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EDITORIAL

Dear Readers,

This issue of the journal covers the legal regulation of international cooperation in the field of scientific research. Recently, questions arising in connection with this topic are increasingly being discussed both in Russian and in the world jurisprudence. Moreover, not only lawyers but also representatives of various branches of scientific knowledge take an active part in this discussion.

The Government of the Russian Federation implementing the National Project "Science" must ensure the creation of an advanced infrastructure for research and development, the implementation of innovative activities, including the creation and development of a network of unique "Megascience" facilities, the development of artificial intelligence technology. In turn, the implementation of "Megascience" projects is becoming an essential mechanism for the development of Russian science, aimed at obtaining innovations and technologies that contribute to solving various global problems resulting in the development of high-tech industry and products, the creation of advanced equipment. In order to develop the modern infrastructure, international research projects have begun at four unique "Megascience" facilities (PIK, NICA, ISSI-4, SKIF). At the same time, "Megascience" projects are international, combining the scientific potential and financial resources of several states, engaging leading scientists from all over the world and creating international scientific collaborations aiming primarily at obtaining scientific results that cannot be achieved using other equipment.

It is important to note that within the framework of the Strategy for Scientific and Technological Development of the Russian Federation until 2035 and the National Project "Science," there is a need for legal regulation of the unique "Megascience" facilities on the territory of Russia created for conducting fundamental research in various fields and

resulting in new developments and technologies. At the moment, there is no unified system of regulatory legal acts governing the implementation of such projects. We hope that the works presented in this issue will help to better understand the challenges and prospects in this field and be of interest to both rule-makers and the public.

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RESEARCH ARTICLES

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Ways to Improve the Regulation of Projects of the "Megascience" Class

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Abstract: The creation of unique scientific facilities of the "Megascience" class is a very complex and lengthy organizational and technical process, for the implementation of which the resources of several states are usually involved. In connection with the participation in the creation and implementation of a scientific project of the "Megascience" class of several states, it becomes necessary to distribute the rights, duties, costs and powers of project management among the participants. Currently, the Russian Federation lacks a sufficient level of legal regulation of projects of the "Megascience" class. Based on the analysis of Russian and foreign experience in the implementation of scientific projects of the "Megascience" class, the article presents proposals for improving the legal regulation of these projects being implemented on the territory of the Russian Federation. The article also discusses the specific problems that one has to face when implementing projects of the "Megascience" class in Russia, and the ways to solve them. In addition, the authors' definitions of such key terms as "Megascience" class project, "unique scientific facility of the "Megascience class" and "scientific collaboration," which are absent in the current legislation, are proposed. This research was supported by the Russian Foundation for Basic Research (grant 18-29-15036mk "Models for legal regulation of unique scientific facilities of 'Megascience' class at the national and international levels in the context of technological development of the Russian Federation").

Keywords: unique scientific facility; projects of the "Megascience" class; scientific collaboration; researcher mobility; legal regulation

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Contents

I. Introduction

Scientific and technical potential and its implementation are becoming the most important resource for the development of any country. The rapid growth of the economy, the qualitative improvement in the citizens' lives, the transformation of the state into a leader in terms of social indicators are impossible without significant development of science and technology. The current level of development of science indicates that new fundamental scientific knowledge cannot be obtained without conducting research that requires significant financial costs. In this regard, various forms of research cooperation between different states are acquiring more and more importance.

Research cooperation between states is aimed at developing social progress, solving common human problems and revealing the secrets of the surrounding world. As practice shows, international scientific

cooperation is an effective mechanism for conducting research activities, allowing one to obtain intellectual, financial and material resources of various states, which are extremely difficult to obtain only for one, even the most developed, state. The concept of "Megascience" in the world science began to be widely used in the beginning of the 21st century. This term meant the largest scientific complexes that were created in the framework of broad international cooperation.

The Russian Federation participates in many international scientific projects, including the framework of cooperation with the EU (International Thermonuclear Experimental Reactor ITER — (France), Facility for Antiproton and Ion Research — FAIR (Germany), XFEL, BOREXINO and etc.), the USA (Brookhaven National Laboratory — BNL, Deep Underground Neutrino Experiment — DUNE etc.) and the CIS countries (International Radio Astronomy Observatory "Suffa" (Uzbekistan). Many international scientific projects are being implemented in the Russian Federation: NICA (Joint Institute for Nuclear Research, Dubna), Reactor PIK (Petersburg Nuclear Physics Institute named by BP Konstantinov of NRC "Kurchatov Institute," Gatchina) and others.

Each project is unique not only for its technical characteristics, participants and history of implementation, but also different issues of the legal status of the project, legal regulation between the project participants, financing mechanisms.

As part of the implementation of "The Strategy for Scientific and Technological Development of the Russian Federation until 2035," approved by the Decree of the President of the Russian Federation No 642 dated December 1, 2016, and the national project "Science" approved by the Presidium of the Council under the President of the Russian Federation for Strategic Development and National Projects (minutes No 16 dated December 24, 2018), the tasks are set for the development of an advanced infrastructure for research and development, innovation, including the creation and development of a network of unique facilities of the "Megascience" class.

The implementation of the "Megascience" projects concentrates resources on priority research areas and contributes to the creation of the new high-tech industries that create additional highly qualified jobs

in the high-tech industries. In turn, for the implementation of projects, wide scientific collaborations are formed, which gives impetus to the development of both fundamental knowledge and technologies, and creates conditions for the training of young scientific personnel.

In this regard, there is a need for the legal regulation of the functioning of the unique scientific facilities of the "Megascience" class on the territory of Russia that are created for fundamental research in various fields.

An analysis of foreign experience in regulating "Megascience" projects and the problems identified during the implementation of the Russian relevant projects showed that the main proposals for improvement are reduced to the following:

— determination of the legal status of projects and basic concepts;

— regulation of budget financing;

— regulation of public-private partnerships and increasing the attractiveness for private investment;

— regulation of the mobility of scientific personnel and technical specialists.

II. Determination of the Legal Status of Projects of the "Megascience" Class and its Basic Concepts

Currently, scientific and scientific-technical interaction within the framework of the "Megascience" projects is carried out through the creation of various kinds of the scientific collaborations.

If considered from the point of view of the law, this cooperation in the field of "Megascience" can be characterized as social relations arising in the process of financing, designing, creating and operating objects of the global research infrastructure (unique scientific facilities of the "Megascience" class), as well as in the use of scientific results and other results of activities using the specified objects (Tkachenko, 2020, p. 3).

This specific type of social relations has its own circle of participants and its own characteristics.

The formation of scientific collaborations requires the interaction of three key elements:

— researchers (individual scientists and research teams);

— infrastructure that ensures the continuous functioning of the research teams and their projects;

— the state as a regulator of relations between the scientific institutions and research teams (Gorlova, 2020, pp. 139–140).

Depending on the specifics of the organizational and legal model of creating a project of the "Megascience" class, there may be a different circle of participants in collaborations.

It should be noted that Russian legislation does not provide for any regulation of the status of collaborations.

In comparison, within the framework of the Program of Strategic Academic Leadership "Priority-2030," approved by the Decree of the Government of the Russian Federation No 729 dated May 13, 2021, it is provided that educational institutions of higher education wishing to take part in the competitive selection must elaborate a development program that should provide for the implementation of activities with the formation of consortia i.e. associations of other universities, scientific organizations and other organizations on the basis of the cooperation agreements. At the same time, the current legislation of the Russian Federation also does not contain the concept of "consortium," which is an association of legal entities without forming a legal entity. In this regard, the implementation of such forms of cooperation in the form of "consortia" without the formation of legal entities will face a number of legal problems caused by the imperativeness of the budget legislation, procurement legislation, etc.

Obviously, the legal problems of the legal personality of the participants in relations in the sphere of the "Megascience" projects should be solved taking into account the norms of civil law, administrative law, budget law, international law, in compliance with the principle of the scientific creativity freedom, the priority of public interests over the interests of individuals.

It should be noted that the problem of ambiguous or insufficient legal regulation of projects of the "Megascience" class is not a purely Russian problem. Depending on the country, different terms can be used, denoting in fact unique scientific facilities of the "Megascience" class: "Large Research Infrastructures," "Large-Scale Scientific

Infrastructures," "Large Infrastructures for Research, Experimental Development and Innovation," "Tres grandes infrastructures de recherché" (French), "Landmark Research Facilities," "Mega Facilities for Basic Research," *etc*. (Chetverikov, 2018, pp. 14–18).

In part, an attempt to regulate some aspects of activities in the field of"Megascience" in the Russian Federation was made during the development of the draft Federal Law "On scientific and technical activities in the Russian Federation"[1] that was supposed to replace the current Federal Law No 127-FZ dated August 23, 1996, "On Science and State Scientific and Technical Policy." In particular, the draft law highlighted "unique scientific facilities of international class," associations of subjects of scientific and technical activities in the form of "consortia" created in the form of collaborations (national and international). However, after extensive public discussion, the draft law was never officially submitted to the State Duma of the Russian Federation.

Analyzing the current state of legal regulation of activities in the field of "Megascience" in the Russian Federation, it should be noted that it does not fully take into account its features. At the same time, there is a footnote directly in the passport of the national project "Science" that the terms used in relation to the sphere of "Megascience" will be clarified while developing normative legal acts for the implementation of the national project. The absence of a number of concepts used in the regulative legal acts regulating the field of science is also referred to in the report of the Accounts Chamber of the Russian Federation.[2]

It is advisable to consolidate in the legislation of the Russian Federation or the normative legal acts the basic concepts related to the

[1] Draft Federal Law "On scientific and scientific and technical activities in the Russian Federation." Available at: https://www.preobra.ru/attachments/1/63/e6a4db-5367-414e-a160-1ad431de353f/НОВЫЙ_ЗАКОНОПРОЕКТ_О_научной_деятельности.pdf [Accessed 09.05.2021] (In Russ.).

[2] Report on the results of the expert-analytical event "Determination of the main reasons hindering scientific development in the Russian Federation: assessment of the scientific infrastructure, the sufficiency of motivational measures, ensuring the attractiveness of the work of leading scientists." Available at: https://ach.gov.ru/upload/iblock/89d/89d7d756dab6d050a260ecc55d3d5869.pdf [Accessed 09.05.2021] (In Russ.).

regulation of the sphere of "Megascience": "projects of the 'Megascience' class," "scientific collaborations," "unique scientific facilities of the 'Megascience' class."

In comparison, in the Federal Law No 127-FZ dated August 23, 1996, "On Science and State Scientific and Technical Policy" a unique scientific facility is defined as a complex of the scientific equipment that has no analogues in the Russian Federation, functioning as a whole and created by a scientific organization and (or) an educational organization in order to obtain scientific results, the achievement of which is impossible using other equipment.

This definition contains a certain drawback that limits the uniqueness criterion only to the territory of the Russian Federation. At the same time, the needs of the scientific research may provide for the joint operation by Russian educational and scientific organizations of not only Russian unique scientific facilities, but also foreign ones, which may have analogues in the Russian Federation, but of lesser or greater capacity (for example, to check experimental data obtained by the Russian unique scientific facilities).

Therefore, it is advisable to introduce into the Federal Law No 127-FZ dated August 23, 1996, "On Science and State Scientific and Technical Policy" the following legal term "a unique scientific facility of the "Megascience" class, which is a unique unified system complex of the scientific equipment created with the involvement of the resources of several countries and based on the international cooperation in order to obtain scientific results containing fundamental knowledge, technology or products of the global importance, the achievement of which is impossible using other sets of equipment (Moshkova and Lozovskij, 2019, p. 37).

It is also advisable to consolidate the concept of "scientific collaboration" in the legislation that should be understood as an association of scientific and educational organizations, as well as other interested legal entities and individuals, created on the basis of a cooperation agreement that enshrines the mutual rights and obligations of participants in order to create and (or) joint exploitation of research infrastructure and (or) implementation of joint scientific research.

This is necessary to give it a certain legal personality and subsequent regulative normative legal acts. For example, for the opportunity to participate in the competitions for grants, distribution of funding received for collaboration, etc.

Another legal term that needs to be defined is "a project of the 'Megascience' class" that, in our opinion, should be understood as an international scientific project aimed at creating and operating a unique scientific facility of the "Megascience" class and at obtaining breakthrough, innovative scientific results of global significance.

In addition, the key problem in the implementation of any project of the "Megascience" class is the choice of the organizational and legal form in which it will be implemented. The main organizational and legal forms of implementation of projects of the "Megascience" class are (Chetverikov, 2018, pp. 14–25; Lozovskij, 2019, pp. 1–6):

— creation of an international intergovernmental organization for the implementation of a scientific project of the "Megascience" class;

— creation of a separate legal entity for the implementation of a scientific project of the "Megascience" class;

— creation of a scientific project of the "Megascience" class as a structural subdivision of the base (operating the scientific facility) organization.

The civil legislation of the Russian Federation imposes certain restrictions on the use of certain organizational and legal forms for the implementation of projects of the "Megascience" class. Currently, Russia does not have an ideal organizational and legal form of a legal entity, which makes it possible to take into account the following points:

1) the main purpose of the activity is research activity without the purpose of profit making;

2) the number of votes of representatives of the participating country in making managerial decisions depends on the corresponding contribution of the participating state to the construction and operation of the project;

3) the ability to create a gradation of membership types in the organization: full member, associate member and observer, etc.

4) the possibility of creating a "non-standard" structure of control bodies, including those in the form of flexible scientific collaborations

created to manage and finance individual experiments (for example, CERN and its experiments ALICE, ATLAS, CMS, LHCb and etc.) (Smart et al., 2012, pp. 642–644).

In comparison, the European X-Ray Free-Electron Laser Facility GmbH was established in the Federal Republic of Germany in the legal form of a limited liability company. This organization is the operator of an international project to create the world's largest free electron laser, designed to monitor the course of chemical reactions. Each member state, including the Russian Federation, contributes to the authorized capital of this project, which creates and operates the European X-Ray Free-Electron Laser. The establishment and operation of the European X-Ray Free-Electron Laser Facility GmbH, in addition to the legislation of the Federal Republic of Germany, are regulated by the relevant international convention signed by the member states.

From the point of view of the Russian legislation, the organizational and legal form of a "business company" is recognized as a commercial organization created to make a profit; therefore, it cannot formally be considered as corresponding to the goals of projects of the "Megascience" class.

In this regard, a non-profit corporate organization appears to be a more suitable type of a legal entity for the implementation of a "Megascience" class project which does not pursue profit-making as the main goal of its activities and does not distribute the received profit among the participants, whose founders (participants) acquire the right to participate (membership) in them and form their supreme governing body or the general meeting of members.

In accordance with Chapter 4 of the Civil Code of the Russian Federation, non-profit corporate organizations are created in the organizational and legal forms of consumer cooperatives, public organizations, associations (unions), notary chambers, real estate partnerships, Cossack societies entered in the state register of the Cossack societies in the Russian Federation, as well as communities of indigenous peoples of the Russian Federation.

It should be noted that, firstly, these organizational and legal forms do not fully reflect the specifics of the activities of scientific organizations. Secondly, each member of a non-profit organization

has one vote, regardless of the degree of participation in the formation of the property of a non-profit organization, which creates risks of incomplete consideration of the interests of the Russian Federation in the implementation of the "Megascience" projects with a significant amount of budget funding from the Russian Federation.

Implementation of a "Megascience" class project by creating an organization or the operator of the project in the form of an international intergovernmental organization is the optimal form for organizing international cooperation, since it allows you to bypass the restrictions of national legislation and take into account the interests of other participating states within the framework of the agreement on the creation of such an organization. Also, officials and other employees of an international intergovernmental organization, in accordance with the agreement on its creation, can grant immunities and benefits in the participating states, which make it possible to simplify their mobility associated with performing functions for the implementation of a "Megascience" class project.

However, in the options for creating an international intergovernmental organization or a legal entity under national legislation, there are also negative aspects associated with the fact that in the territory of the Russian Federation, projects of the "Megascience" class will be implemented with significant attraction of federal budget funds, but legally all created scientific infrastructure and scientific equipment will not be a federal property.

Leading Russian scientific organizations are state institutions, including the federal state budgetary institution "National Research Center 'Kurchatov Institute'" under the jurisdiction of the Government of the Russian Federation. These institutions are funded from the federal budget. Most of them are created in the organizational and legal forms of autonomous and budgetary institutions.

At the same time, the Russian legislation provides for significant restrictions in their activities in relation to these organizational and legal forms:

— these are non-profit unitary organizations, therefore, it is impossible to fully take into account the contributions of the foreign participants for project management;

— the need to comply with lengthy procedures for coordinating the disposal of real estate and especially valuable property of institutions;

— a strictly regulated procedure for the procurement of goods, works, services for the needs of the institution, associated with the need for auctions and tenders (Federal Laws No 223-FZ dated July 18, 2011, "On the procurement of goods, works, services by certain types of legal entities," No 44-FZ dated May 5, 2013, "On the contract system in the procurement of goods, works, services to meet state and municipal needs"). At the same time, the legislation establishes a limited list of grounds for concluding an agreement with a single supplier;

— a special procedure for spending funds when providing targeted subsidies and subsidies for capital investments in the capital construction objects of the state property: if the subsidy provided was not spent in the current fiscal year, then it is necessary to obtain the consent of the founder for use in the next fiscal year, since otherwise, it is a subject to return to the budget.

The above restrictions reduce the attractiveness of the participation of foreign participants in the implementation of projects of the "Megascience" class, implemented as a structural subdivision of the main (operating a scientific facility) organization.

Thus, the introduction into the legislation of the Russian Federation the basic concepts in the field of "Megascience," the foundations of legal regulation of these projects will create the preconditions for their further development and implementation of the performance indicators established by the national project "Science."

III. Regulation of Budget Financing

World practice shows that state budgets are the key source of the "Megascience" projects financing. At the same time, the practice of creating international projects is very common, which provides for funding from several member states of the relevant projects. Such joint cooperation and financing certainly help to reduce costs per participant.

The overwhelming predominance of funding from the federal budget should be attributed to the main features of financing research projects of the "Megascience" class in the Russian Federation. This is a factor

indicating that, for various reasons, there are problems of international scientific cooperation on the territory of the Russian Federation.

"Megascience" projects on the territory of the Russian Federation are being implemented both on the basis of various institutes of the National Research Center "Kurchatov Institute" and on the basis of the international intergovernmental organization of the Joint Institute for Nuclear Research (JINR, Dubna). However, JINR is also an example where financial investments from the federal budget of the Russian Federation prevail, despite the membership of 17 more states.

The inclusion of unique scientific facilities of the "Megascience" class in the national project "Science" is a positive moment, since the financing of such facilities is carried out within the framework of performance-based budgeting, i.e. with reference to the specific goals to be achieved. The program method is aimed at solving the global tasks set for the state:

— concentration of funds on the basic directions of scientific research;

— stabilization of subsidizing certain scientific developments;

— organization of research work within the specified time frame and ensuring effective control over the targeted use of appropriations from the federal budget (Arzumanova and Sitnik, 2021, p. 31).

In the report of the Accounts Chamber of the Russian Federation on the results of the expert and analytical event "Determination of the main reasons hindering scientific development in the Russian Federation: assessment of the scientific infrastructure, the sufficiency of motivational measures, ensuring the attractiveness of the work of the leading scientists"[3] formulated the following conclusions:

— the total amount of appropriations for civil science from the federal budget in 2019 is 422.15 billion rubles, or 2.65 % of federal budget expenditures, of which expenditures on basic research are 178.4 billion rubles, or 1.1 % of federal expenditures budget;

[3] Report on the results of the expert-analytical event "Determination of the main reasons hindering scientific development in the Russian Federation: assessment of the scientific infrastructure, the sufficiency of motivational measures, ensuring the attractiveness of the work of leading scientists." Available at: https://ach.gov.ru/upload/iblock/89d/89d7d756dab6d050a260ecc55d3d5869.pdf [Accessed 09.05.2021] (In Russ.).

— Russia falls in a number of financial indicators and qualitative characteristics of science behind the level of developed countries. Russia ranks tenth in the ranking of the world's leading countries in terms of domestic spending on research and development, calculated in terms of the purchasing power parity of national currencies. In terms of the share of spending on science in GDP (1.1 %), Russia falls significantly behind the leading countries of the world, being in 34th place. The position on the indicator of internal expenditures on research and development per researcher (in full-time equivalent) is even lower — 47th place (93,000 USD);

— in relation to GDP and to the expenditure side of the federal budget, expenditures on civil science do not increase. With the implementation of such a state policy of financing science, it is difficult to expect the country's outstripping scientific and technological development. Moreover, while maintaining the inertial development model, the risk of a decrease in scientific potential increases. Under these conditions, Russian science cannot act as an essential driver of economic growth;

— the system of measures of state support for the development of science in the Russian Federation, as well as the system of principles for the formation and application of these measures, is not legally fixed. As a result, state support for scientific institutions, organizations, scientists and researchers is carried out on the basis of separate decisions of the President of the Russian Federation and the Government of the Russian Federation.

The report of the Russian Academy of Sciences "On the implementation of the state scientific and technical policy in the Russian Federation and the most important scientific achievements obtained by the Russian scientists in 2019"[4] states that the situation recorded at the meeting of the Council on Science and Education under the President of the Russian Federation held on 24 June 2015, the annual volume of budgetary allocations for basic science at a level not lower than 0.15 % GDP is being fulfilled.

[4] Report on the implementation of the state scientific and technical policy in the Russian Federation and the most important scientific achievements obtained by Russian scientists in 2019. Available at: http://www.ras.ru/viewstaticdoc.aspx?id=82fd744b-756b-4a61-b353-1daf22d8a230&_Language=ru [Accessed 09.05.2021] (In Russ.).

At the same time, taking into account the fact of insufficient financing of measures to create an advanced infrastructure for scientific research, including the development of "Megascience" facilities, indicated by the Accounts Chamber of the Russian Federation, it may be advisable to consider the option of creating a targeted budget fund within the federal budget intended for effective financing and implementation of projects of unique scientific facilities of the "Megascience" class (Arzumanova and Sitnik, 2021, pp. 33–34). "Megascience" class projects have been implemented for decades, and therefore the funds of this fund could act as a guarantee of ensuring the financial obligations of the state, including an increase of the attractiveness for foreign participants and industry representatives.

The Russian approach to the implementation of the "Megascience" projects on the basis of legal entities created within the framework of national law does not provide a sufficient degree of transparency in financing such projects: there is practically no relevant information in the public domain, and financial control is exercised by the state bodies, the results of which are often not published. It seems that this creates the preconditions for reducing the attractiveness of Russian projects for foreign participation.

Assigning the functions of the operator of "Megascience" projects to an international intergovernmental organization or a specially created organization with the distribution of shares among the countries participating in the project allows for greater transparency of information on the progress of its implementation in general and financing in particular. These organizations publish financial statements annually, which are subject to independent audits, since the interests of not only the federal budget, but also the budgets of the member states are affected.

IV. Regulation of Public-Private Partnerships and Increasing the Attractiveness for Private Investment

Depending on the type of the "Megascience" class projects, both fundamental and applied research can be carried out on them. This is especially true for sources of synchrotron radiation, where world

experience shows that there is a great demand for commercial research. For example, in the research accelerator complex, a fourth-generation synchrotron radiation source, the European Synchrotron Radiation Facility (ESRF), located in Grenoble, France, up to 30 % of research projects are carried out with the participation of industrial partners.

In the Russian Federation, according to the Federal Scientific and Technical Program for the Development of Synchrotron and Neutron Research and Research Infrastructure for 2019–2027, approved by Decree of the Government of the Russian Federation dated March 16, 2020 No 287, it is planned:

— to create a 4+ generation synchrotron radiation source (Novosibirsk region) (Center for Collective Use "SKIF");

— to create of a prototype of a pulsed neutron source based on an evaporative-shear-type reaction (Protvino, Moscow Region);

— to put into operation (including design, construction and technical operation) at least 25 research stations of the International Center for Neutron Research based on the high-flux research nuclear reactor "PIK" (Gatchina, Leningrad Region);

— to develop a project for a unique scientific facility of the "Megascience" class (Russky Island);

— to upgrade the Kurchatov specialized source of synchrotron radiation "KISI-Kurchatov" (Moscow).

When implementing domestic projects of the "Megascience" class, scientific organizations of the Russian Federation are able to accumulate around themselves wide international scientific collaborations, including not only scientific and educational organizations, but also representatives of large industry. For example, as noted by A.E. Blagov, director of the National Research Center "Kurchatov Institute," the Megascience facilities at the National Research Center "Kurchatov Institute" operate as a center for collective use, while half of the applications for the experiment at the synchrotron and at the IR-8 reactor come from external organizations (Leskova, 2020, p. 53).

Thus, a great potential is being created in the Russian Federation for the development of synchrotron and neutron research, which may be of increased interest for practical applications, including commercial

one (Nurbina, Nurakhov, Balyakin and Tsvetus, 2021, p. 489). In this regard, the development of public-private partnerships to stimulate innovative business development and save budget funds are becoming very relevant.

It is worth noting the advantages of participating in public-private partnerships for the state and private bodies in the framework of implementation of scientific projects, including Megascience projects.

Positive aspects for the state include:

— ensuring high efficiency of partnership results;

— the possibility of attracting additional sources of investment;

— obtaining a new joint innovative product from a partnership and a new technology as a product of such activities;

— creation of advanced infrastructure for the implementation of a Megascience project.

The advantages of participating in a public-private partnership for private businesses include:

— obtaining state assets for long-term use;

— guaranteed own investments;

— the reliability of the obtained results;

— additional sources for the further development of private business.

The main task of public-private partnerships is fair distribution of risks between private business and government bodies and ensuring that each party receives a reward based on the accepted risk.

In the Russian Federation, the Federal Law No 224-FZ "On Public-Private Partnership, Municipal-Private Partnership in the Russian Federation and Amendments to Certain Legislative Acts of the Russian Federation" dated July 13, 2015, that defines the state (municipal) private partnership, its goals and principles, the status of a public partner and the obligations of partners are disclosed, restrictions for private partners are indicated, the distribution of financial results and control over them are fixed. It should be noted that the adoption of this law indicates positive dynamics in the development of cooperation between the state (municipalities) and private investors.

In Russia, public-private partnership has been applied for a relatively short time and mainly in the construction of roads, airports, water supply and sanitation systems, and heat supply. The plans include the implementation of projects within the framework of public-private partnerships in the field of social infrastructure, including the educational and scientific fields.

However, the current version of Article 7 of Federal Law No 224-FZ dated July 13, 2015, "On Public-Private Partnership, Municipal-Private Partnership in the Russian Federation and Amendments to Certain Legislative Acts of the Russian Federation" does not provide for opportunities for concluding agreements on state-private partnership in relation to scientific infrastructure facilities, with the exception of sea and river vessels that may carry out scientific research activities. Also indirectly, the objects of public-private partnership agreements that can potentially be used in the field of "Megascience" include programs for electronic computing machines (computer programs), databases, information systems and data processing centers.

In this regard, the modernization of the Federal Law No 224-FZ dated July 13, 2015,"On Public-Private Partnership, Municipal-Private Partnership in the Russian Federation and Amendments to Certain Legislative Acts of the Russian Federation" in terms of the dissemination of public-private partnership mechanisms for the creation of scientific infrastructure facilities, including projects of the "Megascience" class, can be considered as one of the ways to improve the regulation of projects of the "Megascience" class.

In addition, the issue of increasing the attractiveness of projects of the "Megascience" class for private investment and the subsequent commercialization of scientific results should be taken into consideration. According to the national project "Science," it is assumed that its funding will be carried out from various sources:

— 404.8 billion rubles: money from the federal budget;

— 231.2 billion rubles: extrabudgetary sources of funding (approximately 36.4 % of the total funding).

The creation of a special economic zone in accordance with the Decree of the Government of the Russian Federation No 781 dated

December 21, 2005, "On the Creation of a Special Economic Zone of a Technical-Innovative Type on the Territory of Dubna (Moscow Region)" has become a certain experience in attracting private business to participate in the commercialization of scientific developments.

For the commercialization of the developments of scientists in the special economic zone "Dubna," such companies as "DViN" (means of detecting explosives and other substances based on the tagged neutron technology developed at the Joint Institute for Nuclear Research (JINR)), "Innovation Alliance" (obtaining super-smooth surfaces of various materials), "NanoBrahiTek" (LLC "BEBIG") (drugs for the treatment of oncology), "InterGraphics" (the main task of the company is to create qualitatively new teaching resources for various levels of education using modern information and communication) are registered as residents of the special economic zone "Dubna." The first three enterprises are also located on the territory of the Joint Institute for Nuclear Research (JINR); nevertheless, they enjoy all the preferences and benefits of residents of the special economic zone on a general basis.[5] Thus, the creation of a special economic zone has made it possible to significantly increase the interest of private investors in the implementation of joint projects with the Joint Institute for Nuclear Research (JINR).

In accordance with the Tax Code of the Russian Federation and the Law of the Moscow Region No 151/2004-OZ dated November 24, 2004, "On Preferential Taxation in the Moscow Region," the following tax benefits are provided for residents of the special economic zone "Dubna":

— the establishment of reduced tax rates for corporate profit tax to be credited to the budget of the Moscow region, from activities carried out in the territory of the special economic zone, in the amount of:

0 %: within eight years, starting from the first day of the quarter following the date of their recognition as residents of the special economic zone, but no longer than the period of existence of the special economic zone;

[5] OEZ "Dubna": v kooperatsii s mezhdunarodnym nauchnym tsentrom [SEZ "Dubna": In cooperation with the international research center"]. Available at: http://oezdubna.ru/about/news/oez-dubna-v-kooperatsii-s-mezhdunarodnym-nauchnym-tsentrom/ [Accessed 09.05.2021] (In Russ.).

5 %: in the period from the ninth to the fourteenth year inclusive, starting from the first day of the quarter following the date of their recognition as residents of the special economic zone, but no longer than the period of existence of the special economic zone;

13.5 %: upon the expiration of fourteen years, starting from the first day of the quarter following the date of their recognition as residents of the special economic zone, but no longer than the period of existence of the special economic zone;

— exemption from payment of tax on the property of organizations used on the territory of the special economic zone, within ten years from the month following the month of registration of the specified property;

— exemption from payment of land tax with regard to land plots located on the territory of the special economic zone, for a period of five years from the month when the ownership rights for each land plot were accrued;

— exemption from payment of transport tax, except for cars, water and air vehicles, for five years, starting from the month of registration of the vehicle, but no longer than the period of existence of the special economic zone;

— VAT is imposed at a zero rate on the sale of goods placed under the customs procedure of a free customs zone;

There are other examples of complex legal incentives in the Russian legislation to attract investment in the innovation sector. For example, Federal Law No 244-FZ dated September 28, 2010, "On the Skolkovo Innovation Center," and Federal Law No 216-FZ dated July 29, 2017, "On Innovative Science and Technology Centers and on Amendments to Certain Legislative Acts of the Russian Federation."

These federal laws provide for the following categories of benefits for participants in these projects:

— reimbursement of expenses for payment of customs duties;

— tax incentives: VAT, income tax, corporate property tax, land tax, state duty;

— reduced insurance premiums;

— simplification of procedures for attracting foreign citizens to work;

— simplification of requirements for the implementation of medical activities;

— simplification of requirements for the implementation of educational activities.

It is expected that the above-mentioned support of scientific, small innovative organizations, work taking into account the local concentration of all objects of the necessary infrastructure in a single circuit of the innovative scientific and technological center will have a significant synergistic effect. At the same time, for the implementation of an innovative scientific and technological center, a special decentralized management model is being created in the form of a fund and a managing company.

Moreover, in the cases specified by the Federal Law No 216-FZ dated July 29, 2017, "On Innovative Scientific and Technological Centers and on Amendments to Certain Legislative Acts of the Russian Federation" the powers of a managing company in exercising the functions of managing an innovative scientific and technological center are by their nature similar to the powers of state authorities of the constituent entities of the Russian Federation and local government bodies, and the powers of federal state authorities, bodies of the social insurance fund of the Russian Federation on the territory of an innovative scientific and technological center can be exercised by specially created subdivisions (Andreev, 2017, p. 118).

Another important aspect of activities aimed at attracting private investment and extrabudgetary funding for fundamental research is the need to comply with a special order of disposal of state property. Leading Russian scientific organizations have been created in the organizational and legal forms of autonomous and budgetary institutions. According to the legislation of the Russian Federation, an autonomous and budgetary institution is not the owners of the property assigned to them, therefore in order to dispose immovable property and especially valuable movable property, it is necessary to obtain the consent of the owner (founder) (Article 9.2 of the Federal Law No 7-FZ dated January 12, 1996, "On Non-Commercial Organizations", Article 3 of the Federal Law No 174-FZ dated November 3, 2006, "On Autonomous Institutions"). In addition,

for the lease or free use of immovable property of autonomous and budgetary institutions, it is necessary to hold tenders or auctions for the right to conclude these agreements (Article 17.1 of the Federal Law No 135-FZ dated July 26, 2006, "On Protection of Competition").

Given the specifics of research activities and the lack of increased demand from private business, it is advisable to consider the possibility of providing immovable property and especially valuable movable property involved in the implementation of the "Megascience" class projects in a simplified manner, including to foreign scientific and educational organizations for joint scientific activities.

Given the existence of such experience in legal regulation, it seems appropriate to provide additional measures to stimulate scientific activity and the implementation of the "Megascience" class projects. The use of such mechanisms can significantly increase their investment attractiveness.

V. Regulation of the Mobility of Scientific Personnel and Technical Specialists

International scientific cooperation is not complete without administrative barriers arising in the framework of the mobility of scientists (Kilinkarova et al., 2020, p. S256). The concept of a "scientific visa" for the legislative support of researchers' mobility has been discussed for decades, but has never been implemented with full effectiveness.

Council Directive 2009/50/EC of May 25, 2009, implements the EU Blue Card project to establish conditions for the entry and stay of third-country citizens for the purpose of highly qualified work.

The advantage of the card is that it replaces two documents at once: a residence permit and a work permit. In addition, it provides a lot of benefits, procedural simplifications, social benefits for highly educated migrants who want to stay, live and work in the EU, if not forever, then for a long time. However, there is a significant limitation for obtaining a "blue card." Provided that an annual salary is 1.5 times higher than the average level in the host country.

As part of the Horizon 2020, the EU Framework Program for Research and Innovation, the European Union has tried to offer many opportunities for the transit of researchers between the continent and the rest of the world. Since 2008, the EU has encouraged member states to include a 'scientific visa package' in their national legislation to ensure smooth administrative procedures for visa approval and to facilitate entry into Europe for researchers from third countries (Lami, 2017, pp. 7–8).

For example, CERN, whose facilities are located on Swiss and French territories, has always helped researchers obtain residence permits in any country, assuming that they work more than 50 percent of their time at CERN with a contract longer than three months. In fact, the Swiss Federal Department of Foreign Affairs issues a carte de legitimation ("Swiss card") to CERN researchers and their families, which ensures immunity from jurisdiction in Switzerland in the exercise of their functions. Moreover, this gives the owner the right to live in Switzerland and travel within the Schengen area without a visa. Likewise, the French Ministry for Europe and Foreign Affairs: provides CERN staff and their families with a French card that functions in the same way as the Swiss equivalent.

In the Russian Federation, there are also simplified mechanisms for attracting highly qualified specialists. In particular, the Federal Law No 115-FZ dated July 25, 2002, "On the Legal Status of Foreign Citizens in the Russian Federation" provides for simplified procedures for attracting highly qualified specialists: a residence permit is issued without obtaining a temporary residence permit; it is not required to obtain a permit to attract and use foreign workers; quotas for the issuance of invitations to enter the Russian Federation for employment are not applied; quotas for the issuance of work permits to foreigners are not applied; highly qualified specialists are exempted from confirming knowledge of the Russian language, knowledge of the history of Russia and the fundamentals of the legislation of the Russian Federation.

However, for the recognition of a foreign scientist as a highly qualified specialist, several mandatory requirements must be met:

— the amount of a salary 83,500 rubles and more per calendar month;

— must have the necessary level of competence and qualifications, while the employer independently evaluates the competence and level of qualifications of foreign citizens whom they wish to attract as highly qualified specialists, and bear the corresponding risks.

It should be noted that for foreign citizens participating in the implementation of the Skolkovo project in accordance with the Federal Law No 244-FZ dated September 28, 2010, or participating in the implementation of the project of creating and ensuring the functioning of an innovative scientific and technological center in accordance with the Federal Law No 216-FZ dated July 29, 2017, minimum wage requirements are not established for recognition as highly qualified specialists. In this regard, a reasonable proposal arises to extend this approach not only to innovative activities, but also to conduct fundamental scientific research in Russian projects of the "Megascience" class. In conditions of insufficient funding for scientific research, very few Russian scientific and educational organizations have a real opportunity to attract leading foreign scientists, using the procedure for recognizing them as highly qualified specialists. In addition, foreign scientists are often attracted to work in Russian organizations on a part-time basis, and not as at their main place of work.

The Concept of the State Migration Policy of the Russian Federation for 2019–2025, approved by the Decree of the President of the Russian Federation No 622 dated October 31, 2018, provides that some of the tasks of the migration policy are:

— to improve the legal, organizational and other mechanisms that regulate and ensure the entry into the Russian Federation and the stay on its territory of foreign citizens wishing to develop economic, business, professional, scientific, cultural and other ties, to study the language, history and culture of our country, who are able to contribute to the economic, social and cultural development of Russia through their work activities, knowledge and competencies;

— to create a favorable climate for the free movement of students, scientific and pedagogical workers in order to develop science, vocational education, improve the level of training of scientific personnel and specialists for the branches of the economy and the sphere of public administration of the Russian Federation.

According to published statistics for 2018,[6] 9007 foreign scientists visited the Russian Federation.

In particular, the practice of attracting foreign scientists to work in Russian scientific and educational organizations is very limited due to a number of reasons:

— insufficient funding;

— insufficient quality material and technical base of research;

— difficulties with social infrastructure, lack of housing;

— the geographical unattractiveness of many regions of the Russian Federation for foreigners;

— the imperfection of the Russian legislation with regard to employment of workers from other countries (Dyachenko, Nefedova and Streltsova, 2017, pp. 139–141).

The imperfection of Russian legislation in relation to foreign scientists and technical specialists involved in scientific activities is manifested in the requirements of the Russian migration legislation of the Russian Federation. In particular, foreign citizens invited to Russia as scientific and pedagogical workers to engage in research or teaching activities are issued an ordinary work visa for up to three months with the possibility of its subsequent extension for the duration of the concluded labor or civil law contract, but for no more than 1 year for each subsequent visa. Many foreign specialists refuse to cooperate with Russian universities and scientific organizations, since this imposes on them the need to go through visa procedures multiple times.

As the experience of the Russian Federation in optimizing migration issues, we can consider the Fan ID during the 2018 FIFA World Cup. In accordance with the established requirements,[7] foreign spectators leave the Russian Federation without issuing visas on valid identity documents recognized by the Russian Federation, and on a Fan ID

[6] Vzaimodeystviye rossiyskikh nauchnykh organizatsiy i obrazovatelnykh uchrezhdeniy vysshego obrazovaniya s inostrannymi uchenymi v 2018 godu [Interaction of Russian research organizations and educational institutions of higher education with foreign researchers in 2018]. Available at: https://нтф.рф/upload/iblock/8ef/e8f5824ec4da67137b4cd6e94abcb51e.pdf [Accessed 09.05.2021] (In Russ.).

[7] 2018 FIFA World Cup. Fan ID. Available at: https://en.mvd.ru/fan-id [Accessed 09.05.2021].

(personalized spectator card), both on paper and in electronic form. The Fan ID confirms the right of a foreign spectator to enter the Russian Federation, stay in the Russian Federation and leave the Russian Federation during the specified period.

As a possible option for applying similar simplified procedures for the implementation of projects of the "Megascience" class in the Russian Federation, it is advisable to consider the option of a "passport of a scientist in the field of "Megascience", which could be issued by operators of Russian projects of the "Megascience" class.

For the official employment of a foreign scientist in the Russian Federation, it is necessary to recognize his academic degree, academic title obtained in a foreign state. The mechanism for the recognition of foreign academic degrees provides for 3 possible options:

1) automatic recognition in case of falling within the international treaties of the Russian Federation, as well as received in foreign scientific organizations and educational organizations, the list of which is approved by the order of the Government of the Russian Federation No 799-p dated April 22, 2019;

2) recognition of an academic degree through the Ministry of Science and Higher Education of the Russian Federation (the term for the provision of the service is not more than 5 months);

3) the state academies of science and educational organizations of higher education specified in Section 10 of Article 11 of the Federal Law No 273-FZ dated December 29, 2012, "On Education in the Russian Federation", have the right to independently, in the manner established by them, recognize foreign academic degrees, foreign scientists titles in order to organize access of their holders to professional activities in the specified state academies of science and educational institutions of higher education.

There are also problems with holding positions for foreign scientists. For example, a Nobel laureate who does not have a scientific degree, due to formal requirements, cannot hold certain positions related to the teaching staff or scientific workers.

Thus, in the regulation of the mobility of scientific personnel and technical specialists in the field of "Megascience," there are many challenging issues that need to be improved.

VI. Conclusions

Modern fundamental science can no longer be imagined without unique scientific facilities of the "Megascience" class, in particular, the well-known CERN with the Large Hadron Collider and ITER with an experimental thermonuclear reactor. The role of international cooperation in the creation of unique scientific facilities of the "Megascience" class and in the training of young researchers is growing. In general, international scientific cooperation is one of the examples of successful interaction of states to solve global problems.

From a legal point of view, projects of the "Megascience" class are complex multidimensional phenomena that touch upon issues of various branches of law: civil, financial, labor, administrative, land and, of course, international law.

The ambitious tasks set by the national project "Science" imply the creation on the territory of the Russian Federation of a network of unique scientific facilities of the "Megascience" class to increase the scientific research potential of the country. Considering that projects of the "Megascience" class will be implemented on the territory of the Russian Federation with the attraction of significant funds from the federal budget, the absence of an appropriate regulatory framework creates certain risks for the interests of the state. The success of this activity depends on the quality of legal regulation.

In this regard, it seems appropriate to consider various options for improving the legislation of the Russian Federation in the field of regulation of projects of the "Megascience" class, including:

— determination of the legal status of projects of the "Megascience" class, basic terms, used organizational and legal forms;

— improvement of budget funding, including with the possibility of creating a targeted budget fund, as well as transparency of expenditures for the implementation of specific projects;

— modernization of legislation on public-private partnership in order to ensure the possibility of its application in projects of the "Megascience" class;

— provision of tax and customs incentives to participants in projects of the "Megascience" class, including private businesses;

— simplification of procedures for the provision of state-owned real estate for the needs of participants in projects of the "Megascience" class and commercial organizations involved in the commercialization of scientific results;

— simplification of the procedure for attracting foreign highly qualified specialists to participate in projects of the "Megascience" class by analogy with the Skolkovo project and innovative scientific and technological centers (abolition of the minimum wage for a highly qualified specialist);

— simplification of migration procedures for scientists and technical specialists involved in projects of the "Megascience" class on the territory of the Russian Federation (as an option, a "passport of a scientist in the field of "Megascience");

— simplification of procedures for confirming the level of education and academic degree carried out in the employment of foreign scientists in the Russian Federation.

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ARTICLES

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Proposals for Modernization of Legal Regulation of Artificial Intelligence and Robotics Technologies in Russia with Platform Legal Models

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Abstract: Modern technologies and new management concepts — industrial and product platforms — create breakthrough innovative products and services based on the complex integration of artificial intelligence and other latest digital technolog3ies. Platforms are the physical embodiment of connectivity, digitalizing traditional manufacturing, lowering production costs, and converting goods into services that generate more value. Platform law could become a networking mechanism for artificial intelligence, big data, and the internet of things. It has features and instruments of legal regulation similar to those of integration law, but it is permeated, in accordance with its renewed nature, with scientific, technological and information-digital algorithms of legal relations and interactions. To meet the requirements of the time, legal institutions must change; the dominance of platform business models creates new legal relations and the need to search for new content and new legal forms of institutional regulation of changing social relations. Both traditional and adapted for its specifics methods are used in the article: historical, from the EU law — teleological (interpretation based on goals), comparative jurisprudence (synchronous and diachronous), comparative integration law, comparative law of science and technology, comparative legal regulation of AI and digital law, comparative platform law, comparative experimental law. The legal field of platform entities is in constant search of an effective balance between technological and economic innovations and their legal regulation. At the same time, it can become an effective mechanism for regulating artificial intelligence in the interests of humans.

***Keywords**:* artificial intelligence; legal regulation; platform business models; platform law; digital law; innovative economy; integration law

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Contents

I. Introduction

As a result of the processes of economic integration (and disintegration (Bedakova, 2016)) that have swept the modern world, leading to globalization, the forms of organizing business are becoming more complex, new activities of enterprises and market relations have begun to appear. Even the very structure of the economy, which previously reflected a clear delineation of industries, is rapidly transforming into their complex interconnection and intertwining. At the same time, previously secondary directions of economic development often turn into main ones and vice versa. Organizational boundaries between different forms of companies and management models are becoming more complex, hybrid, blurred and dynamic.

Therefore, legal analysis is becoming more and more complex and contradictory. As a result, the law itself, and its forms of expression, as well as its essential content and even the participants in legal relations, their interests, goals and values, become more complicated.

In addition to this, pervasive informatization and digitalization on a global scale and the "disruptive technologies" they generate (Andraško, Mesarčík and Hamuľák, 2021) have radically changed modern reality, the speed and depth of transformations taking place in it, value categories and everyday life of people. This leads to the need for permanent updating and rethinking of legal structures, techniques and methods used for the legal organization of such rapidly and unexpectedly changing living conditions.

Today the emergence of various, previously unknown, "smart" technologies is an integral part of the development of the state and society. The country's tendency to implement large-scale all-Russian social projects designed to change the lives of our citizens for the better backs up the course of economic and political processes.

A striking example is the National Program "Digital Economy of the Russian Federation." Its implementation includes the formation of a whole complex built on using artificial intelligence digital platforms. Their activities are aimed at digitalizing the social and economic spheres of public life, which is already seriously transforming the work of various ministries, departments, organizations and creating entire ecosystems that carry out complex innovative interaction between society and the state (Aleynikova and Matveev, 2020, pp. 1483–1486). Therefore, all participants of public relations interested in these processes — scientists, politicians, practitioners — need to work together to find legal mechanisms for regulating artificial intelligence (Cobbe and Singh, 2021). It is they who must give their recommendations on the prospects for researching key qualities and patterns of artificial intelligence (hereinafter AI) (Andraško, Mesarčík and Hamuľák, 2021), develop a future agenda for the practical application of AI (Collins, Dennehy, Conboy and Mikalef, 2021).

The evolution of legal institutions that regulate innovation depends on the speed and trends of technological development, as well as the

scale of the needs of society and the state for the latest technological advances.

Professor V.V. Blazheev stressed that "in the information society, the role of law as a key mechanism for regulating public relations is sharply increasing. However, the information society is developing at such a rapid pace that law lags far behind those social needs that are decisive for its functioning. The legal vacuum significantly complicates the area of activity of subjects of law. Therefore, the state must learn to predict the development of public relations in the digital sphere, including using modern digital technologies, and anticipate their appearance with new regulations. Without a proper rule-making forecast, this process will be endless and always lagging" (Blazheev, Egorova et al., 2020).

II. The Possibility of Using Platform Legal Models for the Legal Regulation of Artificial Intelligence and Related Technologies

What can lawyers offer today to overcome the emerging imbalances between reality and its legal regulation? How can the law reach the advanced development due to it today? The digital environment is rapidly expanding, deepening and acquiring new forms and content, which requires flexible and at the same time sustainable complex legal regulation adequate to our digital age.

It should have legal certainty, stability, and the ability to quickly respond to legal action, precise regulation, as well as effective control in the relevant areas in the public interest. It should be able to foresee the future and contribute to the positive development of society in a civilizational progressive direction, as well as anticipate and eliminate the risks and dangers of the development of modern society.

One of the most striking novels in our life is AI, arousing growing interest around the world (Collins, Dennehy, Conboy and Mikalef, 2021). It can improve almost all aspects of society: production, science, education, health care, culture, law. AI is applied in technical sciences, economics, cybernetics, computer science, mathematics, biology, medicine, philosophy, ethics, linguistics, pedagogy, art history,

musicology, psychology, religious studies, etc. AI largely determines the quality of modern human life: it is also a "smart city," "smart transport," "smart home," "smart agriculture," "smart education," "smart library," etc.

In law, it finds application in criminal, constitutional, civil, administrative, procedural, international law, in almost all areas of legal regulation.

At the same time, in all the spheres mentioned above, AI dangerously invades:

— privacy (personal rights, right to privacy);

— identification existence of a person (information reflecting the personal data of a person, defining the relationship of people in society);

— the possibility of administering justice ("smart court") and ensuring justice and non-discrimination of citizens (Wachter, Mittelstadt and Russell, 2021), as well as assistance in the reasonable resolution of disputes;

— the very physical ability of a person to live and remain human ("smart medicine," multi-purpose chipization, family life and the possibility of physical cyborgization of a person);

— the very right to life, the inalienability of which, as the first natural human right, is proclaimed by the constitutions of all countries of the world, presupposes that the man has a natural intellect derived from nature. Will the physical existence of an individual, controlled to one degree or another by the artificial intelligence built into him, be normal life?

In realizing the ability of artificial intelligence units to self-development and self-organization, they will be able to develop something similar to the instinct of self-preservation of thinking machines. The main threat to the eternity and invincibility of artificial intelligence is its creator is a man with his slower self-developing ability. Only he can stop and terminate the very existence of artificial intelligence units. That is why the control of natural intelligence over the functioning of artificial intelligence is vital, up to the possibility of its immediate shutdown in the event of a danger to the existence of man himself and all humankind.

An analysis of the latest global legal initiatives and solutions shows that in order to protect a person from the negative impact of artificial intelligence, legal control and responsibility should be established. It is needed for creators, manufacturers, owners, users and tenants of artificial intelligence units that damage people and property, as well as and for those individuals and organizations that cause illegal damage to artificial intelligence units.

The legal elements of a multi-level mechanism of responsibility and control over the development of AI are the following interconnected system:

1) technical control;

2) technological control;

3) standardization (sanitary, informational, technical, industry standards, etc.);

4) creation of harmonized or unified technical and technological regulations;

5) organization of a comprehensive "legal platform compliance" AI in the form of a multilevel "regulator of responsibility and control."

Good and possible evil emanating from artificial intelligence units must be under clear and strict legal control of a person, their actions must be combined with responsibility, accountability, and, in appropriate situations, immediate termination.

Therefore, humankind moving forward should adequately imagine the possible paths, rates and consequences of this movement and be able to stop in time.

Depersonalization of the personality takes place: we begin to understand the phone and the computer "embedded" in us better than the person sitting next to us. The time has come to save the economy, science, and the person himself from the AI danger.

In this, we can rely on the law that regulates the digital economy and is able to curb the riot of artificial intelligence generated by science and digital technologies. At the same time, it should not passively follow the latest technologies with a lag, but should predetermine and scientifically stimulate the achievements of science that are useful to a person and can protect him from possible dangers.

Hence, there is a need for synergistic integration interaction of three constituent elements of modern life: science, economics and law. This is possible through the formation of integrated information technology platforms armed with AI that ensure civilization balancing the development of human society. In particular, it, inevitably, must gradually provide broad international cross-border, regional and even global scientific, economic and, at the same time, legal regulation in the name of the survival of Mankind. In this, in particular, the United Nations can help by regulating AI in the implementation of its mission — through the implementation of the international idea of "good artificial intelligence," which would ensure international trust in artificial intelligence (Fournier-Tombs, 2021). It seems that the new platform law should be somewhat similar to integration law, which is built based on combining the mutual interests of the participants, enshrined in an international treaty, and then respected with the same degree of compulsion as the national law of the state (Kashkin, 2018).

Platform law is designed to adapt and harmoniously combine law with digital technologies of the present and future into a single consistent scientific and legal multidisciplinary complex and check its effectiveness in the economy. It should, by converting science and technology into law, timely modify old and find new legal principles of interaction between man, scientific technology and society and be able to adequately regulate all the variety of interrelated spheres of modern innovative technological areas: artificial intelligence and robotics, digital and information technologies, the Internet of things, etc.

Like the communitarian Monnet-Schumann method of the EU, platform law must:

1) determine the broadest possible socially defined goal of the legal "platform," areas of application and its functionality;

2) find the inalienable vital interests of states and peoples (consisting of individual citizens) enjoying the social benefits of "platforms", the goals of which they all share;

3) determine clearly enough stages of movement in the direction of the chosen goal so that at each stage of movement towards it, the states

and their citizens clearly see the positive socially significant results of this movement;

4) create an appropriate institutional and organizational system (institutions and bodies), to which the states would be ready to transfer their previously sovereign powers to manage public relations in strictly defined civilizational progressive spheres of life, taking into account, however, the latest trends in the world development of Mankind in the interests of Man.

At the same time, such a system of platform law institutions should consist of a single set of elements of separation, balance and interaction of the authorities and, at the same time, be provided with reliable democratic and authoritative control bodies capable of restraining both the excess of centripetal and centrifugal tendencies that are inevitable in the development of such relations.

Broad and effective legal regulation of artificial intelligence and related technological complexes is very difficult to ensure within the narrow framework of one country. This kind of legislation, in order to become sufficiently effective, since it regulates phenomena of a practically regional or global scale with worldwide consequences, must acquire an extraterritorial character, go out to the international, regional, intercontinental and even global levels (Fournier-Tombs, 2021). As such legislation accumulates, the number and quality of acts grows, and their necessity is fundamentally recognized and implemented in practice, their codification may also gradually take place.

For different spheres of legal regulation of public relations, various legal platform models can be formed that have their own characteristics. Gradually, more complex multidimensional complex platform models are being formed that combine platform business models, platform environmental models, platform technological models, etc., simultaneously combined with the corresponding platform legal models (tensors). Such super-platforms practically grow into ecosystems that have many common features and characteristics inherent in platforms. They are today the main and most promising area of development of the modern economy.

III. Search for Legal Mechanisms for Regulating Artificial Intelligence and Related Technologies

In what direction can the search for specific legal mechanisms for regulating artificial intelligence and related technologies go against the background of such dramatic changes in the economy and lifestyle of people?

First, it is necessary to develop moral and ethical criteria for the renewed law of our time. Initially, in human society, law arose largely based on morality and ethics, passed through the ideology of religions, politics, was honed by economics and relations between classes and groups of people. In the 21st century, digital and genetic technologies, integral to the pervasive artificial intelligence, began to intrude into this process with unprecedented activity. Now, in the context of a new social and digital revolution, which, more than any previous industrial, technological or scientific revolution, has its main object not only and not so much as production but as the essence of the person himself, the sovereignty and inviolability of the person given to him by nature, possessing ethical and moral characteristics.

Under the circumstances of this revolution, the renewal and formation of a new law, adequate to modern conditions of life, must again be carried out primarily based on morality and ethics,[1] which place a person and his personality as the main value that must be protected by law. These values represent the true social and human content of the individual and the corresponding humane element of the modern social and digital revolution. It is the integrity of the individual that should be protected by law in dramatically changing social relations. In this situation, people must ensure with the help of law that the digital sphere that the person invented serves the person, and not the person who serves digital sphere invented by him.

[1] Attention is drawn to this in clause 57 of the Decree of the President of the Russian Federation No 490 "On the development of artificial intelligence in the Russian Federation" dated 10.10.2019 (together with the National strategy for the development of artificial intelligence for the period up to 2030). Journal of Representative Power (2019), 5–6(172–173), p. 18 (In Russ.).

At the same time, it is the platform organization and artificial intelligence that make it possible to comprehensively and systematically connect political, economic and ethical issues for the effective development and maintenance of relations between the individual and the state, as well as between states (Gorwa, Binns and Katzenbach, 2020). It includes resolving crises (Reis, Santo and Melão, 2020) and ensure global security (Gorwa, Binns and Katzenbach, 2020).

The first natural and indisputable human right, i.e. the right to life, presupposes both the natural and indisputable right and privilege of a person to possess the natural intelligence of a person. No previous economic, industrial, political and technical revolutions have tried to invade this holy-of-holy sphere — the intellect that belongs to man by his nature — the intellect of man, a sovereign and free individual. The current social-digital revolution sees the creation of artificial intelligence as its main ultimate goal, which is ready to invade natural intelligence, into the sovereign and unique personality of an individual. Therefore, such a revolution can have the most unpredictable effect for the fate of Mankind.

This main value should run like a red thread through all stages of legal regulation of artificial intelligence and related technologies in the current era of the modern social and digital revolution. In the likely chain of steps towards legal regulation of artificial intelligence and related technologies in the modern era, the following logical development scheme is possible: from self-regulation (through the logic of its convenience for participants in legal relations without violating their sovereign rights and vital interests) to soft law, when we observe a very logically visible movement from general words in the form of "protocols of intentions" to "road maps", as if giving a general strategic vision of development in different areas of legal regulation (in specific areas of social life) in the desired direction. Then, movement towards a clearer "Program of Action", concretizing main specific strategic directions (drawing particular mechanisms, resources and sub-goals). Soft law is the result of understanding the need for some concessions to the formerly sovereign rights of participants of relations and through strengthening the logic of accepting the benefits of such concessions, both by the participants in these relations and by the interested states

and their integration associations. An important condition in this case is the support of these actions by the workers of participating enterprises and population.

In modern conditions, a special role is acquired by the fact that the real meaning of "soft law" is the greater, the more logical and reasoned as it expresses the inalienable interests of the parties involved in integration relations. Again, we can see the communitarian principle of Monnet-Schumann in action. Possessing a high degree of persuasiveness, recognized and customary, "soft law" is sometimes accepted and in real life, acts almost like "hard," obligatory law. It has prospects in the future to grow into a full-fledged binding law.

An intermediate position may be occupied by a new concept of "hoft law" = hard and soft law together that recently appeared in the European Union. It allows for some issues to assume certain general obligations ("opt in"), and on others — to refuse them ("opt out"), as, for example, the UK within the EU during the period of membership in the Union. This is possible in relation to AI, rather, as a temporary measure necessary for the formation of a relatively homogeneous legal space and in search of consensus on more important and complex issues.

After that, it is logical to move to a serious, mutually satisfying complex and systemic interconnected harmonization of legal relations in the field of regulation of artificial intelligence and related technologies. This is very similar to the processes of harmonization and unification of law used in the European Union and other integration organizations.

Therefore, from "hoft" law, it becomes completely justified to turn to the standard compulsory legal regulation at the supranational level (with the application of directives and regulations known to European Union law). With the strengthening of trust and growth of understanding of the inalienable mutual interests of countries and the satisfaction of the population with the progress of improving the legal regulation of artificial intelligence technologies, further movement is possible: from harmonization to a wider application of the method of unification of legislation in some particular areas and the territorial expansion of its application. In this regard, artificial intelligence systems will acquire their full-fledged role in law enforcement practice (Gorwa, Binns and Katzenbach, 2020).

In the legal regulation of artificial intelligence and related technologies, mechanisms of responsibility and legal control over its development, including over the activities of the creators of artificial intelligence units, are of great importance. Technical and technological control, standardization and the creation of harmonized or unified technical regulations play in this process an important role. These seemingly purely technical elements of legal regulation in a digital society are acquiring more specific legal character and significance.

Analyzing the legal regulation of artificial intelligence technologies, it is possible for the legislator to turn to the model, memorable from our Soviet legal past, namely the Fundamentals of Legislation (in the field of artificial intelligence) — a familiar and rather effective form of model lawmaking. This form makes it possible to provide some freedom of compliance with the general rule when taking into account, usually less fundamental for its implementation, the national characteristics of the subjects of the federation, regions and states. This is very close to the practice of applying directives in European Union law.

The more creative and decisive application of the classic American concept of "implied powers" and revolutionary "judicial activism," which are often used by the judicial authorities of integration organizations, in particular, the Court of Justice of the European Union and the Court of the Eurasian Economic Union.

These methods are closely related to the methods of reception, transformation and standardization, which are widely used in the integration process, and which are similar in their legal consequences.

In legal regulation, standards are of great importance. Thus, it is necessary to form special platform standards for the legal regulation of artificial intelligence, which, logically, should begin with the definition of the appropriate ethical and moral standards. Beyond moral and ethical standards in the digital age, technical and technological platform standards need to be considered. Standards can also be sanitary, informational, industry-specific, etc. They can form peculiar complexes of platform standards of various levels.

Within the framework of the national legal systems of individual states, sovereign (national) legal platform standards arise, and on the scale of integration organizations, already supranational legal platform

standards of integration organizations are being formed. This is a kind of "legal platform compliance." Since artificial intelligence is international in nature, it must inevitably be set by international legal platform standards related to AI. Such platform legal standards for regulating artificial intelligence may eventually become global.

A multilevel "regulator of responsibility and control" from top to bottom should be built into the internal mechanism of the legal platform model, which ultimately ensures the life of Mankind. (The idea is similar to the concept of the nuclear "Dead Hand".)

Let us consider, as a conditional comparison, five states of matter and five forms of law:

1) Gas-Air-Steam — custom as proto-law;

2) Liquid-Water — soft law;

3) Frozen gruel — water before turning into ice — "hoft" law = hard and soft law;

4) Solid, ice — hard — customary law;

5) Plasma — under special conditions of temperature and pressure, exhibiting almost all of the above-mentioned diverse characteristics.

It is plasma that conditionally resembles platform (multi-integration) law. This is the flexibility, variability and variety of forms and characteristics that are required of modern law in the context of the all-encompassing advance of digital technologies and AI. In the legal sense, "integration" is the creation of optimal mechanisms and algorithms for the legal regulation of social relations aimed at achieving improvement and self-development of society in its striving for a more holistic positive civilizational development (Kashkin, 2014).

EU law is based on the concept of "good governance" (Pokrovskiy, 2021, p. 22), and citizens of the Union, based on the Lisbon Treaty, have the right to good governance. It is viewed as one of the cornerstone mechanisms designed to improve the interaction of the authorities at the supranational level, represented by the system of institutions, bodies and agencies of the European Union among themselves, optimally building relationships with citizens, as well as successfully representing the Union in the international arena.

There is no consensus among foreign researchers about the essence of the concept of good governance. They in fact broadly complement

each other. Therefore, good governance is also seen as an example of sound Union policies, the stabilization and unification process, the European Neighborhood and Sustainable Development Policy (Börzel et al., 2008, pp. 11, 15–45); and as a factor of integrity and cohesion, including administrative, legal and ethical aspects (Addink, 2015, pp. 44–45); and even as "one of the three cornerstones of any modern state" (along with the rule of law and democracy).

This concept is developing regionally and internationally (Cuculoska, 2014, pp. 2–3), acquiring additional nuances and sometimes very different meanings. These are "good governance," "good administration", "new public administration," "smart government," which are gaining not only popularity, but also originality in different countries. It is very reminiscent of the principle of effectiveness recognized by some researchers of EU law.

Consequently, the concept of good governance today not only expresses the ideas of human rights, democratization and democracy, the rule of law, civil society, decentralized power sharing and prudent public administration but also contributes to ensuring the effectiveness and legitimacy of the EU's domestic and foreign policy implementation.

Good governance is an effective general ideologically colored concept that does not yet have a clear legal definition. However, the principles of good governance are fairly well developed in the doctrine and jurisprudence of the Union. The general concept of good governance is in practice shared by all EU member states and popular abroad. Good governance principles include transparency, adequacy, participation, efficiency, accountability and human rights (Addink, 2015, pp. 14–15).

There is no doubt that, being democratic, efficient and so popular, the concept of good governance should be used to legalize artificial intelligence and related technologies. It corresponds to the principles of humanism and human morality. Being flexible enough, it can successfully ensure the rule of law, justice, the ideals of a rule-of-law democratic state and human rights, adapting to the changing conditions of social relations in our digitalizing world.

The right to good governance has real potential to gradually turn into one of the principles recognized not only in different states, but also become a recognized principle of international law. Regarding whether

to consider the right to good governance as a principle of international law (such as, for example, the principle of respect for human rights and freedoms), a polemic is currently under way at the doctrinal level between European researchers (Addink, 2015, p. 288).

In the Russian Federation, for the accelerated introduction of artificial intelligence technologies, it is planned to use the so-called "regulatory sandboxes" as an experimental legal mechanism for regulating artificial intelligence and related technologies. These are special legal regimes for business, the creation of which is provided for by the draft law "On Experimental Legal Regimes in the Sphere of Digital Innovations"[2] prepared by the Ministry of Economic Development.

This mechanism provides for the testing of innovative products and services in the field of digital technologies. Within the framework of the "regulatory sandboxes" it is planned, there should be special legal regulation that excludes the application of a number of requirements to certain types of business. Such experimental sites will provide an opportunity to accelerate the introduction of innovations, including in the field of artificial intelligence.

To accelerate the implementation of technological reforms in the Russian Federation, it is also proposed to use the "regulatory guillotine" method, which was developed by Jacobs, Cordova and Partners. It is based on the successful experience of such integration associations and countries as the OECD, Sweden and South Korea. To date, more than 100 countries have already applied this legal instrument in their practice. Among them are Croatia, Great Britain, Mexico, Vietnam, Egypt, South Korea and others. The most successful implementation of the "regulatory guillotine" took place in Kazakhstan. By the way, it is curious to note, but Kazakhstan sometimes introduces certain legal novelties and tests them domestically, and then they are applied in the Russian Federation.

It is a method of implementing reforms to simplify the regulation of business processes. It is based on the revision of regulations, which have become too numerous and the supervision of which will be extremely

[2] Federal Law No 258-FZ dated July 31, 2020, "On Experimental Legal Regimes for Digital Innovation in the Russian Federation." Collection of Legislation of the Russian Federation (In Russ.).

time-consuming. Its essence is to simplify the norms that are justified by law, but hinder the accelerated development of one or another business that is useful for the country. We observe how economics and law obey the logic of progress and the models of business platforms and legal platforms, as well as ecosystems. They follow very similar rules, mutually borrowing features and legal practice from each other.

With the outbreak of the pandemic, the importance, effectiveness and indispensability of information technology in general, and artificial intelligence in particular, has increased throughout the world. This is a huge challenge for the development of the latest technologies, which, we hope, will lead not only to a great development of opportunities in this area, but will also contribute to the fight against the spread of this newest viral threat. The ideas of a wider application of various forms of "experimental law" aimed at accelerating the creation of artificial intelligence are gaining more and more popularity in the course of the implementation of the law "On conducting an experiment to establish special regulation in order to create the necessary conditions for the development and implementation of artificial intelligence technologies in a constituent entity of the Russian Federation — the city of federal significance Moscow and amendments to Articles 6 and 10 of the Federal Law "On personal data"[3] which entered into force on July 1, 2020. However, the current epidemiological situation in the country and in the world poses new challenges, both in identifying new opportunities for the use of technologies, and in the formation of legal regulation of their implementation.

With the outbreak of the pandemic, the importance, effectiveness and indispensability of information technology in general, and artificial intelligence in particular, has increased throughout the world. This is a huge challenge for the development of the latest technologies, which, we hope, will lead not only to a great development of opportunities in

[3] Federal Law No 123-FZ dated April 24, 2020, "On conducting an experiment to establish special regulation in order to create the necessary conditions for the development and implementation of artificial intelligence technologies in the constituent entity of the Russian Federation — the city of federal significance Moscow and amending Articles 6 and 10 of the Federal Law 'On Personal Data'" (In Russ.).

this area, but will also contribute to the fight against the spread of this newest viral threat.

Another instrument of legal regulation of AI can be a "smart contract" built on digital technologies. This is a contract that is executed independently and is a special program written to the blockchain. It provides for the implementation of strictly defined algorithms of actions, the implementation of which is impossible to intrude. Therefore, this form of legal regulation of the latest technologies, including AI and R, can provide greater confidentiality of personal data, control of digital assets, automatic update of legal information, quality control of goods, facilitation of financial activities, etc.

The weak side of a smart contract is the uncertainty of its legal status, since it is closely related to the cryptocurrency, which has not yet been finally recognized as an official financial instrument, as well as the problems of its creation to regulate complex processes. Therefore, improving the legal regulation of smart contracts is another effective and promising modern mechanism for regulating AI and R.

IV. Conclusion

A wide range of measures of legal regulation of artificial intelligence and related technologies follows from the Decree of the President of the Russian Federation No 490 dated October 10, 2019, "On the development of artificial intelligence in the Russian Federation" (together with the "National strategy for the development of artificial intelligence for the period up to 2030") and the National Program "Digital Economy of the Russian Federation."[4]

Legal regulation of artificial intelligence and related technologies through complex platform legal models, as well as in the long term and through ecosystems, can begin and be implemented within the legal systems of different or several states. However, in order to become

[4] The national program was adopted in accordance with the Decree of the President of the Russian Federation No 204 dated May 7, 2018, "On national goals and strategic objectives of the development of the Russian Federation for the period up to 2024" and approved on December 24, 2018 at a meeting of the Presidium of the Council under the President of Russia for Strategic Development and National projects.

as effective and large-scale as possible, it must receive international recognition and application. Accordingly, its development, distribution and action is possible through international law and most of all, as we see it, through the use of tools of integration law (the law of integration organizations), as well as through the most large-scale integration mechanism — the integration of integrations mechanism, which ultimately has a global focus. This is in line with the very nature of platform law and ecosystem law, which our country is striving to successfully apply in the very near future. Perhaps, the integration mechanisms can be launched first not in the widest possible areas of activity, but on the most important issues related to the prospects for the survival of man and Humanity in the competition with artificial intelligence in our digital era.

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The Revolutionary Impact of Artificial Intelligence on the Future of the Legal Profession

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Abstract: Two decades into the 21st Century, it is abundantly clear that Artificial Intelligence technology will fundamentally change the legal system as well as the economics of our daily lives. During the early years of AI development, computers successfully surpassed humans only in complex games requiring exceptional intelligence (e.g., chess, Go, Shogi). The legal profession assumed that AI would be unable to master the nuances and ambiguities of language and the skills required of first class lawyers. The recent history of AI advancement proved that assumption wrong. When combined with the new focus of neuroscientists and related disciplines on the study of the human brain, AI stands on the threshold of exceeding human intelligence in the areas which have historically been the exclusive domain of the legal profession. There is currently a broad array of important tools in the AI field which lawyers may use to improve efficiency and profitability, These AI tools are just the beginning. We can also anticipate that AI will necessarily and substantially affect decisions traditionally relegated to the autonomy of individual citizenry as well, with dramatic consequences. This paper attempts to identify the implications of AI technology on the legal profession, the broader society in which it operates, and the challenges confronted by the next generation of lawyers and law students.

Keywords: artificial intelligence; legal profession; project debater; neuroscience

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Contents

I. Alpha Zero

Let us begin by focusing on one the most significant turning points in the AI saga — which seems like ancient history to so many. In 1997, IBM's computer Deep Blue, the most advanced computer at time, confirmed the premonitions of many: a machine defeated Garry Kasparov, then the world's pre-eminent chess player (the score was 3½ to 2½). Some dismissed this at the time as attributable to perhaps a "bad day" for Garry — an aberration, and not proof of the superior capability possessed by machines. And, in fact, human chess players did indeed still flourish in the immediate years that followed. Teams composed of *both* humans and computers still proved superior to computers playing it alone.

Professor Yuval Harari of Hebrew University recently published an insightful book addressing what is ahead in the 21st century (Harari, 2019). Commenting on the Kasparov loss, he noted that in the aftermath, AI was used to train human prodigies, and together — that is humans working with the mechanical/electric computer, defeated this new and formidable competitor.

However, in recent years, Professor Harari highlights, "computers have become so good in playing chess that their human collaborators have lost their value and might soon become entirely irrelevant." To prove his thesis, he cited the December 6, 2017, "crucial milestone" when Google's Alpha Zero program defeated the Stockfish 8 program. Stockfish 8 had earlier won a world chess championship in 2016. It was given access to centuries of accumulated human experience in chess, combined with more recent computer data. By sharp contrast,

the Alpha Zero program had been exposed to *nothing* in terms of chess strategies by humans. It relied *entirely* on the latest AI machine-learning principles — not even standard chess openings from human sources. Alpha Zero played against itself.

In this 2017 champion faceoff, Alpha Zero swept the table! In 100 games, it tied in 72, and won 28. Since Alpha Zero had learned nothing from any humans — unlike its competitor machine which had the benefits of centuries of human experience, its winning moves and strategies were unconventional and unprecedented to human perception. Their moves were beyond human ingenuity.

And how long did it take for Alpha Zero to learn chess from scratch by playing against itself unhindered by human input? Four hours is the answer! From complete ignorance to complete mastery! Professor Harari tells us that if chess is the "canary" to test how humans fare, we have been warned that the canary is dying. And chess is just the first of many. Checkers, backgammon, then Jeopardy followed. And, surprising to some, Alpha Zero proved more powerful than humans in the games of Go and Shogi, which was perceived as an impossible feat just a few years ago.

II. IBM's Project Debater Debut in 2019

Some in the legal profession may take comfort by fooling themselves that lawyers need not worry about being displaced by an AI computer that only prevails — they erroneously believe — in high level games. They may feel that dealing with the nuances and ambiguities of language, assessing and evaluating complicated facts, fashioning creative arguments designed to prevail when presented to judges and government officials, etc., are surely beyond the reach of AI driven computers.

Yet AI has now, in fact, reached that very point. IBM recently announced the advent of Project Debater, a new AI computer system: "In development since 2012, Project Debater is IBM's next big milestone for AI, following previous breakthroughs like Deep Blue (1996/1997) and Watson on Jeopardy (2011)" (International Business Machines, 2021). This breakthrough is described as follows:

"Project Debater is the first AI system that can debate humans on complex topics. Project Debater digests massive texts, constructs a well-structured speech on a given topic, delivers it with clarity and purpose, and rebuts its opponent. Eventually, Project Debater will help people reason by providing compelling, evidence-based arguments and limiting the influence of emotion, bias, or ambiguity *(Id.)*.

On March 18, 2021, the cover article in Nature magazine (Slonim, Bilu, Alzate et al., 2021), a leading international journal of science, provided details on the underlying research (IBM Research Editorial Staff, 2019; IBM News Room, 2019). Authored by several dozen IBM employees, and reflecting 10 years of work, the article outlined the achievement of this potentially revolutionary accomplishment.[1] Project Debater's objective was to compare the capabilities of an AI designed system with a champion human debater: In this case, the grand finalist in the 2016 World Universities Debating Championships, Harish Natarajan (who was the Garry Kasparov equivalent in this latest contest). Audiences were employed to determine the winner of a variety of arguments and motions relating to issues of public importance; the contestant who was able to pull more votes to its side was declared the winner. For purposes of its data base, the AI system drew a knowledge base from a "large corpus of some 400 million newspaper articles" (*Id*.). The exercise from the perspective of the human participant was quite similar to arguing issues of law, fact and precedent very familiar to legal practitioners.

Although the bottom line outcome was an overall loss in the initial competitions, the AI system scores were "rather close to the human expert scores" in many areas. Acknowledging the "the fundamental differences between debating with humans as opposed to challenging humans in game competitions," the IBM researchers concluded that "novel paradigms" in AI development will still be required before consistent wins are credited to AI, as has now been achieved in the world of games. In the interim (which may be very short-lived), Project Debater is portrayed as a highly valuable tool that will eventually "help

[1] It should be noted that since 2014, the IBM Project Debater team has released more than 50 technical papers and associated benchmark datasets across multiple research domains.

people reason by providing compelling, evidence-based arguments" (*Id.*).

The reader is encouraged to read an account of an illustrative debate between Harish Natarajan and the IBM Project Debater before an estimated 300 people in Cambridge, Massachusetts on November 21, 2019. The proposition at issue: "AI will not be able to make morally correct decisions because morality is unique to humans." It ended with this dramatically thin margin:

"The audience had three doors to choose from to go through — a 'ayes' door in support of the proposition, a 'noes' door in support of the opposition, and 'abstain' door for those who were wavering. The narrow majority crowded in front of the noes door — meaning that they voted in favor of AI *(the final tally: 48.17 % ayes, 51.22 % noes and 0.61 % abstention)"* (IBM Research Editorial Staff, 2019; IBM News Room, 2019).

III. New Research into the Brain

While dramatic advances in AI proceed, neuroscientists are just beginning to understand the complexity of the human brain. Weighing just three pounds, and encased in a very small space, this miracle organ contains over 100 billion neurons floating in cerebrospinal fluid[2] (Walsh, 2021). Yale University is one among many institutions of higher education that are now focusing of truly understanding how the brain works. It recently established three new interdisciplinary centers to understand these incredible phenomena. The Center for Neurodevelopment and Plasticity will undertake research on "where does cognition come from"; the Center for Neurocognition and Behavior will examine "what is cognition and how does it manifest itself"; and the Center for Neurocomputation and Machine Intelligence will examine

[2] Fashioned by nature in an evolutionary process over billions of years and fueled by the energy of the Big Bang, astrophysicists and neuroscientists inform us that under microscopes and through telescopes, the visual patterns of human neurons and the stars and galaxies of the universe are "strikingly similar." See for a full discussion (SciArt Magazine, 2020), where substantial differences are also identified in this fascinating comparison.

"how can cognition be modeled" using the most advanced technology available (Walsh, 2021).

The head of these three Centers summarizes their challenge as "The question is: how do you make sense of this broad range of information [in the brain]? How do you relate something as complex as thought, decision, or language to chemicals and synapses?" (Walsh, 2021). The ambitious research underway at Yale, like similar projects replicated around the world, is likely to yield even more dramatic advances in AI technology as neuroscientists, psychologists, and disciplines from every sector devote enormous resources to such issues. The potential here is beyond our ability to even imagine.

IV. The Implications for the Legal Profession

AI as already been deployed as important tools in the legal professions in what should be viewed as phase 1 of the new era. These AI tools are designed to improve productivity and provide better legal services to clients — as well as increase legal firms' profitability. Phase 2 of AI development will trigger more dramatic changes as discussed below.

Current examples include (Cerny and Delchin, 2019):[3]

1. Electronic Discovery

Through a method of predictive coding, AI technology categorizes documents as responsive or nonresponsive, relevant or irrelevant, among other classifications, after reviewing the massive amounts frequently assembled in the litigation discovery process (Gordon and Ambrose, 2017). It reduces what may take months of laborious screening into days, if not in some cases even hours.

2. Litigation Analysis/Predictive Analysis

AI also is being used to predict the outcome of litigation and the probabilities of prevailing through methods of predictive analytics. AI tools utilize case law, public records, dockets, and jury verdicts among other sources to identify patterns in past and current data (Miller, 2017). Such analysis is also used to determine which large cases are

[3] The listing of seven examples cited in this article is based on the excellent summary by lawyers in the prominent law firm of these authors.

worthy targets of speculative financing, a growing area of a burgeoning investment community.

3. Contract Management

AI tools can identify important information in contracts for special analysis and monitoring, such as termination dates, most favored nation clauses, indemnification obligations, choice of law provisions, and other clauses that have high value in complex undertakings (Miller, 2017).

4. Due Diligence Reviews

AI assists in due diligence review for corporate transactions to reduce the burden of time-consuming examinations of thousands, and sometimes tens of thousands, of corporate documents that must be carefully reviewed in the merger and acquisition world. AI assists in the task of identifying especially important key provisions (liabilities, mortgages, etc.) in key clauses from contracts, or pending lawsuits or government investigations which might otherwise be overlooked in human reviews that may be associated with substantial financial exposure (Donahue, 2018).

5. "Exposure" Identification

AI is being used to search company records to detect activity that might also expose a corporation to substantial liability because of non-compliance with regulatory standards. Compliance Control programs are now an accepted part of every major corporation, and AI can uncover attempts to disguise wrongdoing and identify code words (Miller, 2017). AI can also review employee emails to determine suspicious conduct that requires further inquiries (Partnoy, 2018).

6. Legal Research

With AI, lawyers can rely on natural language queries to return more meaningful and more insightful results (Miller, 2017). AI can be used to generate as well as to double check for accuracy and completeness: basic legal memos, legal opinions, contracts, and almost every form of legal documents that are the bread-and-butter of legal practice.

7. Deception Analysis

Researchers are working on developing AI that can detect deception in the courtroom which is frequently exceedingly difficult, especially because the time for analyzing unfolding testimony is measured in minutes, if not seconds. By relying on micro-expressions known to

indicate that someone is lying — frowning, eyebrows raising, lip corners turning up, lips protruded and head side turn, the AI system was reported to yield a 92 percent accuracy (Best, 2017).[4]

V. The Fundamental Transformations Ahead

The foregoing listing of AI tools are designed primarily by the private sector to empower lawyers to accomplish traditional tasks. The real challenge ahead, however, will occur when AI approaches — and then exceeds, human intelligence — a finish line that few doubts. Ray Kurzweil, former Director of Engineering for Google, and author of five futuristic books, informs us we have already entered the decade where this goal may be reached:

"The expectation is that computers will pass the *Turing* test, meaning that computers will be able to think like a human, by 2029 and at that point computers actually will do everything that humans can do far better than any human" (Ajmera, 2020; Blais, 2020).

Whatever the year (Elon Musk placed it at 2025), it appears inevitable (IANS, 2020). At such time, the legal profession must be prepared to accept AI-based determinations that displace traditional methods on a scale, and with consequences, that are now hard to conceive.

A few examples illustrate possible future scenarios:

i. Project Debater, discussed earlier in this article, is likely to follow the trajectory of its IBM sisters Deep Blue and Watson and ultimately out-compete its human competitors, once new "paradigms" are developed.

Under circumstances where AI is capable of winning in head-to-head (or one should say:machine-to-head) debates on issues of public policy, including resolving legal disputes, big corporation will surely opt to retain AI advocates for their positions. Recalling the post-Kasparov decade, note that initially human chess champions worked *together* with computers, but later fell by the wayside because of their second-

[4] For additional applications of the AI tools now available, see: https://emerj.com/ai-sector-overviews/ai-in-law-legal-practice-current-applications/ (Business Intelligence Analytics, Mar 14, 2020).

rate performance. The same fate may *foreseeably* await experienced lawyers and law firms.

ii. When AI computers can soundly evaluate complex facts, assess the legal issues presented, and render optimal decisions based on the applicable law and facts, will they replace judges and regulatory panels in their entirety?

Are judges — for that matter any human decisionmaker — required, if wiser opinion can be achieved more efficiently, more thoroughly, and more timely, through AI? From more routine (although still difficult) decision (e.g., whether to grant a prisoner probation or parole) to defining "the relevant market" in complicated antitrust and competition cases, why not utilize the "smartest" judge in town?

iii. In cases dependent on the credibility of witnesses, AI may employ sensors that measure blood pressure, voice patterns, eyes movements, etc., in order to identify perjurers and false statements.

What role do judges, or juries, play when credibility is no longer an issue in the legal system because of AI? Indeed, in the criminal justice sphere, can the process be reduced to simply asking the defendant: "Did you do it?" The mere existence of such arguably infallible techniques will surely alter the dynamics of any investigation, civil as well as criminal, in the 21st century.

iv. Will corporate lawyers who specialize in mergers, bankruptcy, acquisition and liquidation matters be necessary, or certainly relied upon to the present extent, when AI can replicate their services (in whole or in part) and achieve the objectives of the parties more efficiently and effectively?

Given the premise of this section of the article — that AI ultimately becomes "more intelligent" than humans, the answers to all these questions are self-evident.

v. What role do legislatures and parliaments play when AI can evaluate the pros and cons of any proposed legislation and simultaneously assess whether the voter base supports or opposes the provisions?

If AI tells the representatives that the legislation lacks public support, can it be approved? Would passage be legal — or, or at the very least, prudent?

VI. The Deeper Meaning of an AI Dominant World

Professor Harari's book referenced earlier probes deeper into the AI world of the future, and poses troubling questions as to the effect of AI on man's relationship with society, and with himself/herself. In his thoughtful analysis, these are among his questions, starting with the somewhat mundane and ascending to the very profound:

"Every year millions of youngsters need to decide what to study in college. This is a very important and difficult decision. What does it take to succeed as a lawyer? How do I perform under pressure? Am I a good team worker? In the future we will be able to rely on Google to make such decisions for us. Google could tell me that I would be wasting my time in law... but that I might make an excellent (and very happy) psychologist or plumber. Once AI makes better decisions that we do about careers and perhaps even relationships, our concept of humanity and of life will have to change. What will happen to this view of life [about our making choices] as we increasingly rely on AI to make decisions for us?.. As authority shifts from humans to algorithms, we may no longer view the world as the playground of autonomous individuals struggling to make the right choices. Instead, we might perceive the entire universe as a flow of data, see organisms as little more than biochemical algorithms, and believe that humanity's cosmic vocation is to create an all-encompassing data-processing system — and then merge into it" (Harari, 2019, pp. 56–57).

The apocalyptic-like consequences of AI foreseen by Professor Harari are more than unsettling, and highlight the perilous course ahead. They call to mind the words of one of America's greatest constitutional judges and scholars, Justice Louis Brandeis. He viewed individual autonomy and independence as essential to the health and psychological well-being of a nation's citizenry. In a decision now considered one of the classics of American jurisprudence, Justice Brandeis opined:

"[Our founders] undertook to secure conditions favorable to the pursuit of happiness. They recognized the significance of man's spiritual nature, of his feelings and of his intellect. They knew that only a part of the pain, pleasure and satisfactions of life are to be found in material things. They sought to protect Americans in their beliefs, their thoughts,

their emotions and their sensations. They conferred, as against the government, the right to be let alone — the most comprehensive of rights and the right most valued by civilized men" (Brandeis, 1928).

Where AI may take modern society and how it will affect the human condition are highly uncertain. But it is absolutely clear that AI will usher in very fundamental changes. The legal profession has the responsibility by virtue of the privileged positions it holds in each nation to react to these challenges intelligently and humanely, and to harness the enormous power of AI to create a more just and equitable society.

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European Artificial Intelligence Act: Should Russia Implement the Same?

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Abstract: The proposal for a European Union Regulation establishing harmonized rules for artificial intelligence (Artificial Intelligence Act) is under consideration. The structure and features of the proposal of this regulatory legal act of the integrational organization are analyzed. EU AI Act scope is analyzed and shown as wider than the current Russian one. The act will contain harmonized rules for placing into market, operation and use of AI systems; bans on certain artificial intelligence methods; special requirements for AI systems with high level of risk and obligations of operators of such systems, harmonized transparency rules for AI systems designed for interaction with individuals, emotion recognition systems and biometric categorization systems, AI systems used to creating or managing images, audio or video content; market surveillance and supervision rules. The provisions of the Act, the features of the proposed institutions and norms, including extraterritoriality (as for GDPR before that raised many questions), risk-oriented approach (which is based both on self-certification and definite criteria for high-risk systems), object, scope, definitions are considered. The possible key concerns based on case-law to undermine possible discrimination are expressed. The author expresses conclusions about the advisability of (non) application of these institutions or rules in Russia.

Keywords: artificial intelligence; AI; artificial intelligence regulation; EU AI Act; EU AI Regulation

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Contents

I. Introduction

"*Artificial intelligence is the future, not only for Russia, but for all humankind. It comes with colossal opportunities, but also threats that are difficult to predict. Whoever becomes the leader in this sphere will become the ruler of the world. And* I r*eally would not want this monopoly to be concentrated in whose that specific hands, therefore, if we are leaders in this area, we will also share these technologies with the whole world, as we today are sharing atomic technologies, nuclear technologies"* Vladimir Putin said during the All-Russian Open Lesson, September 1st, 2017.[1]

More than a year has passed since the publication of the principles European Commission[2] wants to develop on the regulation of artificial intelligence (AI) systems and some comments on it (Stepanyan, 2020). Now, April 2021, the only European Union's legislative initiator, European Commission presents a proposal for European Union regulation establishing harmonized rules for artificial intelligence[3] (Artificial Intelligence Act, AI Act). In 2017, the European Council

[1] 'Whoever Leads in AI Will Rule the World': Putin to Russian Children on Knowledge Day, *Russia Today* (Sept. 1, 2017). Available at: https://www.rt.com/news/401731-ai-rule-world-putin/ [Accessed 14.05.2021].

[2] European Commission, White Paper on Artificial Intelligence — A European approach to excellence and trust, COM(2020) 65 final, 2020. Available at: https://ec.europa.eu/info/sites/default/files/commission-white-paper-artificial-intelligence-feb2020_en.pdf [Accessed 14.05.2021].

[3] Proposal for a Regulation of the European Parliament and of the Council laying down harmonized rules on Artificial Intelligence (Artificial Intelligence Act) and amending certain Union legislative acts, COM(2021)206 final. Available at: https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=75788 [Accessed 14.05.2021].

called for a "*sense of urgency to address emerging trends*" including "*issues such as artificial intelligence…, while at the same time ensuring a high level of data protection, digital rights and ethical standards.*"[4]

At the Commission supporting document, this Act is called the Regulation on the European Approach to AI. This style shows that while the Council of Europe's work on AI legal standards is progressing enough (at different levels[5] and in different Council of Europe bodies), the European Union claims itself to be the leader in AI regulation in Europe.

II. The Structure and Definitions in AI Regulation

Proposal supporting documents reveal that Commission will follow its own idea set you in White Paper to introduce complex AI regulation. This proposal is first step out of three. Second will be liability framework and third will be sectoral safety legislation revision.

The proposal of the AI Act is presented in 85 articles, 10 of them are devoted to amendments to the old legislation and 75 in 11 sections — directly to AI regulation. The proposal provides for a wide base of definitions, including the definition of an artificial intelligence system.[6] It refers to software that has been developed using one or more of the methods and approaches listed in Annex I to the Regulation and is capable, for a given set of human-defined goals, to generate results such as content, predictions, recommendations or decisions affecting the environment, which they interact with. Methods and approached are divided into 3 groups: (a) machine learning approaches, including supervised, unsupervised and reinforcement learning, (b) logic- and knowledge-based approaches, including knowledge representation, inductive (logic) programming, knowledge bases, inference and deductive engines, (symbolic) reasoning and expert systems; (c) statistical approaches, Bayesian estimation, search and optimization methods.

[4] European Council, European Council meeting (19 October 2017) — Conclusion EUCO 14/17, 2017, p. 8. Available at: https://data.consilium.europa.eu/doc/document/ST-14-2017-INIT/en/pdf [Accessed 14.05.2021].

[5] All its activity showed at COE webpage https://www.coe.int/en/web/artificial-intelligence [Accessed 14.05.2021].

[6] Article 3 of the Proposal.

On the one hand, it is wider than the Russian definition of artificial intelligence set out in the National strategy for the development of artificial intelligence for the period until 2030, approved by the Presidential decree No 490 on October 10, 2019. According to this "*artificial intelligence is a set of technological solutions that allows to imitate human cognitive functions (including self-learning and search for solutions without a predetermined algorithm) and to obtain, 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 those that use machine learning methods), processes and services for data processing and finding solutions*." EU definition covers all three groups but the Russian one covers directly only the first with machine learning and the second that is human cognitive, others indirectly by methods included in a set of technological solutions. On the other hand, the Russian definition covers not only software solutions (as a system) but also infrastructure (hardware), logical processes and services defining this "set."

Among other definitions, it is worth highlighting such subjective ones as "intended purpose," "reasonably foreseeable misuse," "significant change." Such wordings exist already in product safety regulations, Directive 2006/42/EC on machinery (Machinery Directive[7]). Wordings are inconsistent sometimes (Mazzini, 2019) and it will be logical if Commission will harmonize such wordings.

It seems that the use of such definitions in Russia should be supported by judicial practice or recommendations, or other soft law acts of the supervisory authorities or the legislator, and, accordingly, it is advisable not to use such or similar subjective (evaluative) definitions at the present time in the Russian Federation. The only big law in Russia at the field of digital technologies that uses risk-approach is the Personal Data Protection Law. There is no sufficient court and administrative practice on defects of risks devaluating models. Competent Russian body (Roscomnadzor) uses a more formal approach aimed to fine companies

[7] Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast), published at OJ L 157, 2006, p. 24.

despite its own recommendations that are very fragmentary and vague. Thus, changing this approach aiming to establish legal certainty will help Russia to build business and governmental (and therefore civil) environment where risk assessment is an understandable and common procedure. Assuming even under new AI Act possible aims of use, character and subjects of use require some shift in mind paradigm. We can predict that Russian authorities having political will can distribute more legal certainty by court and competent body's delegated acts and form new risk approach model of businesses and structure of public institutions. If there are no efforts about this, developers of AI systems will feel insecure or even afraid.

"Serious incident" is defined in AI Act as any incident that directly or indirectly leads, could lead or may lead to the death of a person or serious damage to his health, property or environment; or serious and irreversible disruption to the management and operation of critical infrastructure.

In Proposal supporting documents, EU uses some of the Council of Europe's AI glossary definitions: for example, algorithm is set as "*Finite suite of formal rules (logical operations, instructions) allowing obtaining a result from input elements. This suite can be the object of an automated execution process and rely on models designed through machine learning*." Current Russia's position towards the Council of Europe makes it impossible to believe that Russian authorities will accept that such an important definition will be not fixed statically in legislation but referenced from such a non-trusted politically integrational organization.

III. The Scope of Regulation

Article 1 of the Act as the object of regulation establishes harmonized rules for the commissioning, operation and use of AI systems, bans certain artificial intelligence methods, special requirements for AI systems with high level of risk and obligations of operators of such systems, harmonized rules of transparency for AI systems intended for interactions with individuals, emotion recognition and biometric categorization systems, AI systems used to create or manipulate images,

audio or video content; market surveillance and supervision rules. The software development process as such is excluded from the scope of regulation, however, during development, in fact, all the requirements of the AI Act on the use of AI systems must be considered. Developers as actors are excluded from the direct scope of the EU AI Regulation, which in fact can require introduction of special compliance titles or even departments. White paper mentioned that developers liability can be introduced. We will see if it will be included in final acts.

Harmonization is very important for EU as there is a risk that diverging national approaches will lead to market fragmentation and can create obstacles especially for smaller companies to enter multiple national markets and scale up across the EU Single Market. This is why Member States generally support a common European approach to AI. In a recent position paper[8] Member States recognize the risk of market fragmentation and emphasize that the "*main aim must be to create a common framework where trustworthy and human-centric AI goes hand in hand with innovation, economic growth and competitiveness*." This initiative is compliant with principles of subsidiarity and proportionality. In Russia, certainly, it should be governed at the federal level with no derogations at the regions.

The AI Act scope includes providers placing on the market or operating AI systems in the EU, regardless of whether these providers are registered in the EU or outside the EU, users of artificial intelligence systems located in the Union; providers and users of AI systems that are located in a third country, but the result of such a system is used in the EU. This scope of application of the AI Act is extraterritorial and imputation due to the fact that the developer and provider of the system cannot quite expect and foresee not even the customers themselves, but the application of the results of the systems by such customers. This situation is close to the imputation of jurisdiction and has roots in

[8] Non-paper — Innovative and trustworthy AI: two sides of the same coin, Position paper on behalf of Denmark, Belgium, the Czech Republic, Finland, France Estonia, Ireland, Latvia, Luxembourg, the Netherlands, Poland, Portugal, Spain and Sweden, 2020. Available at: https://www.permanentrepresentations.nl/binaries/nlatio/documents/publications/2020/10/8/non-paper---innovative-and-trustworthy-ai/Non-paper+-+Innovative+and+trustworthy+AI+-+Two+side+of+the+same+coin.pdf [Accessed 14.05.2021].

similar provisions of the GDPR (General Data Protection Regulation), which have found its application in Russia. Obviously, this provision is aimed at ensuring that numerous US and China technology software companies, even when developing AI systems, are mindful of the EU requirements and may not enter the EU market with non-compliant AI systems. There are many issues regarding application of extraterritorial jurisdiction in more simple digital technologies domains, such as cloud computing (Sangwoo, 2018). It seems that for AI Act extraterritorial jurisdiction we will see the same big flow of questions as EDPS and national data protection bodies now see for GDPR extraterritorial jurisdiction.

As for the United States, it may seem that a new Biden presidency may see politically attractive for AI cooperation with EU. On some matters that is true. But some of them may become a taboo. For example, regarding the mentioned EU criteria for high-risk AI systems the United States might seek an arrangement with the EU that will allow companies located in the U.S. to self-certify as meeting them, subject to U.S. government control, under a system similar in concept to the Privacy Shield. Mutual recognition of conformity assessments also could be considered (Broadbent, 2021). This may help both win the geopolitical competition between China's illiberal model of AI regulation and democratic states' values-based model (Lawrence and Cordey, 2021). According to the former Google CEO Eric Schmidt "Europe will need to partner with the United States on these key platforms."[9] In late February, he estimated that China was only a few years behind the U.S. in developing artificial intelligence technologies but "Europe is not going to be successful doing its own third way" between China's state-led and the U.S. light-touch approaches.

AI systems intended for military purposes use, as well as bodies of third countries and international organizations, even if they fall under the scope of general scope rules of AI Act, but at the same time use such systems within the framework of agreements with the European Union or Member States on cooperation in the field of law enforcement and judicial authorities are excluded from the scope of the AI Act.

[9] Ex-Google chief: European tech 'not big enough' to compete with China alone. Politico. Available at: https://www.politico.eu/article/ex-google-chief-eric-schmidt-european-tech-not-big-enough-to-compete-with-china-alone/ [Accessed 13.05.2021].

IV. Rules and Regulations

The proposal of AI Act also defines bans on the use of certain AI systems and practices. Among the prohibited, for example, is the use of real-time biometric systems in public places. Still, there is an exclusion, among other things, for such a purpose: a targeted search for specific potential victims of crime, including missing children. In Russian Federation, regional and federal authorities are promoting the use of street cameras to search for missing children. However, unlike the proposal of AI Act, it does not indicate a ban on other uses. This absence should be treated as the absence of guarantees of non-violation of human rights such as right to privacy, right to biometric personal data protection etc.

It should be noted that the bans on the use of certain AI systems and practices itself constitute restrictions on the freedom to conduct business (Article 16 of EU Charter of Fundamental Rights ("the Charter")) and the freedom of art and science (Article 13) to ensure compliance with overriding reasons of public interest such as health, safety, consumer protection and the protection of other fundamental rights ("responsible innovation") when high-risk AI technology is developed and used. Those restrictions are proportionate and limited to the minimum necessary to prevent and mitigate serious safety risks and likely infringements of fundamental rights.

The use of AI systems for social rating should be considered as a positive ban. "*Evaluation or classification of the trustworthiness of natural persons over a certain period of time based on their social behavior or known or predicted personal or personality characteristics, with the social score leading to*" detrimental or unfavorable treatment of certain natural persons or whole groups thereof that is unjustified or disproportionate to their social behavior or its gravity is forbidden. China practice will be set as not allowed in EU.

But current wording proposal for Regulation as "*the detection, localization, identification or prosecution of a perpetrator or suspect of a criminal offence referred to in Article 2(2) of Council Framework Decision 2002/584/JHA*" expressly allows Member state police to use

facial recognition for after-the-fact identification of suspects, as the FBI did after the Capitol riot.

Moreover, the use of AI systems may lead to discriminatory outcomes. Algorithmic discrimination can arise for several reasons at many stages without any intent and it is often very difficult to detect and mitigate (here mentioned reasonably foreseeable misuse is not so foreseeable). Complications may arise due to imperfect architecture of application and creators who mechanically embed their own prejudices and labels when making the classification picks. People can misuse AI output the way that is not fit for the intended purpose in concrete cases. Furthermore, bias causes specific issues for AI methods dependent on input data, which might be unrepresentative, incomplete or contain historical biases that can strengthen existing inequalities with not real scientific and evidence-based legitimacy. Developers or users could also intentionally or unintentionally use proxies that correlate with protected characteristics under EU non-discrimination legislation such as race, sex, disability etc.[10] Although being based on seemingly neutral criteria, this may disproportionately affect certain protected groups giving rise to indirect discrimination (e.g., using proxies such as postal codes to account for ethnicity and race). The algorithms can also introduce themselves prejudices in their intellectual mechanisms by preferring certain characteristics of the data on which they have been trained. Differentiating levels of accuracy in the use of AI systems may also disproportionately affect certain groups, for example facial recognition systems that do not detect person as person those using wheelchairs.

Much more social consequences leading to formation of new forms of structural discrimination and social exclusion can be taken by society if other fundamental rights (e.g., right to education, social security and social assistance, good administration etc.) guaranteed by Charter will be violated in such domains as judiciary or law enforcement, public administration and employment. Currently at the EU market (same is true for Moscow and Saint-Petersburg being the main Russia cities)

[10] An example of such use of postal codes — ProKid (not in use anymore) to assess the risk of recidivism — future criminality — of children and young people in Amsterdam. These AI decisions were issued for a reasonable period of time despite postal codes are often proxies for ethic origin as ruled by the CJEU, Case C-83/14.

HR service in fact is assisted by AI technical solutions playing crucial role (more and more). Potential candidates in terms of discriminatory filtering at different moments of recruitment procedures or afterwards may be negatively affected. In social welfare domain there are cases where unemployed people were suspected of being discriminatory profiled by the administration of social welfare assistance. Financial institutions and other organizations might also use AI for assessing individual's creditworthiness to support decisions making influence onto access to credit and other services such as housing. In some cases it can be useful for people because their chances will be greater based on diverse data, but in some cases the risks of unintentionally induce biases for assessing scores exists, if not properly designed and validated. AI models trained with past data can be used in law enforcement and criminal justice to predict trends in the growth of lawbreaking in certain geographic areas, to recognize potential victims of crimes such as domestic violence or to evaluate the threats posed by individuals to commit offences based upon their criminal records and overall conduct. Both at the borders of EU for asylum seekers and migrants and inside the territory of Union for these categories and citizens risks of discriminatory decisions of predictive AI policing systems exists.

In case such discrimination occurs an affected person almost has no means to collect evidence. Moreover, if they want to have some judicial or administrative remedy, they do not know that they had been affected by an AI system. They have no tools to prove it. Even for administrative or court authorities it may be very difficult to distinguish between discrimination reasons and discrimination itself (Wachter, Mittelstadt and Russell, 2021). This means lack of transparency for both parties. The guaranteed right to be heard as well as the right to an effective remedy and fair trial cannot be realized. The same thing exists with the presumption of innocence that is hampered by opacity of some AI judicial software. This can lead to obstacles for persons charged with a crime to defend themselves and challenge the evidence used against them. At the end, if this software give motivation to public authorities not in addition but instead of themselves then the latter may not be able to reason their decisions and right for good administration will be violated (Wachter, Mittelstadt and Russell, 2021).

AI Act uses risk-oriented approach that was supported explicitly during public consultation. Blanket approach was not considered a better option. Risks are also planned considering the impact on rights and safety and the types of risks and threats should be based on a sector-by-sector and case-by-case approach. This permits to have flexible mechanisms that allow it to be dynamically enabled as the new concerning situations emerge, abuses adapt and technology evolves.

High-risk systems got the rules for their classification, which, of course, should be recognized as a good mean of legal certainty. For personal data, these criteria were issued in the Russian Federation in competent bodies delegated acts long after the adoption of the federal law, which did not contribute to legal certainty and respect for human rights. All high-risk AI systems for EU must have a system for managing risk, quality, tracked logic for selecting data streams, transparency, and the provision of information to users. The proposal contains a sufficient number of requirements for high-risk AI systems, one of the mandatory requirements for such systems is the ability to review the operation of such systems by human individuals. The retention period for system logs should be based on national law or user agreement.

Commission foresees that compliance with these specific requirements and obligations would imply costs amounting to approximately 6,000 euros to 7,000 euros for the supply of an average high-risk AI system of around 170,000 euros. Approximate costs for human oversight for AI users are estimated to be 5,000 euros to 8,000 euros per year. Verification costs could amount to another 3,000 euros to 7,500 euros for suppliers of high-risk AI.

AI Act involves liability rules. Existing EU product certification system includes bodies and authorized representatives as legislative institutions for the market. For example, as at the market of medical devices — the sector of goods that directly affects the health and life of people, and, therefore, these are high-risk goods — every manufacturer of AI system from outside the European Union will be obliged to appoint an authorized representative in the EU. Thus, having jurisdiction over at least the representative, the EU uses them partly as "hostages" of the fulfillment of the requirements of EU legislation by foreign providers. The requirements in the proposal of AI Act set out for importers,

and even for distributors of AI systems. Just like at the medical device market, institutions of notification and evaluation bodies are being introduced. Notification bodies are used to maintain registers of AI systems, evaluation bodies — to assess the compliance of these systems with legal requirements. Such existing conformity assessment system has been operating for a long time not only in relation to the medical devices products, but also for many other sectoral areas of conformity assessment (children's toys, chemical materials, etc.). AI act will establish requirements for both types of institutions, as well as conformity assessment procedures, certificates for marking with the CE mark (common for current conformity assessment in the EU). We should have in mind that the Cybersecurity Act[11] sets up voluntary cybersecurity certification framework for Information and communications technology (ICT) products, services and processes while the relevant Union product safety legislation sets up mandatory requirements.

High-risk AI systems will be listed in special database established to storage EU-wide database for stand-alone high-risk AI systems with mainly fundamental rights implications (Article 60) to facilitate the monitoring work of the Commission and national authorities. The database will be operated by the Commission and provided with data by the providers of the AI systems, who will be required to register their systems before placing them on the market.

For all non-high risk AI systems, AI Regulation would not impose any obligations or boundaries except for some minimal transparency responsibilities in two specific cases where people might be deceived which are not effectively addressed by existing legislation. This would include: obligation to inform people when interacting with an AI system (chatbot) in cases where individuals might believe that they are interacting with another human being; label deep fakes except when these are used for legitimate purposes such as to exercise freedom of expression and subject to appropriate safeguards for third parties' rights.

[11] Regulation (EU) 2019/881 of the European Parliament and of the Council of 17 April 2019 on ENISA (the European Union Agency for Cybersecurity) and on information and communications technology cybersecurity certification and repealing Regulation (EU) No 526/2013 (Cybersecurity Act) OJ L 151, 07.06.2019, pp. 15–69.

Expected in 2022 as a second step in a complex three-step AI regulation liability framework Product Liability Directive review will possibly harmonize some parts of civil liability (which is now under national law). It will include solution with regard to liability for damages/harm caused by AI systems and effective compensation for victim claims. Liability rules will cover post-effects for AI systems including possible damage and its compensation while AI Act rules will protect against possible violations of fundamental rights and safety. Both steps will cover *ex-ante*, ex-post effects, however, liability reform will adapt liability rules compliant with foundational concepts (e.g., the definition of AI), and legal obligations with regard of operations of economic operators set by the AI Regulation. AI issues are close to robotics issues and Commission has intention to adapt traditional offline market of machinery to emerging risks and technologies. Proposal for new Machinery Regulation also issued in April 2021 emphasizes importance of both new laws: AI and Machinery acts. In October 2020 European Parliament already expressed their recommendations according to which European Commission should base new legislation on the liability rules. Its position[12] presents full text of proposal for new Regulation on liability for the operation of AI systems. As this resolution was issued before new proposals of AI Act and Machinery Regulations from European Commission, it is obvious that Commission should elaborate some minimum on technical issues such as wordings and terms.

It is worthwhile to evaluate positively the rules on the transparency of algorithms in some AI systems and on the very fact of interaction with the AI system, on the possibility of Member States to "open" regulatory sandboxes (which is very important for some innovative areas, such as unmanned vehicles (Stepanyan, 2019)).

The transparency responsibilities restrict the right to protection of intellectual property (Article 17(2) of Charter), but proportionally since they will be limited only to the minimum necessary information

[12] Civil liability regime for artificial intelligence. European Parliament resolution of 20 October 2020 with recommendations to the Commission on a civil liability regime for artificial intelligence (2020/2014(INL)) Available at: https://www.europarl.europa.eu/doceo/document/TA-9-2020-0276_EN.pdf [Accessed 14.05.2021].

for individuals to exercise their right to an effective remedy and to the required transparency during supervision and enforcement. Current EU legislation, including Directive 2016/943 on the protection of undisclosed know-how and business information (trade secrets) against their unlawful acquisition, use and disclosure binds with confidentiality and non-disclosure any public authorities and notified bodies if they should have access to confidential information or source code to examine compliance.

UK was one of the first creators of regulatory sandboxes inside EU: children rights and freedoms online was key area that ICO asked expressions of interests for and approved some of the projects in 2019 (ICO 2021). France had the very strict feature for its sandboxes: all projects were not exempt from the scope and rules of GDPR (General Data Protection Regulation) so it permitted to build all data flows in compliance with law at all stages even during prototyping.

Digital technologies regulatory sandboxes were enacted in Russia in 2021. One of the projects in unmanned vehicles by Yandex. According to this context Russia is one of first countries outside EU that have such regime in digital field and already have big AI project in one of the sandboxes. Norway implemented half-France, half-UK model sandbox (Datatilsynet, 2020): GDPR (and fundamental rights and ethics) rules cannot be exempted but during development stage no enforcement will be applied to participant in case of non-compliance.

Title V of Proposal clearly sets strict rules on Member States for derogation from EU data protection rules: Member States should apply their supervising and control powers to such AI regulatory sandbox. Moreover, "*Any significant risks to health and safety and fundamental rights identified during the development and testing of such systems shall result in immediate mitigation and, failing that, in the suspension of the development and testing process until such mitigation takes place*" (Article 53 (3) of Proposal). Such strict insisting on GDPR application shows that GDPR is long-term institution at EU market and all businesses and public bodies should learn how build privacy-by-design compliant systems as there is no markers GDPR will be deprecated.

To guide the above, the EU intends to establish a European Artificial Intelligence Board (EAIB). This Board will be composed of representatives from national AI authorities as well as the European Data Protection Supervisor. In my opinion, this body appears to be based more on the structure of BEREC (European Regulatory Authority for Electronic Communications) rather than EDPS (European Supervisory Authority for Data Protection). But as for competence (Article 58 of Proposal) the Board will ease a smooth, effective and harmonized implementation of this regulation by contributing to the effective cooperation of the national supervisory authorities and the Commission and providing advice and expertise to the Commission. It will also collect and share expertise and best practices among Member States and contribute to uniform administrative practices, including for the functioning of here mentioned regulatory sandboxes. Furthermore, it will issue opinions, recommendations or written contributions on matters related to the implementation of this Act.

At national level, Member States will have to designate one or more national competent authorities and, among them, the national supervisory authority in order to supervise the application and implementation of the regulation. The European Data Protection Supervisor will act as the competent authority for the supervision of the Union institutions, agencies and bodies when they fall within the scope of AI Act both for the latter and GDPR.

Title VIII sets out the monitoring and reporting obligations for providers of AI systems for the post-market monitoring in case there is AI-related serious incidents and malfunctioning (Article 62). Market surveillance authorities would also control the market and investigate compliance with the obligations and requirements for all high-risk AI systems already placed on the market. Market surveillance and control of AI systems in the Union market as per Regulation (EU) 2019/1020 shall apply to AI systems covered by AI Act. The market surveillance authorities shall be granted full access to the training, validation and testing datasets used by the provider, including through application programming interfaces ('API') or other appropriate technical means and tools enabling remote access, any data or documentation. Moreover, where necessary to assess the conformity of the high-risk AI system with

the requirements for such systems and upon a reasoned request, the market surveillance authorities shall be granted access to the source code of the AI system (Article 64). They will also monitor compliance of operators with their relevant obligations under the act. Member States will appoint some existing bodies with the powers to monitor and enforce as it does not foresee creation of any additional bodies or authorities at Member State level. It does not touch existing system and allocation of powers of ex-post enforcement of obligations regarding fundamental rights in the Member States. When necessary for their mandate, existing supervision and enforcement authorities will also have the power to request and access any documentation maintained following this regulation and, where needed, request market surveillance authorities to organize testing of the high-risk AI system through technical means.

Framework for the creation of codes of conduct is set in Article 69. Such codes of conduct boost providers of non-high-risk AI systems to apply voluntarily the mandatory requirements for high-risk AI systems. But providers of non-high-risk AI systems may create and implement the codes of conduct themselves. Those codes may include voluntary obligations, for example concerning accessibility for persons with disability. Such self- regulation will help to boost groups of providers be more compliant or more specific. For Russia it can be useful for special economic zones — innovation centers — to introduce such code of conducts for its residents — tech companies. It will permit to have more qualified developers and responsible software projects and companies.

The obligation to respect confidentiality of all information and data, including intellectual property, received during all relations for implementation of Act set out (Article 70). This provision is very practical and should be inherited in Russian legislation.

Member States shall lay down the rules on penalties, including administrative fines, applicable to infringements of AI Act and shall take all measures necessary to ensure that they are properly and effectively implemented. The penalties provided for shall be effective, proportionate, and dissuasive. Fines are up to 30 million euros or up to 6 % of the annual world turnover, which will be higher. For institutions and bodies of the Union, the fines are lower — up to 500 thousand

euros. GDPR has enacted a similar system (big absolute and turnover fines) that seems to be successive in terms of market surveillance.

We can estimate the same approach from national bodies of EU Member States. Some of them are not issuing fines, some do. For example, French court uphold the decision of CNIL (French data protection body) to fine Google Inc. (which is a US company operating Google search and Gmail mail services) for 50 million euros[13] (it is a big sum but much lower than its 4 % of turnover, which is approximately 3.2 billion euros). It is considered the biggest fine now. LfD of Lower Saxony in Germany fined notebooksbilliger.de AG (online e-commerce portal and retail chain dedicated to selling laptops and other IT supplies) for more than 10 million euros for constant video surveillance and recording storage for 60 days.[14] This sum is sufficient for the company that is not as big as Google. Thus, applying to small AI developers' companies such big fines may make them bankrupt. Administrative fines for violation of the GDPR are higher than fines for violations of the Russian legislation on personal data, but Russia provides for a wider range of sanctions, which may lead to more serious penalties (up to and including imprisonment). Statistics of imprisonment as a measure for violating Article 137 of the Criminal Code of the Russian Federation show that there are five cases in both 2020 and 2019 and it is not possible to delimit cases that clearly rely on infractions of personal data requirements and privacy overall. So we can see that the main liability is administrative and civil, despite civil is very low (Dmitrik, 2020).[15]

The difference is that GDPR applies to a wider range of companies processing personal data, but to a very narrow range of companies selling AI systems. Many of them are able to have AI Act compliance lawyers or developers.

[13] € 50 million fine for Google confirmed by French Court. Available at: https://noyb.eu/en/eu50-million-fine-google-confirmed-conseil-detat. It is remarkable the CEO of NGO submitted the claim to CNIL is Max Schrems, famous by his ECJ cases Schrems I and Schrems II. [Accessed 14.05.2021].

[14] GDPR: German laptop retailer fined € 10.4m for video-monitoring employees. Available at: https://www.zdnet.com/article/gdpr-german-laptop-retailer-fined-eur10-4m-for-video-monitoring-employees/ [Accessed 14.05.2021].

[15] Average compensation for personal data leaks for example in first half of 2018 in Russia was only 800 rubles (which is approximately 9–20 euros in different years).

Once adopted AI Act will come into force in default term — 20 days after its publication in the Official Journal. Entry in force is scheduled in 24 months after that date, but some provisions will apply earlier. 24 months is long enough period for Member States to choose and set up their national bodies but tech companies may elaborate some act provisions overtaking solutions, mainly by technological measures. The risk exists that before they even apply some provisions, those will require correction or adaptation to some technologies despite its technology-neutral character.

Year 2012 EU bundle of telecom legislation was fit for giving boost to EU economy because of mainly net and technology neutrality what covered both offline telecommunications infrastructures rise and real new technology software and means such as Skype (true EU economical miracle of 2010s). And it worked. Now with mainly US players on EU market it is not possible to answer exactly, will such players follow the rules of the game or pull the fifth ace out of their sleeve.

V. Conclusion

As can be seen from the above, the proposal of AI Act is not simple and small and is quite complex being only one part of overall EU AI regulation. An AI system as object of regulation receives a status that is similar to the status of a high-risk or even possibly dangerous product or service with its own specifics. Classification of AI systems helps to both developers and users to know their rights and freedoms.

Some rules are set to be easily fit and integrated into the EU legal system, but are not suitable for other countries due to the lack of specific features of the EU legal system in such countries. This statement can be fair also for Russia.

It is worthwhile to further explore the applicability and impact assessment report in order to talk about the possible use of a particular institution in Russia. It is necessary to make many changes in legislation and law enforcement practice in order to be able to adopt a similar comprehensive act and use its achievements. However, the question on the expediency of such complex changes exists, and the answer to this question is not so obvious. At the moment if the legislator is willing to

introduce AI legislation reform in Russia, the possibility of proposing the introduction and implementation of individual rules looks for us much more successful and applicable, while the principles document — the Concept for the development of regulation of relations in the field of artificial intelligence and robotics technologies until 2024 — already exists in Russia. In my view, Russia should continue work on this topic and in short-term perspective (1–3 years) this field can be ready for Russia AI Act.

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Legal Foundations of Funding Fundamental Science Projects within the Horizon Europe Programme

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Abstract: Since the end of the twentieth century, there has been a trend in Europe towards the accumulation of scientific knowledge, increasing the competitiveness of European research and the mobility of scientists themselves. The goals and objectives set by the European Union are being realised through the creation of a common European Research Area and the implementation of special framework programmes. The EU funding for basic research is now being pursued under a new framework programme known as Horizon Europe. Despite a number of changes caused by the increasing complexity of the structure of the bodies involved in funding research projects, grants to researchers, including through the activities of the European Research Council, remain the main source of investment. Horizon Europe provides research and innovation funding for multinational cooperation projects as well as for individual researchers and supports SMEs with a special funding instrument. Attention should also be paid to such aspects of the programme implementation as European partnerships (in various forms) and research infrastructures. However, despite all the positive experiences of the previous framework programmes, the current legal regulations make it very difficult for researchers from third countries to participate in the call for proposals, usually the possible implementation of such projects is subject to the participation of European researchers or research organisations, thereby ensuring EU competitiveness in the international arena.

Keywords: European research area; EU law; European Research Council; Horizon 2020; Horizon Europe; grant funding for science; Megascience; infrastructure; international integration

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Contents

I. Introduction

Horizon 2020 is to be succeeded in 2021 by the Ninth Horizon Europe programme, which will run from 2021 to 2027. The European Commission's proposal, published on 7 June 2018,[1] aims to address shortcomings in the legal regulation of innovation and improve the financing of research and technological advances and allows the programme achievements to be measured, while ensuring strategic management and budget flexibility.

[1] Proposal for a Regulation of the European Parliament and of the Council establishing Horizon Europe — the Framework Programme for Research and Innovation, laying down its rules for participation and dissemination COM/2018/435 final. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2018%3A0435%3AFIN [Accessed 11.06.2021].

The Horizon Europe is the most ambitious programme ever implemented to address societal challenges. Under the long-term budget for 2021–2027 the programme will be allocated around 95.5 billion euros, which is more than the Horizon 2020 budget. Financial rules on the implementation of the Union budget in this field, including the rules on grants, prizes, procurement, indirect management, financial instruments, budgetary guarantees, financial assistance and the reimbursement of external experts are stipulated in the Regulation (EU, Euratom) 2018/1046 of the European Parliament and of the Council of 18 July 2018 on the financial rules applicable to the general budget of the Union.[2]

However, despite the allocated budget, the implementation of the programme is only possible with the implementation of a certain cumulative set of measures, involving all mechanisms, including administrative resources (Archibugi, Filippetti and Frenz, 2020, p. 17).

The main objectives of the Ninth Framework Programme include:

— Increasing innovation capacity, competitiveness and jobs in the European Union and EU Member States;

— Strengthening the EU's science and technology base;

— Realization of the priorities of the EU citizens and upholding values.

This approach allows "all social actors (researchers, citizens, policymakers, business, third sector organisations, and others) cooperate to align the innovation process and its outcomes with societal expectations and values" (Cozzoni, Passavanti, Ponsiglione, Primario and Rippa, 2021, p. 1).

Like all previously implemented framework programmes, Horizon Europe has a complex structure and it is a whole system of different bodies and subprogrammes, which can be roughly divided into several constituent elements.

[2] Regulation (EU, Euratom) 2018/1046 of the European Parliament and of the Council of 18 July 2018 on the financial rules applicable to the general budget of the Union, amending Regulations (EU) No 1296/2013, (EU) No 1301/2013, (EU) No 1303/2013, (EU) No 1304/2013, (EU) No 1309/2013, (EU) No 1316/2013, (EU) No 223/2014, (EU) No 283/2014, and Decision No 541/2014/EU and repealing Regulation (EU, Euratom) No 966/2012 OJ L 193, 30.07.2018, pp. 1–222. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2018.193.01.0001.01.ENGandtoc=OJ%3AL%3A2018%3A193%3ATOC [Accessed 11.06.2021].

More generally, Horizon Europe shall be implemented through 1) the Framework Programme for Research and Innovation,[3] 2) a financial contribution to the European Institute of Innovation and Technology and 3) the specific programme on defence research — European Defence Fund.[4] Thus Horizon Europe integrated defence research programmes into general framework of European research area.

Equally important changes concern additional actions that support the three main Special Programmes aimed at widening the participation and reforming and strengthening the systems already in place in the European Union.

Widening the participation and strengthening the European Research Area will take place through the increased support to the European Union Member States, in particular their promotion of maximizing national research and innovation potential, as well as closer cooperation and dissemination of best practices.

Unlike Horizon 2020 Horizon Europe states that there are non-European Union countries who will be able to participate. However, it is noteworthy that the procedure for selecting participants is not simplified. On the contrary, it has been made more complicated in order to establish certain privileges for the EU Member States. It is assumed that applicants with good science, technology and innovation potential will be able to take part in grant funding under the current programme, but due to the new conditions this objective becomes difficult to achieve for third-country nationals.

In the new European Framework Programme there are two ways of obtaining a grant: joint research funding and individual participation. To apply for funding under the first option (joint research), it is necessary to team up with organizations from at least three other EU Member

[3] Council Decision (EU) 2021/764 of 10 May 2021 establishing the Specific Programme implementing Horizon Europe — the Framework Programme for Research and Innovation, and repealing Decision 2013/743/EU OJ L 167I, 12.05.2021, pp. 1–80. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021D0764andqid=1624178185784 [Accessed 11.06.2021].

[4] Regulation (EU) 2021/697 of the European Parliament and of the Council of 29 April 2021 establishing the European Defence Fund and repealing Regulation (EU) 2018/1092 OJ L 170, 12.05.2021, pp. 149–177. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021R0697andqid=1624180157051 [Accessed 11.06.2021].

States or associated with the Horizon Europe programme, where one of the countries must be an EU Member State. There is an opinion that if the non-EU partner is funded by national sources, its attractiveness may increase, as the consortium will benefit from its expertise without requesting more EU funding. This effect is expected to be significant for "peripheral partners" that do not have a central role in the project, while the more central organizations may be penalized by the "third country status," as they would be less strongly integrated into the project (Cavallaro and Lepori, 2021, pp. 1311–1328).

Funding for individual researchers is provided by the European Research Council (ERC) and the Marie Skłodowska-Curie Programme.

In addition to extending the scope of the programme to more countries, many other adjustments and improvements have also been agreed, including two important noteworthy changes.

The first major change is the updating of partnership approaches, consolidating them into a simple and more effective architecture of three possible forms: jointly programmed, jointly funded and institutionalised. Secondly, it makes it compulsory to publish data produced by the programme in order to find it in the public domain.

The Industrial Leadership Programme aims to make Europe a central player in innovation in the global marketplace. The European Innovation Council is the main implementing body in this area and consequently drives industry and manufacturing in Europe.

In this priority, we saw the biggest change relative to other parts of the programme. Firstly, the very name of the special programme "Industrial Leadership" has been replaced by "Open Innovations," which already implies a fundamental root change in this section. The European Union's industrial leadership has been moved to the third part of the framework programme ("Global Challenges and European Industrial Competitiveness"), which we will discuss later in this paragraph, and replaced by a new theme focused on stimulating and supporting breakthrough innovation to shape the market, where it is assumed that the European Union will surpass other current leaders and take first place in the development, adoption and use of new and emerging technologies. This section consists of three components: European Innovation Council, European Innovation Ecosystems and the

European Institute of Innovation and Technology (Article 9 of the EU Regulation on the Establishment of the Horizon Europe Programme).

The Priority Axis "Advanced Science" aims at improving the global scientific competitiveness of the European Union. It supports cutting-edge research projects carried out by leading researchers through the European Research Council, funds scholarships for experienced researchers and doctoral students, sponsors exchanges through the Marie Skłodowska-Curie Programme, and invests in world-class research infrastructures.

Beginning with the first special programme, it is worth drawing attention immediately to the difference in categorization of science. Accordingly, advanced science is put in contrast to open science. Apart from the name, the main change here is that emerging and new technologies have been removed from this priority and allocated instead to the other two programmes. The high-priority actions on emerging and new technologies have been moved to the second pillar in the Mission, while the remaining actions on emerging and new technologies have been moved to the third pillar of the framework programme under a new name and with a focus on market breakthrough and disruptive innovations.

Open Science is expected to become critical under the new framework due to its focus on public access to publications. This option makes it easier to track the validity of data generated by researchers, which also contributes to their robust management. This will help market uptake and increase the innovation potential of results from the EU funding.

It is certainly questionable whether these changes should be defined as positive, as full openness of data does not always have a positive impact on the field. In addition, a new generation of criteria and indicators for evaluating research can also be expected in connection with the drive towards publicity.

Otherwise, this special programme remains completely unchanged and continues to focus on scientific excellence through scholarships and research exchanges.

II. The European Partnership

The overall objective of the programme is to ensure the scientific, technological, economic and social impact of the Union's investment in Research and innovation (RandI). This will strengthen the scientific and technological base of the European Union and increase its competitiveness in all Member States. It is proposed to achieve the result through three main areas:

1) accelerating the digitalization of the environment and related issues;

2) increasing resilience and crisis preparedness;

3) supporting Europe's global competitiveness.

Both Horizon 2020 and Horizon Europe consist of three pillars as well as the horizontal action supporting them. However, the latter programme has introduced some changes to address global issues that have long confronted states, academics and society at large.

The European Partnership as a mechanism established under the EU's Ninth Framework Programme, Horizon Europe, can also be considered by its nature as a type of public-private partnership (PPP) designed to bring together the European Commission and private and/or public partners to address some of the most pressing challenges through concerted research and innovation initiatives. The Regulation defines a European partnership as "an initiative, prepared with the early involvement of Member States and associated countries, where the Union together with private and/or public partners (such as industry, universities, research organisations, bodies with a public service mission at local, regional, national or international level or civil society organisations including foundations and NGOs) commit to jointly supporting the development and implementation of a programme of RandI activities, including those related to market, regulatory or policy uptake."[5]

[5] Regulation (EU) 2021/695 of the European Parliament and of the Council of 28 April 2021 establishing Horizon Europe — the Framework Programme for Research and Innovation, laying down its rules for participation and dissemination, and repealing Regulations (EU) No 1290/2013 and (EU) No 1291/2013. OJ L 170, 12.05.2021, pp. 1–68. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021R0695 [Accessed 11.06.2021].

The aim of the European partnership between the EU and associated countries, the private sector, foundations and other stakeholders is to address global challenges and to modernise industry.

Under the new Horizon Europe programme a European partnership will be maintained with the EU countries, the private sector, foundations and other stakeholders. The aim is to address global challenges and industrial modernization through concerted research and innovation.

The European Horizon sets out the conditions and principles for the establishment of a European partnership and envisages three types (Article 10 of the EU Horizon Europe Regulation):

1. Co-programmed European Partnerships (partnerships between the European Commission and private and/or public partners). These are based on Memoranda of Understanding and/or contractual agreements.

2. Co-funded European Partnerships, using a co-financing programme (partnerships involving EU countries, research sponsors and other public bodies).

3. Institutionalised European Partnerships (bringing together private and public partners).

Clearly, a certain disadvantage of the PPP mechanism is the fact that not all science and technology projects can be commercially and institutionally feasible to implement under this form, because, unfortunately, little-known projects and ideas of innovative, industrial or social orientation cannot be justified in terms of commercial (budgetary) feasibility. Despite the fact that PPPs are one of the effective mechanisms of risk sharing between the state and private investors, most projects are currently not feasible under traditional PPP models (Witters, Marom and Steinert, 2012, pp. 81–87).

A similar point of view is held by V.V. Maksimov who states that "in terms of niche segmentation (target audience) investors in innovation, production and social infrastructure are absolutely different, they are also different at different stages of the life cycle of a PPP project — "design — construction — operation" (Maksimov, 2018, pp. 22–27).

For a better understanding of this issue, consider already implemented innovative public-private partnership projects, such as ASAQ Winthrop as a project between the World Health Organization (WHO) and a private company to develop a new antimalarial drug and

address the challenge of rolling out a programme to use it in the field (Bompart, Kiechel, Sebbag and Pecoul, 2011, p. 143).

Another example is e-Mitra, an agreement between the Government of Rajasthan State of India and local service providers to provide e-services to citizens (e.g., forms, applications, birth certificates, counselling) through specialized centers and local services.

III. The European Innovation Council

The European Innovation Council has also been mandated to support creative innovation in order to ensure that Europe remains a strong leader in the global economy (Commission Implementing Decision (EU) 2021/173 of 12 February 2021).[6]

Thanks to the draft programme to date, we can note certain reforms of the existing legal regulation, which will have to be dealt with in the future. For example, the European Innovation Council (EIC) has been created to support innovation, help innovators create markets of the future, attract private funding and also scale up.

It should be noted that the pilot project of the European Innovation Council is already being implemented on the basis of the Eighth Framework Programme and provides funding and opportunities for innovative researchers, innovators and entrepreneurs — often start-ups and companies that differ radically from existing products, services or business models, face a high risk and have the potential for international expansion.

The European Innovation Council pilot project supports ideas from any field of technology or business, including innovative combinations of technologies and business models from the feasibility study to

[6] Commission Implementing Decision (EU) 2021/173 of 12 February 2021 establishing the European Climate, Infrastructure and Environment Executive Agency, the European Health and Digital Executive Agency, the European Research Executive Agency, the European Innovation Council and SMEs Executive Agency, the European Research Council Executive Agency, and the European Education and Culture Executive Agency and repealing Implementing Decisions 2013/801/EU, 2013/771/EU, 2013/778/EU, 2013/779/EU, 2013/776/EU and 2013/770/EU. OJ L 50, 15.02.2021, pp. 9–28. Available at: https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:32021D0173 [Accessed 11.06.2021].

the development phase, such as innovations in the field of magnetic resonance imaging (MRI), robotics, etc.

By encouraging teams to partner together across the Knowledge Triangle (Research, Higher education and Business) through its KICs and their CLCs, the EIT foster its partnership communities to "co-create novel innovation approaches." Many of the challenges posed by the European Innovation Council have subsequently become part of the Horizon 2020 (Leceta and Könnölä, 2019, p. 6).

Since March 2019, the Future and Emerging Technologies (FET) programme has been part of an extended pilot project of the EIC. With Horizon Europe's next programme, it is crucial to understand the strengths and weaknesses of the FET and how the programme can evolve, building on the experience of the US Defense Advanced Research Projects Agency (DARPA).

The European Innovation Council and SMEs Executive Agency should ensure a clear focus on innovation and the single market. The European Innovation Council and SMEs Executive Agency should create strong synergies to support the recovery of the European economy, by grouping in one agency all the activities of the EIC and the programme related to small and medium-sized enterprises. The EIC and Interregional Innovation Investments will ensure visibility for innovation, key to supporting the modernisation and sustainability of the EU economy.

IV. The European Research Council (ERC)

Throughout the process of establishing the European Research Area as what some researchers claim is a "fifth freedom" (Guskova and Sushkova, 2015, pp. 214–223). The need for an independent organisation, based on the basic principles of the European Union and managed by internationally renowned scientists, has been evident throughout the process of shaping the European Research Area, which some researchers argue is developing at this stage in addition to the four existing ones, necessary, among others, for a free movement of research, technology, innovative development and coordination of all

research activities at both the European and national levels (An ESF position paper, 2003).

The European Research Council (ERC), established in 2007 under the aegis of the implementation of the EU Seventh Framework Programme[7] is such an organisation. The fundamental aim of the ERC is to support and develop cutting-edge research in Europe, with a focus on creativity and quality.[8]

According to Prof. Bourguignon, the current chair of the ERC, Europe produces a third of the world's new knowledge, but creativity and dynamism in the field must be stimulated. The President of the ERC sees the following as the strategic objective of the organisation, "We created a procedure to support young scientists, which allows us to identify new leaders in research fields and improve career prospects for young researchers. And finally, we wanted to create something completely new for Europe: a standard for research quality and evaluation."

With the establishment in 2013 and the current operation of the Horizon 2020 Framework Programme for Research and Innovation (for the period 2014–2020), the European Research Council exercises powers on the basis of several acts which have made its structure more complex, within the "Quality Science" part of the programme. Thus, the European Research Council currently consists of a Scientific Council and an Executive Agency.

The Scientific Council is made up of twenty-two scientists, whose fields of academic interest lie in various fields, who are of the highest reputation and possess appropriate qualifications, both women and men of different age groups, ensuring a diversity of fields of research and acting in a personal capacity, irrespective of extraneous interests.

[7] Regulation (EC) No 1906/2006 of the European Parliament and of the Council of 18 December 2006 laying down the rules for the participation of undertakings, research centres and universities in actions under the Seventh Framework Programme and for the dissemination of research results (2007–2013). OJ L 391, 30.12.2006, pp. 1–18. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32006R1906 [Accessed 11.06.2021].

[8] Commission Decision of 2 February 2007 establishing the European Research Council. OJ L 57, 24.02.2007, pp. 14–19. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2007.057.01.0014.01.ENG&toc=OJ%3AL%3A2007%3A057%3ATOC [Accessed 11.06.2021].

The members of the Scientific Council are appointed by the European Commission following an independent and transparent selection procedure, including consultation with the scientific community and reports to the European Parliament and the Council, for a term of four years, renewable once to ensure the continuity of the Scientific Council.

The Executive Agency is the administrative body responsible for managing the implementation of the Horizon 2020, including specific projects based on it, and for executing the budgetary authority for the management of all the organisation operations within the programme.

The members of the Executive Agency shall be appointed for a period of up to two years, with the exception of the Director, whose term of office shall be four years, taking into account the opinion of the Scientific Council of the ERC.

All internal structures of the ERC, as well as the organization as a whole, are subject to the control of the European Commission, which, following an audit and performance review of the ERC under the Seventh Framework Programme, noted savings in delegated budgetary and administrative authority of 45 million euros for the organization in the period from 2009 to 2012.

The ERC can establish and maintain a reputation for selecting high-quality "investigator-driven" project proposals only if its processes are transparent, simple, with low administrative burdens and with measurement standards and peer review processes (Follesdal, 2019, pp. 237–247). The applications are selected by independent experts, based on a highly transparent scheme and exclusively on scientific criteria. According to a number of researchers, "this last point is very important, as it distances us from any politically motivated criteria, in particular from the widely used in Europe 'juste retour' principle, according to which each country receives from the pan-European programme in proportion to its own financial contribution."

In evaluating the applications, the European Investment Fund (EIF) does not give preference to any particular field or area of research. Thus, in contrast to previous research funding frameworks, in Horizon 2020 applied research is not explicitly prioritised.

Preference is given, among other equals, to interdisciplinary research containing innovative proposals concerning new areas

of research or proposals introducing unconventional, innovative approaches to research.

According to the current concept promoted by the ERC, any interested person, regardless of the age and career, is eligible to apply for long-term funding through the ERC grants by submitting an application from anywhere in the world.

ERC funding can be described as a positive sum game: overall, there is a net gain for academic disciplines in participating in the competition for ERC funding, simply because it enables new research avenues and also helps to make them more visible. This is to the advantage of all members of the disciplinary tribe (König, 2019, pp. 248–266).

The funding period is up to five years for the ERC Starting Grant, the ERC Consolidator Grant or the ERC Advanced Grant, and up to seven years for the Synergy Grant.

The amount of funding provided under the grant varies depending on the type of grant and covers up to 100 % of the direct costs and a portion of the indirect costs of 25 % of the direct costs.

The ERC grants are autonomous (transferable) and may, under certain conditions, be transferred, either in part or in full, to another beneficiary. These provisions also cover the conditions for transferring the equipment purchased and used within the grant study in progress to a third party for the project implementation.

Although the ERC is interested in supporting researchers from any country, regardless of the scientist's nationality and in some cases even a research team from another country, the host institution must necessarily be located in the EU or its Associated Members.

The ERC Starting Grant, ERC Consolidator Grant and the ERC Advanced Grant aim at supporting research activities led by a single Principal Investigator, while the Synergy Grant provides funding opportunities for teams of up to four Principal Investigators, correlating obligations to the Team Leader.

The host institution should grant the Principal Investigator a full freedom to carry out the research (including in determining the team of authors and the composition of the publications) and autonomy at the disposal of the grant funds.

In turn, to ensure the principle of openness of information, the Principal Investigator should ensure that all peer-reviewed research materials, in accordance with the provisions of the Model Agreement on Grant Funding, are made publicly available for re-access by other researchers, with the possibility of subsequent citation.

However, it is worth noting that certain "eligibility criteria" apply to the Lead investigators, depending on the grant funding requested.

The procedures and criteria for evaluating the application submitted by the researcher also vary depending on the type of grant selected.

For the ERC Starting Grant, the ERC Consolidator Grant and the ERC Advanced Grant, there is a two-stage evaluation procedure. In the first stage, only the compliance of the Lead Investigator with the stated "eligibility criteria" is assessed; the "scientific component" of the project is only subject to consideration at the second stage of the evaluation, taking into account the stated project budget, with applicants selected for the second stage being called for interviews directly to the Expert Council meeting in Brussels.

The evaluation procedure for the Synergy Grant application has three steps, including the interview process.

It is important to note that under the terms of the grant, the Principal Investigator is obliged to spend only 50 % of his/her working time in Europe, i.e. there is no need to be permanently present in the EU.

For all applications submitted to the European Research Council, the main and only evaluation criterion is scientific excellence, as demonstrated by the following components: the innovative nature of the research, its ambition, but also its practical feasibility, and the factors confirming the intellectual capacity, creativity and competence of the Principal Investigator.

Projects consisting entirely or to a large extent of the results of comparing and compiling existing materials are less likely to constitute ground-breaking or milestone research and are therefore not recommended for selection by the ERC experts.

In addition to the four main types of grant funding within the ERC, there is now an additional form of research support, namely the ERC Proof of Concept Grant, which is designed for researchers who

have previously received one of the main grants, but want to assess the commercial potential of the research project, with a direct link to the main research project. The grants are up to 150.000 euros for a period of 18 months.

Given the fact that the European Research Council has been operating within the two Framework Programme for more than ten years now, some researchers have highlighted historically justified perspectives for its future functioning, among them the economic feasibility and effectiveness of delegating authority to the ERC in this area and the institutional-cultural perspective based on strengthening integration processes (Gornitzka and Metz, 2014, pp. 81–110; König, 2017, p. 270).

Dr Barbara Hoenig, analyzing in her studies the impact of the European integration process in research funding, emphasises the following structural changes in the social and institutional organisation of science associated with the European Research Council:

— the formation of new standards for the evaluation of research activities both within and outside the EU;

— creating the ERC as a qualitatively new supranational organisation providing the possibility of obtaining external funding for research activities in the context of reduced public support for universities and individual research institutes;

— individualisation of research funding, based on the identification of leading researchers in each field through the validation of their professional qualifications and reputation with the involvement of independent experts;

— importance of the ERC experience for the formation of similar supranational, global organizations;

— the practical implications associated with a tangible material impact on individual researchers and universities, including in terms of creating a new scientific elite that embodies the "European ideal" (Hoenig, 2017, p. 4).

The special status of the European Research Council as an organisation that operates solely on the basis of opinions expressed by recognised and well-known representatives of the scientific community, and the absence of the need for grant funding of research in proportion

to the contribution of Member States to the organisation's budget, underlines the inclusive nature of the ERC.

At the end of the Horizon 2020 Framework Programme period the European Research Council will be assessed by the European Commission in terms of the effectiveness of the distribution of the spent budget, but already today we can say that the EU's contribution to research funding is significant.

V. The Research Infrastructures

Research infrastructures have become a topic of interest and priority for funders, political bodies, and (increasingly) institutional decision makers. In Europe the European Commission is a funder of RIs, complementing funding done by EU Member States at the national level (Lossau, 2012, pp. 313–329).

The European approach to research infrastructures has made remarkable progress in recent years with the implementation of the European Strategy Forum on Research Infrastructures (ESFRI) roadmap, integrating and opening national research facilities and developing e-infrastructures underpinning a digital European Research Area. The networks of research infrastructures across Europe strengthen its human capital base by providing world-class training for a new generation of researchers and engineers and promoting interdisciplinary collaboration.

Further development and wider use of research infrastructures at the Union level will make a significant contribution to development of the European Research Area. While the role of Member States remains central in developing and financing research infrastructures, the Union plays an important part in supporting infrastructure, fostering the emergence of new facilities, opening up broad access to national and European infrastructures, and making sure that regional, national, European and international policies are consistent and effective. It is not only necessary to avoid duplication of efforts and to coordinate and rationalise the use of the facilities, but also to pool resources so that the Union can also acquire and operate research infrastructures at the world level.

The efficiencies of scale and scope achieved by a European approach to construction, use and management of research infrastructures, including e-infrastructures, will make a significant contribution to boosting Europe's research and innovation potential.

According to the Regulation, research infrastructures are defined as "research infrastructures" means facilities that provide resources and services for the research communities to conduct research and foster innovation in their fields, including the associated human resources, major equipment or sets of instruments; knowledge-related facilities such as collections, archives or scientific data infrastructures; computing systems, communication networks and any other infrastructure of a unique nature and open to external users, essential to achieve excellence in RandI; they may, where relevant, be used beyond research, for example for education or public services and they may be "single sited," "virtual" or "distributed."

As A.O. Chetverikov points out, "the most common legal category that corresponds to mega-sciences in official documents is the expression 'large research infrastructures', which has also been adopted in Russia." Research infrastructures are facilities that provide resources and services for the research communities to conduct research and foster innovation in their fields.

These include:

— major equipment or sets of instruments;
— knowledge-related facilities such as collections;
— archives or scientific data infrastructures;
— computing systems;
— communication networks.

Horizon Europe will endow Europe with the world class sustainable research infrastructures which are open and accessible to the best researchers from Europe and beyond.

Activities aim at developing the European research infrastructures for 2020 and beyond, fostering their innovation potential and human capital and reinforcing European research infrastructure policy.

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Platform Law and Platform Solutions in the Fight against the Pandemic

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Abstract: The paper looks at the impact of the coronavirus pandemic, focusing upon the invaluable contribution of the platform technologies and artificial intelligence to the fight against this suddenly impending threat. Applying analytical techniques, we focus on some Asian countries (i.e. Singapore, China), Russia and the USA. The results demonstrate that rapid processing of large amounts of data, standardization protocols and quick analysis within a tight deadline cannot be overestimated. However, lack of the appropriate legal regulation significantly limits the functionality of platform solutions. We live in a modern legal state, where human rights arerecognized as the highest value, so implementation of new technologies, regardless of their efficiency and practical value, should not infringe the rights of citizens, but meet the requirements of the law. The article tackles the problem of global COVID-19 pandemic by focusing on the international experience in the use of artificial intelligence and arising legal issues associated with human rights and information privacy laws. This will help to determine the vector of the legislation development globally among the continents and in the Russian Federation specifically.

Keywords: platform; platform law; COVID-19; network model; artificial intelligence and robotics; healthcare

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Contents

I. Introduction

There is no denying that the global pandemic has become a powerful catalyst for the international integration and at the same time it has stimulated a revolutionary upturn in the platform technologies development. In order to contain the spread of the coronavirus pandemic and reduce the number of infected people, every country has come face to face with its own to-do list. The challenges that come with that task list could be solved by implementing current and trending information technologies, creatively using the shared experience.

One of the remaining priorities is to organize essential and sufficient measures that could satisfy public demand for the basic services under the restrictions of quarantine conditions. Agencies and companies around the world moved their activities from the physical to the electronic domain, introducing remote work as an alternative to their standard services. Platform solutions play a special role in the realization of this trend.

II. Implementation of Platform Solutions

Digital platform in its general sense is a system of algorithmic relations between a significant number of industrial and interindustry participants, united by a common information medium, which minimizes transaction expenses through the package of digital technologies and transformation of a functional distribution system. The results of recent platform implementation in medicine look very promising (Stefanova

and Andronova, 2018, p. 32). Even in the conditions of a safer epidemiologic environment, platform solutions allow a more efficient and operational doctor-patient interaction. When the situation becomes critical, application of new information technologies reshapes from an option into the necessity. Due to the COVID-19 pandemic, the merging of modern technologies with the medical domain has become a global trend.

II.1 Asian Experience

Singapore has taken the lead in the digitalization during the pandemic. The mobile app TraceTogether, developed to fight the spread of the infection, made the need for the mass isolation of Singaporeans obsolete. The key feature of the app is its data collection algorithm: the app utilizes Bluetooth connections; thus, only close contacts are monitored excluding general daily activity. If a person falls sick, the government notifies all people who have been in contact during the last 14 days, urging them to take measures. Deeper integration of digital solutions was made possible by the thoroughly developed Singapore legislation system, specifically in the domain of information technology and personal data protection.

During the coronavirus pandemic the Chinese government introduced a monitoring system Health Check which was available for platforms popular in China, namely Alipay and WeChat. The system generated special QR-codes, which determined the freedom of personal travel and the colour of the pass (graphic identity), individually for every person who filed a request: green (complete freedom of travel), orange (quarantined for seven days) or red (quarantined for 14 days).[1] If we consider the fact that China is the only country to eliminate COVID-19 threat so far, and the Chinese government officially announced that, then

[1] Convention for the Protection of Human Rights and Fundamental Freedoms (Signed in Rome November 4, 1950) (with Amendments dated May 13, 2004) (together with Protocol No 1 (Signed in Paris March 20, 1952), Protocol No 4 Securing certain rights and freedoms other than those already included in the Convention and in the First Protocol thereto (Signed in Strasbourg September 16, 1963), Protocol No 7 (Signed in Strasbourg November 22, 1984)). Legislative Acts of the Russian Federation, May 18, 1998, No 20, Article 2143, Bulletin of International Treaties, July 1998, No 7, Modern International Law Reports, vol. 2, p. 31.

we could all agree that any further discussion of the system's efficiency is pointless. On the other hand, there is always room for discussion about inadequate deep learning and lack of algorithm transparency of the application of artificial intelligence in Chinese law (Liu, 2020, p. 1).

South Korea is one of the few countries that managed to avoid total isolation of the public. The Korean approach is rooted in their legislation for the platform solutions implementation. Every day a system of artificial intelligence (AI) analyzed GPS coordinates of the citizens under observation, credit card history, transport and street surveillance. If the advised travel regime has been violated, this information is immediately sent to a special healthcare department for disease control and prevention.

Now that the peak of the COVID-19 pandemic is over, the analysis shows that the most effective measures against the spread of the coronavirus infection were taken in countries where governments promptly managed to introduce platform technologies applied to the disease treatment and control of mass gatherings. The best results can be traced in countries that, by the start of the pandemic, had already developed a thorough and systemic legislation regulating platforms and technologies of artificial intelligence. In most areas elaborate laws significantly facilitate the functional efficiency of digital technologies implementation. For example, those domains which are normally too complicated for digitalization — judicial protection, medicine, etc. — now can be moved onto digital platforms. Among recent examples are countries, mentioned earlier in this article — Singapore, China, and Israel.

II.2 Russian Experience

In the Russian Federation platform solutions for fighting the COVID-19 infection have been and still are quite common. A prominent example would be a special tracking app "Social monitoring" — an app for mobile platforms used to track COVID-19 patients or potentially sick people, who are quarantined at home. Implementation of this app in the conditions of the high-alert regime is grounded in Articles 12.4 and 12.5 of the Moscow Mayor Decree No 12-UM dated March 5, 2020 (with the

amendments introduced by the Decree No 55-UM dated May 7, 2020) (Li, 2020, p. 11).

A special feature of this app is its push-notification system, when the app during the day randomly requests users to take a selfie of the face and upload it. The main purpose of these notifications is "to prevent users from leaving their smartphones at home when they go outside." From the point of view of the Federal law "On personal data," this can be interpreted as a biometric data processing.

This is a complicated and delicate matter, since personal biometrics are protected by the law and data collection is only allowed under very specific circumstances (Article 11 of the personal data protection Federal law), and the case of civil protection from a state of emergency (declared by the Russian government) is not one of them. Naturally, this state of affairs leads to a certain tension in the society. Legal blind spots in the regulation of platform solutions and AI technologies amid the state of emergency not only provoke actions outside the scope of legal norms, but also significantly limit practical implementation of apps functionality (Council of Europe, 2020, p. 5).

The legal inconsistency has been solved by equalizing the app and its usage with medical assistance. This step helped with the introduction on the mobile platform of the "voluntary consent to treatment" form, approved by the Moscow Healthcare Department for the COVID-19 and community-acquired pneumonia (suspected coronavirus etiology). Consent to patient's personal data processing, including data collected from the information system "Social monitoring" (Appendix 3 to the DZM Moscow decree No 373 dated April 8, 2020) is also given. The consent is granted to the Moscow Department of information technologies and GKU "Mosgortelekom," allowing personal biometrics processing (digital photo of the face).

Despite its description, the consent is far from being voluntary: chief physicians are instructed to obtain patient's agreement at the discharge from the hospital (subparagraph 4.1 of the Decree No 373). Mandatory acquisition of a "voluntary consent" is also predetermined by the hospital discharge instruction for doctors (Appendix 2 to the Decree No 373). From the legal perspective, this approach to the platform implementation for the COVID-19 infection management and

containment brought the app into the light of legal use. Nevertheless, the analysis of global and national experience shows the need for a system designed to regulate mobile platforms within the legal framework. That would increase the number of options and allow for a quicker response to the threats on all levels. Strict personalized legal regulation would also protect citizens from unlawful government actions in application of digital platforms and would improve legal protection of civil rights (Li, 2020, p. 4).

III. Legal Issues Associated with the AI Technologies Implementation

The present state of affairs may speed up the necessary changes to the legislation, adapting it for the topical criteria of today's reality. The European Council has noted that the scale of activities and measures taken in response to the COVID-19 threat is directly determined by the stage of the coronavirus epidemic in a specific country. The USA has also utilized information technologies and artificial intelligence, but without any specific legislation, the efficiency of those measures was not high enough. Global pandemic experience shows that a systemic, complex and effective fight against the COVID-19 infection requires the implementation of artificial intelligence and big data processing. Weak spots in terms of the legal regulation of high-tech innovations and their use in fighting pandemics are unacceptable in modern society, since their outcome would be multiple economic, judicial and social failures (Cahn and Veiszlemlein, 2020, p. 4).

It is also worth noting that practical application of the artificial intelligence technologies at this moment broadens the horizons for the improvements in the epidemic situation locally in Russia and on a global scale. Artificial intelligence is capable of monitoring closely the epidemic status, predicting the evolution of the disease outbreaks, protecting citizens, even though limiting their freedom of movement by temporary restrictive measures.

Artificial intelligence has the potential to significantly optimize medical control and speed up the development of new medication — medical research required for vaccination and treatment. Today more

than ever we need artificial intelligence technologies because they are applied to the therapy process to facilitate genome sequencing, accelerating better diagnosis and testing. The necessity for legal regulation of artificial intelligence implementation to fight the coronavirus infection has practically no negative social feedback. Innovative technologies are truly essential in medicine, especially due to the rapid spread of infection. These technologies alone make it possible to diagnose the disease with maximum precision and develop a vaccine within a tight deadline. It is also important to mention the fact that the development of innovative digital platforms in Russia lead to the emergence of an online database of medical histories — "digital medical record." The number of unnecessary contacts between people has been significantly reduced as well. Unfortunately, lack of the appropriate legal regulation limits functionality of this web service, and some data cannot be accessed online (Shen, 2020, p. 2).

Medical high-tech, including AI technologies, has proven its efficiency ever since and has only positive associations. It is generally accepted that critical situations might boost a development, in the case under consideration in medicine. Both the public and legal expert groups start multiple discussions of the AI implementation in other domains apart from medicine. The most topical of them are devoted to social conflicts that grow when governments use the AI technologies to impose restrictions on the public. First of all, the country citizens feel anxious about partially losing their legal guarantees, if the restrictive measures introduced to fight the infection in emergency cases are kept active even after the critical point is passed. Once the crisis legislation is completed with the systemic platform laws clearing the path for maximally functional and legal implementation of new technologies, we can build a stable positive image of the platforms in the eyes of the public in the everyday life.

IV. Conclusions and Some Legal Implications

Without the norms of law there is a significant risk of public unrest, insecurity and lower legitimacy of the government agencies. This can be rather dangerous both during the state of emergency and peaceful

times. Historically in Russia, unlike in some of our neighbouring states, human rights and freedoms have always been treated as the highest value (AI and control of COVID-19 coronavirus). The concerns raised are by no means groundless, because history remembers the cases when unpopular measures forced by a state of emergency remained in the legislation on a regular basis. In modern society with its scrupulous attention to independence and personal rights, the situations described above are totally unacceptable. Restrictions of civil rights can later significantly hinder the development of several domains, including economy. An important task along with the development of the anti-pandemic technologies is the legal regulation of the implemented innovations as well as for the activation of innovative technological entrepreneurship (Egorova, Minbaleev, Kozhevina and Dufolt, 2021, p. 250). The main purpose of this document is to provide governments with tools to fight the recent unprecedented epidemiological mass crisis in a way that would respect the founding values of democracy, supremacy of law and human rights.[2]

Presently, governments have to face huge problems trying to protect their people from the new COVID-19 threats to life and well-being. Obviously, it is worth noting that "normal functioning of society cannot be kept unaffected by the protection measures, essential to fight the coronavirus infection, that is under the conditions of social distancing preservation" (Council of Europe, 2020, p. 3). At the same time, it should be noted that "artificial intelligence and algorithms in many public settings collides with the democratic systems" (Claramunt, 2020, p. 137).

[2] Convention for the Protection of Human Rights and Fundamental Freedoms (Signed in Rome November 4, 1950) (with Amendments dated May 13, 2004) (together with Protocol No 1 (Signed in Paris March 20, 1952), Protocol No 4 Securing certain rights and freedoms other than those already included in the Convention and in the First Protocol thereto (Signed in Strasbourg Septemeber 16, 1963), Protocol No 7 (Signed in Strasbourg November 22, 1984)). Legislative Acts of the Russian Federation, May 18, 1998, No 20, Article 2143, Bulletin of International Treaties, July 1998, No 7, Modern International Law Reports, vol. 2, p. 15.

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"Architecture" of Civil Registration: Text and Digital Format

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Abstract: The author has attempted to show that in the context of building information society the format of its management changes, and law is being transformed accordingly as the main social regulator. Traditional state institutions are being modernized including the sector of registry office. The civil status record as the "primary cell" of the Unified State Register has been transformed from a simple text into an electronic one. The organizational and legal basis for the change in the format of the civil status act was a whole block of normative legal acts of various legal force. At the same time, the adoption of methodological and technical standards is required, without which it is impossible to form the maintenance of act records in a new digital format. We consider the need for the modernization of the entire system of state registration of civil status acts to update the legal terminology used in the field of legal regulation of relations in the field of civil registration. Many terms from everyday life become legal categories in information law, and need official and doctrinal interpretation ("digital landscape," "digital hygiene", etc.). It is for this reason that the conceptual legal apparatus is objectively subject to renewal. In this article, the author substantiates the advisability of applying the term architecture to a civil registration in digital format.

Keywords: Unified State Register of Acts of Civil Status; architecture of civil status act recording; digital format; text format; information security; legal and technical measures

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Contents

I. Introduction

The challenges of the 21st century associated with the transition from an industrial society to a global information society,[1] the introduction of digital technologies and platform modules require solutions in many areas including various fields of administration and rendering of public services in order to ensure optimal interaction between the state and civil society in the new reality within the legal framework.

Electronic (digital) management "penetrates" into all areas of public life, the sector of state registration of civil status acts is no exception. Historically, civil status is recorded in order to account the population, confirm the existence of an individual and his legal capacity (Breckenridge and Szreter, 2014). The construction of "acts of civil status," developed by western clergy (Gordon, 2018) in the Middle Ages to record information about the most important biographical and demographic events of a person's life (birth,[2] marriage and death), "took root" and showed its effectiveness.

[1] Okinawa Charter on Global Information Society (2000). Diplomatic Herald. (August).

[2] About the importance of birth registration: Hunter, W. and Brill, R., (2016). "Documents, Please" Advances in Social Protection and Birth Certification in the Developing World. World Politics, 68(2), pp. 191–228, doi: 10.1017/S0043887115000465. Available at: https://www.cambridge.org/core/journals/world-politics/article/abs/documents-please/8522DA3AF8F1EDB207444F482

During its two-century history the Russian institute of civil status acts has gone through serious metamorphoses: from the birth registers in parishes to the registry office information system. Currently the Unified State Register of Civil Status Acts exists in electronic format and is based on an extraterritorial principle.

II. Digitalization and the Sphere of Civil Registry: Conceptual Apparatus

Digitalization in the sphere of civil registry offices requires a revision of the conceptual apparatus and the determination of new legal categories such as: "digital format," "electronic format," "electronic resource," "information resource," "information system," "telematics network," "telecommunications network," "electronic document," "electronic document management," "electronic signature," "digital signature," "electronic digital signature," "reinforced qualified electronic signature," "form of civil registration," "architecture of civil status act recording," etc., which reflect the process of fundamental transformation of the institute of the state registration of civil status acts. Indeed, many terms have already been legally defined, for example, in the Federal Law No 149-FZ dated July 27, 2006, "On Information, Information Technologies and the Protection of Information,"[3] Federal Law No 152-FZ dated July 27, 2006, "On Personal Data,"[4] etc. However, some terms are yet to be officially defined, which leads to not only discussions among law theorists, but also complicates law enforcement practice.

In the opinion of T.Ya. Khabrieva and N.N. Chernogor, "one of the directions of scientific research is the doctrinal development of new phenomena and processes that have arisen and are taking place in the state legal sphere under the influence of the digitalization of the economy,

9656F4E [Accessed 21.05.2021]; Szreter, S., (2007). The Right of Registration: Development, Identity Registration, and Social Security – A Historical Perspective. World Development, 35(1), pp. 67–86, doi: 10.1016/j.worlddev.2006.09.004.

[3] Federal Law No 149-FZ dated July 27, 2006, "On information, information technologies and the protection of information" (current version). Collection of Legislation of the Russian Federation (31.07.2006), No 31 (part I), Art. 3448 (In Russ.).

[4] Federal Law No 152-FZ dated July 27, 2006, "On Personal Data." Collection of Legislation of the Russian Federation (31.07.2006), No 31 (part I), Art. 3451 (In Russ.).

management and law" (Khabrieva and Chernogor, 2018, p. 87). At the same time scholars claim that "the law retains its substantial features, is not subject to significant transformations under the influence of the "digitization" of public life, in a regular mode reacts to the changes taking place, continuing to perform its functions" (Khabrieva and Chernogor, 2018, pp. 87–88). We believe that this conclusion is controversial since public relations of a new digital format require new legal regulations; in particular, it is necessary to update the conceptual apparatus at the legislative level. The role of law in society remains the same: regulation of relations, but modernization of this social regulator is required since new phenomena of public life should be subject only to adequate legal influence. "Outdated" legal constructions and techniques that do not correspond to realities objectively "die off" and "dead" norms cannot operate. Each time has its own rules.

E.E. Antonova (Antonova, 2012), Yu.M. Baturin (Baturin, 1991), O.A. Boyarintseva (Boyarintseva, 2019), A.A. Chebotareva (Chebotareva, 2014), N.N. Chernogor (Khabrieva and Chernogor, 2018), D.V. Ivanov (Ivanov, 2012), G.G. Kamalova (Kamalova, 2020), V.A. Kopylov (Kopylov, 1998), T.Ya. Khabrieva (Khabrieva, 2017), A.V. Minbaleev (Minbaleev, 2006; 2012), T.A. Polyakova (Polyakova, 2020), D.D. Savenkova (Savenkova, 2019), L.K. Tereshchenko (Tereshchenko, 2011), A.B. Vengerov (Vengerov, 1978), V.A. Zhilkin (Zhilkin, 2018) and others addressed the general problems of modern legal terminology in the realm of digital transformation. Thus, V.A. Zhilkin writes about the need for "scientific approaches to the development of a new generation of regulatory framework in order to ensure digital transformation" and the search for "flexible legal regulators in the field of digitalization in the virtual space" (Zhilkin, 2018, p. 74).

In order to preserve conceptual continuity, some terms (for example, "electronic signature," "digital signature" and "electronic digital signature") are used synonymously. Since the categories "digital format" and "electronic format" are often understood as similar ones, we consider it necessary to make a reservation that, based on well-established ideas in the field of high technologies, they can really be used as synonymous words or still be used in different meanings, it all depends on the aspect of application. So, if the information is stored in

the computer memory (digital format), then it is called information in electronic format, despite the fact that it is reproduced for perception in the form of text — an electronic document.[5]

The novelty of the legislation is the provision of remote application for the Registry Office service. The Registry Office service in electronic form is provided only for citizens authorized on the Unified Portal of State and Municipal Services. The identification and authentication of the applicant is carried out remotely. We believe that this public service in electronic form, despite its advantages, will not soon be generally accessible. Not every Russian household has a computer and the Internet. Many Russians fail to have basic digital skills and just a small part of the population in Russia has professional level in this field.[6] V.B. Naumov addresses this issue in his scientific works, noting that there is "the growing 'digital divide' ('digital inequality') in society, when billions of people may be left behind the abuilding civilization" (Naumov, 2018, p. 4; Naumov, 2020, p. 77). With regard to the ongoing changes, the state registration of civil status acts remains a traditional institution in the legal system of the state. S.M. Korneev wrote "what it means to answer the question about the civil status of a citizen — it means to indicate the facts that individualize him (last name, first name, patronymic, citizenship, gender, age)... and marital status" (Korneev, 2008, p. 166). The purpose of this institution is to individualize citizens by securing their specific legal status.

[5] The lawmaker has repeatedly tried to give a legal definition to an electronic document in regulatory legal and other official acts. See, for example, paragraph 11.1 of the article 2 of the Federal Law No 149-FZ dated July 27, 2006, "On information, information technologies and the protection of information" (In Russ.); paragraph 1 of the Resolution of the Plenum of the Supreme Court of the Russian Federation No 57 dated December 26, 2017, "On certain issues of the application of legislation regulating the use of documents in electronic form in the activities of courts of general jurisdiction and arbitration courts" (In Russ.); paragraph 1.6.1 of the Regulations of the Certification Center of the Eurasian Economic Commission (Decision of the Board of the Eurasian Economic Commission No 110 dated July 9, 2018).

[6] According to Higher School of Economics estimates, only 12 % of adults (15 years and older) in Russia have developed digital skills above the basic level. At the same time, on average, in 28 EU countries, a third of the adult population shows a similar level. In the Netherlands, Finland, the UK and Denmark, this figure reaches almost 50 %. Available at: https://www.cnews.ru/news/top/2020-07-09_rossiyane_razgromno_ustupili [Accessed 11.02 2021] (In Russ.).

III. History of the Civil Registry

The original name of the category in question was "general acts of the status," which was changed in 1910 by the highly established editorial commission in the preparation of the draft Civil Code for the modern "acts of civil status" as more appropriate, certifying the beginning (birth) and end (death) of the existence of a person (citizen) as a subject of legal relations and "his belonging to a certain family and genus." General acts of status were also used because historically Orthodox parishes were obliged to keep metric books of the population, regardless of the classes of parishioners, and for the reason that the political and legal status of persons in Tsarist Russia was defined as citizenship, the term "citizenship" appeared later than the introduction of metric records.

The modern institution of civil status acts in the domestic legal system, in comparison with another jurisdictional structure — the notary public, can be considered "young." Indeed, the rudimentary institution of civil status acts owes its appearance in Russia to the personality of Peter I, who positively assessed the clerical activities of Western priests to record certain important events in people's lives (birth (baptism), marriage (wedding) and death (funerals), the regulation of which was provided for by canonical norms and was carried out, as a rule, for remuneration. On a permanent and mandatory basis, the maintenance of metric books in Russia was provided for in 1724 by the Synod Decree "On the maintenance by priests of metric books for recording births, marriages and deaths, on sending from them extracts to the Bishops annually."[7] Metric books are demographic documents of important biographical facts (births, marriages, deaths) that were recorded in chronological order during a calendar year.

The main goal pursued by the clergy was to firmly attach the population to a certain area. G.F. Shershenevich wrote "a person married and died where he was born, where his parents and relatives married and died" (Shershenevich, 1995, p. 66). As time passed, the political interests of the church came into conflict with the interests

[7] Complete collection of legislation of the Russian Empire. SPb., Type II Branch of His Imperial Majesty's Own Chancellery (1830). Vol. I. T. VII. P. 266 (In Russ.).

of the state, and church jurisdiction became limited. The state realized the effectiveness of actions to register individual status of individuals, and since there was no structure in the state apparatus to assign the corresponding functions, the records of births, baptisms, weddings and burials remained in the jurisdiction of the priests, but now on a mandatory basis and with the payment of part of the received contributions to the treasury. Thus, the state not only kept some kind of accounting of the population, but also, without spending money on the maintenance of officials, had a stable source of income in its budget.

Freedom of religion in the West has made it difficult to keep records of a person's status. Representatives of other faiths (not Catholics) refused to register in Catholic parishes. The most progressive states secularized the records of births, marriages, and deaths, forming a staff of officials to whom these functions were assigned. Earlier than all the registration of the designated legal facts from the church to the state jurisdiction was transferred in France (1792) and in Germany (1874).

Russia followed a different path: the church was annexed to the state. In Tsarist Russia it was forbidden to be an atheist and not to belong to any religion, i.e. "to be in a non-religious status." It is noted that since the adoption of foreign regulations on the registration of the facts of birth, marriage and death, no special institution was created, and the testimony was carried out by the clergy in Orthodox parishes, and this is despite the Peter the Great reform, which reduced the jurisdiction of the church, including it in the state "machine." The vast territory of the Empire was populated by representatives of different faiths (the Charter of foreign confessions), who wanted to certify important facts according to the norms of their confessions, without applying to Orthodox parishes. In the later period of the Russian Empire, the registration of general acts of status (metric records) was assigned to non-Orthodox and non-Christian religious communities recognized by the State. This was especially the case with the Old Believers, who did not recognize Orthodoxy and did not have their own clergy and, accordingly, did not register birth, death and marriage. The Solomon's decision was made: general acts of status were registered by religious communities. In any confessional hierarchy, there was a person responsible for religious rites, for example: orthodox Christians have priests (deacons and acolytes),

Catholics have vicars, Jews have rabbis, Mohammedans have mullahs, etc. Adherents of sects (unrecognized by the state confessions) had to apply to the authorities for obtaining a metric record.

Despite the fact that the questions of recording in the metric books were made according to religious norms, there was a general approach to the format of the act record. Ministers in Orthodox parishes logged metric (parish) books by the types of general acts of status and the extracts from them called metric certificates were handed to the interested person. However, the metric certificate issued in the parish was not legally valid, it was called a "safety document." To get a full-fledged document, you should contact the consistory. Probably, such an algorithm was designed to eliminate possible biographical and demographic errors in the field, double control gives more confidence.

Metric records certified the legitimacy of birth, age, kinship, marital status, indicating the date and place of marriage, and death. In their content, the metric books were forms, from which even minor deviations were not allowed. Since 1806 it was decided to print copies of metrical books, but since this led to an increase in the cost of fees for act records, church parishes had the opportunity to abandon the practice of such innovations.

The first record in relation to a citizen is a birth certificate, which indicated: the date and place of birth; the date and place of baptism or other religious rite associated with the birth; name; gender; title (estate), full name, including the first name, patronymic and surname, the religion of the father and mother; title (estate), the name of the godparents (for Christians). Godparents, so-called adoptive parents, were often older relatives on the father's or mother's side of the newborn. The society of believers condemned adultery, and in the case of the birth of an illegitimate child by an unmarried woman, information about the father was entered only if he wished. However, such "strict" rules did not apply in all religious communities. It should be noted that there was another discriminatory position of women: the first metric books did not provide for the indication of information about the mother of the child until 1831. According to P.A. Svishchev, the records in the metric books recorded data in territorial, temporal and social coordinate systems, which made them the most valuable informative sources about

the biographical and demographic information of a person (Svishchev, 2006, p. 7).

The institution of civil status acts underwent a radical diversification during the formation of the Soviet government, which completely excommunicated the church from the management of society, including by secularizing the metric books. As already noted, a new era for the Institute of civil status acts began with the adoption of the Decree of the VTsIK and the SNK dated 18.12.1917 "On civil marriage, on children, and on the logging of civil status records."[8] This date is considered the creation of a modern model of civil status acts in Russia and the establishment of civil registry offices.

IV. "State Registration of the Act of Civil Status" and "Record of the Act of Civil Status"

We believe that the terminology "record" of civil status has historically taken root, despite attempts to replace the phrase "state registration." The terms "state registration of the act of civil status" and "record of the act of civil status" are synonymous since the record is a state registration, namely, an administrative act confirming a certain legal fact (birth, marriage or divorce, determination of paternity, adoption, change of name, death), which is called "act of civil status" by law. The primary element of the Unified State Register of Civil Registry Offices is considered to be state registration or record of the act of civil status, to which certain requirements are imposed at the legislative level: formality, reliability, formality, uniformity and relevance. The principles of civil registration are interrelated.

The formality of a civil registration act means that it is made by authorized state bodies within the limits of their competence established by law. State registration of civil status acts refers to the competence of the Russian Federation, which can be transferred to the state authorities of its subjects (with the possibility of delegating to local self-government bodies of municipal districts, urban districts, urban and

[8] Decrees of the Soviet government (1957). Vol. I. October 25, 1917 — March 16, 1918. Moscow, p. 247 (In Russ.).

rural settlements).[9] In addition, employees of the civil registry office or a multifunctional center for the provision of state and municipal services are empowered by the current legislation in the field of state registration of acts of civil status (only accepting applications and issuing certificates (extracts from the register)). Outside of the Russian Federation, officials of consulates have the authority in the field of civil registry offices.[10]

The activities of the civil registry offices are indisputable, civil status records are carried out based on submitted official documents in accordance with legal requirements, which presupposes the reliability of the information of the civil registry office. In the absence of the necessary documents or doubts about their authenticity, the recording of the civil status act may be suspended or refused.

V. Categories "Form" and "Architecture"

The formality requirement is disclosed through the category "form." The word "form" is polysemantic. Even Plato used it in a different meaning, in the meaning of "idea" to define truly being, which is the expression of individual phenomena. The term "form of recording the act of civil status" is fixed at the legislative level, which, in our opinion, is an external expression of an administrative act, i.e. state registration (record) act of civil status. Although the definition itself is not available in the legislation. We believe that based on the generally accepted ideas about this category the following definition could be given: "the form of the civil status act is an external expression of the structure of the legally established content of the act record, which is applied to paper carriers of the relevant information." We believe that the term "civil

[9] Subparagraph 3 of paragraph 1 of article 4 of the Federal Law No 143-FZ dated November 15, 1997, "On acts of civil status" (as amended on April 24, 2020). Collection of Legislation of the Russian Federation (24.11.1997), No 47, Art. 5340 (In Russ.).

[10] Paragraph 3 of article 4 and article 5 of the Federal Law No 143-FZ dated November 15, 1997, "On acts of civil status" (as amended on April 24, 2020). Collection of Legislation of the Russian Federation (24.11.1997), No 47, Art. 5340 (In Russ.); article 5 of the Federal Law No 154-FZ dated July 5, 2010, "The Consular Charter of the Russian Federation" (as amended on July 26, 2019). Collection of Legislation of the Russian Federation (12.07.2010), No 28, Art. 3554 (In Russ.).

status act form" used by the legislator is broader in meaning as it means not only the external expression, but also the internal content of the legal category "civil status act." This conclusion is made on the ground of a systematic interpretation of the norms of law in the field of state registration of civil status acts. The legal basis for the form of text recording of civil status acts comprises Federal Law No 143-FZ dated November 15, 1997, "On Civil Status Acts" (as amended on April 24, 2020)[11] and Order of the Ministry of Justice of the Russian Federation No 202 dated October 01, 2018, "On Approval of Civil Status Record Forms and Rules for Filling out Civil Status Record Forms" (as amended in 2019) (hereinafter referred to as the Order).[12]

The legislative introduction of the digital format of the Unified State Register of Civil Registry Offices does not exclude the obligation to maintain the prescribed form of recording for each type of acts separately, which are collected within a year in chronological order in the books of state registration of acts of civil status (act books), and the issuance of information about the act of civil status on a material carrier, with the provision of an electronic or paper document, as well as certificates of civil status of the established sample (birth, marriage and divorce, death). Civil status records have a unique identification number, the order of assignment of which is regulated by paragraph 17 of the Rules for Maintaining the Unified State Register of Civil Status Records, approved by the Decree of the Government of the Russian Federation No 738 dated June 27, 2018.[13] All act records on the territory of the Russian Federation are assigned a unique digital identifier. The textual record of a civil status act, depending on its type, has a unique

[11] Federal Law No 143-FZ dated November 15, 1997, "On acts of civil status" (as amended on April 24, 2020). Collection of Legislation of the Russian Federation (24.11.1997), No 47, Art. 5340 (In Russ.).

[12] Order of the Ministry of Justice of the Russian Federation No 202 dated October 1, 2018, "On approval of civil status record forms and rules for filling out civil status record forms" (as amended in 2019). The official internet-portal of legal information. Available at: www.pravo.gov.ru (In Russ.).

[13] Decree of the Government of the Russian Federation No 738 dated June 27, 2018, "On approving Rules for maintaining the Unified State Register of Civil Status Records." Collection of Legislation of the Russian Federation, No 27, Art. 4089 (In Russ.).

structure, i.e. "architecture."[14] Let us try to justify the introduction of a new terminology: "architecture of civil status act recording" in connection with the change in the format of maintaining the registry information of the registry office.

Therefore, we believe that the officially used concept of "form of recording the act of civil status" is outdated. Due to the maintenance of an electronic resource and the digitalization of the registry office information, we suggest using the category "architecture of civil status act recording," which is more consistent with the terminology of the ongoing information and technological transformations and their legal regulation. Linguistic and systematic interpretation of the term "architecture" allows us to conclude that it is permissible to apply to the category of "civil status record," defining its internal content and external form at the same time.

We distinguish between the architecture of the text record of civil status acts and its format, which in turn can be physical and digital. Digital format is presented as a structured encoded text information in a convenient form for collecting, processing, storing and transmitting data in an electronic document or electronic document flow with the help of high technologies. The format (from the word "to form") is responsible for the content of the information, while the architecture provides the internal structure and external expression of the content of the information.

Under the architecture of the civil status act record, we propose to understand logically structured information that represents a set of data about a certain life circumstance (event or action), in a strictly prescribed manner, having an external perception. Using the mnemonics of the information system, a text record of the civil status act is entered, which is stored and transmitted in electronic format using *XML* (*eXtensible Markup Language*).

In addition, we believe that along with maintaining the electronic Unified State Register of Civil Registry Offices, duplicating civil status records on paper is impractical, since this leads to an irrational use of

[14] The word "architecture" (in Latin "architectura") comes from the Greek words "arkhi" and "teckton" that means "chief" and "creator."

material and labor resources. At the legislative level it is established that civil status acts both in the form of electronic and paper documents must be identical in content, except for the presence of handwritten signatures on paper of the act record, meanwhile in an electronic document it is mandatory to indicate the codified elements of the corresponding record of the act from sources contained in the federal state information system of the Unified State Register of Civil Registry Offices (paragraph 3 of the Order).

VI. Types of Civil Status Acts

Regardless of the type of act record, there is a concept of mandatory details in the structure that are present in each civil status record. The cumulative sequence of the details of the act record that make it available for perception comprises the record of civil status acts. The mandatory components include information about a person that records the civil status act, information about the person who applied to the civil registry office (full name, citizenship, date and place of birth, passport data), date and place of recording, type of act record, special (official) marks.

The name of person that performs the state registration of the act of civil status must be indicated in the record of acts (paragraph 20 of the Order). Perhaps this element will be the starting point (the zero element) in the act record.

Contacting the Civil Registry Office is one of the legally significant actions that can be performed personally or through a representative. When applying for State registration of legal facts defined by law as acts of civil status, the applicant[15] must identify himself by presenting an identity document. Documented identifying information about the person, in respect of which the act record is made, indicating his last name, first name, patronymic and passport data, must be entered (the first element of the civil status record). The obligatory information

[15] The circle of applicants is defined normatively. See the Order of the Ministry of Justice of the Russian Federation No 298 dated December 29, 2017, "On approval of the Administrative Regulations for the provision of public services for state registration of acts of civil status by bodies carrying out state registration of acts of civil status in the territory of the Russian Federation." Available at: https://www.garant.ru/products/ipo/prime/doc/71769524/ [Accessed 11.02.2021] (In Russ.).

includes data about his citizenship (the official name of the state is indicated in the nominative case). Data on "nationality" and "education" are filled in at the request of the applicants. If you do not want to specify this data, a dash is inserted. The requirement of uniformity of the act of civil status consists in a clear and detailed regulation of the writing of its details.

The sections "Service marks" and "Information about corrections and changes made" are elements of the record that may not be filled in. These columns of the act record "indicate the details and date of issue of repeated certificates and certificates issued to citizens, the date of marking the special status of the act record, the details of the document on the basis of which the mark on the special status of the act record is made, as well as other information in accordance with the legislation of the Russian Federation" (paragraph 28 of the Order). We believe that such provisions of the law are aimed at implementing the principle of the relevance of the act record. When making changes or making an official mark in the record of the act in the Unified State Register of Civil Registry Offices, a new version of the record of the act is created in the form of an electronic document, which is signed with an enhanced electronic signature of the head of the person performing state registration of civil status acts (or an employee authorized by him).

Based on the official nature and strict observance of formal requirements, the method and means of recording civil status acts are normatively regulated: only the use of technical means of the Federal State Information System "Unified State Register of Civil Status Records" is allowed. The Order regulates in detail the requirements for the color and font size for entering each requisite of the civil status record. Text records cannot contain hyphenation in words, which is due to the conversion of the test to the digital format of the Unified State Register of Civil Registry Offices. The only exception applies to compound words that contain a hyphen.

The signature of the applicant and the authorized employee of the person carrying out the state registration of civil status acts (indicating the surname and initials) and an imprint of the official seal are considered mandatory components of each record of the act. After making an official record, the applicant (or a person authorized

by him) may be provided with an extract in the form of an electronic document or issued a certificate of official record of the established model. The electronic document is signed with the enhanced qualified electronic signature of the official of the person performing the state registration of acts of civil status. The certificate of registration is signed by the handwritten signature of the head (authorized person) of the civil registry office and sealed (the seal should not cover the signature and the text of the document).

The final component is the option "Details of the issued certificate," where the series, number and date of the issued certificate are specified.

The digital format of the civil status record is a way of recording information, in which the text is converted into a certain sequence of digital codes. Recording of the civil status act, making changes to it, as well as its cancellation is carried out using the software developed by the operator of the Unified State Register of Civil Registry Offices, i.e. the Federal Tax Service.[16]

VII. Information Security

Cloud technologies of distributed data processing allow the relevant officials of the civil Registry office to perform the required actions on the platform of the state registration of civil status acts online, having confirmed the legality of access to the information system, to perform the required action on the platform of state registration of acts of civil status. The programs provide possibility to work on the local personal computer of employee of the civil registry office in a web browser, connecting it with a remote Internet server. The term "cloud" in the name of technologies is an allegory in the name, personifying the infrastructure that includes operating systems and software that hide such technical solutions as online services. A single cloud environment has been created on the territory of Russia, which unites all registry offices.

[16] The operator of an electronic resource is the person who ensures the continuous operation of this electronic resource. The law assigns the duties of the operator of the Unified State Register of Civil Registry Offices to the Federal Tax Service of Russia. The administrators of the electronic resource are the officials of the Civil Registry Office, who are responsible for entering records.

The information security of the act records, including the information of the Unified State Register of Civil Registry Offices, is provided in a comprehensive manner: legally and technically. Threats (so-called "cyberattacks") are possible at all levels: infrastructure, transmission channels, and directly data collection and processing devices (computers of civil registry office employees). Technical security measures add up to monitoring the virtual environment of the registry office, control over the administrator's workplace, the hypervisor (software) and the management server. Software and hardware tools for protecting information with strict two-factor authentication of the *ESMART Token GOST* smart card, certified by the FSB of Russia, have been developed for help to administrators. Civil registry office officials are connected to the information system and after confirming their access by means of cryptographic protection tools, they can provide state services for registration of acts of civil status online.

Legal measures are aimed at prevention (prophylaxis) and punishing violations of the Internet space of the Civil Registry Office, as well unauthorized access and protection of civil status acts.

VIII. Conclusion

In order to improve the legal regulation in the field of civil registry offices it is proposed as follows:

1) introduce the concept of "architecture of civil status act recording";

2) establish the Unified State Register of Civil Registry Offices as an exclusively electronic resource based on the extraterritorial principle;

3) abolish the maintenance of record books on paper;

4) introduce the format of an electronic document for extracts and certificates issued on the basis of records of the Unified State Register of Civil Registry Office;

5) exempt applicants from the need to present information on paper documents since it can be requested and transmitted over non-departmental telematics networks;

6) mobilize technical and legal "forces" to ensure the information security of the Unified State Register of Civil Registry Offices.

We believe that the proposed measures will eventually contribute to the effectiveness of the Registry Office and optimize the maintenance of civil status records in digital format.

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The Legal and Institutional Foundations of Silicon Valley's Technological Innovation: An Interdisciplinary Literature Review

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Abstract: This article reviews interdisciplinary literature to explain how state legislation and the practice of law in California influenced the success of Silicon Valley in creating a startup business culture involving the commercialization of technologies built on venture capital finance. Scholarship has identified four major factors in the rise of Silicon Valley: business culture, symbiotic institutional relations with research universities, California contract and employment law, and Silicon Valley law firm culture. Both law and institutional support have been central to the commercialization of scientific knowledge that is the hallmark of Silicon Valley. Silicon Valley companies have remained leaders in technological innovation for over sixty years, encompassing various technologies from semiconductors to personal computers to the Internet. This entrepreneurial approach to technology continues to this day as exemplified by the successful DoorDash and Airbnb IPOs launched in 2020. The paradigmatic Silicon Valley technology company consists of a small group of entrepreneurs building a start-up technology company funded by a venture capital fund. The venture capitalists (VC) maintain hands-on management of the company and receive seats on the board of director and preferred stock rights. If the business plan is successful, the company offers shares to the public through an initial public offering (IPO), or arranges additional funding from another VC fund. This Silicon Valley model is characterized by a tolerance for failure and high labor mobility. Technology company employees have the freedom to leave established companies to start their own ventures.

***Keywords*:** startups; covenants not to compete; entrepreneurs; technology companies; lawyering; commercialization of science; trade secrets

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Contents

I. Business Culture of Silicon Valley

Early studies of Silicon Valley emanating from social science and business management literature explained the success of Silicon Valley from a business culture perspective (Rao and Scaruffi, 2011, p. 3; Kenney, 2000, p. 5). Anna Lee Saxenian of the University of California Berkeley, who earned advanced degrees in political science and urban planning, was a pioneering scholar of technology firms in Silicon Valley. Saxenian defined Silicon Valley as a unique sociological network that promoted an open and sharing entrepreneurial culture (Saxenian, 1994, p. 2).

Silicon Valley's West Coast business culture has been described as a "regional network-based industrial system that promotes collective learning and flexible adjustment among specialized producers of related technologies" (Saxenian, 1994, p. 2). Strong interactions exist among Silicon Valley technology firms with managers and technologists frequently switching jobs and companies. High labor mobility among engineers generates knowledge spillovers and information sharing even among high-tech competitors (Gomulkiewicz, 2015, p. 264). This special business culture allows the best inventions to quickly attract experienced managerial talent and the most appropriate form of financing. Saxenian observed that Silicon Valley had been much more successful in generating valuable high-tech companies than rival technology clusters in other states, especially Massachusetts' Route 128 that lacked the dynamism of high worker mobility (Saxenian, 1994, pp. 2–3).

II. Government and Academic Institutional Support for Silicon Valley

In addition to a unique business culture, Silicon Valley benefited from a close nexus between government funding, local universities, and technology start-ups. Large government grants funded basic scientific research at universities, such as Stanford and the University of California Berkeley. Universities adopted policies that allowed ideas created in the laboratory and the classroom to reach entrepreneurs who were looking to commercialize new inventions. One of the most successful projects to serve as a bridge between university research and commercial applications was the Stanford Research Institute founded in 1946. The Stanford Research Institute has promoted innovations in various sciences and was instrumental in providing economic and environmental reports which led to the creation of Disneyland in Anaheim, California (Stanford Research Institute, n.d).

Given this extensive history of successful innovation, the question arises whether any specific legislative or regulatory regime explains the rise and success of Silicon Valley's technology sector. Curiously, traditional indicators from Law and Economics analysis are missing from Silicon Valley's story of success. Politicians and policy makers in California did not formulate a detailed industrial policy to promote Silicon Valley or attract entrepreneurs to the state. In fact, quite the opposite occurred. California passed strict environmental laws and legislation that provided strong worker protections. The state also failed to grant corporate tax breaks to attract industry (Saxenian, 1994, pp. 108–109). In short, tax policy and business organization laws were not altered to promote the region's technology companies.

The federal government in Washington, DC also eschewed industrial policy legislation to specifically promote the rise of Silicon Valley. Federal taxation and securities legislation has occasionally been passed to help startups, but neither public laws nor regulations were enacted to benefit the California businesses in particular. The U.S. has a specialized appellate court for intellectual property litigation but it is based in Washington, DC and assumes responsibility for applying and interpreting the law in all fifty states, not just California. The United

States Court of Appeals for the Federal Circuit was created in 1982 in its current iteration and handles appeals related to international trade, trademarks, and patents (United States Court of Appeals for the Federal Circuit Brochure, 2019). The U.S. Congress did not create a specialized trial court for Silicon Valley to adjudicate intellectual property disputes.

III. California Legislation

Interestingly, once legal scholars turned their attention to understanding the dynamics of Silicon Valley start-up culture, the most important legislative determinant was not found in state intellectual property law, taxation, or business organization law. Rather, the legal catalyst for this technological busines innovation was found in a historical quirk of California employment contract law.

Building on the work of AnnaLee Saxenian, Professor Ronald Gilson identified California labor and contract law as the most promising legal explanatory factor in Silicon Valley's success (Gilson, 1999, p. 578). In his seminal article, Gilson demonstrated that almost unique among U.S. states, California did not enforce post-employment covenants-not-to-compete. Gilson did not identify strict protection of intellectual property rights as an important factor in the success of Silicon Valley companies (Gilson, 1999, pp. 621–622). The relevant statute Gilson identified is California Business and Professions Code Section 16600. The pertinent section from the statute reads: "Except as provided in this chapter, every contract by which anyone is restrained from engaging in a lawful profession, trade, or business of any kind is to that extent void."[1] The current language of the statute dates from legislation enacted in 1941.[2]

Relying on Section 16600, courts in California have generally not enforced noncompete clauses against departing employees.[3] Engineers and computer scientists have been free to start a new venture in direct competition with their former employer. As Gilson argued, high-

[1] Cal. Bus. & Prof. § 16600 (2021), Available at: https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=BPCandsectionNum=16600 [Accessed 01.08.2021].

[2] 1941 Cal. Stat. Ch. 526 page 1834.

[3] Edwards v. Arthur Anderson. 44 Cal. 4th 937, 955 (2008).

velocity employment creates an ecosystem in which "per firm benefit of innovation and growth will exceed the per firm cost of intellectual property dilution that results from the knowledge spillovers necessary to support the economy" (Gilson, 1999, p. 609). This virtuous cycle of redeployment of intellectual assets, managerial skills, and funding has been the backbone for the development of the Silicon Valley's busines culture.

One of the most important effects of California's noncompete law was the use of equity stakes to bind employees to the company and foster employee loyalty. Since managers could not compel employees to stay, they used equity stakes in the company to align the engineers' interests with company interests. In fact, the foundational event in the start of Silicon Valley business culture involved the mass movement of skilled engineers and the use of equity shares to create a new start-up. The original traitorous eight employees who left Shockley Electronics in 1957 received equity shares in Fairfield Electronics, founded with venture capital organized by Arthur Rock (Aran, 2018, pp. 1235, 1281). The Fairfield Electronics model became the template for many subsequent VC financed technology start-ups.

To counteract the impact of California's rejection of covenants-not-to-compete, many Silicon Valley companies engaged in coordinated efforts to suppress employee wages and anti-solicitation compacts not to hire away employees. These anti-competitive actions involved companies such as Intel, Apple, and Google (Lee, 2016, pp. 160, 161, 172). In 2014, a class action lawsuit settlement resulted in over 30 million dollars in damages being paid to the plaintiffs (Streitfeld, 2014, Section B, p. 1).

In California, one of the few exceptions to the nonenforcement of noncompete clauses is the protection of trade secrets.[4] Other states, such as Massachusetts, that were competing with Silicon Valley in the 1970s, 1980s and 1990s did enforce these contractual clauses against departing employees. California state law helped shape the culture of employee mobility and job-hopping engineers in Silicon Valley. California courts

[4] Cal. Uniform Trade Secrets Act, Civ. Code §§ 3426–3426.11 (2021). Available at: https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=CIVanddivision=4.andtitle=5.andpart=1.andchapter=andarticle= [Accessed 01.08.2021].

have reinforced the impact of California's noncompete regime by not treating trade secrets exclusively as property of employers. Courts have focused on the relationship between employee and employer when applying the California Uniform Trade Secrets Act to specific litigation. California courts have stated the policy reasons for adopting a balancing of interests test in applying the trade secrets statute: "The decision to focus on relationships and not to treat trade secrets as ‚property' apparently reflects a policy choice by California authorities in which interests in promoting freer use of new ideas was elevated at least to some extent over interests in rewarding holders of economically significant secrets" (Feldman, 2003, pp. 634, 652). California courts are also less likely to invoke the doctrine of inevitable disclosure in trade secrets litigation.[5]

California's noncompete statute was not created to incentivize the development of high-tech firms. Rather it was an accident of history and comparative law methodology. The noncompete language originally appeared in legislation from the 1870s shortly after California joined the United States. In 1872, California Civil Code Section 6673 employed language almost identical to the current legislation: Every contract by which any one is restrained from exercising a lawful profession, trade, or business of any kind, otherwise than is provided by the next two sections, is to that extent void" (Haymond and Burch, 1874, pp. 502–503).

Gilson's meticulous legislative history research of California's current noncompete statute revealed that California legislators attempted to combine the common law tradition from the United States with the civil law tradition inherited from Mexico and Spain. David Dudley Field's proposed Civil Code for the state of New York influenced the drafters of California's original codes, despite the fact that New York never formally enacted Field's Civil Code (Gilson, 1999, pp. 614–619). This statutory relic of 19th century codification efforts would eventually serve as a catalyst for the commercialization of scientific discoveries many decades later in Silicon Valley.

[5] Bayer Corp. v. Roche Molecular Sys. Inc., 72 F. Supp. 2d 1111, 1120 (N.D. Cal. 1999).

Gilson's legal and historical analysis demonstrated that California' approach to noncompete clauses was instrumental in building up the business culture of social mobility of high-tech entrepreneurs. Gilson's research relied on analysis of case law and law and economics principles. Subsequent research by economists and other social scientists has tended to confirm Gilson and Saxenian's hypothesis that computer industry workers in California experienced higher rates of job hopping than employees of technology companies in other states (Starr, 2019 p. 814; Weiss, 2011, p. 2; Hyde, 2003, p. 27).

Since Gilson's groundbreaking article, scholars have used empirical methods to compare California with other successful high-tech regions in the United States. Curiously, only three states have non-compete statutes similar to California: Oklahoma,[6] Hawaii,[7] and North Dakota.[8] No appreciable upsurge in technology firms has been noted in those three states. Massachusetts amended its noncompete statute in 2018. The Massachusetts statute limited the enforceability under certain circumstances and added additional requirements, but it did not substantially change the law (Barnett and Sichelman, 2020, pp. 953, 961). Despite over half a century of Silicon Valley innovation, few states have modified their noncompete statutes to match California's legislation. Centers of high technology innovation have appeared in other states such as Washington, Texas, North Carolina, and Massachusetts without legislation promoting high labor mobility. This indicates that there is not a single approach for creating a legal regime that generates a robust high-tech industry.

North Carolina has developed a vibrant high technology sector in pharmaceuticals and biotechnology. Similar to Silicon Valley, the North Carolina biotech corridor developed around the major universities located in the state's research triangle center. In contrast to California, North Carolina's legislature has actively encouraged large, established corporations to invest in the state. Moreover, North Carolina courts have recognized the importance of enforcing noncompete agreements

[6] 15 Okla. Stat. § 217 (2021) (statute originally enacted in 1910.).

[7] Haw. Rev. Stat. Ann. § 480-4(d) (2021) (statute applicable to employees in technology businesses).

[8] N.D. Cent. Code § 9-08-06 (2021).

as a component to developing this technology sector in the state (Wood, 2000, p. 25).

Scholars have noted the difference between Internet startups in Silicon Valley and the biotechnology companies nurtured in North Carolina (Ibrahim, 2010; Wood, 2000). Pharmaceutical companies are capital intensive and require long periods of product development, vigorous intellectual property protection for patents and trade secrets, and are highly regulated by state and federal governments. Few Silicon Valley startups face these similar constraints. New molecules and genetic procedures do not suffer from rapid product obsolescence that are endemic to the world of computer and Internet startups.

Washington is another state that was created technology giants such as Microsoft and Amazon without adopting California's legislative and judicial approach to noncompete clauses and trade secrets. Nonetheless, research indicates that Washington companies rarely enforce noncompete contracts and employees breach the noncompete clauses selectively (Gomulkiewicz, 2015, p. 272). For instance, Amazon and Microsoft filed only one case each in court over a ten-year period to enforce a noncompete clause against a departing employee (Gomulkiewicz, 2015, p. 278). Various rationales have been given for the lack of enforcement by Washington based technology companies: exorbitant costs of litigation, fear of disclosing trade secrets and counter claim risk from former employees, and reputational risk (Gomulkiewicz, 2015, pp. 280–284). Robert Gomulkiewicz argues that in Washington's technology sector, "noncompete contracts do not regularly prevent spillovers of useful information but do periodically protect critical trade secrets" (Gomulkiewicz, 2015, p. 257). Washington state illustrates the importance of deploying law and society techniques to analyzing the impact of a legal regime. Simply identifying black letter law and leading case precedents rarely provides a complete picture of how a statute or regulation is actually influencing business decisions

IV. Silicon Valley Law Firm Culture

Legal scholars have also pointed to the unique legal culture of Silicon Valley law firms as a significant component in the success of Silicon Valley model. The key insight has been creating law firm partnerships that focus on lawyers as transaction cost engineers

(Gilson, 1984, p. 239). Attorneys provide more than just legal advice and pointing out legal pitfalls. Attorneys help clients complete value enhancing deals that would not have been concluded but for the role of the attorneys (Coyle and Green, 2017, pp. 1403, 1411). The concept of attorneys as transaction cost engineers was eagerly embraced by west coast law firms. Startup law required law firms to create standardized forms for raising money and establishing new companies; provide nonlegal advice to entrepreneurs; serve as reputational intermediaries; and devise novel billing schemes. Silicon Valley lawyers play more of a sociological networking function between VCs and entrepreneurs than serving traditional economic goals of protecting intellectual property and litigating disputes (Suchman and Cahill, 1996, p. 679).

"Unlike a typical corporate acquisition agreement which involves a one-time transaction, a venture capital financing agreement creates a long-term relational contract between the parties and many of the most important terms of the contract may be implicit in parties' relations and understandings rather than explicitly dealt with through detailed contractual provisions" (Bernstein, 1995, pp. 239, 253). In fact, Silicon Valley lawyers have been instrumental in developing the National Venture Capital Association Model Legal Documents for venture financial transactions.[9] Startup lawyers understand their fate rests with the economic success of their region, so it is in their self-interest to help build an entrepreneurial friendly environment.

Lawyers working with start-ups often find themselves needing to provide clients with nonlegal advice. Software engineers are often unaware of issues involved in generating a business plan and starting a company. Attorney Larry Sonsini pioneered building a law firm that represented entrepreneurs and startups first, rather than focusing on banks and established corporations (Rao and Scaruffi, 2011, p. 304). A legal practice dependent on assisting startups requires law firms to help build the company over time and stay with the company through the IPO. Silicon Valley law firms have developed based on the need to offer business and financial advice to clients in addition to traditional legal services.

Silicon Valley attorneys also assume an important role for VCs and entrepreneurs as "reputational intermediaries" to screen clients and

[9] Available at: https://nvca.org/model-legal-documents [Accessed 01.08.2021].

vouch for clients before investors (Coyle and Green, 2017, pp. 1416–1420). The lawyers direct new clients to the appropriate venture capital firm. The law firms thereby reduce uncertainty in the sector by sending inventors to the right investor (Suchman and Cahill, 1996, p. 698). Attorneys educate clients in community norms and focus on long term relationships that are not zero sum. Deal making in Silicon Valley is about aligning interests and fostering community norms in clients, not just extracting concessions and being overly adversarial. Rather than standing aloof from their clients' operations as prescribed by conventional legal ethics, Silicon Valley law firms will "absorb elements of uncertainty into the law firm's own operations if this will facilitate an endangered deal" (Suchman and Cahill, 1996, p. 691). Attorneys socialize entrepreneurs in the conventions of the local investor community and screen out clients that challenge community norms (Suchman and Cahill, 1996, pp. 698–699).

To accommodate the needs of fledging startups, Silicon Valley law firms needed to adopt novel billing schemes for clients outside of the traditional billable hour invoice. Law firms would take equity in a startup in lieu of cash payments for legal services (Coyle and Green, 2017, p. 1426). Law firms differ bills until the startup goes public or is sold to another venture capital firm. These innovative billing schemes allowed cash strapped entrepreneurs to focus funds on building their core businesses rather than paying attorneys for routine legal matters.

Silicon Valley entrepreneurs have preferences for high-risk, high-reward investments and a tolerance for failure and bankruptcy. Many foreign governments wish to nurture technology companies, but are not eager to introduce to their countries the type of financial and employment disruption that characterize venture capital markets. Other countries have also been successful at promoting technology sectors, but few have recreated the statutory framework and law firm culture and high-risk VC financing environment of Silicon Valley. In Germany, company work councils resist efforts by management to institute performance related pay and equity stakes on an individual basis. Germany has not relaxed worker protections or incentivized labor mobility (Casper, 2007, p. 3). Few German companies have had lucrative IPOs and most German regions have not matched the dynamism of Silicon Valley. German

law requires employers to compensate employees and demonstrate the need to protect a legitimate business interest if they wish to enforce a noncompete clause.[10]

This review of Silicon Valley startup sector illustrates the importance of not relying exclusively on top-down regimes to spur innovation sectors. The Silicon Valley's model cannot be adopted wholesale into countries with different legal and business traditions. Nonetheless, the history of Silicon Valley provides lessons for policy makers wishing to replicate a commercially vibrant high technology industry. Law and the innovations in the practice of law will serve as crucial catalysts for technology-centered economies regardless of the specific regulatory regime adopted.

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ACADEMIC EVENTS, COMMENTS AND NOTES

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Scientific Facilities as a Subject Matter of "Infrastructure Law": *Une Approche Québécoise*[1]

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Abstract: The article deals with the original approach of Canadian French-speaking province (federal entity) to legal regulation of scientific facilities as a type of infrastructural objects governed by "infrastructure law."

The author firstly proves that the expression "scientific facility" and "Megascience" represent no more than the specific types of social infrastructure and, thus, generally denoted in legal instruments as "research infrastructure" which may be qualified as "large" (Megascience), "medium", "small" etc.

Further the article explores the modern legislation of Quebec which, unlike other countries, has decided to create a full-fledged "infrastructure law" governing, amongst other types of infrastructure, the research infrastructure.

The article points out and analyses the particularities and principle findings of Quebec infrastructure laws and by-laws: the "supraministerial" governance of all infrastructure projects, the general public infrastructure company (Quebec Society of Infrastructures) etc. The latest developments in the Quebec "infrastructure law" relating to information infrastructures are also taken into account.

Keywords: scientific facility; Megascience; infrastructure; infrastructure law; investment; Canada; Quebec; European Union

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[1] Note: *an approach of Quebec*, the French-speaking province (federal entity) of Canada with it's own legal system and extensive political autonomy. The work was financially supported by RFBR (project 18-29-15007).

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Contents

I. Scientific Facility as a Research Infrastructure and its Legal Definition

The facilities under construction or operating in different countries of the world, which are designed for the purpose of scientific research (experimental reactors, colliders, light-sources and other particle accelerators, telescopes etc.), including the most powerful among them (Megascience facilites, such as Large Hadron Collider), both from legal and substantive points of view should be considered as an infrastructural object (infrastructure).

Therefore, it is obvious that in various legal instruments adopted at national, international and supranational level the abovementioned facilities are generally qualified as "research infrastructure" (in singular or in plural: "research infrastructures"), with additional specifications such as "large," "large-scale" or "very large" infrastructure (with respect

to Megascience facilities), "strategic," "medium," "small" research infrastructure etc. The concept of research infrastructure is also present in Russian law, being mentioned, for instance, in the Strategy for Scientific and Technological Development of the Russian Federation approved by the Decree of the President of the Russian Federation No 642 dated December 1, 2016 (Chetverikov, 2018).

Among the legal definitions of research infrastructure existing elsewhere, the most comprehensive one is construed in the latest supranational legislation of the European Union (EU) relating to financial support of scientific and technological development in the EU Member States and Associated Countries, adopted in 2021:

"'*research infrastructures' means facilities that provide resources and services for the research communities to conduct research and foster innovation in their fields, including the associated human resources, major equipment or sets of instruments; knowledge-related facilities such as collections, archives or scientific data infrastructures; computing systems, communication networks and any other infrastructure of a unique nature and open to external users, essential to achieve excellence in RandI [Research and Innovation]; they may, where relevant, be used beyond research, for example for education or public services and they may be 'single sited,' 'virtual' or 'distributed'.*"[2]

II. The place of "Infrastructure Law" in the Legal System of Quebec

Research infrastructure is nothing more than an example of diverse and widening world of infrastructures indispensable for any society, especially in the 21st century (transport, healthcare, information, space infrastructure etc., each one with its own subtypes). Infrastructures in different spheres of life serve different purposes and their legal

[2] Regulation (EU) 2021/695 of the European Parliament and of the Council of 28 April 2021 establishing Horizon Europe — the Framework Programme for Research and Innovation, laying down its rules for participation and dissemination, and repealing Regulations (EU) No 1290/2013 and (EU) No 1291/2013. OJ L 170, 12.05.2021, p. 1–68. Available at*:* http://data.europa.eu/eli/reg/2021/695/oj [Accessed 15.06.2021].

regulation as well as public management could hardly be reduced to a common denominator.

Thus, although the expression "infrastructure law," or "law governing infrastructures" ("droit de l'infrastructure," "droit de la régulation des infrastructures" in French) is familiar to modern legal practice and doctrine (Chevalier, Frison-Roche, Keppler and Noumea, 2008), it is used there, generally, as a sort of an "umbrella" notion, embracing rules of various branches of law concerning the construction and operation of infrastructures in their proper fields, without any attempt to become itself a separate full-fledged branch of law.

However, the legal palette of the world has always been characterized by its diversity. Together with the growing trend towards the convergence of legal systems in the context of globalization, in each state (and in each federal entity when the federal states are concerned) there have always been, and still are, developed the unique national approaches to legal regulation of the similar issues (unity in diversity).

With respect to regulation of infrastructures, a prominent example of a legal system with such a unique approach is given by a province of Quebec that enjoys a high degree of political and legal autonomy within the Canadian federation, determined by its historical and cultural origins dating back to *Canada française*.

The legislator of Quebec has taken a stance in favour of creating an "integral" legal regulation of public infrastructures as a whole based on a sort of general infrastructure code: the Public Infrastructure Act.[3]

According to the introductory provisions of the Public Infrastructure Act (Chapter I "Purpose and Scope"), it applies to public infrastructures in every field of social life and with any purpose, including, therefore, the research infrastructures.

The Public Infrastructure Act covers issues relating both to the construction of new and to the operation of existing infrastructural objects, or, as it is stated in the Act itself: "This Act establishes governance rules for public infrastructure investment planning and public infrastructure management."

[3] Public Infrastructure Act. Chapter I-8.3. Updated 10. 18 March 2021. Available at*:* http://legisquebec.gouv.qc.ca/en/showdoc/cs/i-8.3 [Accessed 15.06.2021].

The introductory provisions of the Public Infrastructure Act do not expressly define "infrastructure." However, the meaning of the latter may be construed from the legal definition of "public infrastructure investment" in chapter II of the Act entitled "Investment Planning and Infrastructure Management." According to this chapter "public infrastructure investments" include any investment made for the maintenance, improvement, replacement, addition or demolition of an "immovable, facility or civil engineering structure" that belongs to a public body or that is used to deliver public services of the State, or else that is funded by the government.

By adopting and implementing the Public Infrastructure Act, the Quebec legislator seeks to create a level playing field for the development of all types of infrastructure necessary for the society. This is expressed in the following goals, embedded in the introductory provisions of the Act:

1) establish a long-term vision for government infrastructure investments;

2) ensure appropriate planning of public infrastructures by prescribing the rigorous and transparent administration of the amounts allocated to public infrastructures and by promoting best management practices and improved accountability;

3) contribute to the quality and longevity of public infrastructures, in particular by ensuring that investments are properly apportioned between asset maintenance and infrastructure development;

4) contribute to the prioritization of public infrastructure investments and ensure the rigorous management of public infrastructure projects;

5) ensure optimal management of rental premises and immovable assets of public bodies.

The provisions of the Public Infrastructure Act are further developed and supplemented by secondary legislation (by-laws) of the Treasury Board of Quebec (Conseil du trésor in French). In the constitutional framework of Canada and its federal entities, as well as that of some other countries which were formerly part of the British colonial empire (Australia, New Zealand, etc.) the Treasury Board is a sort of "superministry" that coordinates the operation of the entire

government administration and is empowered to issue mandatory instructions to the executive authorities, including ministries (executive departments), concerning the management of human, budgetary and material resources, and also governing the provision of public services to citizens and enterprises.[4]

The infrastructural law-making of the Quebec Treasury Board can be illustrated by its Decision of 11 February 2014 "Defining Criteria for Considering that a Public Infrastructure Project is a Major Project" (the basic criterion: at least 50 million in Canadian dollars for a project).[5]

III. The Procedure for the Implementation of Infrastructure Projects in Quebec

Following the "integral" approach to the legal regulation of infrastructures in Quebec, their construction and operation is based here on three main practical findings laid down in the Public Infrastructure Act.

The first one is the establishment within the government of a "superministry" responsible for all infrastructure projects. This body is the abovementioned Treasury Board, which, inter alia, has the legal mandate to determine for every public body the mandatory measures regarding "needs assessment, required authorizations, documents to be submitted in support of those authorizations, and public infrastructure project closure" (Public Infrastructure Act — Chapter II "Investment Planning and Infrastructure Management" — Division II "Public Infrastructure Project Management").

In addition, the Treasury Board, as noted above, defines the criteria for considering infrastructure project as a "major" project. It also prepares

[4] With respect to the Treasury Board of Quebec the abovementioned powers stem from the Quebec Public Administration Act. Updated to 18 March 2021. Available at: http://legisquebec.gouv.qc.ca/en/showDoc/cs/A-6.01?anddigest= [Accessed 15.06.2021].

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and submits for governmental approval the directives with respect to investment planning and management of public infrastructures within public bodies or a class of public bodies (for example, the Directive "On the Management of Major Public Infrastructure Projects" of 2016).[6]

It is further worth mentioning that the Chair (head) of the Treasury Board may, if "the Chair considers it advisable," conduct audit in order to verify compliance with the rules prescribed under the Public Infrastructure Act. On the basis of this audit he makes recommendations to the Treasury Board, which may then require the public body concerned to take "corrective and appropriate follow-up measures and to comply with any other measure" determined by the Treasury Board (Public Infrastructure Act — Chapter II "Investment Planning and Infrastructure Management" — Division III "Responsibilities").

The final important point here is the power of the Treasury Board to recommend the exemption of a public body and (or) an infrastructure project from the general rules of Public Infrastructure Law. In case of approval of such a measure by the government of Quebec the latter by it's decision may "set specific conditions applicable" to the project exempted (Public Infrastructure Act — Chapter I "Purpose and Scope" — Division II "Scope").

The second main practical finding of the Quebec legal approach to infrastructure regulation is the mandatory state planning of infrastructure investments, equally in all fields of social life.

According to the Public Infrastructure Law (Public Infrastructure Act — Chapter II "Investment Planning and Infrastructure Managements") the state planning of infrastructure investments shall have both a short-term (1 year) and a long-term (10 year) dimension.

The instrument for short-term planning is called "annual investment management plan." It is drawn up and submitted to the Chair of the Treasury Board by each minister in respect of the investments made by the minister's department and by the public bodies under his of her

[6] Directive sur la gestion des projets majeurs d'infrastructure publique. Québec: Gouvernement du Québec, 2016. Updated to 10 December 2020. Available at: http://legisquebec.gouv.qc.ca/en/ShowDoc/cr/I-8.3,%20r.%202%20/ [Accessed 15.06.2021] (In Fr.).

authority, taking into account the terms and conditions established by the Treasury Board.

The name of the long-term planning tool is "Quebec Infrastructure Plan." This plan is drawn up and presented to the government of Quebec by the Treasury Board and is subject to approval by the National Assembly (parliament of Quebec).

The current Quebec Infrastructure Plan 2021–2031 allocates a total of 135 billion in Canadian dollars for infrastructure investments. The planned investments are divided into four sections and eighteen subsections corresponding to various fields of social life and types of public infrastructures, including research infrastructure that is given a budget of 984 million in Canadian dollars (Conseil du trésor, 2021).

Among the research infrastructure projects being implemented in Quebec nowadays, one can mention such projects as the creation of twenty-six research laboratories at the Higher School of Technology in Montreal; construction of a pavilion in the same School for the Quebec supercomputer; procurement of equipment for the manufacture of nanomaterials at the University of Sherbrook; construction of a new pavilion for personalized medicine and applied medical research at the same University; conversion of premises and installation of new computer equipment at McGill University in Montreal (Secrétariat du Conseil du trésor, 2021).

Last but not least, the Public Infrastructure Act provides legal foundations for a general public infrastructural company, the Quebec Society of Infrastructures (Société québécoise des infrastructures in French), with a purpose to facilitate implementation of the infrastructure projects or to implement them itself.

According to the Public Infrastructure Act (Chapter III "Quebec Society of Infrastructures"), the Quebec Society of Infrastructures (hereinafter: Society) is vested with two principal missions:

1) on the one hand, to support public bodies in their infrastructure activities;

2) on the other hand, to establish and operate a common stock of immovable assets for infrastructures, including construction, operation and management services.

The government of Quebec may prescribe to any public body to "deal exclusively with the Society to satisfy its requirements in terms of rental space and the construction, operation and management of immovables." As far as major infrastructure projects are concerned, their implementation, as a general rule, should always be entrusted to the Society. With the exception of transport infrastructures, a public body also "must exclusively use the services of the Society to acquire or dispose of an immovable."

In addition to its principal missions, the Society carries out several other related activities. In particular, it can advise the government "on any matter related to public infrastructure projects"; it creates a "documentation center accessible to all interested persons on matters related to the management of public infrastructure projects"; for the latter purpose, it has the right and obligation to collect and analyze "information on similar experience in Canada and abroad."

It is noteworthy that, as a public legal entity acting as a "mandatory of the State," the Society may enter in agreements with governments, departments and bodies both within Canada and abroad as well as with international organizations, that is work an international actor including the promotion of international research infrastructure cooperation.

Concluding the article, it should be added that in 2020, by a separate legal instrument, the province of Quebec has established a second public infrastructural company, Quebec Technological Infrastructures. The new company should oversee the construction and operation of technological infrastructures, ensure the cybersecurity in the information infrastructures and manage "Government Infrastructure and Digital Services Fund" (Quebec Technological Infrastructures Act).[7]

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Personnel Training and Legal Support for the Implementation of Scientific Projects of the "Megascience" Class. 3rd Scientific Conference of Kutafin Moscow State Law University (MSAL) and National Research Nuclear University "MEPhI" (NRNU "MEPhI")

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On June 17, 2021, the 3rd scientific conference "Personnel Training and Legal Support for the Implementation of Scientific Projects of the 'Megascience' Class" was organized by the Kutafin Moscow State Law University (MSAL) and the National Research Nuclear University "MEPhI" (NRNU "MEPhI").

This conference makes it possible to unite at one table a diverse company of physicists, teachers and lawyers. As the experience of holding the conference since 2019 has shown, such communication is very fruitful and effective, allowing the participants to discuss existing personnel and legal problems, as well as to find ways to solve them. The conference is regularly attended by representatives of the National Research Center "Kurchatov Institute," the State Corporation "Rosatom," specialized institutes of the Russian Academy of Sciences, MEPhI and MSAL. In total, more than 60 different representatives meet annually to

discuss personnel training and legal support for "Megascience" projects. Based on the results of the conference, a collection of reports indexed in Scopus is published annually.

Rector of the NRNU "MEPhI" M.N. Strikhanov, MSAL First Vice-Rector E.Yu. Gracheva, assistant to the President of the National Research Center "Kurchatov Institute" A.V. Nikolaenko, special representative of the State Corporation "Rosatom" for international and scientific projects V.A. Pershukov gave their welcome speeches to the conference participants.

Natalia S. Barbashina (MEPhI) in her speech "New challenges and approaches in personnel training for 'Megascience' Projects" gave an overview of "Megascience" projects implemented both in the Russian Federation and abroad. As part of the speech, new approaches to training scientists for the participation in scientific experiments were identified, mechanisms for improving educational programs were proposed in order to maximize the integration of educational and research components. The speaker also identified the main problems of legal regulation arising in the implementation of scientific projects of the "Megascience" class.

Andrey S. Malyshev (NRC "Kurchatov Institute") made a report on the "Models of interaction with foreign and domestic scientific, commercial and non-profit organizations, as well as with individual scientists in the framework of research infrastructures created in the Russian Federation." The report characterizes legal forms of organizing the interaction between Russian and foreign partners during the implementation of scientific projects of the "Megascience" class, and highlights positive and negative aspects of various forms of such interaction.

Grigory A. Nigmatkulov (MEPhI) in his report covered such a topic as the "Projects of the 'Megascience' class at the Brookhaven National Laboratory." The report reflects the main stages of developing the Brookhaven National Laboratory, considers the principal results obtained with the participation of scientists from MEPhI, and also indicates the key directions of training the research team personnel who participates in the implementation of the scientific projects of the "Megascience" class.

Yaroslav S. Kozheurov and Elvin S. Teymurov (MSAL) spoke on the "Organization and legal models of international scientific and technical cooperation in the creation and operation of a global research infrastructure in the nuclear field." The speakers noted that legal science faces the urgent task of studying the existing legal forms and models of international scientific and technical cooperation (ISTC) for the creation and use of a global research infrastructure (GRI) in the nuclear field, identifying their advantages and disadvantages, possibilities of their application and adaptation to projects of the "Megascience" class on the territory of Russia. Two factors, which are fundamental for determining the legal aspects of the creation and use of the GRI, include organizational and legal registration (the establishment of a separate independent entity or the use of already existing "umbrella" legal structures) and understanding what legal instruments are to be used, what law the activity is subject to. The organizational and legal model of the ISTC, both with the use of existing international intergovernmental organizations of a framework type or legal entities, and through the establishment of special entities, can be schematically represented in the form of a four-tier system. The advantage of using umbrella-type models in the nuclear sector is the readiness of most of its tools and mechanisms, requiring only the adaptation for specific projects, and the possibility of implementing a significant number of projects.

If it is required to ensure a clear equity participation of partners, financial obligations and a management structure depending on them, then the appropriate form is the creation of a special project-type entity. Based on the "legal environment," the use of intergovernmental organizations (IGOs) implies certain immunities and privileges, exemptions from the jurisdiction of the receiving state, etc. Today it is important that IGOs are more difficult to subject to politically motivated unilateral restrictive measures ("sanctions"). However, the use of a legal entity structure can provide greater efficiency, flexibility and low cost of the administrative process, especially since they can also be exempt from the national law. The most successful solution is the development of a special organizational and legal form, an international research organization, which is mentioned in the draft Federal law "On scientific, technical and innovative activities in the Russian Federation."

The report by Nikita V. Marchenkov (NRC "Kurchatov Institute") "Development of Synchrotron and Neutron Research in Russia: Current Status and Prospects" discusses the principal directions of implementing the Federal Scientific and Technical Program for the Development of Synchrotron and Neutron Research Infrastructure for 2019–2027. As part of the report, the main scientific facilities, the creation of which is planned as part of the implementation of this program, were considered.

Arkady V. Taranenko (MEPhI), covering the topic "Status of the 'Megascience' MPD experiment at the NICA collider," spoke on the prospects of implementing the NICA (Nuclotron-based Ion Collider Facility) project at the Joint Institute for Nuclear Research and in particular on the MPD (Multi-Purpose Detector) experiment. The report also describes the experience of interacting within the MPD scientific collaboration and involving students in processing the experimental data from the "Megascience" facilities.

Lana L. Arzumanova (MSAL), speaking on the topic "Modernization of financial and legal regulation of a project of the 'Megascience' class," presented proposals for establishing a preferential tax regime for entities that are potentially ready to take part in investing in "Megascience" projects. In particular, it was emphasized that at present such a taxation regime is not enshrined in the current Tax Code of the Russian Federation, which, in turn, complicates the process of raising funds for these projects from extra-budgetary sources.

The report of Marina V. Nurbina and Nurzhan N. Nurakhov (NRC "Kurchatov Institute") "Legal regulation of the results of activities of 'Megascience' projects using the mechanism of regulatory sandboxes" presents the analysis of the current experience of using regulatory "sandboxes" in various countries, and characterizes their types, including corporate, industry, regulatory, quasi-sandbox, umbrella and digital types. The speakers also analyzed the Russian experience in this area and the feasibility of the regulatory "sandbox" regimes for the implementation of projects of the "Megascience" class.

Daria V. Ponomareva (MSAL) in her report "Approaches to legal regulation of protecting scientific activity and information in foreign legislation and practice" presented an overview of approaches to legal regulation of protecting scientific activity and information in a number of

supranational and national jurisdictions, including the European Union. Within the framework of the report, an attempt was made to systematize the law enforcement practice of foreign states and supranational organizations, dedicated to the issues of ensuring the protection of inventions, utility models and industrial designs. Particular attention in the speech was paid to the specifics of providing legal protection for the results of scientific activities created by artificial intelligence (AI) systems. In conclusion, recommendations were presented to the Russian legislator regarding the use of the best foreign practices in the context of improving the relevant legislation of the Russian Federation.

Vitaliy Yu. Slepak (MSAL) in his presentation "Some problems of protecting the rights of participants in the execution and termination of a grant agreement with the European Commission" highlighted the problems of protecting the rights of participants in grant agreements concluded with the European Commission in the event of terminating such an agreement. In particular, the legal qualification of the requirements of the European Commission for the return of funds transferred under the grant (the so-called Repayment letters) poses a significant problem. On the one hand, they can be considered as documents created by the parties in the framework of contractual relationships, and accordingly be subject to appeal in national courts, if the parties have not agreed to resolve such disputes in the EU Tribunal. On the other hand, acts of the EU secondary law provide for sanctions for a failure to comply with such requirements, in this connection such documents can be qualified as individual legal acts issued by the Commission within the framework of its control and supervisory powers. In this case, their appeal is possible only within the EU judicial system (or a direct appeal to the EU Tribunal, or by sending a prejudicial request by a national court to the EU Court), and national courts will be deprived of the opportunity to independently assess the legitimacy of such acts. V.Yu. Slepak considered the arguments for each of the approaches and stated that only the EU Court of Justice can put an end to this discussion. However, at the moment, there remains significant legal uncertainty in relation to these issues.

Daria M. Moshkova (MSAL) and Dmitry L. Lozovskij (NRNU "MEPhI") made a presentation "Ways to improve the regulation of

'Megascience' projects." In their presentation they outlined main directions of improving legal regulation in the field of the implementation of scientific projects of the "Megascience" class. These directions include:

– determining the legal status of the projects of the "Megascience" class and basic concepts such as a "project of the 'Megascience' class," "scientific collaboration," "a unique scientific facility of the 'Megascience' class," "consortium";

– institutional and legal models for the creating scientific projects of the "Megascience" class;

– specifics of financing scientific "Megascience" class projects;

– mechanisms of a public-private partnership in the implementation of scientific projects of the "Megascience" class;

– regulation of mobility of scientific personnel and technical specialists.

Anastasia I. Kolodyazhnaya (MSAL) in her report "Peculiarities of legal regulation of the labor of scientific workers involved in the implementation of scientific projects of the 'Megascience' class" indicated the problems of a terminological nature in the concept of a "scientific worker" and his legal status. The importance of resolving issues related to the conclusion of fixed-term employment contracts with scientists, as well as attracting foreign scientists (specialists) for the implementation of "Megascience" projects was emphasized. The positive experience of the French Republic in the matters of legal regulation of scientific research in general and legal regulation of the labor of scientific workers, in particular, with the help of such a regulatory legal act as the Code de la recherche, was noted.

Summing up, we can state that there is a need to establish the specifics of the legal regulation of labor relations of scientific workers, conditioned by their legal status and labor function.

Nikita L. Lyutov (MSAL) covered the topic "Prohibition of genetic discrimination and protection of genetic personal data: prospects for adapting legal norms to the achievements of genetic science." He noted that the development of genetic technologies in recent decades has led to the fact that by analyzing human genetic data, it has become possible to obtain quite extensive information on the predisposition of their

carrier to hereditary diseases, the ability to perform a particular job or the worker's resistance to certain types of stress. In society, fears began to spread that when receiving "problem" genomes, carriers of these "low-quality" genomes would be victims of discrimination and would be perceived by employers and insurance companies as inferior people who could be restricted in their rights. The report, in a comparative legal vein, examines the legal problems associated with approaches to the definition of the very concept of genetic data, the rules governing the protection of genetic information as personal data of workers, as well as anti-discrimination legislation formed in the United States and some other countries aimed at protecting against discrimination in the world of work on a genetic basis. Conclusions are formulated regarding the prospects for modifying the Russian labor legislation as a response to the designated new technological challenge. Since genetic data includes information concerning not only a specific employee, but also their blood relatives, the legal regime for protection against unlawful processing and dissemination of such personal data should be broader than in relation to other types of personal data. Counteracting discrimination based on the genetics of an employee is also inextricably linked to the protection of personal data. This is due to the fact that protection against discrimination on this basis should begin with the introduction of measures to counter the collection of genetic information by employers concerning an employee or a candidate for employment, except in cases where such collection is necessary to prevent a threat to life and health of people.

In the report made by Elena I. Galyashina and Vladimir D. Nikishin (MSAL) on the topic "Information and legal aspects of protecting scientific projects of the 'Megascience' class from the threats of using 'Deepfake' technologies," basic threats posed by the "Deepfakes" to the media security of "Megascience" class projects were revealed. The authors gave specific examples of the use of artificial intelligence technologies to create information attacks aimed at defaming, discrediting, causing reputational harm, undermining confidence in the results of scientific and technical research and development, etc. "Taking into account the high cost attractiveness of projects of the 'Megascience' class, it is possible to predict the expansion of the possibilities of using the above-

mentioned artificial intelligence technologies for criminal purposes," noted prof. E.I. Galyashina. In their report, the authors proposed a classification of "Deepfakes" that pose a threat to the media security of "Megascience" projects, and suggested a number of legal solutions to protect global research infrastructures from the negative consequences of the potential use of "Deepfake" technologies.

The speech by Alexei V. Kubyshkin, Law Firm "SanctaLex" CA MCCA "Megascience, Metascience and genomic research: convergence, synergy and correlation. Points of contact in legal regulation" was devoted to the analysis of the interaction between various branches of knowledge from the point of view of their convergence, achievement of a synergistic effect and correlation. Metascience in Western sources is often viewed as a methodological discipline, a kind of science about science, which contributes to increasing the reliability of scientific results. Nevertheless, Metascience can also be viewed as a result of the transition from quantity to quality in one or several branches of knowledge. Both the first and second approaches are methodologically promising. The relationship between "Megascience" and genomic research can be found, for example, in the technological basis of these areas of scientific research, which are the latest and rapidly developing technologies, in the use of complex and expensive scientific complexes that allow for unique research of a high degree of complexity. The similarity of the technological bases generates the similarity of the emerging social relations and the challenges arising in the legal regulation of these relations. The most important common point of the legal regulation of scientific research in these areas is the formation of an appropriate mechanism to ensure a balance of private, group and public interests, which will contribute to the progressive sustainable development of relevant technologies. The practical value of the report is expressed in the proposal of recommendations on the formulation of principles and approaches to legal regulation in this field.

Igor Yu. Karandaev (MEPhI) in his report "Mechanisms for attracting foreign scientists in foreign countries" presented the experience of attracting foreign scientists from the EU, Germany, China and the United States. The analysis of the Chinese experience in attracting foreign scientists has revealed a number of problems

associated with attracting leading scientists from developed countries to developing countries. Major challenges include:

– unwillingness of leading foreign scientists to stay in the territory of an attracting country for a long period of time, since there is research being conducted simultaneously at the main place of work;

– in order to attract foreign scientists, their financial incentives are increased, which causes inequality in the salaries of foreign and national scientists, belittling the status of national scientists, and it leads to a latent resistance to the integration of foreign scientists;

– in addition to increased salaries for foreign scientists, it is necessary to create a developed scientific infrastructure, as well as a comfortable living environment for both the scientist and his family;

– the need to improve various bureaucratic procedures, including in the field of migration;

– despite the attractive working conditions for foreign scientists, it is extremely difficult for them to integrate into the national academic community, and therefore their further scientific career outside the framework of the attraction program is difficult;

– in fact, it was necessary to reduce the selection criteria for foreign scientists in the process of implementing the program due to the impossibility of attracting leading scientists.

Many of the above problems turned out to be similar to those faced by the Russian mega-grant program, created to attract foreign scientists to Russia.

Natalia A. Pozhilova (MSAL) made a report on "Legal aspects of financing research projects in the EU." The speaker emphasized that today, despite the well-known scale of the European Union grant financing in the field of research and innovation support, the European Commission seeks to ensure the use of alternative sources of financing, for example, venture financing by collective investment enterprises, including through the creation of a pan-European monetary fund, as well as using mechanisms such as crowdfunding, public-private partnership procurement, etc. At the moment there are several possible ways (forms) of financing, in addition to the traditional grant financing, including the new EU framework program "Horizon Europe." At the same time, it is necessary to point to other forms of financing research and innovative

projects, including possible promising areas of alternative financing, which use the current mechanisms of the financial market on an equal basis in the EU and other countries, including the analysis of fundraising. One of the ways is to finance scientific projects through the use of new venture financing mechanisms of the European fund Venture EU, another is to ensure the attraction of funds through crowdfunding (collective financing) and an initial public offering held by enterprises. The use of alternative methods of financing makes it possible, on the one hand, to ensure the commercialization of research projects that allow research teams to receive additional remuneration and invest it in further work in the field of research, and on the other hand, to draw public attention to pressing problems of science and technology. A certain prospect is also seen in the new mechanism of the European partnership, provided for by the Horizon Europe program.

Irina I. Chernykh (MSAL) spoke on the topic "An interdisciplinary approach to the implementation of IT technologies in civil proceedings." She pointed out that large research projects of the "Mega" class are currently lacking in the social sciences. Today the need for such projects is more evident than ever. The system of regulators of public relations demonstrates heterogeneity, spontaneity, and experiences entropy as a result of introducing digitalization in the development of society. We face unprecedented challenges, ranging from the need of developing national and global policies to regulate the use of AI and cyberspace to defining the boundaries of the possible replacement of humans with an information technology. The key aspect in this discourse is the activity of the state to ensure the protection of the rights of citizens and organizations in administering justice in civil cases. In this area, there is a need to combine the efforts of specialists not only in law, but also in other social, technical, and natural sciences into a common research scientific setting. Using the example of only one aspect of judicial activity — online court hearings- it is possible to show the need for such a fusion of intellectual capacities. In addition to disciplinarity, a transnational nature of research is required. The world legal practice needs a uniform approach to the issue of legal digitalization, the status of IT information involved in formalizing material legal relations,

including in the Internet space, and its use in the cognitive activities of the court.

Nadezhda V. Chernykh (MSAL) in her speech "Problems of the legal regulation of the labor of scientists involved in the implementation of large scientific projects" considered the legal status of scientists involved in the implementation of large scientific "Megascience" class projects. The speaker noted an archaic nature and lack of legislation on science and scientific and technical policy in this matter, which is hindering the attraction of highly qualified specialists with necessary qualifications. She pointed to a certain lack of independence in scientific organizations and universities when they determine qualification requirements for hiring scientific workers. Other problems mentioned in the speech included terminological problems, difficulties in undergoing preliminary medical examination procedures for hiring, obtaining certificates of the presence (absence) of a criminal record and (or) of the fact of criminal prosecution or the termination of criminal prosecution on exonerating grounds. Based on the analysis of the existing problems, N.V. Chernykh justified the conclusion that it is necessary to make comprehensive changes to the current legislation aimed at improving the legal regulation of attracting scientists to participate in the implementation of large scientific "Megascience" class projects, taking into account the peculiarities of their work.

Alexander G. Barabashev (MSAL) in his report "Oracle vs Google. A revolution in the protection of subjective intellectual property rights?" noted that more than 10 years have passed since Oracle filed a lawsuit against Google for an "unfair" use by the latter of the Java API for the development of the Android platform (11,500 lines of code). In the last decade, there have been three trials and two appeals. The amount of the claims increased steadily and as a result reached almost 9 billion US dollars. Finally, on April 5, 2021, the US Supreme Court ruled (6 votes to 2) that Google's actions fall under the definition of a fair use. Google's copying of a small portion of the Java API does not violate Oracle's copyright. After all 11,500 lines of code taken from Oracle make up no more than 0.4 % of the total size of the Java API wizard. The Supreme Court took a position that, as part of the interface, lines of code copied by Google were inherently closer to ideas not covered by the copyright.

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Overview of the 2nd International Congress on Civil Comparative Studies

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On December 4–5, 2020, Kutafin Moscow State Law University (MSAL) held the 2nd International Congress on Civil Comparative Studies "The Role of Human in Modern Civil Law" (Mozolinskie Readings), dedicated to the 90th anniversary of the Kutafin Moscow State Law University. The congress was organized by the MSAL Department of Civil Law, the Scientific and Educational center "Private Law," "Statut" Publishing House, the Russian Arbitration Center of the Russian Institute of Modern Arbitration, the Institute of International Relations and Social and Political Sciences of Maurice Thorez Moscow State Linguistic University.

The Congress was organized with the participation of the MSAL Department of Civil and Administrative Court Proceedings and the Department of State History and Law.

Russian and foreign scholars from Austria, Armenia, the Republic of Belarus, Italy, China, Latvia, Poland and the United States, as well as a representative of the World Intellectual Property Organization attended the Congress. The number of participants of the congress totaled to over 600 people.

On the first day of the Congress, a plenary session and panel discussion "The Role of Human and the Role of IT in Judicial Protection"

took place. Professor Elena E. Bogdanova, Dr. Sci. (Law), Acting Head of the Department of Civil Law, Kutafin Moscow State Law University (MSAL) and Vadim E. Mantrov, Dr. Sci. (Law), Associate Professor of the Faculty of Law, University of Latvia moderated the Congress plenary session.

William Elliott Butler, Honorary President of the Congress, Doctor of Law, John Edward Fowler Distinguished Professor of Law of the Pennsylvania State University Dickinson School of Law opened the Congress. Expressing his warmest wishes to the University, he noted the importance of holding the Congress dedicated to the memory of the outstanding civil jurist Viktor Pavlovich Mozolin timed to an important historical event, the 90th anniversary of the MSAL.

The MSAL Vice-Rector for Science, Dr. Sci. (Law), Professor Vladimir N. Sinyukov addressed his welcoming words to the participants of the Congress. He noted that the topic of the Congress is of the highest interest, since a person always discovers new aspects in his nature. The development of natural sciences, biotechnology, and information technology puts the law to new branches of development, civil law being of great importance since it directly concerns a person. Vladimir Sinyukov drew attention to the event formats development within the framework of the Congress compared to last year mentioning that starting next year the event will acquire an interdepartmental character. The Vice-Rector informed all the participants of the Congress that this year at the University the Ministry of Education and Science has established the Federal Interdepartmental Center for Law and Biotechnology as a center in the field of genetic research and genetic technologies and invited Russian and foreign scholars to cooperate within the framework of the interdepartmental center.

After that, a guest from Erevan State University, namely, the Acting Head of the Department of Civil Law (Erevan State University), Ph. D., Associate Professor Tatevik Davtyan welcomed the participants. Ms. Davtyan thanked the organizers of the Congress for bringing the participants together for an important and timely congress. She noted that according to the analytical results, due to the technological revolution the speed of technological development, the development of artificial intelligence and big data is 10 times higher than the technical

development of the industrial revolution and three thousand times larger than the industrial revolution. Legislators, lawyers, judges are facing the task of adapting legal regulation to the development of technologies. Ms. Davtyan noted that it is impossible for individual states to solve these large-scale problems; it is international cooperation that is essential to resolve these global issues.

Then the floor was given to the Head of Private Law Center of Kutafin Moscow State Law University, Dr. Sci. (Law), Professor, Deputy Chairman of the Organizing Committee Dmitry E. Bogdanov. He drew attention to the change in the vector of the research paradigm and mentioned that the attention in research addressing the person is increasing, and, therefore, the choice of the topic of the Congress is symptomatic. The Professor addressed a number of phenomena that have arisen as a result of the development of technology: the phenomenon of human vulnerability, the phenomenon of cyberspace, the transformation of the right to a personal image into the right to a digital image of a person, the phenomenon of an afterlife in the cloud (protection of personal non-property human rights), the phenomenon of robotization, evolution of civil liability.

The chairperson of the Organizing Committee of the Congress, Acting Head of the Department of Civil Law, Professor, Dr. Sci. (Law) Elena E. Bogdanova welcoming the participants of the Congress drew attention to the obvious underestimation of the role and place of a person in civil law, which became the reason that more and more people from a subject of law began to turn into an object of law, which is clearly manifested in the problems of surrogacy. Elena Bogdanova expressed her hope that, within the framework of the Congress, the participants will be able to share ideas on the problems of the role of a person in civil law.

The work of the Plenary Session of the Congress followed the welcoming speeches.

Professor William Elliott Butler, Honorary President of the Congress was the first to report. His speech was devoted to the consideration of such issues as artificial intelligence, civil law and international maritime law. The professor drew attention to the fact that artificial intelligence has penetrated the territory of international maritime law

and civil law. Artificial intelligence is no longer a theoretical invention, but is becoming a reality with the further development of unmanned surface vehicles (USVs) or autonomous surface vessels (ASVs), as well as autonomous underwater vehicles (AUVs), sometimes called submersibles. International maritime law has faced the problem of how to consider the mentioned technological innovations in the context of the existing legal norms. The Distinguished Professor noted that international maritime law was conceived as a human-made and human-controlled law. According to the civil law concept, behind each vessel are its owner (natural or legal person) and a registration system that allows us to identify these persons, regardless of the level of trust or other forms of indirect ownership. However, artificial intelligence is challenging the foundations of the traditional system. Human participation, as civil and international maritime law understands it, is excluded from or kept to a minimum in the operating principle of robots equipped with artificial intelligence and capable of acting autonomously in the development, production, launch and handling of ships. Based on the assumption that the ship with artificial intelligence itself becomes a "being" or an "object", separated from any developer or manufacturer, after registration does it acquire the "legal personality" of the state whose flag it flies, or is it its own legal personality? The professor also raised the question of whether it is possible to prosecute a ship with artificial intelligence, when it is involved in smuggling, drug trafficking, piracy, ocean pollution or other actions for which criminal liability is enforced. Does it have a sufficient level of legal awareness and freedom to make decisions without remote indication or a direct order from a person or a corporate body created by a person? The professor drew attention to another concept that deserves consideration, namely, whether we can consider an artificially intelligent ship a "subject" of international law, at least in terms of compliance with treaties and the principles of customary international law. In conclusion, Professor W.E. Butler noted that civil law experts and international lawyers have faced the task of revising the relevant legal principles in order to adapt them to the new challenges associated with the use of artificial intelligence in the context of international maritime law.

The next speaker was Christian Aschauer, Professor of Law at the Karl and Franz University of Graz (Austria), attorney, independent arbitrator. The topic of his speech was "Automated Decision Making in the Field of International Commercial Arbitration: Challenges and Risks."

The professor drew attention to the fact that artificial intelligence can be used to predict the outcome of a trial. This technology is called "predictable justice." Insurance companies developed it. As Professor K. Aschauer noted, in many jurisdictions, the law requires that arbitrators have characteristics that can only be inherent in humans. In doing so, human arbiters can, however, rely to a very limited extent on AI as an "electronic assistant," if its actions are transparent to the parties. An "electronic assistant" can perform the same limited tasks as an administrative secretary of an arbitration court. The professor noted that while computers are not allowed to act as arbitrators at this time, this might change in the future. Therefore, he proposed to consider the risks that may arise when computers make decisions in international arbitration. Among these risks, the professor first identified the risk of hidden AI biases. For example, he noted that AI feedback systems tend to reinforce the bias that is rooted in the original data. These algorithms cannot "unlearn" biases if their algorithms are not corrected. However, algorithms cannot be fixed because they are not transparent. This is called the black box problem. As the second problem in making the AI decision, the professor identified the lack of information about the facts, which the arbitration court found to be true; lack of assessment of the evidence presented by the parties; lack of discussion of legal norms; there is no summary of the parties' comments; lack of final legal assessment. Professor K. Aschauer drew the attention of the Congress participants to the fact that if we work with AI, then the reasons underlying the decision (or forecast) can only be found in how the algorithm is developed and in the data that was used to train the algorithm. The exact reasons for the decision remain unknown. It is necessary to consider what this might mean for society in which the obligation to provide a clear basis for legal decisions is an important part of the Rule of Law principle. The professor also drew attention to the problems of applying the principle of "the court

knows the laws." Based on the discussion of the principle of "the court knows the laws," we must consider whether the algorithm should be allowed to go beyond the pleadings of the parties. Another important issue is the problem of accounting for fair factors that a person can take into account. Perhaps when AI makes a decision, these factors will simply disappear. In conclusion, Professor K. Aschauer noted that predominantly international arbitration should remain human.

Then the floor was given to the professor of the Federico II University of Naples, Doctor of Law, Carlo Amatucci. The topic of his speech was "The Enterprise as a Creative Organization in French Law: Defending Corporate Interests in the Light of Social Impact and Environmental Impact." In his speech, the professor spoke about the French law on corporations, adopted in May 2019, indicating that the adoption of this law is associated with a significant reform of the European law on corporations. The professor dwelled upon the concept of a corporation and an enterprise, noted the differences between them, and revealed the essence of legislative reform. Thus, he said that corporations should have a deeper meaning than the interests of the members of the corporation should. He also noted that when making decisions corporations must take into account the social and environmental consequences of their activities. This approach has emerged because the new generation sees injustice in the existing world and is looking for a new meaning in life.

Next, the floor was given to Ms. Ksenia Gygax, the WIPO Policy Officer on Artificial Intelligence and Data. She dwelled on the concept of artificial intelligence in a narrow and broad sense. The speaker drew attention to the fact that AI in the narrow sense is the solution of certain tasks that a person delegates to programs to solve certain tasks; in a broad sense, it is the performance of all or almost all human functions. However, now, as Ms. Gygax emphasized, WIPO understands AI in a narrow sense and within the WIPO framework, the issue of AI impact on intellectual property is being considered. With this purpose in mind, WIPO has prepared a document titled "Discussion on Artificial Intelligence and Intellectual Property" and presented it for widespread public discussion to fully consider the impact of artificial intelligence on intellectual property and to formulate the issues to be resolved at national levels.

Professor Evgeny V. Bogdanov, Dr. Sci. (Law), Professor of the Department of Civil Law Disciplines of Plekhanov Russian University of Economics made a report on the problems of protecting personal non-property human rights in the digital age. During his speech, Professor Bogdanov noted that if in the past civil law experts tried to humanize a legal entity, now they are trying to humanize artificial intelligence. The professor stressed that artificial intelligence is not just an increased danger, but also a super-dangerous one and, therefore, special rules on liability for their causing harm should be applied to relations with its use, and not just the provisions of the Civil Code on liability for the injury inflicted by the activity with increased hazard. All those involved in the creation and exploitation of the artificial intelligence that led to harmful consequences provoked by its actions should be held accountable: developers, manufacturers, customizers, and operators. Moreover, they must have joint and several liability. This approach will discipline them, make them think more before launching artificial intelligence technologies into production, thus maximizing the protection of a person. Evgeniy Bogdanov noted that it is necessary to change the paradigm of civil law regulation of public relations. Is is necessary to consider personal non-property relations first, and only then property relations. Currently, there is civil law materialism, the matter is in the first place, and the person is in the second. The Distinguished Professor emphasized that digitalization is important, but it is necessary to minimize losses from their implementation. We need to fight not with digitalization, but with its consequences.

The floor was then given to Salvatore Furnari, Researcher at the University of Rome Tor Vergata, Member of the research team led by Professor Raphael Lehner. In his speech, Salvatore Furnari discussed the flaws of the algorithm in the robo-advisor and compensation for investors. He noted that, despite the various concerns about the use of artificial intelligence technology, we should not only ask ourselves whether we should develop these technologies or not, but we should also ask ourselves how to manage and guide them, building this approach upon shared values and principles. Among the risks posed by artificial intelligence and robotics, the most significant challenges noted by the speaker are: 1) opacity; 2) autonomy; 3) combination of technologies.

It is necessary to assess to what extent the legislation is adequate to address these problems. During his speech, he gave special attention to the concept of defective goods and the manufacturers' liability for them in accordance with the EU Directives.

In the first part of the plenary session, Yulia V. Kharitonova, Professor of the Department of Entrepreneurial Law of the Law Faculty of Lomonosov Moscow State University, Dr. Sci. (Law), presented the topic of "Citizens' Rights in the Digital Environment: Basic Paradigms of Regulation in Russia, China and the EU" in a multidimensional scope. She dwelled on the rights of citizens related to the development of digital technologies and noted that Europe, Asia and Russia are moving in the same direction on this issue.

Then the floor was given to Dmitry V. Lomakin, Dr. Sci. (Law), Professor of the Civil Law Department of the Faculty of Law of Lomonosov Moscow State University. In his speech, he drew attention to the fact that there are corporate rights, the effect of which, regardless of who they belong to, can only be for individuals. Such rights include the right to information, and in his speech he scrutinized the essence and procedure for their implementation in limited liability companies. The speaker raised a question of abuse of the right to information and noted that the right to information is valuable in not only itself, but also serves as a guarantee for the exercise of other corporate rights in a business society.

Wang Zhi Hua, Doctor of Law, Professor of China University of Political Science and Law, Deputy Chairman of the Russian Law Research Center at China University of Political Science and Law, Deputy Chairman and General Secretary of the Association of Comparative Law of China, made a report. Professor noted that in the Chinese legislative system, there are only three main laws that provide civil liability. They are the General Provisions of the Civil Law (1986), the Tort Liability Law (2009) and the Civil Code of the People's Republic of China, effective January 1, 2021. With the entry into force of the Civil Code of the People's Republic of China, the other two laws lost their legal force. In his speech, he elaborated on the types of civil liability, the grounds and forms of civil liability.

A very interesting topic was presented by Vera L. Izhevskaya, MD, Deputy Director for Scientific Work of the Bochkov Research Center of Medical Genetics. She delivered her speech on "Ethical Problems of Prenatal Genetic Testing" where she drew attention to the need to define the ethical principles that should be the basis of the law, and to determine the limits of interference in a person. She noted that the ethical problems of prenatal genetic testing are associated with deep differences of opinion in society regarding the anthropological and moral status of human embryos and revealed the existing approaches.

During the plenary session, other interesting reports were also delivered, in particular, by Svetlana A. Karelina, Dr. Sci. (Law), Professor of the Department of Business Law of Lomonosov Moscow State University; Yaroslav Turlukovskiy, Dr. Sci. (Law), Lecturer of the Department of Commercial Law at the Faculty of Law and Administration of the University of Warsaw, Director of the Center for Studies of Law in Eastern Europe and Central Asia, Faculty of Law and Administration of the University of Warsaw; Sergey A. Sinitsyn, Acting Deputy Director of the Institute of Legislation and Comparative Law under the Government of the Russian Federation, Dr. Sci. (Law); Elena A. Abrosimova, Dr. Sci. (Law), Associate Professor, Head of the Department of Commercial Law and Fundamentals of Law at the Faculty of Law of Lomonosov Moscow State University; Irina A. Emelkina, Dr. Sci. (Law), Professor of the Faculty of Law of the HSE University; Vadim E. Mantrov, Dr. Sci. (Law), Associate Professor of the Faculty of Law of the University of Latvia; Marina L. Nokhrina, Cand. Sci. (Law), Associate Professor of the Notary Department of the Faculty of Law of St. Petersburg State University; Varvara V. Bogdan, Dr. Sci. (Law), Associate Professor of Southwestern State University; Olga M. Rodionova, Dr. Sci. (Law), Professor of the Department of Civil Law of Kutafin Moscow State Law University; Yuliana A. Kitsai, Cand. Sci. (Law), Associate Professor of the Department of Civil Law and Procedure of Immanuel Kant Baltic Federal University; Sun Qi, Research Assistant of the Shanghai Academy and other jurists.

Within the framework of the Congress, with the financial support of the RFBR, under the scientific project No 18-29-16060 "The Impact of Digital Technologies on Civil and Administrative Justice", a panel

discussion on "The Role of Human and the Role of IT in Judicial Protection" was organized. Elena G. Streltsova, Cand. Sci. (Law), Associate Professor, Associate Professor of the Department of Civil and Administrative Justice of Kutafin Moscow State Law University (MSAL) moderated this discussion.

On December 5, 2020, within the framework of the Congress MSAL also hosted such events as master classes for young scholars, presentations given by young graduate students, and creative workshops for students moderated by leading experts and scholars. The creative workshops were sponsored by the Consultant Plus company. Participants of the creative workshop on intellectual property received gifts from the World Intellectual Property Organization.

During the congress all registered participants were given an opportunity to view a recording of the ballet "The Nutcracker" staged by the world ballet star, a MSAL graduate Nikolay Tsiskaridze, and performed by the artists of the troupe of Natalya Sats Moscow State Academic Children's Musical Theater. The Organizing Committee of the Congress thanks the management of the theater for the opportunity to post a video of the ballet for viewing by the participants of the Congress.

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