REGULATION OF ARTIFICIAL INTELLIGENCE IN BRICS AND THE EUROPEAN UNION

DAMIAN CYMAN,

Gdansk University (Gdansk, Poland)

ELIZAVETA GROMOVA,

National Research South Ural State University (Chelyabinsk, Russia)

EDVARDAS JUCHNEVICIUS,

Gdansk University (Gdansk, Poland)

https://doi.org/10.21684/2412-2343-2021-8-1-86-115

Global digitization and the emergence of Artificial Intelligence-based technologies pose challenges for all countries. The BRICS and European Union countries are no exception. BRICS as well as the European Union seek to strengthen their positions as leading actors on the world stage. At the present time, an essential means of doing so is for BRICS and the EU to implement smart policy and create suitable conditions for the development of digital technologies, including AI. For this reason, one of the most important tasks for BRICS and the EU is to develop an adequate approach to the regulation of AI-based technologies. This research paper is an analysis of the current approaches to the regulation of AI at the BRICS group level, in each of the BRICS countries, and in the European Union. The analysis is based on the application of comparative and formal juridical analysis of the legislation of the selected countries on AI and other digital technologies. The results of the analysis lead the authors to conclude that it is necessary to design a general approach to the regulation of these technologies for the BRICS countries similar to the approach chosen in the EU (the trustworthy approach) and to upgrade this legislation to achieve positive effects from digital transformation. The authors offer several suggestions for optimization of the provisions of the legislation, including designing a model legal act in the sphere of AI.

Keywords: BRICS; EU; artificial intelligence; AI; regulation; innovations; digital economy; digitization; digital technologies.

Recommended citation: Damian Cyman et al., *Regulation of Artificial Intelligence in BRICS and the European Union*, 8(1) BRICS Law Journal 86–115 (2021).

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Introduction

New issues and new mechanisms are often first described by authors in the literary field of fiction. For example, Polish writer-futurologist S. Lem mentioned and analyzed the phenomenon of artificial intelligence[1] in the future. In turn, the beginning of scientific work in the field of artificial intelligence is widely recognized as A. Turing's 1950 article "Computing Machinery and Intelligence," in which the author considers the now-famous question, Can machines think?[2]

Today, lawyers, like practitioners in many other fields, pose similar questions. They ponder the future of the legal profession, the use of artificial intelligence in the sphere of various services related to law as well as the use of artificial intelligence in various areas of everyday life (probably the most popular example is the use of autonomous

[1] Polityka Rozwoju Sztucznej Inteligencji w Polsce na lata 2019–2027: godna zaufania sztuczna inteligencja autonomia i konkurencja: projekt dla konsultacji społecznych, Rzeczpospolita Polska, Warszawa, 20 sierpień 2019 (Dec. 23, 2020), available at https://www.gov.pl/attachment/0aa51cd5-b934-4bcb-8660-bfecb20ea2a9.

[2] Alan M. Turing, *Computing Machinery and Intelligence*, 59(236) Mind 433 (1950).

machines).[3] What is common to their thinking is that they try to find analogy in new research areas and create completely new legal institutions. A principal example is the discussion about the creation of a new digital legal personality for the needs of emerging intelligent robots and artificial intelligence.[4] In fact, old questions in the field of law are taking on a new dimension. By highlighting certain distinctive features of legal research, it can be easily noticed that many studies focus on the ethical issues and the rationale for ensuring legal certainty in the area of digital technologies.[5] This basically confirms the lawyer's position that the use of artificial intelligence should be regulated. The necessity for the legal regulation of digital technologies does not raise any doubts, and this is the case in many countries in different spheres.[6]

Attention should be paid to the characteristic feature of research in the field of artificial intelligence. Here scholars mostly use a predictive method of scientific research (at least right now, at the beginning of regulation development). Forecasting the use of artificial intelligence and the behavior of various entities in legal terms may seem too unconventional. Not without significance for the issue of artificial intelligence are various models (simulations) of the behavior of entities of legal relations, which may, on the one hand, form the basis for scientific research, and, on the other hand, provide the opportunity to develop appropriate institutions and mechanisms of tax law in a timely manner. Ever careful in scientific research, accusations could arise that these models (simulations) in law and the perception of the future world are merely expressions of the imagination of authors, going beyond the area of futurology and into the law as a scientific field (e.g. it could be argued that the research is closer to fantasy than to legal science). It could also be noted that in legal science we rarely use the concept of futurology (as a science), but we easily relate to certain phenomena in law by making various evaluations about what awaits us in the future.[7] For example,

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[3] Evgenii Nikitin & Mensah Cocou Marius, *Unified Digital Law Enforcement Environment – Necessity and Prospects for Creation in the "BRICS Countries,"* 7(2) BRICS L.J. 66 (2020); Galina Rusman & Elizaveta Popova, *Development of the Software for Examination of the Crime Scene by Using Virtual Reality, Based on Spherical Panoramic Shot and 3D-Scanning* in *2020 Global Smart Industry Conference (GloSIC)* 297 (2020); Elena Ostanina & Elena Titova, *The Protection of Consumer Rights in the Digital Economy Conditions – the Experience of the BRICS Countries*, 7(2) BRICS L.J. 118 (2020).

[4] *Legal Tech and the New Sharing Economy* 53 (Marcelo C. Compagnucci et al. eds., 2020).

[5] Alberto Elisavetsky & María V. Marún, *La tecnología aplicada a la resolución de conflictos. Su comprensión para la eficiencia de las ODR y para su proyección en Latinoamérica*, 3(2) Revista Brasileira de Alternative Dispute Resolution 51 (2020).

[6] Daniel B. Ferreira & Euclides A. Filho, *Anulatória de sentença arbitral: uma análise doutrinária e empírica da jurisprudência dos tribunais dos estados de Santa Catarina, Rio de Janeiro e São Paulo entre 2015 e 2019*, 3(2) Revista Brasileira de Alternative Dispute Resolution 195 (2020); Alexei Minbaleev & Ksenia Nikolskaia, *New Perspectives on Ethics and the Laws of Artificial Intelligence in the Investigation of Incidents Related to DDoS Attacks* in *2020 International Multi-Conference on Industrial Engineering and Modern Technologies (FarEastCon)* (2020).

[7] Suzana Kraljić, *New Family Code and the Dejudicialization of Divorce in Slovenia*, 15 Balkan Social Science Review 158 (2020).

we can easily imagine a discussion about what the various future legal consequences will be if today we do not pass a certain law.[8]

The members of the BRICS group are well known all over the world as the fastest–growing major countries.[9] In the view of many experts, the BRICS countries are the fastest growing emerging markets in the world as well.[10] According to a report of the European Parliament's Committee on Development, the role of the Federative Republic of Brazil, the Russian Federation, the Republic of India, the People's Republic of China and the Republic of South Africa (BRICS) as emerging protagonists in international development cooperation is significantly and rapidly changing. Over the last decade, BRICS have increased their financial as well as technical assistance and established distinct ways and means of economic cooperation.[11] Figures show that all five BRICS members combined nominal GDP of US$18.6 trillion (about 23.2% of the gross world product), combined GDP of around US$40.55 trillion (32% of the world's GDP) and an estimated US$4.46 trillion in combined foreign reserves. It is anticipated that the total volume of the economies of the BRICS countries will exceed that of the G7 countries by 2050.[12]

For further intensive development of the BRICS member countries, and to enhance their potential to hold a leading position among the other countries in the world, they should stimulate and support innovations and innovation activity within their borders. Moreover, moving in this direction is extremely important because at the present time the modern world is undergoing the process of global digitization. Nicholas Negroponte metaphorically explained that a digitization process deals with shifting from processing atoms to processing bits.[13]

In the view of a number of authors, the general factor of production in the digital era has become information and communication technologies.[14] The artificial intelligence-

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[8] John D. Morley & Roberta Romano, *The Future of Financial Regulation*, Yale Law & Economics Research Paper No. 386 (2009) (Dec. 23, 2020), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1415144; Jair Gevaerd, *Internationality and Commerciality in the UNCITRAL Model Law: A Functional and Integrative Analysis*, 1(2) Revista Brasileira de Alternative Dispute Resolution 19, 20 (2019); Elizaveta Gromova & Tjaša Ivanc, *Regulatory Sandboxes (Experimental Legal Regimes) for Digital Innovations in BRICS*, 7(2) BRICS L.J. 10, 12 (2020).

[9] Comparative Analysis of the BRICS, Mizuho Research Institute Ltd., Commission of the Economic and Social Research Institute (2005) (Dec. 23, 2020), available at http://www.esri.go.jp/jp/prj/hou/hou016/hou16a-2-1.pdf.

[10] Adriana B. Deorsola et al., *Intellectual Property and Trademark Legal Framework in BRICS Countries: A Comparative Study*, 49 World Pat. Inf. 1 (2017).

[11] *See, e.g.*, Pedro Morazán et al., *The Role of BRICS in the Developing World*, European Parliament's Committee on Development (April 2012), at 3 (Dec. 23, 2020), available at https://www.ab.gov.tr/files/ardb/evt/1_avrupa_birligi/1_9_politikalar/1_9_8_dis_politika/The_role_of_BRICS_in_the_developing_world.pdf.

[12] *Коротков С.А., Кульков И.В.* Развитие БРИКС // ЮНИДО в России. 2013. № 11. С. 54 [Sergei A. Korotkov & Igor V. Kulkov, *Development of BRICS*, 11 UNIDO in Russia Bulletin 54 (2013)].

[13] Samira B. Hojeghan & Alireza N. Esfangareh, *Digital Economy and Tourism Impacts, Influences and Challenges*, 19 Procedia Soc. Behav. Sci. 308 (2011).

[14] Tjaša Ivanc, *Theoretical Background of Using Information Technology in Evidence Taking* in *Dimensions of Evidence in European Civil Procedure* 265 (Vesna Rijavec et al. eds., 2016).

based technologies (hereinafter AI-based technologies) are one of the trend areas covered by all of the developed countries in the world. Thus, more than thirty countries have developed national strategies of AI development (among others, Canada, Singapore, China, Kenya, Denmark and France).

Modern achievements in the development of AI-based technologies have opened new opportunities for organizational and institutional design in business and other spheres of social and economic activity. It is widely acknowledged that AI-based technologies have a crucial role in increasing innovation and productivity, improving standards of living and enhancing competitiveness and economic and societal modernization across the globe.[15] Thus, for example, China "has set a national goal of investing US$150 billion in AI and becoming the global leader in this area by 2030."[16]

A national system of innovation can only be judged healthy if the knowledge, technologies, products and processes produced by the national system of science, engineering and technology have been converted into increased wealth, by industry and business, and into an improved quality of life for all members of society.[17]

That is why the creation of an adequate legal approach to the regulation of AI-based technologies in the digital era by the BRICS member countries plays a significant role in their further development. And for that reason, a comparative analysis of the BRICS legislation and the EU legislation on AI-based technologies is important.

Several research papers and overviews dedicated to the analysis of the regulation of the BRICS members' digital technologies and innovation activity have appeared in recent years. These reviews vary considerably in objective, scope and focus and provide useful insight into the interaction between political change and the science, technology and innovation system. Some of them are dedicated to the data protection regime of one or two members of the BRICS group;[18] others investigate the role of the use of AI in particular spheres, such as taxation, for instance.

Yet, there are no research papers devoted to an analysis of the regulation of AI in the BRICS members in the face of the new digital reality.

The aim of this research paper is to carry out a comparative analysis of the regulations and actions taken in the field of AI regulation by BRICS and the European

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15 Galiya Berdykulova et al., *The Emerging Digital Economy: Case of Kazakhstan*, 109 Procedia Soc. Behav. Sci. 1287 (2014).

16 Darrell M. West & John R. Allen, *How Artificial Intelligence Is Transforming the World*, Brookings, 24 April 2018 (Dec. 23, 2020), available at https://www.brookings.edu/research/how-artificial-intelligence-is-transforming-the-world/.

17 Mark Shugurov, *The TRIPS Agreement, International Technology Transfer and Development: Some Lessons from Strengthening IPR Protection*, 3(1) BRICS L.J. 120 (2016); Department of Arts, Culture, Science and Technology of South Africa, White Paper on Science and Technology: Preparing for the 21st Century (1996) (Dec. 23, 2020), available at https://www.gov.za/sites/default/files/gcis_document/201409/sciencetechnologywhitepaper.pdf.

18 Hendrik C. Marais & Magdal Pienaar, *The Evolution of the South African Science, Technology and Innovation System 1994–2009: An Exploration*, 2(3) African J. Sci. Technol. Innov. Dev. 82 (2010).

Union. The possible similarities and differences between their normative frameworks for the development of effective regulation are investigated.

1. Regulation of Artificial Intelligence and other Digital Technologies at the BRICS Group Level

It is indeed well known that the global digitization process affects and changes different spheres of social life. It is noteworthy that the legislation on digital technologies of the BRICS members forms the premise for regulation of such innovations as, among others, artificial intelligence, the Internet of Things, blockchain technologies, industrial robotics, cloud technologies and high-performance computing.

BRICS have consistently passed legal acts in which the key aspects of digitization were fixed, taking into account the fact that these innovations present the future of the further development of the modern world. These Acts establish the general direction of the development of innovations and the digital economy.

One of the most important legal acts of the BRICS group in these areas is the Memorandum of Understanding on Cooperation in Science, Technology and Innovation between the Governments of the Federative Republic of Brazil, the Russian Federation, the Republic of India, the People's Republic of China and the Republic of South Africa, approved in 2015 (hereinafter the Memorandum of Understanding).[19]

Pursuant to Article 2 of the Memorandum of Understanding, its main objectives are:

• to establish a strategic framework for cooperation in science, technology and innovation among the BRICS member countries;

• to address common global and regional social and economic challenges in the BRICS member countries utilizing shared experiences and complementarities in science, technology and innovation;

• to co-generate new knowledge and innovative products, services and processes in the BRICS member countries utilizing appropriate funding and investment instruments; and

• to promote joint BRICS science, technology and innovation partnerships with other strategic actors in the developing world.

Among the advantages of this Act could be mentioned the fact that the Memorandum of Understanding defines the key areas of cooperation between the members of BRICS, including: exchange of information on policies and programs and promotion of innovation and technology transfer; high performance computing; basic research; space research and exploration, aeronautics, astronomy and earth

[19] Memorandum of Understanding on Cooperation in Science, Technology and Innovation between the Governments of the Federative Republic of Brazil, the Russian Federation, the Republic of India, the People's Republic of China and the Republic of South Africa (Dec. 23, 2020), available at http://www.brics.utoronto.ca/docs/BRICS%20STI%20MoU%20ENGLISH.pdf.

observation; medicine and biotechnology; high-tech zones/science parks and incubators; technology transfer; information and communication technology; geospatial technologies and their applications (Art. 3).

In the event of achieving these goals the Memorandum of Understanding sets the modalities of cooperation and sub-agreements arising from them between the parties in the fields of science, technology and innovation: short-term exchange of scientists, researchers, technical experts and scholars; dedicated training programs to support human capital development in science, technology and innovation; organization of science, technology and innovation workshops, seminars and conferences in areas of mutual interest; exchange of science, technology and innovation information; formulation and implementation of collaborative research and development programs and projects; establishment of joint funding mechanisms to support BRICS research programs and large-scale research infrastructure projects; facilitated access to science and technology infrastructure among BRICS member countries; announcement of simultaneous calls for proposals in BRICS member countries; and cooperation of national science and engineering academies and research agencies (Art. 4).

Another important legal act is the Strategy for BRICS Economic Partnership, approved in 2015.[20] According to this Act, the Strategy contributes to increasing the economic growth and competitiveness of the BRICS economies in the global arena. One of the main areas of BRICS cooperation relates to the digital innovative economy.

The purposes of the Strategy are to consolidate efforts in order to ensure a better quality of growth by fostering innovative economic development based on advanced technologies and skills development with a view to building knowledge economies; to promote a peaceful, secure, open, trusted and cooperative digital and internet space; to consider incentives to attract investment and production in the BRICS countries by global IT manufacturers; and to address human resource and technology gaps through a system of international scientific and technological cooperation.

On the one hand, the Strategy highlights the dominant role of information and communications technologies, in particular AI, the Internet of Things, etc., which can be powerful tools to provide instruments to foster sustainable economic progress and social inclusion.

On the other hand, the Strategy does not underestimate the potential consequences of the digital economy, which is why it pays considerable attention to questions of the security of digital technologies and data protection. To that end, BRICS strengthen: cooperation and promote joint activities and initiatives to address

[20] The Strategy for BRICS Economic Partnership, released at the Ufa Summit, 9 July 2015 (Dec. 23, 2020), available at http://www.brics.utoronto.ca/docs/150709-partnership-strategy-en.html.

common concerns in the field of information and communications technologies; cooperation of BRICS on emergency response to information security issues; cooperation within BRICS and in other relevant international fora on countering the use of information and communications technologies for criminal and terrorist purposes; promotion of innovative telecommunications equipment, development and introduction of new standards and technologies of communication to promote information and the digital society and to resist cyber threats; development of cooperation to find new ways of reducing voice, internet and broadband costs; and exchange of information and expertise, to contribute to cost reduction including policy and regulatory interventions and implementation.

As provided by the Strategy, in the event of achieving these goals the BRICS countries should establish a working group on information and communications technologies cooperation to consider, among other matters, ways and measures to promote information and communications technologies-related issues and enhance regular interactions at the ministerial and other official levels. BRICS should also offer training programs to support human capital development in information technology and digital innovations, and exchange of expertise on information society policies and programs, for the equitable distribution of the benefits of the new technologies and services.

The Goa Declaration at the VIII BRICS Summit, held on 16 October 2016, similar to the Strategy, also encourages the digitization process and seeks to make it safer.

According to this important Act, the BRICS members will cooperate to develop the digital economy and its key digital technologies, including AI. Cooperation on the digital economy aims to: (a) reinforce the security of adopting digital technologies and to fight against information crime and terrorism; (b) bridge the gap in digital technologies between developed and developing countries; and (c) share knowledge and experience of digital technologies in the field of RegTech, FinTech and digital products.[21]

The final important legal act to note is the Digital Economic Development Initiative, approved by the Business Council BRICS members at the BRICS Xiamen Summit 2018.

In the Council members' opinion, AI, high performance computing, blockchain technologies and cloud technologies are the "breakthrough technologies." Dr. I. Surve, Head of the Business Council of BRICS, said it was most promising that the Fourth Industrial Revolution is an unprecedented opportunity for the BRICS countries to embrace and fully participate in the metamorphosis of technology. He also endorsed the proposal of setting up a working group on the digital economy. At the end of September 2018, the Skills Development Working Group of the BRICS Business Council hosted the second BRICS Skills Competition in the Republic of South Africa, with the focus on skills required in the future. Areas of particular interest and discussion

[21] Goa Declaration, VIII BRICS Summit, Goa, India, 16 October 2016 (Dec. 23, 2020), available at http://www.brics.utoronto.ca/docs/161016-goa.html.

included Cyber Security, the Internet of Things, Data Analytics, Industrial Robotics and Intelligent Manufacturing.[22]

In 2019, BRICS decided to create a joint alliance of its member countries for the development of technologies based on AI. Its creation will allow ensuring synergy in AI development through the introduction of common standards by BRICS members, as well as through the formation of the competent centers.

2. Regulation of Artificial Intelligence in the Russian Federation

As an active participant in the global community, the Russian Federation faces the same difficulties in searching for solutions to the efficient regulation of artificial intelligence. At the present time, Russia is entering into the process of the creation of the adequate regulation of AI. For example, one of Russia's enterprises has developed and is actively implementing project "Botkin.AI," which is a system based on AI and capable of detecting lung cancer in the early stages with an accuracy of 95 percent.[23]

Meanwhile, the system of authoritative bodies is also forming. A new subcommittee on AI was established in the structure of the governmental commission on digital development, in respect to the use of digital technologies to improve quality of life and the business environment. The subcommittee on AI is a working body intended to implement the National Strategy on AI.

The regulation of AI can be conditionally subdivided into three groups. These groups are: legal regulation, technical regulation, and regulations on mechanisms and tools for attracting investments in the creation of AI-based technologies.

2.1. Legal Regulation of AI-based Technologies

Legal regulation consists of several legal acts devoted to general questions of the regulation of digital technologies regulation and the regulation of AI-based technologies.

Firstly, the Strategy of the Development of Information Society in the Russian Federation 2017–2030 was approved by the Decree of the President of the Russian Federation of 9 May 2017 No. 203.[24] This Act defines the purposes, tasks and measures of the national policy in the sphere of application of information and communications

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[22] BRICS to Prioritise Digital Economy, IOL, 4 April 2018 (Dec. 23, 2020), available at https://www.iol.co.za/business-report/economy/brics-to-prioritise-digital-economy-surve-14231613.

[23] Medical image analysis and processing platform with artificial intelligence technology (Dec. 23, 2020), available at https://botkin.ai/.

[24] Указ Президента Российской Федерации от 9 мая 2017 г. № 203 «О Стратегии развития информационного общества в Российской Федерации на 2017–2030 годы» // СПС «КонсультантПлюс» [Strategy of the Development of Information Society in Russian Federation 2017–2030, approved by the Decree of the President of the Russian Federation of 9 May 2017 No. 203, SPS "ConsultantPlus"] (Dec. 23, 2020), available at http://www.consultant.ru/document/cons_doc_LAW_216363/.

technologies, aimed at development of the information society, the national digital economy system, ensuring national interests and implementing strategic national priorities. It emphasizes that the technology of AI has become a part of modern managerial systems in all sectors of the economy and government administration.

Secondly, the Federal Program "Digital Economy" was approved by the Decree of the Government of the Russian Federation of 28 July 2017 No. 1632-p.[25] This Federal Program is aimed at the creation of the necessary conditions for the development of the digital economy in Russia. The main goal of the Program is the formation of a new regulatory environment providing an enabling legal regime for the emergence and development of modern technologies, as well as for economic activity related to their use.

The Program also defines "breakthrough technologies" of the digital economy. These are AI, Big Data, neurotechnology, distributed registry systems, quantum technologies, industrial internet, components of robotics and sensorics, wireless technology, and technology of virtual and augmented realities.

Additionally, there are two legal acts devoted directly to the regulation of AI. Thus, the "road map" of the development of breakthrough technologies "Neurotechnology and AI" was approved on 7 October 2020.[26] This Act primarily contains selection criteria for projects in the sphere of the creation and implementation of AI-based technologies as well as support measures for such projects. These measures are: targeted support of leading research centers; support for small and medium-sized businesses; support of Russian companies-leaders in AI-based technologies commercialization; and support for industrial development.

The second of these Acts is the National Strategy for the Development of Artificial Intelligence for the period until 2030, which was approved by the Decree of the President of Russia of 10 October 2019 No. 490 "On the Development of Artificial Intelligence in the Russian Federation,"[27] in order to ensure the accelerated development of AI in Russia, conduct scientific research in the field of AI, increase the availability of information and computing resources for users and improve training in this area.

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[25] Распоряжение Правительства Российской Федерации от 28 июля 2017 г. № 1632-р «Об утверждении Федеральной программы «Цифровая экономика»» // СПС «КонсультантПлюс» [Order of the Government of the Russian Federation No. 1632-r 28 July 2017. On Approval of the Federal Program "Digital economy," SPS "ConsultantPlus"] (Dec. 23, 2020), available at http://www.consultant.ru/document/cons_doc_LAW_221756/.

[26] Дорожная карта развития «сквозной» цифровой технологии «Нейротехнологии и искусственный интеллект» от 7 октября 2019 г. // Министерство цифрового развития, связи и массовых коммуникаций Российской Федерации [The "Road Map" of the Development of Breakthrough Technologies "Neurotechnology and AI," approved on 7 October 2019, Ministry of Digital Development, Communications and Mass Media of the Russian Federation] (Dec. 23, 2020), available at https://digital.gov.ru/ru/documents/6658/.

[27] Указ Президента Российской Федерации от 10 октября 2019 г. № 490 «О развитии искусственного интеллекта в Российской Федерации» // СПС «КонсультантПлюс» [Decree of the President of the Russian Federation No. 490 of 10 October 2019. On the Development of Artificial Intelligence in the Russian Federation, SPS "ConsultantPlus"] (Dec. 23, 2020), available at http://www.consultant.ru/document/cons_doc_LAW_335184/.

The National Strategy defines AI as a complex of technological solutions, which allows simulating the cognitive functions of a person (including self-learning and the search for solutions without a predetermined algorithm) and obtaining, when performing specific tasks, results comparable, at least, to the results of human intellectual activity. The complex of technological solutions includes information and communication infrastructure, software (including the use of machine learning methods), processes and services for data processing and the search for solutions.

Obviously, such development of AI is impossible without state support of entrepreneurs investing their money in AI. That is why one of the most important provisions of the National Strategy is the set of necessary measures for the development of AI in Russia. They aim at: creating new high-performance jobs and increasing the employment rate; ensuring a competitive level of material remuneration for specialists in the field of AI, creating favorable conditions for their work, including remote work; providing the necessary conditions for attracting, including from foreign countries, the best specialists in the field of AI; supporting the export of Russian products (services) created (provided) with the use of AI and their promotion on the world market; creating incentives to attract private investment in the development of corporate science, research and development in the field of AI; and the formation of an integrated security system for the creation, development, introduction and use of AI technologies.

2.2. Technical Regulation in the Sphere of Artificial Intelligence: Standardization of AI-based Technologies

Scientists have predicted that the development of AI will have far-reaching implications for public administration, national security and socio-economic stability worldwide. That is why modern states have the goal of developing common policy directions in the field of AI, recommendations on minimizing risks, and ensuring the safe and controlled creation and application of this technology.[28] This is due not just to the potential benefits that the use of AI promises. The main reason lies in its hidden threats. Being, in fact, a destructive technology, AI can be dangerous. The lack of adequate, 'smart' legal regulation of this technology, of approved and controlled requirements for its safety, may threaten the well-being of society.

In this regard, the creation of standards in the field of digital technologies and the incorporation of technical aspects of the functioning of these technologies into such standards becomes an essential part of international and national policy. Standardization in the field of AI allows developing a universal terminology related to this technology; as well as ensuring the safe application of technologies based on AI. Moreover, standardization increases the level of interoperability of AI with other digital

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[28] Vernor Vinge, *The Coming Technological Singularity: How to Survive in the Post-Human Era* in *Proceedings of the Vision 21: Interdisciplinary Science and Engineering in the Era of Cyberspace* 11 (1993).

technologies, which, in turn, has a positive impact on the development of scientific and technological progress. At the same time, the development and adoption of "bad quality" standards can hinder the development of AI-based technologies.

The necessity of standardization in this field predetermined the creation in Russia of a Technical Committee on standardization of AI. Its main task is to increase the efficiency of work on the development of the domestic normative and technical bases in the field of AI. One of the strategically important directions of the Committee's work is participation in the international standardization process on behalf of the Russian Federation, including consideration of the issues of the application of international standards in the sphere of AI at the national level.

This is important because the participation of the Russian Committee in international standardization will contribute more to the national interest than the general accession to the International Standard developed without the participation of representatives of the country. As experts have noted, the necessity of transitioning from passive assimilation of foreign experience to active building of domestic arrangements in the sphere of standardization that should considerably strengthen the position of Russia in the field of high technologies is obvious. In this regard, we can positively assess the initiative of the Russian Federation on the synchronous development of terminological standards in the field of AI "Artificial Intelligence. Concepts and Terminology" in the Russian language.

2.3. Mechanisms and Tools to Attract Investments in the Creation of AI-based Technologies

There is big lag in the development of digital and other information technologies in Russia in comparison to developed countries. According to the data of the Federal Program "Digital Economy," the Russian Federation ranks 41st in readiness for the digital economy, showing a significant distance from the higher rankings of dozens of leading countries such as Singapore, Finland, Sweden, Norway, the United States of America, the Netherlands, Switzerland, Great Britain, Luxembourg and Japan. From the point of view of economic and innovative results of using digital technologies Russia ranks 38th, far behind leading countries such as Finland, Switzerland, Sweden, Israel, Singapore, the Netherlands, the United States of America, Norway, Luxembourg and Germany.

In the view of many experts in the field, such a significant lag in the development of the digital economy is explained by the gaps in the regulatory framework for the digital economy and an insufficiently favorable environment for doing business and stimulating innovation, and, as a result, a low level of digital technologies by business structures.[29]

That is why the main task of the government is to create the possibility to purposefully effectuate innovation. This, in its turn, requires establishing the appropriate

[29] Order of the Government of the Russian Federation No. 1632-r, *supra* note 25.

and adequate legal basis for the tools and mechanisms which allows attracting investments and innovators.

2.3.1. Public-Private Partnership in the Sphere of the Creation of AI-based Technologies

To the extent mentioned in the Strategy for BRICS Economic Partnership, the BRICS members should develop public-private partnerships as a mechanism for attracting additional resources; and for combining the capabilities of the public and private sectors in the BRICS countries on implementing technologically advanced projects, including infrastructure projects.[30]

Public-private partnership is well known all over the world as one of the most effective tools for modernizing the national economy. In the conditions of budget deficits, as well as the ongoing worldwide financial and economic crisis, the state must turn to the private sector to find additional sources of financing. The "private sector," in its turn, is given access to those areas of production of goods, works and services that have traditionally been considered a monopoly of the state. In addition, representatives of the private sector are also provided with preferential terms for obtaining loans and other measures of state support.

The implementation of innovative projects can no longer be completely linked to governmental budgetary financing, whose opportunities have recently declined markedly. Now its implementation largely depends on attracting business representatives to such projects.

One of the key areas for the development of the digital economy is the creation and development of "breakthrough" technologies, such as AI, industrial robotics, etc. In this regard, considerable attention is focused on the creation of these and similar technologies.

For example, the modernization of machine building, especially the development of its innovative direction, AI and industrial robotics, is urgently required today.

There are many programs in which the creation of AI and industrial robotics is based on public-private partnership. For example, in the European Union, over the past two years research in the field of AI and robotics has received significant funding under the Program "Horizon 2020." Another European program for the development of industrial robotics SPARC combines the strategic efforts of more than 180 private companies and member states of the European Union to strengthen the global market of robotics in Europe. Under SPARC, over a seven-year period the total investments in robotics from EU Member States will amount to €700 million, and €2.1 billion from the private sector.

In order to implement public-private partnership in the field of AI and industrial robotics effectively, it is necessary to create adequate legislation, which takes into account both the peculiarities of public-private partnership and innovation activity

[30] The Strategy for BRICS Economic Partnership, *supra* note 20.

in the development of such technologies.[31] In Russia, the current legislation on public-private partnership is represented by the Federal Law "On Public-Private, Municipal-Private Partnership and Amendments to the Legislative Acts of the Russian Federation" (hereinafter the Law on Public-Private Partnership), as well as a number of regional acts on public-private partnership. In addition, federal laws on certain legal forms of public-private partnerships are: Federal law "On Concession Agreements," "On Production Sharing Agreements" and "On Special Economic Zones in the Russian Federation."

According to the provisions of the Law on Public-Private Partnership, objects of information technologies can be created under the agreement on public-private partnership. This can be assessed as positive and progressive, because it allows the creation of the objects of information technologies. In comparison, other countries' legislation on public-private partnership includes regulations that give public and private partners the ability to create objects of intellectual activity.

For example, the law on public-private partnership of the Republic of Kazakhstan contains a range of forms of partnership in the sphere of developing innovation. As mentioned earlier, the legislation of the European Union and its Member States also allows creating innovations by using contractual forms of public-private partnership.[32] Moreover, it is recognized that in the legislation of the members of the United Nations the term 'innovative public-private partnership' is applied frequently.[33]

At the same time, analysis of the current legislation on public-private partnership in Russia reveals several disadvantages. It is puzzling that the legislator decided to allow the creation of objects of information technologies but not the innovations as well. The point is that the "breakthrough" technologies are not all objects of information technologies. Here, it bears repeating in full what was mentioned earlier (in Sec. 2.1 above), that the National Strategy for the Development of Artificial Intelligence for the period until 2030 defines AI as a complex of technological solutions, which allows

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[31] *Громова Е.А.* Государственно-частное партнерство в цифровую эру: поиск оптимальной правовой формы // Юрист. 2018. № 10. С. 34–37 [Elizaveta A. Gromova, *Public-Private Partnership in the New Digital Era: Searching for Optimal Legal Form*, 10 Lawyer 34 (2018)]; *Громова Е.А.* Правовое регулирование государственно-частного партнерства в сфере создания робототехники // Сборник статей Международного научно-методического семинара «Правовое регулирование интеллектуальной собственности и инновационной деятельности» [Elizaveta A. Gromova, *Legal Regulation of Public-Private Partnership in the Field of Robotics Creation* in *Collection of Articles of the International Scientific and Methodological Seminar "Legal Regulation of Intellectual Property and Innovation Activity"*] 210 (O.V. Sushkova ed., 2018).

[32] Summary report on the public consultation on the contractual PPP on cybersecurity and Staff Working Document, European Commission, 5 July 2016 (Dec. 23, 2020), available at https://ec.europa.eu/digital-single-market/en/news/summary-report-public-consultation-contractual-ppp-cybersecurity-and-staff-working-document.

[33] United Nations, E-Government Survey 2018: Gearing E-Government to Support Transformation Towards Sustainable and Resilient Societies (Dec. 23, 2020), available at https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2018-Survey/E-Government%20Survey%202018_FINAL%20for%20web.pdf.

simulating the cognitive functions of a person (including self-learning and search for solutions without a predetermined algorithm) and obtaining, when performing specific tasks, results comparable, at least, to the results of human intellectual activity. The complex of technological solutions includes information and communication infrastructure, software (including the use of machine learning methods), processes and services for data processing and the search for solutions. It is not, however, the equivalent of information technology. Moreover, such technologies as components of robotics or new industrial technologies mentioned in the Program "Digital Economy" cannot be recognized as objects of information technologies.

The solution to the problem is to allow the creation of different results of innovation activity and digital technologies by using public-private partnership.

Another possible way of solving this problem is to add to the Law on Public-Private Partnership a provision that will expand the list of forms of public-private partnership. The traditional forms of public-private partnership (many of which are recognized by international and foreign domestic legislation) are the production sharing agreement, the concession agreement, the agreement on the implementation of entrepreneurial activities in the boundaries of the special economic zones, free economic zone of the Republic of Crimea and the federal city of Sevastopol[34] etc.), as well as joint ventures and venture funds. It is puzzling why the legislator did not list these forms of partnership in the Law on Public-Private Partnership.

It seems that the most suitable form for public-private partnership in the innovation sphere, including the creation of "breakthrough" technologies, is an agreement on the implementation of technical and innovative activities. These agreements operate within the boundaries of special economic zones of innovative and industrial types between residents (an individual entrepreneur or a legal entity) and the state (represented by the authoritative body and management company). Under this agreement, the resident must invest in capital construction projects, as well as technical and innovation activities. At the same time, this form of public-private partnership is not "universal." The problem is that this agreement operates only within the boundaries of the special economic zone. This means that if someone would like to create AI-based technologies then that person must become a resident of the special economic zone. This, in turn, obliges the private partner to conduct the activity only within the boundaries of this zone.

3. Regulation of Artificial Intelligence in China, Brazil, India and South Africa

All of the analyzed countries – China, Brazil, India and South Africa – have varying degrees of advancement in work related to legal regulations in the field of artificial

[34] Elizaveta Gromova, *The Free Economic Zone of the Republic of Crimea and the Federal City of Sevastopol*, 6(3) Russian L.J. 79 (2018).

intelligence. There are many reasons for this, and they are not, in principle, reasons related to the creation of law in a given country. Knowledge will always be the key to the development of new technologies. For example, in 2019 India introduced the subject "artificial intelligence" into the curriculum of its schools, an event which was picked up and reported by the media around the world.[35] It should be expected in the future that such activities will also have an impact on creating law in this country.

A characteristic feature of the countries under study is that the first measures at the government level were undertaken relatively recently. The period of the end of 2017 and the start of 2018 was crucial in this area, when the first policies and reports in the field of artificial intelligence were created and special funds for research, education and training were involved. Little time has passed, which is why a common feature of all of the BRICS countries is that none of them has special legal regulations in the field of AI. Yet, we can cite only a small number of examples of individual countries in which legislative initiatives are emerging; and this may result in the development of new legal regulations at the end of 2020 or early 2021.[36] At the moment, the interest of countries in addressing the issues relating to AI is also compounded by the achievements of other countries[37] and international organizations. National agencies in their reports indicate that in legal regulations and activities they will consider, for example, Organisation for Economic Co-operation and Development (OECD) principles in the field of AI. This also applies to declarations from some BRICS countries (e.g. the AI policies of Brazil). Brazil clearly indicates that it implements OECD recommendations. On the other hand, it can also be concluded from the actions of other countries that they are in line with the OECD strategy in this area.

OECD establishes five complementary value-based principles for the responsible stewardship of trustworthy AI:

1. AI should benefit people and the planet by driving inclusive growth, sustainable development and well-being.

2. AI systems should be designed in a way that respects the rule of law, human rights, democratic values and diversity, and they should include appropriate safeguards – e.g., enabling human intervention where necessary – to ensure a fair and just society.

3. There should be transparency and responsible disclosure around AI systems to ensure that people understand AI-based outcomes and can challenge them.

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[35] Indian schools have long way to go in using AI for better education: Microsoft representative, India Today, 2 October 2019 (Dec. 23, 2020), available at https://www.indiatoday.in/education-today/news/story/indian-schools-have-long-way-to-go-in-using-ai-for-better-education-microsoft-representative-1605447-2019-10-02.

[36] *See, e.g.*, Brazil's Congress to step in in the AI regulation debate, The Brazilian Report, 13 March 2020 (Dec. 23, 2020), available at https://brazilian.report/tech/2020/03/13/ai-congress-regulation-brazil-tech-tax/.

[37] *E.g.* the fact that the U.A.E. appointed a new Minister for Artificial Intelligence could be seen as inspiration for others to follow. Wesley Diphoko, *OPINION: Wanted – Ministry of Artificial Intelligence*, IOL, 17 May 2019 (Dec. 23, 2020), available at https://www.iol.co.za/business-report/opinion/opinion-wanted-ministry-of-artificial-intelligence-23399016.

4. AI systems must function in a robust, secure and safe way throughout their life cycles, and potential risks should be continually assessed and managed.

5. Organizations and individuals developing, deploying or operating AI systems should be held accountable for their proper functioning in line with the above principles.

OECD also provides five recommendations to governments:

1. Facilitate public and private investment in research & development (R&D) to spur innovation in trustworthy AI.

2. Foster accessible AI ecosystems with digital infrastructure and technologies and mechanisms to share data and knowledge.

3. Ensure a policy environment that will open the way to deployment of trustworthy AI systems.

4. Empower people with the skills for AI and support workers for a fair transition.

5. Cooperate across borders and sectors to progress on responsible stewardship of trustworthy AI.[38]

China entered the race for leadership in the field of artificial intelligence in July 2017, when China's State Council released the Next Generation Artificial Intelligence Development Plan (Development Plan).[39] In addition to general issues relating to AI development, the Development Plan contains specific guidelines for legal regulations. In the part devoted to legal regulations, the authors of the plan emphasize the need to:

• strengthen research on legal, ethical, and social issues related to AI, and establish laws, regulations and ethical frameworks to ensure the healthy development of AI;

• conduct research on legal issues such as civil and criminal responsibility confirmation, protection of privacy and property, and information security utilization related to AI applications;

• establish a traceability and accountability system and clarify the main body of AI and related rights, obligations and responsibilities;

• focus on autonomous driving, service robots and other application subsectors with a comparatively good usage foundation, and speed up the study and development of relevant safety management laws and regulations, to lay a legal foundation for the rapid application of new technology;

• launch research on AI behavioral science and ethics and other issues including establishing an ethical and moral multi-level judgment structure and human-computer collaboration ethical framework; and

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[38] *See more* in OECD Council Recommendation on Artificial Intelligence (Dec. 23, 2020), available at https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449. It should be noted that in June 2019, the G20 adopted human-centered AI Principles that draw upon the OECD AI Principles. *See* G20 Ministerial Statement on Trade and Digital Economy (Dec. 23, 2020), available at https://www.mofa.go.jp/files/000486596.pdf.

[39] Graham Webster et al., *China's "New Generation Artificial Intelligence Development Plan,"* New America, 1 August 2017 (Dec. 23, 2020), available at https://www.newamerica.org/cybersecurity-initiative/digichina/blog/full-translation-chinas-new-generation-artificial-intelligence-development-plan-2017/.

• develop an ethical code of conduct and R&D design for AI products, strengthen the assessment of the potential hazards and benefits of AI, and build solutions for emergencies in complex AI scenarios.

China will actively participate in global governance of AI, strengthen the study of major international common problems, such as robot alienation and safety supervision, deepen international cooperation on AI laws and regulations, international rules and so on, and jointly cope with global challenges. To implement the Development Plan, another action plan was issued by China's Ministry of Industry and Information Technology (MIIT) – the Three-Year Action Plan for Promoting Development of a New Generation Artificial Intelligence Industry. Its focus was on the following seven fields in the three-year period 2018–2020:

1. Intelligent network vehicles;
2. Intelligent service robots;
3. Intelligent unmanned aerial vehicles;
4. Medical imaging diagnosis systems;
5. Video image identification systems;
6. Intelligent voice interactive systems;
7. Intelligent translation systems.[40]

When considering the issue of legal regulations (strict meaning – not policies, plans and reports), one should mention above all the area of autonomous cars. In 2018, the Ministry of Public Security and the Ministry of Transport jointly issued a set of trial rules that pave the way for road testing of autonomous vehicles in China. The National Rules took effect on 1 May 2018 and contain requirements for test vehicles and test drivers. Local authorities at the provincial level are to formulate implementation rules applicable in their own areas.[41]

The use of artificial intelligence is also the subject of government-level work in Brazil. Brazil's Ministry of Science, Technology, Innovations and Communications published a Brazilian Strategy for Digital Transformation in March 2018. The strategy includes several provisions regarding AI. According to the Strategy, digital technologies have appeared as a new vital center of modern economies, and leading countries have positioned themselves strategically on this issue. On the international stage, countries seek to leverage their core competencies and advantages while filling important gaps in order to maximize the benefits of the digital economy. According to their strengths, some countries seek leadership in specific and promising sectors, such as robotics, AI, high-precision manufacturing or financial digital innovations, while

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[40] Ministry of Industry and Information Technology (MIIT), Three-Year Action Plan for Promoting Development of a New Generation Artificial Intelligence Industry (2018–2020), 12 December 2017 (Dec. 23, 2020), available at https://www.newamerica.org/cybersecurity-initiative/digichina/blog/translation-chinese-government-outlines-ai-ambitions-through-2020/.

[41] *See more* in Regulation of Artificial Intelligence: East/South Asia and the Pacific, Library of Congress (Dec. 23, 2020), available at https://www.loc.gov/law/help/artificial-intelligence/asia-pacific.php#_ftn41.

others tune their regulatory framework so that the market can seize the full potential of digital technologies. Priorities for digitization initiatives include strengthening competitiveness in digital business, digitization of public services, creation of skilled jobs in the new economy, and better and more advanced education for the population. Additionally, the Strategy postulates that areas related to AI should be covered by legal regulations, so as to provide legal certainty in this area.[42]

In 2018, the members of the Task Force on Artificial Intelligence for India's Economic Transformation, constituted by the Ministry of Commerce and Industry, Government of India, prepared a report on artificial intelligence. The authors of the report identified ten important domains of relevance to India, including Manufacturing, FinTech, Healthcare, Agriculture/Food processing, Education, Retail/Customer Engagement, Aid for Differently Abled/Accessibility Technology, Environment, National Security and Public Utility Services. This report elaborates on specific challenges in the adoption of AI-based systems and processes in the identified domains of relevance to India with examples, both national and international, illustrating the benefits of AI to society. Key enablers necessary for development and deployment of AI-based technologies as well as ethical and social safety issues to ensure responsible use of AI are discussed. One section is dedicated to AI and its impact on employment in the global and Indian contexts. The report concludes with a set of specific recommendations addressed to the Government of India. While the authors of the report indicate that it also includes areas related to law (legal and regulatory issues), nevertheless we will not find any specific recommendations for legal regulations in the report.[43]

In the area of politics and discussions indicating the need for regulations on artificial intelligence, further initiatives should be mentioned which were taken at various levels in India, in particular: NITI Aayog Discussion Paper on a National AI Strategy,[44] Ministry of Electronics and Information Technology,[45] AI and Defense.[46] It should be noted that all the mentioned studies are only reports. They are not legal regulations. The status of legal regulations in respect of artificial intelligence may be summarized by saying that India currently does not have a comprehensive legal framework for AI.

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42 *See more* in Brazilian Strategy for Digital Transformation (Dec. 23, 2020), available at http://www.mctic.gov.br/mctic/export/sites/institucional/sessaoPublica/arquivos/digitalstrategy.pdf.

43 Report of the Artificial Intelligence Task Force (Dec. 23, 2020), available at https://dipp.gov.in/sites/default/files/Report_of_Task_Force_on_ArtificialIntelligence_20March2018_2.pdf.

44 NITI Aayog Discussion Paper on the National Strategy for Artificial Intelligence (June 2018) (Dec. 23, 2020), available at https://niti.gov.in/writereaddata/files/document_publication/NationalStrategy-for-AI-Discussion-Paper.pdf.

45 Ministry of Electronics & Information Technology, Office Memorandum, 7 February 2018 (Dec. 23, 2020), available at https://meity.gov.in/writereaddata/files/constitution_of_four_committees_on_artificial_intelligence.pdf.

46 Government of India, Ministry of Defence, AI Task Force Hands over Final Report to RM, 30 June 2018 (Dec. 23, 2020), available at https://pib.gov.in/newsite/PrintRelease.aspx?relid=180322.

In South Africa, the consensus admits that they are delaying work and activities on the use of artificial intelligence. Consequently, there are no legal regulations presently in effect in the area of AI. Nonetheless, one particular activity undertaken should be mentioned: in 2019, the President appointed the Commission on the Fourth Industrial Revolution (4IR), consisting of thirty members sourced from academia, business and other sectors in society.[47] The achievements of the Commission are the elaboration of eight reports on the application of new technologies, and digitization of the country.

In light of the foregoing, we propose that BRICS develop a cooperative approach in the sphere of working out and implementing a policy in the area of artificial intelligence. Additionally, we propose that BRICS undertake to design a model legal act on AI for use by each of the BRICS member countries.

We further propose that BRICS determine the authorized bodies, organizations and associations that will participate in a working group, to be established by BRICS, for the development of general recommendations on creating and using AI-based technologies in the BRICS member countries. Noteworthy in this regard is the importance of considering the opinions of not only regulators, but also entrepreneurs and consumers. Representatives of each of the interested sectors should be included in the working group.

4. Regulation of Artificial Intelligence in the European Union

Artificial intelligence has undoubtedly the potential to transform the European Union for the better. AI represents a great opportunity to support the mitigation of pressing challenges facing the EU, challenges such as an ageing population and growing social inequality. AI can be used to predict changes occurring in matters relating to the environment and climate change. AI has great potential to reduce human impact on the environment and enable the efficient and effective use of energy and natural resources, thereby enhancing decarbonization efforts and reducing the environmental footprint, for a greener society. These modern technologies are already being used to render medical treatment smarter and more targeted, and to help in preventing life-threatening diseases.[48] AI and robotics are proving to be valuable tools to assist caregivers, support elderly care and monitor patients' conditions on a real time basis, thus saving lives. AI has the potential to be a great tool to fight educational inequalities and create personalized and adaptable education programs that can help people to acquire new qualifications, skills and competences, according

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[47] Presidential Commission on Fourth Industrial Revolution: Members and Terms of Reference, 9 April 2009 (Dec. 23, 2020), available at https://www.gov.za/sites/default/files/gcis_document/201904/42388gen209.pdf.

[48] William W. Stead, *Clinical Implications and Challenges of Artificial Intelligence and Deep Learning*, 320(11) JAMA 1107 (2018).

to individual ability to learn. Artificial intelligence already has an important impact on the EU economy and GDP growth.[49] In addition, AI is being used to improve financial risk management and provide the tools to manufacture, with less waste, products tailored to our needs. Moreover, AI helps to detect fraud and cybersecurity threats and enables law enforcement agencies to fight crime more efficiently.

Yet, as with any new technology, the use of AI brings risks. The citizens of the European Union fear being left powerless in defending their rights and safety when facing the information asymmetries of algorithmic decision-making. Entrepreneurs are concerned by legal uncertainty within the European Single Market. Artificial Intelligence has the potential to do both material harm – for instance in relation to the safety and health of individuals, including loss of life and damage to property – and immaterial harm – such as loss of privacy, limitations on the right to freedom of expression, human rights,[50] dignity and discrimination[51] – and can relate to a wide variety of risks.[52]

A common European approach to AI is to reach sufficient scale and avoid the fragmentation of the European Single Market. It is imperative to create more synergies and networks between the multiple European research centers and to align their efforts to improve excellence, develop the best technology and use to the utmost the opportunities offered by AI. Europe wants to lead the way in artificial intelligence based on ethics and shared European values, so citizens and businesses can fully trust the technologies they are using. However, the use of AI systems does not stop at national borders, and neither does their impact. Global solutions are therefore required for the global opportunities and challenges that AI systems bring forth. This can be achieved by cooperation among all of the players engaged in the use of those technologies – states, international organizations and corporations – and will likely have profound implications for international regulations.[53]

4.1. European Strategy on Artificial Intelligence

Artificial Intelligence has sparked wide debate about the principles and values that should guide its development and use. It thus became necessary to develop the right

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[49] McKinsey & Company, Shaping the Digital Transformation in Europe, European Commission Working Paper: Economical Potential (February 2020) (Dec. 23, 2020), available at https://ec.europa.eu/digital-single-market/en/news/shaping-digital-transformation-europe-working-paper-economic-potential.

[50] Filippo Raso et al., *Artificial Intelligence & Human Rights: Opportunities & Risks*, Berkman Klein Center Research Publication No. 2018-6 (2018) (Dec. 23, 2020), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3259344.

[51] James Zou & Londa Schiebinger, *AI Can Be Sexist and Racist – It's Time to Make It Fair*, 559(7714) Nature 324 (2018).

[52] Peter J. Bentley et al., *Should We Fear Artificial Intelligence? In-Depth Analysis*, European Union (March 2018) (Dec. 23, 2020), available at https://www.europarl.europa.eu/RegData/etudes/IDAN/2018/614547/EPRS_IDA(2018)614547_EN.pdf.

[53] Thomas Burri, *International Law and Artificial Intelligence*, 60(1) Ger. Yearb. Int'l L. 91 (2019).

ethical foundations on which the regulatory system would be based.[54] Whereas AI ethics was once a field of study for sci-fi loving philosophers, it has now become mainstream, occupying the mind of the public at large as well as the minds of regulators.[55]

In April 2018, following an invitation by the European Council to put forward a European approach to AI, the European Commission presented its strategy for AI in the Commission Communication "Artificial Intelligence for Europe."[56] The strategy places people at the center of the development of technologies. It is a three-pronged approach to boost European technological and industrial capacity and AI uptake across the economy, prepare for socio-economic changes and ensure an appropriate ethical and legal framework. The strategy emphasizes the need for coordination with Member States, to leverage synergy effects and maximize the impact of individual actions undertaken by Member States. This resulted in the adoption of a coordinated plan on AI, to create synergies, pool data and increase joint investments.[57] The aim is to foster cross-border cooperation and mobilize all of the players to increase public and private investments over the coming decade.

In March 2018, the European Group on Ethics in Science and New Technologies (EGE) proposed a set of principles based on the fundamental values laid down in the EU Treaties and Charter of Fundamental Rights of the European Union. Four ethical principles should be distinguished, rooted in fundamental rights, which must be respected to ensure that AI systems are developed, deployed and used in a trustworthy manner:[58]

1. Respect for human autonomy, associated with the right to human dignity and liberty. AI systems should not unjustifiably subordinate, coerce, deceive, manipulate, condition or herd humans. They should be designed to augment, complement and empower human cognitive, social and cultural skills.

2. Prevention of harm and protection of physical or mental integrity. Attention must be paid to situations where AI can cause or exacerbate adverse impacts due to asymmetries of power or information (i.e. between employers and employees, businesses and consumers or governments and citizens).

3. Fairness, the rights to non-discrimination, solidarity and justice. This implies a commitment to ensuring equal and just distribution of both benefits and costs and ensuring that individuals and groups are free from unfair bias, discrimination,

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54 Anna Jobin et al., *The Global Landscape of AI Ethics Guidelines*, 1(9) Nat. Mach. Intell. 389 (2019).

55 Nathalie A. Smuha, *The EU Approach to Ethics Guidelines for Trustworthy Artificial Intelligence*, 20(4) Comput. L. Rev. Int'l 97 (2019).

56 COM (2018)237 final, Brussels.

57 COM (2018)795 final, Brussels.

58 European Group on Ethics in Science and New Technologies, European Commission, Statement on Artificial Intelligence, Robotics and "Autonomous" Systems (March 2018) (Dec. 23, 2020), available at https://ec.europa.eu/research/ege/pdf/ege_ai_statement_2018.pdf.

and stigmatization.[59] This entails the possibility of effective redress against decisions made by AI systems and by the humans operating them.

4. Explicability and responsibility, crucial for building and maintaining users' trust in AI systems. This means that processes need to be transparent, the capabilities and purpose of AI systems openly communicated and decisions explainable to the affected people.

In June 2018, the High-Level Expert Group on Artificial Intelligence (AI HLEG) was established. Its general objective is to support the implementation of the European Strategy on Artificial Intelligence. This includes the elaboration of recommendations on future-related policy development and on ethical, legal and societal issues related to AI, including socio-economic challenges. On 8 April 2019, the AI HLEG published its Ethics Guidelines for Trustworthy AI.[60] According to the Guidelines, trustworthy AI has three main components:

1. It should be lawful, ensuring compliance with all applicable laws and regulations.

2. It should be ethical, ensuring adherence to ethical principles and values.

3. It should be robust, both from a technical and from a social perspective to ensure that, even with good intentions, AI systems do not cause any unintentional harm.

The Guidelines also identify key requirements for trustworthy AI:

• Human agency and oversight – the overall well-being of the user should be central to the system's functionality. Human oversight helps ensure that an AI system does not undermine human autonomy or cause other adverse effects;

• Technical robustness and safety – trustworthy AI requires algorithms to be secure, reliable and robust enough to deal with possible errors or inconsistencies during all stages of the AI system's life cycle, and to adequately cope with erroneous outcomes;

• Privacy and data governance – privacy and data protection must be guaranteed at all life cycle phases of the AI systems;

• Transparency – the traceability of AI systems should be ensured. It is important to log and document the decisions made by the systems and the entire process, including a description of data gathering and labelling, and a description of the algorithm used that yielded the decisions;

• Diversity, non-discrimination and fairness – data sets used by AI systems may suffer from the inclusion of biases, incompleteness and bad governance models. The continuation of such biases could lead to discrimination;

• Societal and environmental well-being. The impact of AI systems should be considered not only from an individual perspective, but also from the perspective

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[59] Raphaele Xenidis & Linda Senden, *EU Non-Discrimination Law in the Era of Artificial Intelligence: Mapping the Challenges of Algorithmic Discrimination* in *General Principles of EU Law and the EU Digital Order* 151 (Ulf Bernitz et al. eds., 2020).

[60] Ethics Guidelines for Trustworthy AI, European Commission, 8 April 2019 (Dec. 23, 2020), available at https://ec.europa.eu/digital-single-market/en/news/ethics-guidelines-trustworthy-ai.

of society as a whole. The use of AI systems should be given careful consideration particularly in situations relating to the democratic process, including opinion-formation, political decision-making or electoral contexts and social impact;

• Accountability – mechanisms should be put in place to ensure responsibility, auditability and accountability for AI systems and their outcomes, before and after their implementation.

On 8 April 2019, the European Commission launched the "Communication on Building Trust in Human-Centric Artificial Intelligence."[61] Ensuring that European values are at the heart of creating the right environment of trust for the successful development and use of AI, the Commission not only stated its support for the key requirements mentioned above, but also encouraged all stakeholders to implement them when developing, deploying or using AI systems.

On 19 February 2020, the European Commission published "White Paper on Artificial Intelligence,"[62] aiming to foster a European ecosystem of excellence and an ecosystem of trust. The White Paper presented the policy framework setting out measures to align efforts at the European, national and regional levels. The objective of the framework is to mobilize resources to achieve the "ecosystem of excellence" along the entire value chain, starting in research and innovation. It should create the right incentives to accelerate the adoption of solutions based on AI. Small and medium-sized enterprises are included, due to the partnership between the private and the public sectors. The White Paper also presented the key elements of a future regulatory framework for AI in Europe that would create an "ecosystem of trust." It is a policy objective to give citizens the confidence to take up applications, and to give companies and public organizations the legal certainty to innovate using AI. Regulations must ensure compliance with EU rules, especially those protecting fundamental rights and consumers rights.

4.2. Regulatory Challenges in the European Union

The Communications, Guidelines and White Paper mentioned above are instances of what is termed non-legislative policy instruments, or soft law.[63] They are non-binding and as such do not create any legal obligations. However, many existing provisions of EU law already reflect their key requirements, for example in safety, personal data protection, privacy and environmental protection rules. Although enforcement of ethical principles may involve the loss of reputation in the case of misconduct or restrictions on membership in certain professional bodies, there is,

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61 COM (2019)168 final, Brussels.

62 COM (2020)65 final, Brussels.

63 Lorne Sossin & Charles W. Smith, *Hard Choices and Soft Law: Ethical Codes, Policy Guidelines and the Role of the Courts in Regulating Government*, 40(3) Alberta L. Rev. 867 (2003).

however, a lack of mechanisms to reinforce their own normative claims and thus, in many cases, no significant influence over decision-making occurs.[64]

A growing number of legally binding rules at the European, national and international levels already apply or are relevant to the development, deployment and use of AI systems today. Legal sources include EU primary law (the Treaties of the European Union and its Charter of Fundamental Rights), EU secondary law (such as the General Data Protection Regulation, the Product Liability Directive, the Directive on Security of Network and Information Systems, the Regulation on the Free Flow of Non-Personal Data, anti-discrimination Directives, consumer law and Safety and Health at Work Directives), the U.N. Human Rights treaties and the Council of Europe conventions (such as the European Convention on Human Rights), and numerous EU Member State laws. Besides horizontally applicable rules, domain-specific rules exist that apply to particular AI applications (e.g. the Medical Device Regulation in the healthcare sector).

Nonetheless, certain updates to that framework may be necessary to reflect the digital transformation and the use of AI. It is important to assess whether EU legislation can be enforced adequately to address the risks created by AI systems, or whether adjustments are needed to specific legal instruments, because the use of AI in products and services can give rise to risks that EU legislation currently does not explicitly address.

The regulatory regime must primarily define what exactly it is that the regime regulates and define the meaning of artificial intelligence. Unfortunately, there does not yet appear to be any widely accepted definition of artificial intelligence, neither in legal acts nor in doctrine, even among experts in the field.[65] There are actually some definitions,[66] but the difficulty in defining artificial intelligence lies not in the concept of artificiality but in the conceptual ambiguity of intelligence. It is possible that with the development of AI and robotics, it will become necessary to adopt separate regulations devoted especially to them.[67]

Currently, AI is of interest in the aspect of cybersecurity and personal data protection. Over the past several years, the cybersecurity regulatory landscape in the European Union has undergone unprecedented change. Cybersecurity laws and regulations have replaced preexisting general risk management and business

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64 Thilo Hagendorff, *The Ethics of AI Ethics: An Evaluation of Guidelines*, 30(1) Minds and Machines 99 (2020).

65 Matthew U. Scherer, *Regulating Artificial Intelligence Systems: Risks, Challenges, Competencies, and Strategies*, 29(2) Harv. J.L. & Tech. 353 (2016).

66 COM (2018)237 final, p. 1: "Artificial intelligence (AI) refers to systems that display intelligent behaviour by analysing their environment and taking actions – with some degree of autonomy – to achieve specific goals. AI-based systems can be purely software-based, acting in the virtual world (e.g. voice assistants, image analysis software, search engines, speech and face recognition systems) or AI can be embedded in hardware devices (e.g. advanced robots, autonomous cars, drones or Internet of Things applications)."

67 Joanna D. Caytas, *European Perspectives on an Emergent Law of Robotics*, 12 Colum. J. Eur. L. 12 (2017).

continuity rules.[68] One of the key EU documents in this field is the Cybersecurity Strategy of the European Union: An Open, Safe and Secure Cyberspace (EUCSS).[69] This document states that the same norms, principles and values, such as fundamental rights, democracy and the rule of law , which are protected in the reality of daily life need to be protected as well in cyberspace, from incidents, malicious activities and misuse.

The first horizontal legislation undertaken at the EU level for the protection of network and information systems across the Union is Directive 2016/1148 (the NIS Directive).[70] The Directive has three main aims: increasing capabilities of the Member States, increasing EU-wide cooperation and risk management and reporting. The Directive affects two categories of undertakings, under an admittedly differentiated approach in terms of obligations placed upon each one of them: operators of essential services and digital service providers. Each Member State must adopt a national framework in order to be in compliance with the Directive. The national framework includes the national strategy on the security of network and information systems and the designation of the authorities that will be responsible for the monitoring of the implementation of the Directive.

In terms of institutions, the European Agency for Network and Information Security (ENISA) is the most advanced European body established for dealing with cybersecurity matters. ENISA is responsible for facilitating and coordinating the exchange of information, best practices and knowledge in the field of information security and plays a key role in the implementation of the NIS Directive. Furthermore, it serves as the access point or hub for EU Member States and other bodies. Working with states and other stakeholders, ENISA also serves to develop advice and recommendations on good practices in the field of information security and assists Member States with their own national cybersecurity strategies.

The General Data Protection Regulation,[71] which became applicable on 25 May 2018, is aimed at protecting individuals with regard to the processing of their personal data. The most immediate connection between the use of AI and the protection of privacy concerns the large-scale accumulation of data of the most varied nature in an extremely restricted space. Neural systems and their ability to "learn" from the

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68 Charlotte A. Tschider, *Deus ex Machina: Regulating Cybersecurity and Artificial Intelligence for Patients of the Future*, 5(1) Savannah L. Rev. 177 (2018).

69 EU Cybersecurity Strategy: An Open, Safe and Secure Cyberspace, 7 February 2013 (Dec. 23, 2020), available at www.enisa.europa.eu.

70 Directive 2016/1148 of the European Parliament and the Council of 6 July 2016 concerning measures for a high common level of security of network and information systems across the Union (Dec. 23, 2020), available at www.enisa.europa.eu.

71 Regulation 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) (Dec. 23, 2020), available at www.enisa.europa.eu.

experience accumulated in the reference databases play a central role in research in the field of artificial intelligence. The use of software capable of self-learning has severely reduced the amount of time required for information searching and data processing. Due to this fact, the person to whom these data refer, and whose sphere of confidentiality is at constant risk of breach, loses control of the data, since the person cannot be constantly informed of the passages that the said collection undergoes. Directive GDPR explicitly establishes the individual right of the data subject not to be subjected to a decision based solely on automated processing, including profiling, but there is much discussion of profound social and economic significance over the "right to explanation."[72]

Conclusion

As digital technologies become more and more important and part of every aspect of the lives of the citizens of BRICS and the European Union, people should be able to have trust in them. AI systems need to be human-centric, resting on a commitment to their use in the service of humanity and the common good, with the main goal of improving human welfare and freedom. A cooperative and trustworthy approach is key to enabling "responsible competitiveness," by providing the foundation upon which all those affected by AI systems can place their trust that their design, development and use are lawful, ethical and robust. Trust is a sine qua non prerequisite to ensure a human-centric approach to AI. It is not an end, but rather a means, a tool, which must serve people with the aim of increasing the well-being of people. Human beings should always know whether they are directly interacting with another human being or a machine.

Another aspect of trust is security in cyberspace, which is becoming an increasingly important cross-border area of existence for people of many different countries. It needs both state and in the case of the EU also pan-European regulations, to ensure the appropriate level of safety. Additionally, it is important to provide people with the "right to explanation" in a form that will fulfill citizen's rights, and which do not unduly restrict technological development, making the economies of the BRICS group and the European Union competitive on a global scale.

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[72] Roland Vogl et al. *Rethinking Explainable Machines: The GDPR's "Right to Explanation" Debate and the Rise of Algorithmic Audits in Enterprise*, 34(1) Berkeley Tech. L.J. 143 (2019).

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Information about the authors

Damian Cyman (Gdansk, Poland) – Associate Professor, Department of Financial Law, Faculty of Law and Administration, Gdansk University (6 Jana Bazynskiego St., Gdansk, 80-309, Poland; e-mail: d.cyman@prawo.ug.edu.pl).

Elizaveta Gromova (Chelyabinsk, Russia) – Associate Professor, Department of Business, Competition and Ecological Law, National Research University South Ural State University (78 Lenina Av., Chelyabinsk, 454082, Russia; e-mail: gromovaea@susu.ru).

Edvardas Juchnevicius (Gdansk, Poland) – Professor, Department of Financial Law, Faculty of Law and Administration, Gdansk University (6 Jana Bazynskiego St., Gdansk, 80-309, Poland; e-mail: edvardas.juchnevicius@prawo.ug.edu.pl).