

Perspectives of Global Digital Governance for Space Exploration

Diana Levchenko

Ph.D. in Law, Researcher, Analysis Center of Air and Space Law
(Kyiv, Ukraine)

E-mail: diana.levchenko5@gmail.com

<https://orcid.org/0000-0001-8343-2260>

Levchenko, Diana (2024) Perspectives of Global Digital Governance for Space Exploration. *Advanced Space Law*, Volume 13, 21-31. <https://doi.org/10.29202/asl/13/2>

The article reveals the latest perspectives of global digital governance for space exploration. Approaches to the formation of a general concept of global digital governance, which is focused on ensuring security, stability and inclusiveness in the digital space, are analysed. It was revealed that the formation of a model of global digital governance is characterized by certain trends that reflect the aspirations of states to ensure national security, technological leadership and economic growth. The key trends in the formation of digital governance have been identified. The importance of global digital governance for space law is determined. The main possibilities of global digital governance for space exploration are highlighted: development of international coordination and cooperation; ensuring security and infrastructure protection; development of technological innovations; expansion of economic opportunities and inclusiveness; development of science and education in the field of space law; guaranteeing environmental responsibility.

Keywords: outer space, space relations, space legal relations, development, global administrator, global administration.

Received: 25 April 2024 / Accepted: 18 May 2024 / Published: 1 July 2024

Introduction

The development of the Internet significantly accelerated the process of global digitalization. This progress illustrates how technology can transform the infrastructure of communication, governance, and development globally. In the same way that the Internet has facilitated global communication and collaboration, digital technologies can have a significant impact on the research and management of various fields, including space law.

Global digital governance is currently a separate component in the methodology for space exploration, as it allows various states and private organizations to coordinate their efforts and resources. Modern technologies (for example, artificial intelligence) can contribute to the

© Levchenko, Diana, 2024

development of new mechanisms for managing and monitoring space operations, ensuring transparency, security and efficiency.

One of the main advantages of global digital governance is the possibility of creating a single information space where all participants can exchange data in real time. This can contribute to more accurate forecasting of space weather conditions, coordination of spacecraft launches, and monitoring of the condition of satellites and other objects in space. In addition, global digital governance can contribute to the development of international norms and standards for the exploration and use of outer space, which, for example, may include issues of ownership of space resources, protection of the space environment, and ensuring the peaceful use of space.

Despite the potential benefits, the implementation of global digital governance in space exploration faces a number of challenges. Among them are technical barriers related to the integration of various digital systems, as well as political and legal issues that arise in the process of forming a model of international cooperation. Cyber security is also a separate issue, which is becoming more and more relevant in the context of global digital governance. Protecting data and infrastructure from cyber-attacks is critical to ensuring the continuity of space operations and protecting the interests of all participants in space exploration.

Thus, global digital governance opens up new perspectives for space exploration, contributing to international cooperation, increasing the efficiency and safety of space operations. However, in order to fully realize these opportunities, a number of legal, technical, political and other challenges need to be resolved, which requires the joint efforts of all interested parties.

The Content of Global Digital Governance

Global digital transformation began with the invention and commercialization of the Internet. Despite the clear governance challenges posed by digital technologies, early state intervention was largely boycotted by stakeholders. Only recently have we noticed a global trend towards increased regulatory accountability of digital platforms. To answer why global digital governance has increased in recent years, rather than earlier, one must review the history of digital development and the evolution of global digital governance (Jia & Che, 2022). That is, at first digital technologies developed almost without state intervention, as governments did not see an urgent need to regulate a new, still little-known field. This situation persisted due to active opposition from stakeholders who feared excessive control and stifling of innovation.

Today, leaders around the world are faced with the task of shaping global digital governance. To date, digital governance can be described as nascent at best. The future certainly promises much larger governance at the national level with less certainty about the global dimension. This governance must go far beyond technical aspects to address issues of economics, security and values. Now is the time for a significant investment of policy development resources, leadership time and political will to implement sound governance design in all areas of life (Cainey, 2021).

To date, digital governance has been largely technical in nature, with standards developed and agreed upon by Standards Development Organizations (SDOs) at national and international levels. According to one document, “more than two hundred (SDOs) develop standards for information and communication technologies (ICTs), many of which are led by the private sector (International, 2020; Cainey, 2021). The strengthening of the role of global digital governance in recent years is a response to the rapid development of digital technologies and their impact on global society. This process demonstrates the importance of adapting regulatory mechanisms

to new realities, as well as the need for international cooperation and the formation of the latest norms of international influence.

Examples of international collaboration in the global digital space include the International Telecommunication Union (ITU), a UN agency, and the 3GPP, a private sector-led consensus-based organization (Brown, 2020; Cainey, 2021). Although corporate and national interests always played a role, the discussion focused primarily on a technically appropriate solution while preserving the benefits of common standards. 3GPP claims that “its consensus-based and transparent approach, procedural rules and elected leadership promote regional balance” and “have been successful in preventing fragmentation of the GSM ecosystem (and its successors)” (Brown, 2020; Cainey, 2021).

In addition, digital governance refers to regulatory initiatives that are considered at the national level or through independent or self-regulatory initiatives, but which may have an international impact. Examples include the Digital Services Act (DSA) or the Artificial Intelligence Act in Europe; provisions relating to Section 230 of the Communications Decency Act in the United States; Australian Code of Media Agreements; or the Brazilian Marco Civil. They may also include self-regulatory initiatives such as the Oversight Board, the Christchurch Call, the Partnership for Trust and Security (DTI), etc. It is more like digital management (Komaitis & Carter, 2023).

The global digital governance space is now more active than ever. At the UN level, various agencies and organizations are exploring the policy implications of digital technologies in areas such as human rights, the future of work and sustainable development. There are dedicated groups discussing the norms of responsible state behaviour in cyberspace and working on a convention on cybercrime. UN member states are expected to agree on the Global Digital Compact (GDC) in 2024 and begin work on the 20-year review of the World Summit on the Information Society (WSIS) in 2025. And a high-level advisory group established by the Secretary-General is developing recommendations for the international governance of AI (Global, 2024a).

Consequently, legislative trends in the field of global digital governance reflect a gradual transition from limited regulation to increased regulatory responsibility of digital platforms. The initial stage of the development of digital technologies was characterized by minimal state intervention due to the active resistance of interested parties. Subsequently, awareness of the risks and challenges of digitalization led to a significant strengthening of regulatory measures.

International cooperation, particularly at the level of the UN and other organizations, includes discussion of the political implications of digital technologies, cyber security and sustainable development. An important step in this direction is the preparation for the creation of the Global Digital Contract. Legislative initiatives are also aimed at protecting user privacy, combating mass surveillance and ensuring cyber security.

In general, current trends emphasize the importance of inclusive and representative decision-making, which involves involving different groups in the policy-making process and ensuring equal opportunities for all participants in the digital space. In conclusion, the current legislative trends are aimed at creating a transparent, safe and fair digital ecosystem that takes into account the interests of states, the private sector and ensures the rights and safety of users.

Continuing to characterize the content of digital governance, it should be emphasized that digitalization is perhaps the most important strategic challenge that will be faced by the government in the next decade. Digitization offers valuable opportunities to achieve Sustainable Development Goals 16 and 17, particularly Goal 16.7 on “inclusive, shared and representative

decision-making at all levels” (Sustainable, 2024). At the same time, new governance challenges arise from digital disruption, including the loss of privacy through mass surveillance, the closing of civic space on the Internet, and the transfer of governance from citizens and national institutions to unaccountable Internet corporations in foreign capitals. The most important understanding is that digital technologies are neither good nor bad in themselves, and they are never neutral. Furthermore, the use of technology tends to reflect broader political and economic interests that are at work anyway (Roberts, 2021).

One characteristic that seems to fit digital governance is that the term is more appropriate when referring to specific issues related to technologies, applications, and services that use Internet protocols and standards (i.e., its infrastructure), but also differ from it, that is, artificial intelligence. With this in mind, digital governance points to issues that are more targeted, affect users’ daily online habits, and require structures that consistently address these issues. It may therefore be useful to think of problems belonging to the domain of digital governance in the same way that public health is thought of: problems that affect a large number of users, a level of severity that is significant, mode ‘transmission’ usually involves a single user transmitting the problem other users and finally the fact that they create the need to activate frameworks that ensure security, quality control and efficiency (Komaitis & Carter, 2023).

The distinction between digital governance and Internet governance is important for understanding the complex structure of today’s digital world. Internet governance provides the technical foundation and stability of the network, while digital governance covers the broader context of the use of digital technologies, focusing on protecting users’ rights and ensuring the security and efficiency of digital services. Both concepts are critical to ensuring the stable and secure functioning of the digital environment in today’s world.

Although digital governance and Internet governance are distinct fields, they are certainly related. The existence or success of many new technologies that are at the heart of the digital governance debate depend on the Internet. In turn, their development and needs should shape the evolution of the Internet. Thus, the Internet and digital governance are distinct, but they are not separate – they are consequential and one informs the other (Komaitis & Carter, 2023). Internet governance, on the other hand, “is the development and application by governments, the private sector, and civil society in their respective roles of shared principles, norms, rules, decision-making procedures, and programs that shape the evolution and use of the Internet.” This definition, developed by the Internet Governance Working Group, dates back to 2005 and remains unchanged. It aims to reflect the absolute requirement for engagement and participation as it relates to the management of protocols and standards that underpin the existence and future of the Internet. They have been developed historically and must remain the purview of a multi-stakeholder model driven by a combination of market dynamics, decentralized architectures and the need to adhere to the regulatory framework that has developed over the years of governing and governing the Internet (Komaitis & Carter, 2023).

Thus, the transformation that took place in the world, which formed the need for global digital governance, tentatively consisted of the following stages: the creation of the Internet; formation of the Internet management model; expanding the possibilities of the Internet in the public sphere; the stage of active digitalization of society; emergence of the need for global digital governance.

Global digital governance is growing in response to the dual process of globalization and digitalization. Serving the innovation and application of digital technologies, global digital governance requires global cooperation to achieve economic benefits and overcome the

challenges of digital transformation, covering issues such as the Internet, digital taxes, and cross-border data flow (Jia & Che, 2022). Scholars Daniel F. Runde and Sundar R. Ramanujam believe that global digital governance encompasses the norms, institutions, and standards that shape the regulation of the development and use of these technologies. Digital governance has long-term commercial and political implications. Naturally, there is an ongoing struggle between democratic and illiberal actors, each side seeking to share its vision of the digital economy (Runde & Ramanujam, 2021).

In general, global digital governance encompasses the conceptual principles, organizational, technical and institutional mechanisms that regulate the development and application of digital technologies at the international level. This governance is critical in ensuring security, stability and inclusiveness in the digital space, creating the conditions for the effective use of technology to achieve sustainable development. In particular, digital governance contributes to the achievement of the Sustainable Development Goals, such as inclusive and transparent decision-making.

It is important to understand that digital technologies are neither good nor bad in themselves, but their use always reflects broader political and economic interests. Thus, the regulation of digital technologies must take these interests into account, ensuring a balance between innovation and the protection of users' rights. Digitalization, along with its many advantages, also brings significant challenges. In particular, mass surveillance can lead to a loss of privacy, and the closing of civic space on the Internet limits freedom of speech and access to information. In addition, the transfer of governance from national institutions to large Internet corporations based abroad raises questions about accountability and control over user data.

Digital governance focuses on specific issues related to technologies and services that use Internet protocols. This includes artificial intelligence, cyber security and other innovations. At the same time, Internet governance refers to the management of the Internet infrastructure itself, the development and application of principles and norms that ensure its functioning. Both spheres are closely related and mutually influence each other, forming a single regulatory complex.

One of the key characteristics of global digital governance is the need for international cooperation, which requires the involvement of various stakeholders: governments, the private sector, civil society, and international organizations. Joint efforts are aimed at developing regulatory mechanisms that ensure economic benefits and overcome the challenges of digital transformation, including issues of digital taxes and cross-border data flows.

Effective global digital governance requires the development and implementation of strategies that take into account the rapid development of technology and changes in the digital environment, including the creation of a regulatory framework for cybersecurity, data protection, regulation of artificial intelligence and other innovative technologies. It is also important to ensure the inclusiveness and accessibility of digital technologies for all segments of the population, with a special emphasis on the protection of human rights in the digital environment.

The question of forming a model of global digital governance

Currently, technologies are developing by leaps and bounds. States are scrambling to catch up, diverse regulatory approaches are emerging and, as a result, calls for consistency and consistency. While the constant need for reliable, stable connections provided by the Internet is almost a simple infrastructure today, the new “digital technologies” in the headlines – from artificial intelligence to platform regulation – are not, and may require new ways of understanding

and managing them. Influence in other words, the necessity and reality of digital governance are evident, but the broad framework is not (Komaitis & Carter, 2023).

In digital governance, the issues are more recent, and deeply philosophical questions about where the rights and interests of users lie are being debated. Governments have always played a key role in defining the public interest in this, so it is not surprising that they are working with the familiar, state-based approaches of the UN to better address them. This does not mean, of course, that input from other stakeholders should not be sought, but ultimately states are legitimate agents when it comes to matters of public interest. Partly for this reason, the resolution of such issues is also often a regulatory task, at least in part, further pointing to the need for an important role for nation states (Komaitis & Carter, 2023).

While it is clear that governments and politicians cannot leave the digital space unsupervised or unmonitored, the question is how exactly the core functions of government should be performed – the provision of public services and infrastructure, the formulation and implementation of public policy, the maintenance of social order and security, governance social programs that promote economic growth, etc., will be implemented in both the physical and digital worlds. The answer lies partly in existing government digitization initiatives around the world, the experiences and lessons learned from them, and partly in research and reflection based on those experiences. However, since there is no universal model for informing government digitization efforts in different national, local, and sectoral contexts, progress can only be achieved by simultaneously conducting multidisciplinary research that is itself based on administrative, economic, engineering, legal, social, and other disciplines, policies and practices (Janowski, 2015).

Governments around the world are struggling to create a framework for technological innovation while establishing norms and ethics for digital governance. The US, China, and the EU are competing for technological leadership and seeking to protect their national interests in times of growing geostrategic competition in cyberspace (Global, 2024).

While digital governance regulations are mainly shaped at the national and (in some cases) sub-national levels, there are currently two visions of the future of digital technologies that may create two different models of digital governance. An authoritarian vision drives the first model. In particular, China is becoming the standard bearer of this model with its desire to “restore the Internet.” China seeks to uphold the concept of “cyber sovereignty” allowing countries to control Internet access, censor content and impose data localization requirements as a pretext to protect particular national interests. Politically and economically, spreading this model around the world (especially among developing countries) could lead to long-term stability and sustainability issues, undermining the free, open, and interoperable nature of the Internet that allows the digital economy to flourish. To achieve this result, China relied on multilateral processes and institutions such as the International Telecommunication Union. China’s autocratic government is taking advantage of its large domestic market to develop, test, and institutionalize digital tools that support its repressive regime. Using its bilateral prerogatives, China is also exporting some of this technology through the Digital Silk Road to undermine freedom and democratic values around the world. China has been particularly successful in offering its 5G communications technology as a low-cost model to several low- and lower-middle-income countries with a growing middle class (Runde & Ramanujam, 2021).

The second model is the European Union’s General Data Protection Regulation (GDPR), which provides a more democratic concept of digital governance. This model is primarily aimed at protecting the privacy and rights of Internet users and consumers of online content. Adopted with overwhelming support by the European Parliament in 2014, the GDPR came into effect

in May 2018, giving companies that rely on digital technology the ability to change their data use and privacy policies. The adoption of GDPR marked a turning point for global Internet governance, as consumers gained unprecedented control over their data in a way that preserves freedom and openness on the Internet. GDPR has also strengthened companies' cybersecurity efforts, protecting them from potential data breaches. Ultimately, the level of compliance required by GDPR has proven to be a powerful way for companies to increase consumer trust. However, critics argue that the GDPR may not be balanced in a way that encourages private sector innovation. In addition, this model (although applicable in Europe) may not be easily adopted in other parts of the world. This may be most true in developing countries, where countries struggle with issues of state capacity and law enforcement (Runde & Ramanujam, 2021).

That is, in the world today there are two sharply contrasting models of digital governance, which form different approaches to Internet management and data protection. On the one hand, the authoritarian model represented by China emphasizes cyber sovereignty and control that aims to secure national interests, even at the cost of limiting freedom and transparency on the Internet. On the other hand, the European Union's democratic model aims to protect users' rights and maintain an open Internet, while encouraging businesses to raise cybersecurity standards. These two approaches not only determine the policies of individual countries, but also have a significant impact on the global nature of the Internet, creating potential conflicts and challenges for the international community in regulating cross-border data flows.

Significant differences in approaches to digital governance create a foundation for tensions and challenges that require global efforts to harmonize domestic regulations with international standards, thus ensuring a balanced development of digital transformation. Yes, it can be noted that thanks to global Internet connectivity, digital data can easily be transferred across borders at almost zero cost. However, as countries have established different domestic data governance institutions, the cross-border flow of data has been limited between countries, leading to demands for global governance to balance domestic regulation and global development. In the history of global digital development, global cross-border data flow was not a critical issue until the explosion of the Snowden incident, which exposed the US government's data eavesdropping behaviour. Due to national security concerns, other countries have started to restrict or even block the cross-border flow of data, leading to an important global governance issue in recent years (Jia & Che, 2022).

In general, the formation of a model of global digital governance is characterized by several important trends that reflect the desire of states to ensure national security, technological leadership and economic growth, as well as meet the challenges that arise in connection with the rapid development of digital technologies.

The first trend is increasing attention to cyber security and protecting critical infrastructure. Growing reliance on digital technologies makes states vulnerable to cyber threats, so governments are increasingly focusing on developing national cyber security strategies. This includes measures to protect critical infrastructure, strengthen international cooperation in the fight against cybercrime, and implement cybersecurity standards in the public and private sectors.

The second trend reflects the differences between authoritarian and democratic models of digital governance. The authoritarian model, exemplified by China, aims to tightly control the Internet, censor content and localize data to protect national interests. At the same time, the democratic model, particularly represented by the European Union, emphasizes the protection of user privacy and their rights. These two models have a significant impact on the global digital landscape, creating potentially conflicting approaches to internet regulation.

The third trend is related to the need to develop flexible and adaptive regulatory frameworks that can be applied in different national and local contexts. As digital technologies change rapidly, governments must be able to respond quickly to new challenges and opportunities. This includes both the development of legislation and the implementation of effective administrative practices that allow maintaining a balance between innovation and regulation.

The fourth trend emphasizes the importance of international cooperation and multilateral initiatives in the field of digital governance. Given the global nature of the Internet and digital data, no country can effectively regulate cyberspace in isolation. Therefore, international organizations play a key role in the development of global standards and norms. In addition, cooperation between countries can facilitate the exchange of best practices and support global stability in the digital sphere.

The fifth trend concerns the development of multidisciplinary research and innovation that contributes to effective digital governance. Administrative, economic, engineering, legal and social sciences must work together to develop comprehensive solutions that take into account all aspects of the digital environment. This will ensure the sustainable development of the digital economy, taking into account both technological innovations and social and legal challenges.

Thus, the formation of a model of global digital governance requires the integration of many approaches and balancing between national interests and global challenges. Collaboration, flexibility, protection of user rights and innovation are the key ingredients that will determine the success of this process in the future.

Opportunities of global digital governance for space exploration

The basic principles of space activity were adopted 60 years ago. They are extremely important, but the least need to be reformatted, and ideally – the development and implementation of new principles and rules of behaviour in space. After all, collective security has always been considered and is considered in the territorial context and related to the inviolability of the sovereignty of countries. But the space is limitless and there is no place for the sovereignty of any country. Therefore, it is necessary to create space security using new approaches, but taking into account the mistakes of the past (Soroka, 2023).

Global digital governance creates numerous opportunities across various fields, including space law. The following main capabilities of global digital governance for space exploration can be formed:

1. Development of international coordination and cooperation. Global digital governance will enable the development and implementation of international standards and protocols for sharing data and space resources, which will facilitate cooperation between countries and organizations in space exploration. It will also be important to organize international cooperative space exploration missions, where the participation of various states and private companies can ensure more efficient use of space resources.

It should be noted separately that the newest dimension of international coordination and cooperation should be of a peaceful nature of space exploration, with the use of all resources equally for each of the partners. Space and space objects cannot become the property or property of one entity, mankind must peacefully and safely explore outer space, coordinate its own actions and develop this coordination for the benefit of mankind. In a global partnership, it is quite important to comprehensively use global digital governance for the development of global management of space research and the formation of a high-quality strategic relationship between

partners for the study and development of outer space. The latest dimension of global partnership should focus on involving the largest number of states, both progressive and developing, for the formation of international norm-setting for the study of outer space, the exchange of expert experience, the development of scientific platforms, and the guarantee of human safety during space exploration. At the same time, progressive countries should act as the main interested parties that should develop global partnership, help and encourage developing states (Levchenko et al., 2022).

2. Ensuring security and infrastructure protection. Global digital governance will enable the development and implementation of cyber security strategies to protect space infrastructure from cyber-attacks and unauthorized access.

Also, as an example, in the event of a violation of the conditions of demilitarization and denuclearization by an aggressor state, the international community should form a special methodology that should include effective and timely joint activities, various sanctions, and in some cases even temporary disconnection from the Internet. Active cooperation and effective diplomacy between various countries and international organizations is necessary for the successful implementation of control from space as a necessary tool for countering global aggression. Control from space in the conditions of demilitarization and denuclearization of the aggressor states should be created to avoid nuclear manipulations and provide real global security. Control from space will allow, first of all, to quickly take measures to counter aggression, contribute to the prevention of conflicts and simplify the diplomatic process of solving global crises, which in general will really protect the lives of thousands of people, preserve the integrity of nature and guarantee peace in the world (Levchenko, 2023).

3. Development of technological innovations. Global digital governance optimizes the use of artificial intelligence to automate and optimize space exploration processes, including data analysis and spacecraft management.

4. Expansion of economic opportunities and inclusiveness. Global digital governance will optimize the commercialization of space and access to space data and technology for developing countries, which will contribute to their economic growth and scientific progress.

5. Development of science and education in the field of space law. Global digital governance will bring together international and transnational scientific research to achieve new discoveries in space.

A direct factor in the dynamics of international relations is the active development of the space industry and scientific potential. The constant transformation of their social and extra-social environment leads both to the general improvement of globalization and integration processes, and to the aggravation of the problems of geo-ecopolitics (Danylenko et al., 2022).

Further development and implementation of global educational programs aimed at training new generations of specialists in space research and technology is important in this regard.

6. Guaranteeing environmental responsibility. Global digital governance will help ensure environmentally responsible use of outer space, including space debris management and protection of the space environment.

Modern international space law does not sufficiently regulate the relations that arise between subjects of space activities regarding the pollution of outer space and responsibility for such actions. In addition, modern trends in space activity, such as its commercialization, an increase in the number of participants in space activity also at the expense of non-state actors, lead to an increase in the number of space objects in Earth orbit, which are potential space debris (Danylenko et al., 2022).

Thus, global digital governance opens wide opportunities for space exploration, ensuring international cooperation, security, innovation and sustainable development. The integration of different approaches and the balance between national interests and global challenges will be a key success factor in this area.

Conclusions

The concept of global digital governance has not yet been formed in the world; however, the world vision of such governance is focused on ensuring security, stability and inclusiveness in the digital space. Global digital governance includes organizational, technical and institutional mechanisms that regulate the development and application of digital technologies at the international level.

The key trends in the formation of digital governance are:

- 1) cyber security and protection of critical infrastructure;
- 2) diversity of national models of digital governance;
- 3) the need to develop adaptive legislative and administrative practices for quick response to new challenges of the digital space;
- 4) development of international cooperation;
- 5) multi-disciplinarity of digital space research.

Global digital governance opens up many opportunities for various fields, including space law. The main possibilities of global digital governance for space exploration are: – development of international coordination and cooperation; – ensuring security and infrastructure protection; – development of technological innovations; – expansion of economic opportunities and inclusiveness; – development of science and education in the field of space law; – guaranteeing environmental responsibility.

References

- Brown, Megan (2020) Promoting 5G and future technology development by supporting global standards. *Wiley law*. Available online: <https://www.wiley.com/asset/htmldocuments/Tech-Standards.pdf>
- Cainey, Andrew (2021) The Dynamics and Direction of Global Digital Governance. *Global Issues Dialogue Centre*. Available online: https://www.jesus.cam.ac.uk/sites/default/files/inline-files/Dynamics%20and%20Direction%20of%20Global%20Digital%20Governance_0.pdf
- Danylenko, Anna, Maksym Sokiran, Serhii Batishchev, and Kateryna Slabko (2022) Space Debris: Legal Status and Liability Regime. *Advanced Space Law*, Volume 10: 4-13. <https://doi.org/10.29202/asl/10/1>
- Global Digital Governance (2024) *The Heinrich Böll Foundation*. Available online: <https://us.boell.org/en/global-digital-governance>
- Global digital governance: Geneva's perspectives and role. An expert-guided dialogue among diplomats (2024a) *DiploFoundation*. Available online: <https://www.diplomacy.edu/event/geneva-global-digital-governance/>
- International Standards Development Organizations Defined (2020) Available online: <https://onlinelibrary.wiley.com/doi/pdf/10.1002/9781119043492.oth>
- Janowski, Tomasz (2015) Digital government evolution: From transformation to contextualization. *Government Information Quarterly*. Volume 32. Issue 3: 221-236.

- <https://doi.org/10.1016/j.giq.2015.07.001>
- Jia, Kai and Shaowei Che (2022) Global digital governance: paradigm shift and an analytical framework. *Global Public Policy and Governance*. 2(5). DOI: 10.1007/s43508-022-00047-w
- Komaitis, Konstantinos, and Jordan Carter (2023) Internet Governance and Digital Governance: Are They the Same Thing? *Techpolicy.press*. Available online: <https://www.techpolicy.press/internet-governance-and-digital-governance-are-they-the-same-thing/>
- Levchenko, Diana (2023) Control from Space in Conditions of Demilitarization and Denuclearization of the Aggressor States. *Advanced Space Law*, Volume 12: 69-75. <https://doi.org/10.29202/asl/12/9>
- Levchenko, Diana, Volodymyr Neskorozenyi and Volodymyr Zakharov (2022) The Newest Dimension of Global Partnership as a Basis for Space Exploration. *Advanced Space Law*, Volume 10: 37-44. <https://doi.org/10.29202/asl/10/4>
- Roberts, Tony (2021) Key Issues in Digitalisation and Governance. *Swiss Agency for Development and Cooperation*. Available online: <https://www.shareweb.ch/site/DDLG/ Documents/SDC%20Digitalisation%20FINAL%2001VI21.pdf>
- Runde, Daniel F., and Sundar R. Ramanujam (2021) Global Digital Governance: Here's What You Need to Know. *Center for Strategic & International Studies*. Available online: <https://www.csis.org/analysis/global-digital-governance-heres-what-you-need-know>
- Soroka, Larysa (2023) Collective Security Crisis: Challenges to Space Law and Space Security. *Advanced Space Law*, Volume 12: 76-81. <https://doi.org/10.29202/asl/12/10>
- Sustainable Development Goals (2024) United Nations Development Programme. Available online: <https://www.undp.org/uk/ukraine/tsili-staloho-rozvytku>