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The Prospects for Creating Instruments for the Coordination of Activities of International Organizations in the Regulation of Artificial Intelligence

Valentina Petrovna Talimonchik

Abstract

The objective of the research is identifying the prospects for the development of instruments for coordinating the activities of international organizations on the regulation of artificial intelligence and elaborating proposals in relation to the mechanisms of cooperation of international organizations on the universal level on issues related to artificial intelligence. A complex of general scientific and philosophical methods, including the logical, comparative-legal, formal-legal, systemic-structural, problematic-theoretical methods, as well as methods of analysis and synthesis were used in the research. In the research it was found that Action Lines of the World Summit on the Information Society are working on issues that are discussed at the AI for Good Global Summit. The activities of the World Summit on the Information Society such as ICT regulation are more general in nature while those of the AI for Good Global Summit are more special. The problem of “international institutional competition” of the two discussion platforms can be resolved by ITU’s efforts to coordinate the two discussion platforms and by supplementing the competence of UNGIS with issues of artificial intelligence. The findings can be used in activities of international organizations in execution of their functions of unification and harmonization of the international information law.

Keywords: international law, international organizations, artificial intelligence, information and communication systems, international institutional competition

1. Introduction

The theory of the information society was initially developed by researchers in social studies, and in the 21st century, its practical implementation began in the activities of international organizations.

There is currently no common opinion in the doctrine on the moment when the theory of the information society appeared. A. Matterlart [1] noted early origins of the theory of the information society. He began exploring theories of the information society from Leibniz (1646–1716) who was the first to arrange the set of numbers and gave it a strict hierarchy. Leibniz is also the author of the idea of a

universal mathematical language, the so-called binary system, which was later used in cybernetics.

Christopher May began exploring the concept of the information society with the work of Fritz Machlup “The Production and Distribution of Knowledge in the United States”, which was published in 1962 [2].

Without denying the achievements of thinkers of the 17th – 19th centuries, one should note that the first studies of the information society date back to the 1960s (Y. Hayashi, F. Machlup, and T. Umesao) [3].

One can use the following periodization of the development of the information society concept as proposed by C. May:

1. from 1962 to the mid-1970s, the analysis of the concept was focused solely on the USA;
2. from the second half of the 1970s to the early 1990s, information and communication technologies (ICT) began to develop intensively in rich and developed countries, and the scope for analysis expanded;
3. at present, analysis is focused on the potential and capabilities of the Internet and leads to widespread interest in the global information society [2].

At present, the theory of the information society has been reflected in a number of international documents. In particular, such documents include the Okinawa Charter on Global Information Society of July 22, 2000, the Declaration of Principles “Building the Information Society: a Global Challenge in the New Millennium”, and the Plan of Action of the World Summit on the Information Society of December 12, 2003.

The problem of systematization of ideas about the information society is complicated by the fact that researchers often made assumptions of an ideal information society and social predictions, the reliability of which is too early to discuss.

In order to demonstrate the diversity of theories of the information society, let us use the classification by F. Webster [4]. He distinguished five groups of theories of the information society, namely, technological, economic, occupational, spatial, and cultural.

The diversity of theories of the information society is explained by the fact that there are many factors and phenomena interacting in the information society.

In our opinion, contemporary relations in the creation, distribution, receipt, and other acts for the circulation, storage, and destruction of information are characterized by the transformation of the object of such relations. Information and communication systems have appeared that include artificial intelligence, Big Data, neural networks, and distributed ledgers. It is hard to predict what information and communication systems will appear in the future.

Earlier, in the Plan of Action of the World Summit on the Information Society it was stated that the information society is an evolving structure that has reached different levels across the world, reflecting the different stages of development. At the present stage of development of the information society, one can speak of the widespread use of qualitatively new and in many respects ‘revolutionary’ information and communication technologies, the main of which is artificial intelligence.

The transformation of the object of information relations should lead to a review of the concept of the information society. Along with the review of the concept of the information society, there is the development of flexible instruments of the unification with the purpose of regulation of information and communication systems. While formerly drafts of international acts were developed by expert

groups and adopted by resolutions of international organizations, nowadays the international organizations develop broad public discussion before establishing any expert groups.

The International Telecommunication Union (ITU), under whose auspices the World Summit on the Information Society was previously held, is already redefining the concept of the information society. As the specialized UN agency for information and communications technologies, ITU brings together stakeholders from governments, industries, academic organizations, and civil society groups from around the world, having since 2017 launched a new initiative named the Artificial Intelligence (AI) for Good Global Summit.

The activities of particular international organizations in the regulation of ICT use were discussed in fundamental research of information technology law by D.I. Bainbridge [5], D. Campbell and C. Ban [6], D. Rowland and E. Macdonald [7], I.J. Lloyd [8], A. Murray [9], D. Rowland, U. Kohl, A. Charlesworth [10], B. Craig [11], A. Schwabach [12], S.K. Black [13], T.J. Shaw [14], J. Kulesza [15].

David I. Bainbridge examined matters of e-commerce in view of EU and UNCITRAL acts, intellectual property and personal data protection in EU, and the application of the 1950 European Convention for the Protection of Human Rights and Fundamental Freedoms [5]. The EU and UNCITRAL acts were also considered in the research by Diane Rowland and Elizabeth Macdonald [7].

In 2008, Ian J. Lloyd examined initiatives in data protection that were considered by the Council of Europe, the Organization for Economic Cooperation and Development, the UN, and states of the Pacific region, as well as issues of information security in accordance with the Council of Europe Convention on Cybercrime and OECD and EU acts, and the regulation of intellectual property in accordance with treaties administered by WIPO [8]. The Council of Europe Convention on Cybercrime and EU acts were also analyzed in the research by Andrew Murray [9], Diane Rowland, Uta Kohl, and Andrew Charlesworth [10]. Issues of international protection of intellectual property in relation to the Internet were considered in the research by Brian Craig [11], Aaron Schwabach [12].

The regulation of the telecommunication market within WTO and EU acts were examined by Sharon K. Black [13].

In a fundamental study edited by Dennis Campbell and Chrysta Ban, there is an analysis of the 1886 Berne Convention for the Protection of Literary and Artistic Works, the 1996 WIPO Copyright Treaty, TRIPS, and EU acts relating to personal data protection, data on activities related to the Internet regulation at UNCITRAL, ASEAN, APEC, ICANN, WIPO, and The Hague Conference on Private International Law, and discussion of the activities of the World Summit on the Information Society [6].

In general, it should be noted that the abovementioned studies on IT law belong to the field of comparative jurisprudence and only involve international law aspects to the extent necessary for the purpose of the study.

Matters of international law are discussed in greater detail in the works of Thomas J. Shaw [14], Joanna Kulesza [15]. However, they do not take account of the special features of the functioning of information and communication systems that include artificial intelligence, Big Data, neural networks, and distributed ledgers.

At the same time, international organizations that formerly regulated ICT have just started working on the regulation of information and communication systems, the international documents in this field are scarce, and, therefore, more profound research of the mechanisms of activities of international organizations and drafts of their acts is required.

The author has proposed a concept of international legal regulation of information and communication systems, and this paper develops one of its aspects,

namely, the activities of international organizations in the regulation of artificial intelligence.

The personal contribution of the author to the study of the problem of the international legal regulation of information and communication systems made by this chapter is that the author noted radical changes in the global information society associated with the emergence and development of information and communication systems, analyzed current initiatives of international organizations in the field of the international legal regulation of the artificial intelligence and identified prospects in this area, and proposed a new mechanism for coordinating of activities of international organizations to regulate the artificial intelligence, based on the existing mechanism for coordinating of activities of international organizations on the creation of the global information society with the application of “traditional” information and communication technologies.

2. Concept headings

2.1 The activities of international organizations at the universal level in the regulation of artificial intelligence

The objective of the research is identifying the prospects for the development of instruments for coordinating the activities of international organizations on the regulation of artificial intelligence and developing proposals in relation to the mechanisms of cooperation of international organizations on the universal level on issues related to artificial intelligence. In order to achieve the objective of the research, it is first of all necessary to analyze the activities of international organizations with regard to the regulation of artificial intelligence and draft acts of international organizations that they develop.

In the legal doctrine, the first publications on the use of artificial intelligence in law enforcement and the legal profession appeared in the 1980s [16, 17].

At present, there are hundreds of publications on legal matters relating to artificial intelligence, and there is discussion on issues of legal personality and liability relating to problems of the theory of law as well as branch sciences of domestic law, and the application of artificial intelligence in judicial and other legal activities.

The contribution of experts in international law to the problems under consideration is not as significant. Thomas Burri analyzed the problems that arise for international law in relation to the use of artificial intelligence for peaceful and military purposes [18]. John Weaver examined the status of artificial intelligence in international law [19].

There are particular studies aiming to understand the impact of artificial intelligence on the global world order [20, 21].

There are publications on specific problems of international law including human rights in binary economics [22] and problems of international humanitarian law [23].

In the framework of this research, it is necessary to answer the question of what institutional and treaty mechanisms would be effective for cooperation between international organizations for the regulation of artificial intelligence.

The statutes of a number of international organizations entitle them to deal with issues of scientific and technological cooperation and development, which includes the regulation of artificial intelligence.

The Charter of the United Nations of June 26, 1945, stipulates that the purpose of the United Nations is to achieve international co-operation in solving international problems of an economic, social, cultural, or humanitarian character, and

in promoting and encouraging respect for human rights and for fundamental freedoms for all without distinction as to race, sex, language, or religion. Basically, the United Nations is the center of cooperation in any issues affecting the international legal order. The UN deals with issues of information and communication technologies in the aspect of its program document, namely, the UN Millennium Declaration, which was adopted by UN General Assembly Resolution 55/2 of September 8, 2000. To that end, on July 12, 2018, the UN Secretary-General established an advisory and expert subsidiary body, namely, the High-level Panel on Digital Cooperation. In its report entitled “The Age of Digital Interdependence”, the High-level Panel on Digital Cooperation explored digital technologies as such without distinguishing artificial intelligence.

According to the Constitution of the ITU, its purpose is to promote the extension of the benefits of the new telecommunication technologies to all the world's inhabitants. As the specialized UN agency for information and communications technologies, ITU brings together stakeholders from governments, industries, academic organizations, and civil society groups from around the world, having since 2017 launched a new initiative named the Artificial Intelligence (AI) for Good Global Summit. The 2019 Summit brought together more than 30 UN agencies and other global stakeholders to identify strategies to ensure that AI technologies develop in a reliable, secure, and inclusive way with fair access to their benefits. The Summit presented 30 innovative proposals for the AI for Good Global project to expand and improve healthcare, to improve monitoring of agriculture and biodiversity using satellite images, and to develop smart cities and trust in artificial intelligence. At the 2019 Artificial Intelligence (AI) for Good Global Summit, a call was made for more attention to standardization in healthcare, which led to the establishment of the Focus Group on “Artificial Intelligence for health” (FG-AI4H), which intends, among other things, to establish a standardized assessment framework for the evaluation of AI-based methods for healthcare applications.

ITU maintains an AI data storage center where anyone working with artificial intelligence may submit important information on how AI can be used for the benefit of humanity. It is the only global data center that identifies AI-related projects, research initiatives, research centers and organizations that commit to accelerate progress towards the 17 Sustainable Development Goals of United Nations.

The ITU Focus Group on Machine Learning for Future Networks including 5G is investigating where technical standardization could support emerging applications of machine learning in fields such as big data analytics and security and data protection in the upcoming 5G era.

The ITU holds regular meetings of the heads of ICT regulatory authorities from various countries of the world to exchange views and information on AI and other relevant issues of regulation, solving management problems, and strengthening cooperation for the use of AI for the good of mankind.

Therefore, the ITU uses only institutional instruments for the regulation of artificial intelligence including international conferences such as the AI for Good Global Summit as well as the establishment of international bodies (Focus Groups).

According to the UNESCO Constitution of November 16, 1945, the purpose of the Organization is to contribute to peace and security by promoting collaboration among the nations through education, science and culture in order to further universal respect for justice, for the rule of law and for the human rights and fundamental freedoms which are affirmed for the peoples of the world, without distinction of race, sex, language or religion, by the Charter of the United Nations. UNESCO is a specialized agency of the United Nations. UNESCO has embarked on a two-year process to elaborate the first global standard-setting instrument on the ethics of artificial intelligence following the decision of UNESCO's General

Conference at its 40th session in November 2019. Towards the end of 2020 and in 2021, the focus will be on an intergovernmental process and on negotiation on the draft text to produce a final version of the Recommendation for possible adoption by UNESCO's General Conference at its 41st session at the end of 2021. UNESCO is currently using the Preliminary Study on the Ethics of Artificial Intelligence prepared by UNESCO experts. The Preliminary Study includes such issues as (1) education including the social role of education, the AI in teaching and learning, training AI engineers; (2) artificial intelligence and scientific knowledge including artificial intelligence and scientific learning, artificial intelligence and sciences on life and health, artificial intelligence and science on the environment, AI and social science, decision-making on the basis of artificial intelligence; (3) culture and cultural diversity including creativity, cultural diversity, and language; (4) communication and information including misinformation, data journalism, and automated journalism; (5) AI in international order and security; (6) AI and gender equality; (7) Africa and issues of artificial intelligence. The Preliminary Study proposes legal forms of a global act on the ethical aspects of artificial intelligence, such as a UNESCO declaration or recommendation, which does not impose international legal obligations on states but become binding only if the state consents to be bound by the international treaty or an international custom is established.

The Preliminary Study is currently a detailed analytical document that expresses the opinion of the international expert community on important issues of the regulation of artificial intelligence, which can become a basis for an international act. This document proposes solutions to the international community on the issues in the competence of UNESCO as well as on issues that are of interest for the entire mankind, which a number of international organizations are dealing with.

Issues that are significant for the entire mankind are issues of peace and international security. In these matters, artificial intelligence plays both a positive and a negative role. On the one hand, artificial intelligence with its ability to analyze large data arrays could become a powerful tool for preventing and resolving conflicts. A learning 'proactive intelligence' could anticipate the development of social unrest and social instability and suggest ways to prevent them. States could detect social pathologies at an early stage, find out what actions can de-escalate threatening situations, and find ways to combat threats for the national and international security. AI can lead mankind to a more sustainable society and help it move towards a peaceful and conflict-free world.

On the other hand, AI transforms the nature and practice of conflict, and its impact on the society goes far beyond purely military matters. AI promises to significantly improve the speed and accuracy of everything from military logistics, intelligence and situational awareness to the planning and execution of operations on the battlefield. The very system of AI can be used to develop its own suggestions on the action that should be taken; it can create a set of orders using the enemy's weakness, which it will identify based on its own analysis, or find patterns in the enemy's acts and develop countermeasures against predicted aggression.

The resolution of matters of peace and international security does not depend on UNESCO alone. The UN and regional collective security organizations play a key role in these issues.

Another issue that affects the interests of the entire mankind is gender equality. Artificial intelligence systems have significant consequences for gender equality, because they can reflect existing social biases and potentially exacerbate them. Most artificial intelligence systems use sets of data that reflect the real world, which can be misleading, unfair and discriminatory. A recruitment tool used by Amazon has been recognized as sexist because it gave priority to male candidates for technical

jobs. Matters of gender equality are dealt with by the UN, its specialized agencies (UNESCO, ILO), and international judicial institutions for human rights.

Not only UNESCO but above all the UN has always paid attention to problems of developing countries including African states. Like other developing regions, Africa is facing the need to expand the use of information technologies and artificial intelligence. From the point of view of infrastructural relations, Africa has a great deficit and falls short of other developing regions significantly; domestic communications, regional communications, and limited access to electricity are significant problems. Infrastructure services are expensive even though more and more Africans (even in urban slums) have mobile phones. The common problems of developing countries include underdeveloped infrastructure, inadequate skills, knowledge gaps, and insufficient availability of local data.

Therefore, UNESCO is dealing with issues that could be resolved more efficiently in the framework of the United Nations and the entire UN system including its specialized agencies.

The World Intellectual Property Organization (WIPO) has achieved significant progress in the regulation of artificial intelligence. According to article 3 of the Convention Establishing the World Intellectual Property Organization of July 14, 1967, the object of the organization is to promote the protection of intellectual property throughout the world through cooperation among States and, where appropriate, in collaboration with any other international organization. In September 2019, WIPO held the first session of the Conversation on IP and AI. Governments, corporations, academic organizations and civil society groups may participate in the Conversation. On December 13, 2019, the WIPO published a draft concept document designed to provide a framework for developing a common understanding of the key issues to be discussed and addressed in the context of AI and IP policy. On July 9, 2020, the revised concept document was published, which has the status of a draft concept of an international act. The discussion resulted in the development of a second version of the concept of an international legal act, which will regulate such issues as (1) patents including authorship and ownership of inventions, patentability of objects, and guidelines for determining patentability, inventive step and non-obviousness, disclosure of information about the invention, general policy considerations regarding the patent system; (2) copyright and related rights, including authorship and ownership, violations and exceptions, digital fabrication, general issues of a political nature; (3) additional rights regarding data; (4) authorship and ownership of samples; (5) trademarks; (6) trade secrets; (7) capacity building.

2.2 The activities of regional international organizations in the regulation of artificial intelligence

Issues of artificial intelligence are also dealt with by regional international organizations.

In the EU framework, the Communication from the Commission to the European parliament, the European council, the Council, the European economic and social committee and the Committee of the regions “Artificial Intelligence for Europe” of April 25, 2018, has been adopted. The document covers three important aspects of AI development in Europe. Firstly, Europe should become the leader in technology developments and their implementation in the public and process sectors. The EU Commission increases its annual investments in AI by 70% in the framework of the Horizon 2020 research and innovation program. In 2018–2020, it will reach 1.5 billion Euro. The objectives of the investments are (1) support of

AI research centers throughout Europe; (2) support of the development of the “AI-on-demand platform”, which will provide access to relevant AI resources in the EU for all users; (3) support of the development of AI applications in key sectors of the economy.

Secondly, there are also preparations in process in Europe for the socio-economic changes caused by AI. To support the efforts of Member States responsible for the labor and education policy, the Commission: (1) supports business and education partnerships to attract and retain more talents in the field of artificial intelligence in Europe; (2) develops specialized training and retraining programs for specialists; (3) monitors changes on the labor market and qualification mismatches; (4) supports digital skills and competencies in the field of science, technology, engineering, mathematics (STEM), entrepreneurship, and creativity; (5) encourages Member States to modernize their systems of education and professional training. This area of EU activities affects the competence of the ILO and UNESCO. In its activities, the EU Commission could use the experience of UNESCO.

Thirdly, the EU pays attention to the ethical and legal framework for artificial intelligence. On February 19, 2020, the European Commission published the White Paper for the development of the European ecosystem of best practices and trust for AI, and a report on the aspects of security and responsibility of AI. The White Paper proposes (1) measures that will allow to organize research, to strengthen cooperation between Member States, and to increase investments in the development and implementation of artificial intelligence; (2) policy options for the future EU regulatory framework, which will define the types of legal requirements that will apply to the respective entities.

After publication, the White Paper is open for public consultation. All European citizens, Member States, and relevant stakeholders (including the civil society, industry, and academic organizations) have been invited to take part in the consultations by responding to an online survey and presenting their position papers on the subject.

Matters of artificial intelligence in the EU are a responsibility of a special expert group, namely, the High-Level Group on Artificial Intelligence (AI HLEG). The first Draft Ethics guidelines for trustworthy AI were presented by the expert group in December 2018. After further discussion and in the light of consultations with the stakeholders and meetings with representatives of the Member States, the guidelines were revised and published in April 2019. At the same time, AI HLEG prepared a revised document, which sets out in detail the definition of artificial intelligence, which is used for the purposes of its results. At present, the interim results of the expert group’s work are the final Ethics Guidelines for Trustworthy Artificial Intelligence prepared by the High-Level Group on Artificial Intelligence and published on 8 April 2019: the Report on liability for Artificial Intelligence and other emerging technologies prepared by the Expert Group on Liability and New Technologies – New Technologies Formation and published on 21 November 2019.

The EU Commission also released the Communication on Building Trust in Human-Centric Artificial Intelligence of April 8, 2019 (COM(2019)168 final). Guaranteeing that European values are the basis of the development and use of AI, the Commission highlighted the key issues, namely, (1) human agency and oversight; (2) technical robustness and safety; (3) privacy and data governance; (4) transparency; (5) diversity, non-discrimination and fairness; (6) societal and environmental well-being; (7) accountability.

The Declaration of Cooperation on Artificial Intelligence, signed by 25 European countries on 10 April 2018 builds further on the achievements and investments of the European research and business community in AI and sets out the basis for the Coordinated Plan on AI.

The experience of the EU is a benchmark for other integration associations. For example, in the framework of the Caribbean Community (CARICOM) there is a subgroup on science and technology. The organization has proposed the STEM (science, technology, engineering, mathematics) concept. CARICOM is also implementing the concept of a single ICT space. An intersectoral and very complex entity, the single ICT space is the digital layer of the CARICOM Single Market and Economy (CSME). The single ICT space will make it possible to harmonize legislation, abolish roaming fees, stimulate digital entrepreneurship, provide all citizens with digital personalities, and consider financial solutions in ICT. In February 2017, the leaders of CARICOM countries approved the roadmap of the single ICT space.

In general, it should be noted that international organizations have not yet adopted any resolutions in respect of artificial intelligence, which are provided by their constitutions. The work of international organizations has the format of discussing draft documents and setting up international expert groups.

3. Results

3.1 Problems of the regulation of artificial intelligence that need to be resolved at the international level

There are two problems that can only be solved by joint efforts of international organizations as a result of coordination of their activities, namely, (1) the development of a unified concept of artificial intelligence in international law; (2) the development of unified international legal approaches to liability for acts committed with the use of artificial intelligence. The most effective instrument for solving these problems would be an international treaty containing the principles of use of artificial intelligence for the good of mankind as well as the rules of civil, administrative, and criminal liability for acts involving the use of artificial intelligence. However, discussion of these matters in the framework of international organizations has just started, and no work groups for the preparation of draft international treaties have been created, which is due to the complicity of legal problems related to artificial intelligence.

Artificial intelligence is quite a difficult concept to unify. WIPO's Revised Issues Paper on Intellectual Property Policy and Artificial Intelligence contains the following definition of artificial intelligence, "“Artificial intelligence (AI)” is a discipline of computer science that is aimed at developing machines and systems that can carry out tasks considered to require human intelligence, with limited or no human intervention. For the purposes of this paper, AI generally equates to “narrow AI” which is techniques and applications programmed to perform individual tasks. Machine learning and deep learning are two subsets of AI. While the AI field is rapidly evolving it is not clear when the science will advance to higher levels of general artificial intelligence which is no longer designed to solve specific problems but to operate across a wide field of contexts and tasks.” Therefore, one definition comprises two different concepts, namely, “a discipline of computer science” and “techniques and applications programmed to perform individual tasks”. However, such an imperfect definition was provided for discussion only and not for inclusion in the glossary as a part of an international legal act. At the same time, the WIPO Revised Issues Paper did not raise the key issue for defining artificial intelligence as an object of international legal regulation, which is whether artificial intelligence will be considered equivalent to ‘ordinary’ software.

The object that is protected at the universal level that is closest to artificial intelligence is computer programs.

Legal protection of computer programs arose before the advent of electronic communication technologies and developed in stages from patent to copyright.

Patent protection of computer programs has been used since the 1960s in the USA. At first, the Patent and Trademark Office refused to patent computers programs, regarding them as mental objects. But in 1968, the Court of Customs and Patent Appeals, in several judgments, concluded about the patentability of algorithms, computers, and coding methods.

In the 21st century, the US courts of the United States have a similar attitude as they are faced with a qualitatively new technical object. This conclusion is confirmed by the practice of national courts in the recognition of the patentability of artificial intelligence, which was summarized by Mizuki Hashiguchi [24].

In the USA, the *McRO, Inc. v. Bandai Namco Games America Inc.* case is an example of the recognition of patentability of a method for automatically animating lip synchronization and facial expressions of animated characters in computer graphics. Federal court ruled that this method was patentable because it did not lead to an abstract idea. The court considered the specifics of the automatic method, which covered individual operations with specific characteristics. The method, which includes individual operations, is intended to translate information into a specific format that is used to create characters. The features of the industrial applicability of this invention were also considered. Firstly, it is not just the methodology as such that is applied. Secondly, the invention cannot be used without a computer technology. Overall, the court concluded that processes which automate human tasks are patentable.

US courts are primarily guided by the criterion of usefulness of inventions with elements of artificial intelligence.

Considering the experience of legal protection of computer programs, it is unlikely that the idea of patentability of inventions with elements of artificial intelligence will be supported at the universal level.

A copyright regime for computer programs has been established at the universal level. The WIPO Copyright Treaty of December 20, 1996, states that computer programs and databases are copyright protected. Moreover, Article 1 of the Treaty stipulates that this Treaty is a special agreement within the meaning of Article 20 of the Berne Convention for the Protection of Literary and Artistic Works. Article 4 of the Treaty stipulates that computer programs are protected as literary works within the meaning of Article 2 of the Berne Convention.

The specificity of computer programs is taken into account in Article 11 of TRIPS. In respect of at least computer programs, a Member shall provide authors and their successors in title the right to authorize or to prohibit the commercial rental to the public of originals or copies of their copyright works. In respect of computer programs, this obligation does not apply to rentals where the program itself is not the essential object of the rental.

It is obvious that artificial intelligence cannot be considered an equivalent of a 'simple' computer program in the meaning of the abovementioned international legal acts. TRIPS stipulates that computer programs, whether in source or object code, shall be protected. Thus, TRIPS has demonstrated the structure of a computer program, which is the source text and the object code. At the same time, WIPO's Revised Issues Paper on Intellectual Property Policy and Artificial Intelligence states that the machine learning and deep learning are two subsets of AI. Artificial intelligence has a different structure as compared to 'ordinary' software.

According to Directive 2009/24/EC of the European Parliament and the Council of the European Union on the legal protection of computer programs (codified

version) of April 23, 2009, the object of legal protection is the program as such and the preparatory work leading to the development of the program. This rule differs significantly from the rule in the WIPO Model Provisions on the Protection of Computer Software. Under the Model Provisions, protection applied not just to the abovementioned objects but also program use manuals, which are not objects of protection in Europe. These international documents do not disclose the concept of a 'program', but in their interpretation one should consider the historical period when those documents were developed and adopted. Their 'modernized' interpretation as applied to artificial intelligence is hardly admissible.

It should be noted that artificial intelligence is a more complex object in its structure than 'ordinary' software. It is an information and communication system that can synthesize creative activities in the literary, artistic, and industrial fields.

It should be noted that the "information system" category in its traditional understanding has been established in scientific literature as a database controlled by algorithmic computer programs [25–27]. With the emergence of logic programming, a need to rethink the "information system" category has arisen. We use the term "information and communication system" that means an information object with complex structure that has unity and multifunctionality and, at this stage of scientific and technical development, relative autonomy from the operator of such a system.

UNESCO experts have explored issues of responsibility of artificial intelligence and came to a number of important conclusions. Firstly, noting the broad scope of AI use (transport, medicine, communication, education, science, finance, law, military, marketing, customer services or entertainment), the UNESCO experts noted numerous concerns ranging from the disappearance of traditional jobs, over responsibility for possible physical or psychological harm to human beings, to general dehumanization of human relationships and society at large.

Secondly, a solution was proposed for the problem of liability for possible physical or mental damage to humans. "The development of future technologies is in the hands of technical experts. Traditionally, engineers are educated to develop products to optimize performance using minimum resources (power, spectrum, space, weight etc.), under given external constraints. Over the past decades, the ethics of technology has developed various methods to bring ethical reflection, responsibility and reasoning to the design process. In the context of AI, the term 'ethically aligned design' (EAD) has been developed to indicate design processes that explicitly include human values."

Finally, the UNESCO experts proposed wordings for the principles of AI use, in particular:

1. Human rights: AI should be developed and implemented in accordance with international human rights standards.
2. Inclusiveness: AI should be inclusive, aiming to avoid bias and allowing for diversity and avoiding a new digital divide.
3. Flourishing: AI should be developed to enhance the quality of life.
4. Autonomy: AI should respect human autonomy by requiring human control at all times.
5. Responsibility: Developers and companies should take into consideration ethics when developing autonomous intelligent system.

6. Accountability: Arrangements should be developed that will make possible to attribute accountability for AI-driven decisions and the behaviour of AI systems.
7. Good governance: Governments should provide regular reports about their use of AI in policing, intelligence, and security.

Consequently, the new UNESCO act will assign the liability for actions of artificial intelligence to developers and companies which develop autonomous intelligent systems. States will be imposed an implementation obligation to provide regular reports about their use of AI in policing, intelligence, and security.

The matter of liability for actions related to artificial intelligence has been elaborated thoroughly by the EU experts in the Report on liability for Artificial Intelligence and other emerging technologies prepared by the Expert Group on Liability and New Technologies – New Technologies Formation and published on 21 November 2019. The reports of the EU experts gives a clear definition of the prospects (challenges of emerging digital technologies for liability law, operator's strict liability, producer's strict liability, fault liability and duties of care, vicarious liability for autonomous systems) and mechanisms of implementation of liability for actions related to artificial intelligence (logging by design, safety rules, redress between multiple tortfeasors, insurance, compensation funds). However, the progressive experience of the EU has not found support on a universal level.

At the same time, in the EU document attention should be paid attention to the multiplicity of persons in charge, which is due to the adaptation of traditional institutions of contractual and tort liability to the conditions of AI use. In our opinion, this problem cannot be solved without the introduction of a legal fiction, namely, a single subject responsible for the actions of artificial intelligence. We prefer the approach of UNESCO, which establishes the liability of developers and companies which develop autonomous intelligent systems for any acts committed with the use of artificial intelligence.

3.2 Proposals on the development of a universal mechanism for the coordination of activities of international organizations in the regulation of artificial intelligence

Given the complexity of the problems faced by mankind, there is the question of whether the existing mechanisms for the coordination of activities of international organizations on the development of a legal framework for the global information society can play the same role in respect of the regulation of artificial intelligence?

In the international institutional system in the field of information, there exist established system relations. Various institutional entities are trying to coordinate their efforts in the development of a global information society. At the level of an institutional mechanism of cooperation, the concept of a global information society has been supported. The World Summit on the Information Society has taken place largely thanks to the initiative of the ITU. Back in 1998, the International Telecommunication Union instructed its Secretary-General to include the issue of holding the World Summit on the Information Society in the agenda of the UN Administrative Committee on Coordination and to report to the ITU Council about the results of this consultation. In his 1999 report to the Council, the ITU Secretary-General noted that the Administrative Committee reacted positively to the idea of such a forum and that most other organizations expressed interest in preparing and participating in it.

At the World Summit on the Information Society, a Plan of Action was developed, and the task of building the information society has moved into the practical field.

The ideas of the World Summit on the Information Society have been supported by many international organizations, both intergovernmental (UN, OAS, OAU, and others) and non-governmental. International organizations are developing the concept of a global information society paying particular attention to certain issues of the application of new technologies including information security, computer crime, privacy, etc.

In particular, a special body was established within the UN, namely, the UN Group on the Information Society (UNGIS). UNGIS was established in April 2006 by the UN Chief Executive Board for Coordination (CEB). The main objective of UNGIS is to coordinate substantive policy issues facing the United Nations system's implementation of the measures adopted by the World Summit on the Information Society. Members of UNGIS are not only organizations of the UN system but also several regional organizations such as OECD. UNGIS: (1) contributes towards the implementation the Geneva Plan of Action and Tunis Agenda for the Information Society, primarily at the international level, by mainstreaming them into the activities and programs of CEB members; (2) facilitates synergies between organizations belonging to the UN system in order to maximize joint efforts, avoid duplication and enhance effectiveness in achieving the WSIS outcomes; (3) promotes public awareness about how the UN system is implementing WSIS. As part of its activities, UNGIS prepares information for CEB on relevant issues of building the information society (e.g., cybersecurity) and helps CEB in identifying key issues related to UN activities in the field of ICT use.

In order to assess the efficiency of the World Summit on the Information Society and UNGIS with regard to the regulation of artificial intelligence, one should address the relevant issues of their activities.

At present, the World Summit is acting via 11 international bodies for different areas of the development of the information society. One can note a trend of its gradual transformation into an international organization, as it did not stop its activities after the Tunis meeting. Further, the World Summit is a platform for cooperation between the UN, UNESCO, ITU, and other international organizations, which has the function of coordinating cooperation of international organizations in the development of the information society. At the WSIS 2018 forum in the Outcome Document, attention was paid to the work of such groups as WSIS Action Line C7: ICT applications: benefits in all aspects of life (Multi-Hazard Early Warning Systems and the Role of ICT; Digital Health - Status and Roadmap & WHO eHealth activities); WSIS Action Line C4: Capacity Building (Building ICT Skills for Social Entrepreneurs); WSIS Action Line C6: Enabling Environment (Sharing Collaborative Regulatory Approaches for Digital Transformation); WSIS Action Line C5: Building Confidence and Security in the use of ICTs (Blockchain as an Enabler of Security and Trust); WSIS Action Line C9: Media (Strengthening the role of media and social media in relation to the SDGs); WSIS Action Lines C1 (The role of governments and all stakeholders in the promotion of ICTs for development), C11 (International and regional cooperation).

It should be noted that the issues of the World Summit on the Information Society in relation to ICT 'overlap' with issues that are discussed at the AI for Good Global Summit and in the framework of UNESCO in relation to artificial intelligence. However, the World Summit on the Information Society has not included artificial intelligence in its agenda.

UNGIS Technical Meeting on 11 July 2019 discussed the issue of rebranding the group to include “digital transformation” in the name, it was agreed that a tag line of “UNGIS for Digital Transformation” will be added to the UNGIS activities and website. Therefore, the key issue of UNGIS activities is digital transformation.

Assessing the allocation of the regulation of artificial intelligence in a separate area of international cooperation in connection with the AI for Good Global Summit, we have a positive opinion about the development of a new discussion platform for discussing issues of artificial intelligence. However, WSIS Action Line C6: Enabling Environment could develop common approaches to the legal regulation of information and communication systems as such and not just artificial intelligence.

Issues of regulation of information and communication systems could be discussed at the annual forums of the World Summit on the Information Society as a result of the activities of such work groups as Access to information and knowledge (C3), E-learning (C7), E-science (C7), Cultural diversity and identity, linguistic diversity and local content (C8), Ethical dimensions of the Information Society (C10), in which UNESCO participates with its significant achievements in the field of artificial intelligence.

At present, the World Summit on the Information Society could begin developing a new Plan of Action taking into account the functioning and development of the information and communication systems (currently, the 2003 Plan of Action is being implemented). The result of the new Plan of Action would be the establishment of new work groups (with preservation of some of the existing and efficient ones) and the change in the competence of UNGIS to include issues of regulation of information and communication systems.

4. Discussion

4.1 The concept of “international institutional competition”

The identified phenomenon of the ‘overlapping’ of the competence of international organizations and international institutions that coordinate their activity requires theoretical analysis.

In the doctrine of international law, we can find an explanation of this phenomenon in the work by Ruth Okediji “WIPO-WTO Relations and the Future of Global Intellectual Property Norms” [28] in relation to competition between the WTO and WIPO. For the analysis of competition between the WTO and WIPO, the special term “forum proliferation” is proposed, which is used in this context to characterize the situation arising with the proliferation of international organizations with intercrossing scopes of activities and the possibility to choose the most suitable one for solving a particular issue. Another term used is “international institutional competition”.

WIPO deals with the most pressing issues of the protection of intellectual property arising from the development of both economic and social sectors as well as scientific and technical progress. WIPO also deals with issues that are indirectly related to the protection of intellectual property including the regulation of artificial intelligence, the implementation of the sustainable development agenda in the period up to 2030, the WIPO Traditional Knowledge Program that also covers traditional expressions of culture and genetic resources, the WIPO Global Challenges Program, which aims to raise awareness and understanding of the complex relations of the global healthcare system and issues of access to medical technology and innovation, technology transfer and trade, and research in the field of competition.

The WTO deals with similar issues. Since 1994, an alternative mechanism for the protection of intellectual property has begun to establish in the framework of the WTO. It is related to the adoption of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). This agreement has led to the development of a specialized body, namely, the Council for TRIPS, which mainly deals with intellectual property issues in the framework of the WTO. The WTO also deals with current issues related to the protection of intellectual property, namely, the implementation of the 2001 Doha Declaration on the TRIPS Agreement and Public Health, the relation between TRIPS and the UN Convention on Biological Diversity, the issue of protection of traditional knowledge and folklore, and technology transfer. Looking at current issues of the WIPO and WTO activities, it is easy to see that a number of issues are being developed in parallel by both organizations.

4.2 The application of the concept of “international institutional competition” to issues of the regulation of artificial intelligence

Developing the concept of “international institutional competition”, let us turn to the issues that were discussed at the AI for Good Global Summit in 2019. At the 2019 summit, the main attention was paid to the meaning of AI in the development of education, healthcare, and well-being, in achieving social and economic equality, space research, and ‘smart’ and safe mobility. Unforeseen consequences of AI were discussed as well as the relationship of AI with art and culture. “The learning day” gave potential AI users an opportunity to communicate with leading experts and educators in the field of AI.

Issues of education, art, and culture, and gender equality were discussed by experts of UNESCO in the Preliminary Study on the Ethics of Artificial Intelligence, which will be the basis for the future UNESCO resolution to be adopted in 2021. Issues of art and culture from the point of view of the protection of intellectual property were considered by WIPO experts in a concept paper, which is intended to become the basis for the development of a common understanding of the key issues that require discussion and decisions in the context of AI and policies in the field of IP. However, the ‘overlapping’ of the competence of international organizations and the discussion platform for the discussion of common issues does not cause negative consequences provided that the international stakeholders are involved in the discussion.

At the same time, the WSIS Action Lines (E-learning (C7), E-science (C7), Cultural diversity and identity, linguistic diversity and local content (C8), Ethical dimensions of the Information Society (C10), etc.) deal with issues that are discussed at the AI for Good Global Summit. “International institutional competition” of the two discussion platforms may overtime cause a decline of their efficiency unless the ITU provides proper coordination of such activities. It should be taken into account that the activities of the World Summit on the Information Society are more general in nature while those of the AI for Good Global Summit are more special. However, special issues cannot be resolved without consideration of the solutions that are offered for the general issues.

5. Conclusion

There is no unified conventional definition of artificial intelligence in international law. An international custom for a uniform understanding of artificial intelligence for the purposes of its legal regulation has not yet established. We propose the following definition of artificial intelligence: it is an information and communication system that can synthesize creative activities in the literary, artistic,

and industrial fields. In view of the above, the current concept of an information system that exists in the legal doctrine should be revised. An information and communication system is an information object with complex structure that has unity and multifunctionality and, at this stage of scientific and technical development, relative autonomy from the operator of such a system. Information and communication systems include artificial intelligence, Big Data, neural networks, distributed ledgers, and their combinations.

International organizations (ITU, UNESCO, WIPO, EU) are currently developing approaches to the regulation of artificial intelligence by establishing expert groups and using broad public discussion. The activities of some international organizations affect issues that are in the competence of other international organizations. Thus, all of the above international organizations are simultaneously developing the concept of artificial intelligence and issues of its liability. UNESCO is working on issues of international peace and security, gender equality, and problems of developing countries, which could be resolved more efficiently in the framework of the United Nations. The 'overlapping' of the competence of international organizations raises a need for international mechanisms of coordination of their activities.

In the international institutional system in the field of information, the system interrelations have been established by the present time. Various institutional entities coordinate their efforts for the establishment of a global information society. Coordination is achieved thanks to the activities of the World Summit on the Information Society. At present, the World Summit is acting via 11 international bodies for different areas of the development of the information society, being a transitional institutional entity from an international conference to an international organization. The issues of the World Summit on the Information Society in relation to ICT 'overlap' with issues that are discussed at the AI for Good Global Summit and in the framework of UNESCO in relation to artificial intelligence. However, the World Summit on the Information Society has not included artificial intelligence in its agenda.

The Action Lines of the World Summit on the Information Society (E-learning (C7), E-science (C7), Cultural diversity and identity, linguistic diversity and local content (C8), Ethical dimensions of the Information Society (C10), and others) deal with the issues that are discussed at the AI for Good Global Summit. At the same time, the World Summit on the Information Society works on ICT regulation, while the AI for Good Global Summit works on the more special issue of the regulation of artificial intelligence. The problem of "international institutional competition" of the two discussion platforms can be resolved by ITU's efforts to coordinate the two discussion platforms and by supplementing the competence of UNGIS with issues of artificial intelligence so that the resolutions of both forums would be implemented by the same international body.

Acknowledgements

The author is an employee of the St. Petersburg State University. This research was performed as a result of an initiative using the resources of the library of the St. Petersburg State University.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Author details

Valentina Petrovna Talimonchik
Saint Petersburg State University, Russia

*Address all correspondence to: talim2008@yandex.ru

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