/10.7906/indecs.17.3.10>>. Access in: 05/03/2021.

VASILIEVA, O., EVSYUKOVA, O. Methodological bases of modeling of normative-legal levers of rendering of public services in the conditions of development of the service-oriented state. **Public administration and customs administration**, v. 1, n. 16, p. 7-16, 2017.

WATT, R., PERKINS, M. Leading public service reform: Some reflections. **Administration**, v. 68, p. 55-72, dec. 2020. Available in: <<https://doi.org/10.2478/admin-2020-0024>>. Access in: 05/03/2021.

Recebido: 06/03/2021

Aprovado: 08/12/2021

DOI: 10.3895/rts.v18n50.13921

Como citar: PYVOVAR, Y. et al. State authorities' service function implementation under epidemic threats with the use of legal Technologies. **Rev. Tecnol. Soc.**, Curitiba, v. 18, n. 50, p. 19-34, jan./mar., 2022. Disponível em: <https://periodicos.utfpr.edu.br/rts/article/view/13921>. Acesso em: XXX.

Correspondência:

Direito autoral: Este artigo está licenciado sob os termos da Licença Creative Commons-Atribuição 4.0 Internacional.

