Revista de Estudos Constitucionais, Hermenêutica e Teoria do Direito (RECHTD)
16(3):486-498, setembro-dezembro 2024
Unisinos - doi: 10.4013/rechtd.2024.163.06

The role of the state in regulating modern technologies: constitutional aspects and security challenges

O papel do Estado na regulação das tecnologias modernas: aspectos constitucionais e desafios de segurança

Vitaliy Gumenyuk[1]
"KROK" University (Ukraine)
vitaliy_gumenyuk@sci-univ.com

Olena Dyka[2]
Zhytomyr Polytechnic State University (Ukraine)
org_dos@ztu.edu.ua

Svitlana Nikolaichuk[3]
Dnipropetrovsk District Administrative Court (Ukraine)
Svitlanavn@ukr.net

Anna Ponomarenko[4]
Odesa State University of Internal Affairs (Ukraine)
ap0091994@gmail.com

Serhii Pyroha[5]
Augustin Voloshin Carpathian University (Ukraine)
sergiipyroha@meta.ua

Abstract

Over the past decade, the development of modern technologies, innovative shifts and large-scale globalisation have transformed everyone's perception of the real world. Along with the huge number of benefits that these changes

[1] Department of Theory and History of the State and Law, "KROK" University, 03113, 30-32 Tabirna Str., Kyiv, Ukraine
[2] Department of National Security, Public Management and Administration, Zhytomyr Polytechnic State University, 10005, 103 Chudnivska Str., Zhytomyr, Ukraine.
[3] Dnipropetrovsk District Administrative Court, 4900, 4 Akademika Yangelya Str., Dnipro, Ukraine.
[4] Research Department, Odesa State University of Internal Affairs, 65000, 1 Uspenska Str., Odesa, Ukraine.
[5] Department of Canon Law, Augustin Voloshin Carpathian University, 88000, 4 Hoydy Str., Uzhhorod, Ukraine.

bring, significant challenges have arisen for both society and the state in particular. After all, government agencies need to regulate all spheres of life. The emergence of new areas and their continuous improvement and development necessitate legal regulation through the adoption of new relevant regulations, adaptation of existing documents to the realities of today, and involvement of the state in further technological developments not only in the legal field. Another important point was the consideration of the constitutional aspects of such legal regulation. All of the above determines the relevance of this research. Our goal is, first and foremost, to conduct an in-depth analysis and determine the role of the State in regulating modern technologies; to systematise the data on the benefits and challenges facing the State and society given the rapid pace of innovation; and to provide a detailed description of the fundamentals of the constitutional aspects of such legal regulation in terms of ensuring constitutional human rights in the context of rapid innovation changes. To achieve this goal, the author used a number of general and special methods of scientific knowledge, such as the universal method, the method of system analysis, synthesis, the method of deduction and induction, the dialectical method and the formal logical method. As a result of the use of these methods and taking into account the goal, scientifically significant conclusions were formed; including on the prospects for state regulation of modern technologies and security in the context of rapid technological growth, which will form the basis for further research and the basis for improving the legal regulation of issues related to innovative technologies.

Keywords: modern technologies, innovative technologies, constitutional aspects, human rights, society.

Resumo

Na última década, o desenvolvimento de tecnologias modernas, mudanças inovadoras e a globalização em larga escala transformaram a percepção de todos sobre o mundo real. Juntamente com o enorme número de benefícios que essas mudanças trazem, desafios significativos surgiram tanto para a sociedade quanto para o Estado em particular. Afinal, as agências governamentais precisam regular todas as esferas da vida. O surgimento de novas áreas e sua contínua melhoria e desenvolvimento exigem regulamentação legal por meio da adoção de novas normativa relevantes, adaptação de documentos existentes às realidades atuais e envolvimento do Estado em novos desenvolvimentos tecnológicos, não apenas no campo jurídico. Outro ponto importante foi a consideração dos aspectos constitucionais dessa regulamentação jurídica. Tudo isso determina a relevância desta pesquisa. Nosso objetivo é, antes de tudo, conduzir uma análise aprofundada e determinar o papel do Estado na regulamentação das tecnologias modernas; sistematizar os dados sobre os benefícios e desafios que o Estado e a sociedade enfrentam, dado o rápido ritmo da inovação; e fornecer uma descrição detalhada dos fundamentos dos aspectos constitucionais dessa regulamentação jurídica em termos de garantia dos direitos humanos constitucionais no contexto de rápidas mudanças de inovação. Para atingir esse objetivo, os autores utilizaram diversos métodos gerais e específicos de conhecimento científico, como o método universal, o

método de análise de sistemas, o método de síntese, o método de dedução e indução, o método dialético e o método lógico-formal. Como resultado da utilização desses métodos e levando em consideração o objetivo, foram formuladas conclusões cientificamente significativas, inclusive sobre as perspectivas de regulamentação estatal de tecnologias modernas e segurança no contexto de rápido crescimento tecnológico, que constituirão a base para futuras pesquisas e o aprimoramento da regulamentação jurídica de questões relacionadas a tecnologias inovadoras.

Palavras-chave: tecnologias modernas, tecnologias inovadoras, aspectos constitucionais, direitos humanos, sociedade.

Introduction

The last few years have been indicative of the development of modern digital technologies, when a kind of "data explosion" took place. As a result of such shifts, society is gradually moving from the information technology era to the digital age. Now we are all on the threshold of a new phase of development - the introduction of artificial intelligence in all spheres of our life, blockchain, cloud computing, big data, edge computing and 5G (A, B, C, D and E+5G), etc. It is important to note that 5G is currently serving as a large-scale catalyst for the rapid introduction of all these technologies into everyday life. As of today, the existing data dimension is an asset that should be used and will be used in the direction of scenario-based exchange, comprehensive communication and universal connectivity. Taken together, this will easily lead to a new industrial and economic revolution, which will further enable the modernisation of public administration. Against this backdrop, digital leadership has become a key element of efforts to modernise public administration and its capacity (Peng, 2022).

Given such rapid changes and transformations, governments in many countries are directing their resources not only to finding and implementing the latest technologies to increase productivity and welfare of citizens, but also to finding effective mechanisms for legal regulation of new technologies, taking into account all the risks and challenges of the so-called "new age". New technologies have the potential to radically improve and optimise all existing processes in various fields: adaptation of educational processes, radical improvement of state planning, improved health diagnostics, automation of transport and significant reduction of administrative activities (Nalyvaiko et al., 20223a). Along with these benefits, government agencies and relevant institutions are concerned about the threats to constitutional human rights that innovations may pose and the areas of life they will affect.

It also raises the logical question of whether the public sector is ready to quickly adapt to new realities and technological developments, whether its decisions will be quick, effective and appropriate in the current circumstances. After all, if we look at it objectively, the current approach of the state to the legal regulation of the use of modern technologies is largely limited and incapable of rapid change (Tabart, 2018). The government is called upon to increase efficiency by avoiding risks and working in a process-oriented manner, and to create

value by achieving certain results. This is evidence of an outdated model of government that is consistent with short-term political cycles, a "get it right" approach to problem-solving, and a lack of citizen participation in setting policy goals and designing services (Hanna, 2018). Moreover, formality and unnecessary processes have become the basis of many public authorities' activities. All of this combines to prevent the benefits of technological change from being realised, thus creating a gap between reality and the regulation of that reality. Today, as all processes in society are rapidly changing due to the impact of innovative technologies, government actions must be not only effective but also timely.

In our opinion, one of the promising methods that the state can use in regulating modern technologies is the method of planning possible scenarios based on the study of trends and uncertainties in a particular sector. Using this method, it is possible to understand how these changes will take place, who may be involved, and what steps the state can take (Penna, 2022). As we have noted above, along with the benefits of using the latest technologies, there are challenges and peculiar risks that threaten constitutional human and civil rights, as well as the overall security situation. The ongoing digital transformation has a direct impact on fundamental human rights, and moreover, it is the basis for the emergence of new human rights as a full-fledged participant in the digital space. The results of the introduction of the latest technologies require not only an understanding of the consequences, but also the formation of a legal mechanism for regulating, implementing and protecting existing rights and those that are just being formed.

The sphere of digital relations is characterised by virtuality and transcendence, requiring special attention to the sphere of fundamental human rights in terms of their protection, taking into account the special properties of this environment, where subjects and objects are often a kind of "simulation", and the boundaries of the exercise of individual rights and interference with them are not always clearly identified (Liu & Wei, 2018). In view of the above, the purpose of our study is to conduct an in-depth analysis and define the role of the state in regulating modern technologies; to systematise data on the benefits and challenges faced by the state and society in view of the rapid pace of innovation; and to provide a detailed description of the fundamental constitutional aspects of such legal regulation in terms of ensuring constitutional human rights in the context of rapid innovation changes.

Methodological Framework

This research was carried out at all stages in accordance with the stated goal. To achieve the above goal, a number of general scientific and special methods of scientific knowledge were used. These include: the universal method, the method of system analysis, synthesis, the method of deduction and induction, the dialectical method and the formal logical method. The universal method of scientific knowledge, or the general philosophical method, is used at all stages of research. The method of systematic analysis is also a leading method of scientific research and is aimed at revealing the role of the state in regulating modern technologies, identifying the inherent features and peculiarities of human rights in the era of innovative

technologies. Using the method of system analysis, the author identifies the challenges faced by the State and society in implementing the results of modern technological developments. The use of the system analysis method resulted in specific conclusions about the role of the state in certain processes; the problems faced by the state in regulating digital changes.

Using the synthesis method, a unified vision of possible actions that the state can take to effectively regulate modern technologies was achieved. Conclusions were drawn on how fundamental human rights are violated in the context of digitalisation. Moreover, the method of synthesis is used to formulate unified conclusions about the security situation in the course of the introduction of modern technologies, as well as the prospects for state regulation of modern technologies and ensuring security in the context of rapid technological growth. Taking into account the use of the method of deduction, the author has formed a general conclusion about the inability of governments of many countries to respond quickly and effectively to technological changes by adapting legislation and introducing new methods of legal regulation. The risks and challenges faced by the state and citizens as a result of using the benefits of innovative technologies were also identified using the induction method.

This study was also conducted using the dialectical method of scientific knowledge. In general, it was used to identify and study problematic issues of the role of the state in regulating modern technologies and the security situation in general. The dialectical method was used to reveal the content of the challenges faced by society and the state. The formal and logical method of scientific knowledge played an important role in identifying the problems of the state authorities' response to rapid technological changes. Taken together, these methods contributed not only to the formation of scientifically significant conclusions that can be used as a basis for further research in this area. The conclusions can be taken into account in discussions on improving the mechanisms of legal regulation of this area of life.

Results and Discussion

(a) Analysing the role of the state in regulating modern technologies

The twenty-first century is unimaginable without the use of technology in education, medicine, transport, administrative services, etc. Therefore, the state should become the regulator of all these developments, playing an important role in both technology development and regulation. There is no disagreeing with the fact that the state has a significant impact on the development of technologies - from financing, investment, attracting specialists and promoting technologies to direct legal regulation of the use of these technologies. The state can also regulate certain aspects of technology development to ensure that they are in line with societal goals and values (Brynjolfsson & McAfee, 2014).

However, on the other hand, government policy can be aimed at hindering innovation progress by imposing unnecessary restrictions, cutting off funding, or favouring other technologies (providing development incentives, additional funding, tax abolition, etc.) (Nalyvaiko et al., 20223b). It is important to strike a balance between encouraging innovation

and ensuring that technologies are in line with societal goals and values.

In order to manage potential benefits and protect against threats and risks, the state is faced with the task of developing a policy that takes into account the interests of all stakeholders, including specialists in the relevant field of knowledge, the public, experts and public authorities (Schot & Kanger, 2018). This will ensure that technological progress is in line with social goals and values, and that the risks associated with new technologies are effectively managed. In general, the role of the state in regulating modern technologies is reduced to the following key aspects:

- Adaptation of legislation and legal regulation - public authorities are obliged to respond rapidly to all technological developments by adapting the norms of the current legislation to new realities or by adopting additional laws and regulations. These acts should regulate in detail the issues of confidentiality, privacy, intellectual property, ethical considerations, and consumer protection. This is the basis that must be observed. Moreover, regulations should contain norms on the limits of what is acceptable in developments, based on all safety and confidentiality of the developments themselves (Coccoli, 2017).
- Certification and standard setting in the area of data privacy - the state has an important role to play in setting certification requirements for specific technologies to ensure full interoperability and compliance with the established norms (as mentioned above). This generally applies to the following sectors: energy, telecommunications, transport, and healthcare. Moreover, many governments are concerned about the possibility of data leakage. That is why significant assets are being invested in the development of technologies that will ensure data confidentiality. At the same time, legal rules are being developed to regulate the collection, processing, storage, exchange and transfer, and use of personal data. Taken together, these actions are aimed at ensuring the privacy of citizens, the inviolability of private life and the avoidance of leakage of personal information that can be used for unlawful purposes (Brownsword et al., 2017).
- Protection of intellectual property rights - the state is also obliged to regulate the protection of intellectual property, including copyright, trademarks, patents and trade secrets. This policy significantly increases incentives for the development of new technologies, while providing a legal framework for authors and inventors to protect their technological achievements (Norberg et al., 2007).
- Antimonopoly policy - the government devotes considerable resources to improving atimonopoly legislation. It can be used to prevent monopolistic practices as such, allowing all companies to develop on a level playing field. This includes mergers, transformation of companies, their purchase or sale, and detailed investigation of anticompetitive behaviour (Coccoli, 2017). Taken together, this is all aimed at creating a harmonious competitive environment that will bring appropriate results.
- User protection - security is a key issue in the use of modern technologies. That is why the reliability of technological development products is a key objective.
- Promoting research and innovation - this is generally manifested by providing funding and support for all research and development initiatives that are directly relevant to the security,

economic, banking and competitiveness sectors. It also includes the provision of incentives, grants and other forms of encouragement. Start-ups and small business growth require special attention from the state, and additional funds are allocated to them to stimulate even greater technological progress (Galindo & Garcia-Marco, 2017).

- Ethical concerns - addressing ethical concerns requires government intervention by ensuring responsible and ethical use of technology.
- Encouraging international cooperation - binding standards, principles, and rules should be developed at the international level to regulate modern technologies. States should share their own guidelines and experience in actively responding to rapid changes, adapting and improving legislation and related actions (Sancho, 2020).

It should be noted that the development of modern technologies and the regulation of this aspect by the state requires a balance, and its achievement is of great importance both for society and the state, as well as for experts and professionals directly involved in innovation. Close cooperation and well-established communication between all participants will help protect everyone from the negative consequences and challenges that arise on a daily basis. These points are discussed in more detail in the following paragraphs of this article.

(b) Constitutional aspects of regulation of modern technologies and challenges that arise

It is undeniable that digitalisation and the rapid development of modern technologies contribute to increased productivity, efficiency, accountability and transparency. However, along with these benefits, there are potential and very real threats to fundamental human rights. It is also important to note that further developments in technology have the potential to deepen the urban-rural divide, thereby contributing to the exclusion of those groups of people who do not have access to the Internet. Given the central role that digital technologies play in gaining access to resources, jobs, healthcare, education and public services, the digital divide is increasingly recognised as a human rights issue (UNDP, 2023).

An important task for the state is to ensure that all technological developments do not leave anyone behind. The state is obliged to direct significant efforts and resources to ensure access to existing online services, taking measures to bridge the digital divide, including the gender digital divide (Belov & Belova, 2022). Moreover, the latest breakthrough has been artificial intelligence and its use in various spheres of society. It is worth carefully weighing all available perspectives and realistically assessing the consequences of its use and its impact on real social needs. Undoubtedly, modern technologies have created a lot of ways for the development of civil society. However, on the other hand, the state has gained a good excuse to control civil society movements and restrict the work of the media. The latter is often done under the pretext of ensuring national or public security. Moreover, many human rights defenders in various parts of the world are increasingly subjected to surveillance and repression, as well as violations of their privacy, often under the pretext of fighting terrorism

or extremism. The issues raised relate not only to surveillance, but also to the production of structural discrimination and inequality (UNDP, 2023).

In the context of our study, it is worth noting that the existing mass control and constant analysis of a huge flow of information have ambiguous consequences for society. It is more accurate to say that society faces challenges that may pose a danger primarily to certain national minorities or people with opposing views. Therefore, it is quite logical to develop basic rules at both the state and local levels to control the advanced technologies used in state surveillance of citizens. The protection of citizens from comprehensive surveillance and constant monitoring of social media or other important data should also be enshrined at the national level (Nalyvaiko et al., 2022, Asiryan, 2023).

Moreover, with the advent of modern technology, all areas of our lives have undergone changes. Including the labour sphere, many professions have evolved and now many professions do not require being in the office. All the work can be done outside of the office, online. This is a positive development, saving employees time and allowing them to devote their time to family or other interests (The European Parliamentary Research Service, 2021). However, in such circumstances, employers often expect workers to be online even after established working hours. While in emerging economies this is more of a plus and is perceived positively by both employees who want to earn more and consumers who find it convenient, for example, to shop at night, in developed countries, the right to rest and privacy prevails.

As part of our study, it is advisable to analyse in more detail the impact of modern technologies on human rights. This includes several important aspects, including:

- Ensuring privacy and protection of personal data - the development of modern technologies leads to a significant expansion of the scope of collection, processing and use of personal data. This, in turn, has a direct impact on the privacy of everyone and thus directly threatens the constitutional rights of citizens. Undoubtedly, the right to privacy is a fundamental right enshrined in international law (Belov & Belova, 2022). Accordingly, there are clearly established ways to protect this right. However, the rapid development of technology puts this at risk, as lawmakers do not have time to adapt legislation to the realities of today. Thus, draft documents are being developed, debates are taking place, and proposals are being put forward, but there is a lack of speed. After all, the processes are too bureaucratic and take too much time to approve. As a result, the right to privacy and, accordingly, the protection of personal data is under threat (Asiryan, 2023).
- Fairness and non-discrimination - modern technologies can facilitate discrimination in areas ranging from financial services to general employment. Research should investigate algorithmic fairness, identify potential biases, and develop mechanisms to prevent discrimination and ensure fair use of technology. This need is driven by the fact that, for example, artificial intelligence is often used to sort data, rank search results, or assign people to a particular category according to predefined algorithms. Such classifications can directly violate human rights. Certain moral biases certainly exist in society. However, due to their nature, people have learnt to hide them (Turuta & Turuta, 2022). Artificial intelligence cannot

do this, and therefore its use can significantly reinforce existing biases. This is a significant threat today, as many organisations use this kind of software to optimise their operations. There is even more evidence that such programmes reproduce existing stereotypes about the roles of women and men (for example, by favouring men when selecting job candidates) or allocate resources between members of different social groups (Turuta & Turuta, 2022).
- Freedom of speech and expression - modern technologies also have an impact on freedom of speech. In general, this is manifested by the automatic identification and blocking of content deemed offensive or undesirable. This can be done by the authorities or companies (Belov & Belova, 2022). Often, such blocking is carried out under the mask of ensuring national or public security. It is also worth noting that data analysis algorithms can be used to create user profiles and target advertising according to their views, which can create echo chambers and restrict access to a variety of information (The European Parliamentary Research Service, 2021). In turn, media surveillance can limit free expression, as people may fear persecution for their view.

Taking into account the above, we can identify the real challenges faced by society and the state in the course of technological development:

1. Displacement of jobs by robotic technology - yes, there are job cuts. However, new jobs are also being created that require advanced training and adaptation to new requirements.
2. The evolution of the labour market in general - taking into account the above and the constant rapid development of technology, there is a logical challenge to establish a mechanism for the transition from old forms to new ones and to ensure economic stability.
3. Ethics - there is a need to ensure that all new technologies, including artificial intelligence, are fair, accountable and transparent.
4. The emergence of autonomous vehicles requires state involvement in security regulation. The balance between innovation and public safety will be crucial (The Evolving Challenges of Technological Progress, 2023).
5. The emergence of dipfakes, which threatens the clarity and truthfulness of the perception of information. Moreover, trust in the available information can easily be lost, and therefore the fight against disinformation is one of the top priorities (The European Parliamentary Research Service, 2021).
6. Technology governance at the global level - the development of technology has no borders, and therefore should also be regulated at the international level. In general, this applies to addressing cyberwarfare, censorship and cross-border data flows.
7. Sustainable development of technologies - technologies should develop and improve without exacerbating environmental degradation (The Evolving Challenges of Technological Progress, 2023).

(c) Prospects for state regulation of modern technologies and security in the context of rapid technological growth

Taking into account all of the above, the state has a significant responsibility in regulating the development of modern technologies, ensuring the security of human rights in the course of such development, and adapting to new opportunities and challenges. We believe it is appropriate to point out promising ways of developing state policy in the area of technology. First of all, it is advisable to introduce transparent, comprehensive and holistic approaches to the formation of state policy (Drozd et al., 2021).

The general and specific goals of such a policy towards the development of modern technologies should be spelled out, which would provide for market compromises at the international and national levels, as well as take into account the interests of stakeholders (Zara, 2023). The rapid development of modern technologies makes such a policy all-encompassing, which can have large-scale consequences for various areas, such as transport, national security, relations between the state and citizens, market competitiveness, cohesion of different branches of government and society, and the functioning of the healthcare system. This is why policy-making should think through all the steps, take into account only reasonable approaches that will bring the desired result and help avoid haste, which will further paralyse all the steps taken (Davis et al., 2022).

The second important step is to establish communication and close cooperation between different bodies and organisations both within the state and between other states together. Data on the effectiveness or ineffectiveness of certain technologies, experience of their implementation, and the results of such implementation are important (Going Digital in Latvia…, 2020). To overcome the lack of evidence, countries may need to support new processes for sharing information about algorithms and datasets of structurally important digital companies. Moreover, investments in such open cross-border data exchanges could pay off many times over, as they would bring even more positive results.

Thirdly, it is important to move to flexible governance that will meet the realities of today and the rapid changes in our lives. Decisions made, research and results obtained - the process between all these stages does not require too many formalities and excessive bureaucracy. It's all about delaying processes and wasting time. These processes of agile governance are already being developed in progressive countries, giving the green light for experimentation, planning and learning. Meanwhile, risk-based regulatory approaches that allow for a wide range of nuances in the application of laws and encourage context-sensitive assessments are at the heart of the recently proposed EU regulation establishing harmonised rules on artificial intelligence (Davis et al., 2022).

States also face a number of mandatory tasks to ensure human rights and address risks and potential challenges. These include:

- Increase the level of state support for business R&D and diversify its structure towards greater use of tax incentives for R&D expenditures. At the same time, emphasis should be

placed on distinguishing between socially important issues and the private life of citizens.
- Improving the quality of potential developments by increasing the amount of funding to be allocated on a competitive basis.
- Assessment of the human rights impact of innovative technologies.
- Providing incentives for businesses to develop modern technologies by providing benefits, reducing tax liabilities or expanding opportunities for start-ups that will be accessible to most citizens and firms.

The above are good opportunities to move towards reforming the usual policies so that the timeliness of changes in line with the development of modern technologies is appropriate, justified and truly timely. Investment and success in this area could mean that in the next decade, policy governance integrates diverse values in interoperable systems, and regulators and citizens work side by side as mutual partners rather than antagonists (Zara, 2023).

Conclusion

The last few years have been indicative of the development of modern digital technologies, when a kind of "data explosion" took place. As a result of such shifts, society is gradually moving from the information technology era to the digital age. Now we are all on the threshold of a new phase of development - the introduction of artificial intelligence in all spheres of our life, blockchain, cloud computing, big data, edge computing and 5G (A, B, C, D and E+5G), etc. In view of such rapid changes and transformations, governments in many countries are directing their resources not only to the search for and implementation of the latest technologies to increase productivity and welfare of citizens, but also to the search for effective mechanisms for legal regulation of new technologies, taking into account all the risks and challenges of the so-called "new age".

The latest technologies can radically improve and optimise all existing processes in various fields: adaptation of educational processes, radical improvement of state planning, improvement of health diagnostics, automation of transport, and significant reduction of administrative activities. Alongside these benefits, government agencies and relevant institutions are concerned about the threats to constitutional human rights that innovations may pose and the areas of life they will affect. In order to manage potential benefits and protect against threats and risks, the state is faced with the task of developing a policy that takes into account the interests of all stakeholders, including specialists in the relevant field of knowledge, the public, experts and public authorities. The role of the state in the regulation of modern technologies is limited to the following key aspects: adaptation of legislation and legal regulation of the developments themselves; certification and setting standards in the area of data privacy; protection of intellectual property rights; antimonopoly policy; security; promotion of research and innovation; ethical issues; and encouragement of international cooperation.

The impact of modern technologies on human rights is manifested in the following areas:

ensuring privacy and protection of personal data, justice and non-discrimination, freedom of speech and expression. The main challenges to the development of modern technologies are: displacement of jobs by robotic technology; evolution of the labour market in general; ethics; emergence of autonomous vehicles, which requires the state to be involved in security regulation; emergence of dipfakes, which threatens the clarity and truthfulness of information perception; global technology management; and uniform development of technologies. Promising ways to develop state policy towards modern technologies are the following: introduction of transparent, comprehensive and holistic approaches to state policy-making, establishment of communications and close cooperation between various bodies and organisations both within the state and between other states together, transition to flexible governance that will meet the realities of today and rapid changes in our life.

References

ASIRYAN, S. 2023. Steps of the EU countries aimed at protecting the constitutional rights in the era of artificial intelligence. *Scientific Bulletin of Uzhhorod National University,* **76**(2):285 - 290.

BELOV, D.M.; BELOVA, M.V. 2022. The system of protection of human and civil rights and freedoms: doctrinal and regulatory framework. *Scientific Bulletin of Uzhhorod National University, Series "Law",* **74**:85-90.

BROWNSWORD, R.; SCOTFORD, E.; YEUNG, K. 2017. Law,regulation,andtechnology: The field, frame, and focal questions. *The Oxford Handbook of Law, Regulation and Technology,* **1**:3-40.

BRYNJOLFSSON, E.; MCAFEE, A. 2014. *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. N.Y., WW Norton & Company.

COCCOLI, J. 2017. The challenges of new technologies in the implementation of human rights: An analysis of some critical issues in the digital era. *Peace Human Rights Governance,* **1**(2):223-250.

DAVIS, N.; SIGNÉ, L.; ESPOSITO, M. 2022. *Rethinking technology policy and governance for the 21st Century.* Retrieved from https://www.brookings.edu/articles/rethinking-technology-policy-and-governance-for-the-21st-century/

DROZD, O.; HAVRYLIUK, L.; BRATEL, S.; DOTSENKO, O.; LAKIICHUK, Y. 2021. Testing of integrity of police officers: the realities of today. *Journal of Legal, Ethical and Regulatory Issues*, **24**(2). Retrieved from https://www.abacademies.org/articles/testing-of-integrity-of-police-officers-the-realities-of-today-10501.html

GALINDO, F.; GARCIA-MARCO, J. 2017. Freedom and the Internet: Empowering citizens and addressing the transparency gap in search engines. *European Journal of Law and Technology,* **8**(2):1-18.

HANNA, N. 2018. A role for the state in the digital age. *Journal of Innovation and Entrepreneurship,* **7**(5). https://doi.org/10.1186/s13731-018-0086-3

LIU, X. C.; WEI, R. 2018. Context, evolving and paradigm: Imagination in Internet studies. *Journalistic University,* **3**:98–106.

NALYVAIKO, L.; HRYHORCHUK, M.; SHEVCHENKO, A.; MELNYK, M.; DOLHORUCHENKO, K. 2023a. Protection of property rights during the Russian-Ukrainian War: Theoretical and Legal analysis. *Access to Justice in Eastern Europe,* **2**(19):172–190.

NALYVAIKO, L.; LEHEZA, Y.; SACHKO, O.; SHCHERBYNA, V.; CHEPIK-TREHUBENKO, O. 2022.

Principles of law: Methodological approaches to understanding in the context of modern globalization transformations. *Ius Humani. Law Journal,* **11**(2):55-79.
NALYVAIKO, L.; PRYPUTEN, D.; VERBA, I.; LEBEDIEVA, Y.; CHEPIK-TREHUBENKO, O. 2023b. The European Convention on Human Rights and the Practice of the ECtHR in the Field of Gestational Surrogacy. *Access to Justice in Eastern Europe,* **2**(19):206-219.
NORBERG, P.A.; HORNE, D.R.; HORNE, D.A. 2007. The Privacy Paradox: Personal Information Disclosure Intentions versus Behaviors*. Journal of Consumer Affairs,* **41**(1):100-126.
OECD. 2020. *Going Digital in Latvia: An Integrated Policy Framework*. Retrieved from https://www.oecd-ilibrary.org/sites/cf006e1b-en/index.html?itemId=/content/component/cf006e1b-en
PENG, B. 2022. Digital leadership: State governance in the era of digital technology. *Cultures of Science,* **5**(4):210–225.
PENNA, C. 2022. *Technological Revolutions and the Role of the State in the Governance of Digital Technologies.* Retrieved from https://www.cigionline.org/articles/technological-revolutions-and-the-role-of-the-state-in-the-governance-of-digital-technologies/
SANCHO, D. 2020. Automated Decision-Making under Article 22 GDPR: Towards a More Substantial Regime for Solely Automated Decision-Making. In M. Ebers & S. Navas (Eds.), *Algorithms and Law* (pp. 136-156). Cambridge, Cambridge University Press.
SCHOT, J.; KANGER, L. 2018. Deep transitions: Emergence, acceleration, stabilization and directionality. *Research Policy,* **47**(6):1045-59.
TABART, M. 2018. *The role of government in using and regulating AI and emerging technologies.* Retrieved from https://www.linkedin.com/pulse/role-government-using-regulating-ai-emerging-michelle-tabart
THE EUROPEAN PARLIAMENTARY RESEARCH SERVICE. 2021. The Regulation of Artificial Intelligence in the European Union. Retrieved from https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/698792/EPRS_BRI(2021)698792_EN.pdf
TURUTA, O. V., & TURUTA, O. P. 2022. Artificial intelligence through the prism of fundamental human rights. *Scientific Bulletin of Uzhhorod National University,* **71**:49-54.
UNDP (United Nations Development Programme). 2023. *The impact of digital technology on human rights in Europe and Central Asia: Trends and challenges related to data protection, artificial intelligence and other digital technology issues.* Istanbul, United Nations Development Programme.
WOODSON, M. L. 2023. *The Evolving Challenges of Technological Progress: Past, Present, and Future.* Retrieved from https://www.linkedin.com/pulse/evolving-challenges-technological-progress-past-present-woodson-zvvpe?trk=public_post
ZARA, S. 2023. *Cybersecurity challenges in the digital age: Ensuring safety in engineering systems.* Retrieved from https://kahedu.edu.in/cybersecurity-challenges-in-the-digital-age-ensuring-safety-in-engineering-systems/

Submetido: 12/03/2024
Aceito: 16/05/2025