

## **KEY CHALLENGES TO ADMINISTRATIVE REGULATION IN THE FIELD OF ROBOTICS AND AI TURNOVER: RUSSIAN AND INTERNATIONAL EXPERIENCE**

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### **Abstract**

The emerging and rapidly developing market of robotics and IT programs emulating artificial intelligence have hit a new milestone in the development of countries and the formation of individual market niches. At the same time, with the formation of new market niches, significant questions arise from the supervising bodies, on the procedure to regulate this market, to draft and issue relevant regulatory legal acts, etc. Given the various regulatory approaches, legal cultures, the legal and the investment climate, there is significant uncertainty in the procedure on the regulation of legal relations related to the robotics market in the Russian and foreign markets. The above confirms the current importance of the research topic.

The theoretical basis of the research includes international regulatory acts, national legislative and regulatory acts of different countries, commonwealths, by-laws, academic works of Russian and foreign scientists in the field under study, expert reviews conducted by ranking and expert organizations, etc.

The object of study is public relations arising in the field of turnover of robotics and artificial intelligence.

The subject of the study is the norms of international law, regulatory legal acts of individual countries, other documents that have a regulatory character in the field of turnover of robotics and artificial intelligence.

The aim of the study is to identify key features and problem areas of regulation of robotics and AI turnover, in order to harmonize international approaches to regulation hereof and enhance Russian domestic practice.

The research methodology rests on a qualitative paradigm. The study stands on the fundamentals of comparative sociological legal analysis.

It employs theoretical investigation of academic sources, legal analysis of various legislation sources in the field under study, didactic the expertise of training guidance toolkit for a discipline on the administrative and legal regulation of AI at RUDN University (MA course level).

The results of the study primarily refer to the regulation of the market of robotics turnover, contribute to removing administrative and legal barriers that affect the national market development, to fostering the way to harmonization and uniformity of efficient approaches and measures with the view to ensuring the sustainable trade and service provision.

The research findings enhance theoretically horizons of academic vision of the topic under study. Moreover, the study outcomes bring conceptual and practical value for companies participating in the turnover of robotics and AI, state bodies in charge of this economy sector o, as well as for lawyers who associate their activities with this segment of the market.

**Keywords:** artificial intelligence, standardization and certification of AI, industrial safety of robotics, public supervision of AI and robotics.

## 1 INTRODUCTION

The dynamically developing market of AI and robotics raises questions not only on the issues of legal personality of AI, but also with regard to doctrinal boundaries that would explicitly separate industry by-products and innovative technologies based on AI technologies.

There is a n urgent need in an extremely comprehensive and concise definition, which would meet a number of requirements, namely the following:

- It can be attributed to robotics using AI technology
- It would take into account its autonomy
- It would be shaped in line with standards of uniform international legal criteria for determining the requirements for the production, maintenance and disposal of such technology having an increased hazard class,
- It would provide publicly necessary legal instruments that determine the rules for activities in this market for technology users (operators) and manufacturers.

**The goal of this study** is to consider key challenges to administrative regulation in the field of robotics and AI turnover at international and national levels.

Within the above goal, the respective tasks cover the following:

1. Study of regulation of legal relations related to the AI-based robotics market at international, regional, and national levels
2. Investigation of doctrinal approaches in determining the optimal approaches to regulate the turnover of the robotics and AI market
3. Study of emerging areas of AI-based legal practice.

**The research methodology** includes integrated analysis, the formulation of a number of hypotheses, comparative legal research, synthesis of the results.

**The research materials** incorporate legislative data, research articles, and Internet sources that focus in the topic under study.

## 2 REGULATION OF LEGAL RELATIONS RELATED TO THE AI-BASED ROBOTICS MARKET

It should be noted that at the moment there is no rule of law with regard a single unified approach to the regulation of robotics and AI. At the same time, a number of approaches and attempts at legal regulation are present in a number of countries with a high level of scientific and technical status, production and implementation of AI (both industrial and service).

The present research has identified a number of areas.

### 2.1 International Standardization of Robotics and AI

International Organization for Standardization (further ISO) is the responsible organization for the production of international standards.

In 2017, this organization created a working group to develop standards in the field of AI. This field includes standards in the following areas: information technology; software and systems development; security technology; encoding of audio, image, multimedia and hypermedia information; document description and processing languages; information technology for training, education and training; cloud computing and distributed platforms; sustainability for information technology and information technology; IT service management and management; application of statistical methods; health informatics; robotics; blockchain (ISO / IEC JTC 1 / SC 42, 2017).

In the field of robotics, the ISO / TC 299 group is active, which mainly deals with the development of standards that guarantee the safety of robotics and AI (ISO / TC, 2017).

The ISO / TC 299 group is currently developing the following standards:

- ISO / WD 8373 Robots and robotic devices. (Vocabulary)

- ISO / CD 10218-1 Safety requirements for the manufacture of robots.
- ISO / CD 10218-2 Safety requirements for industrial robots (robotic systems and integration procedures)
- ISO / NP 11593 Industrial robots manipulators (Technical dictionary and set of characteristics)
- ISO / DIS 18646-2 Robotics - A set of criteria for evaluating the quality of service navigation robots.
- ISO / AWI 18646-3 Robotics - A set of criteria for evaluating the quality of service robots of manipulators.
- ISO / PRF TR 20218-1 Robotics - Requirements for the safe design of industrial robots.
- ISO / CD 22166-1 Robotics - Part 1: Modularity of service robots.
- ISO / CD TR 23482-1 Robotics - Application of ISO 13482 - Part 1: Procedure for testing robots for safety.
- ISO / DTR 23482-2 Robotics - Application of ISO 13482 - Part 2: Guidelines for the use of robots.
- IEC / DIS 80601-2-77 Medical electrical equipment - Part 2-77: Particular safety requirements for the operation of robotic surgical equipment.
- IEC / DIS 80601-2-78 Medical electrical equipment - Part 2-78: Particular safety requirements for the operation of medical robots used in patient rehabilitation.

In the European Robotics 2020 development program, Robotics 2020 adopted an approach to legal regulation based on both ISO standards and directives. Emphasis is placed on the regulation of consumer rights and product safety.

Thus, the Communication of the European Commission to the European Parliament, the European Council, the European Economic and Social Committee and the Committee for Regional Affairs (2016) indicates the need to develop not only standards for standardization, but also uniform specifications throughout the EU.

Also, despite the fact that the EU does not yet have specially developed legislation regulating the field of AI and robotics, as European jurists note, some laws still partially regulate certain types of robots and AI (Molyneux, & Oyarzabal, 2018) . So, the Directive on Liability for Defective Products Directive (1985) and the Product Safety Directive (2001) are used to regulate robots and AI as a manufactured product (producer responsibility, consumer protection). Industrial robots are subject to the regulation of the Machinery Directive (2006). Robots used in certain areas of the provision of services will be subject to the regulation of the act that applies to the relevant field of services - for example, for robots and AIs involved in the medical field, the provisions of the Medical Devices Regulation (2017) will be mandatory. The acts regulating electromagnetic compatibility (Electromagnetic Compatibility Directive; 2014) and radio equipment (Radio Equipment Directive, 2014) will be applied to robots in that part in which the robots use, respectively, electromagnetic and radio devices (for example, in the case of autonomous cars). This conclusion is made despite the fact that the robots themselves are not mentioned in the texts of these acts.

Another striking example in the field of standardization of robotics and AI is the White Paper on the Standardization of Artificial Intelligence (2018), adopted in China (a technical guide that contains directives on technical standards related to AI). This document is for guidance only.

As an example of countries in which measures have been taken to standardize in the field of robotics and AI, we can cite Russia. Thus, the Order of the Ministry of Labor and Social Protection of the Russian Federation approved the professional standard “specialist in the design of children's and educational robotics”(Order of the Ministry of Labor of Russia №3, 2016). The same ministry in the Order of March 3, 2016 approved the professional standard “mobile robotics operator” (2016).

Since 2016, Russia operates with GOST R ISO 8373–2014 “Robots and robotic devices. Terms and definitions ”, completely identical to the world ISO 8373: 2012.

By order of Rosstandart dated September 01, 2016 No. 1246, the Robototechnics standardization technical committee was created (Rosstandart order № 1246, 2016), and on May 3, 2018, the Ministry of Industry and Trade of Russia approved the national standardization program for 2018(Rosstandart order 834, 2018). In this program, a whole section (TC 141) was devoted to robotics and AI. It approved the development of a number of GOSTs (robots and robotic devices: test methods for robots to work in extreme conditions; service robots; mobile robots, and many others - just over 20 points), identical to ISO.

## **2.2 Experience in Certification of Robotics and AI Products in Various Countries**

Certification is applied in various areas of robotics and AI (for example, industrial robots, some types of

service robots).

As mentioned above, in the EU there are standards similar to international ISO standards, for example, safety standards for machinery - risk assessment and reduction (EN ISO 12100) (Safety of machinery - general principles for design - risk assessment and risk reduction ), safety requirements for industrial robots (EN ISO 10218-1: 2011 (Robots and robotic devices - Safety requirements for industrial robots - Part 1: Robots) and EN ISO 10218-2: 2011 (Robots and robotic devices - Safety requirements for industrial robots - Part 2: Safety of Robot integration), safety requirements for robots that assist in patient care people and older people (EN ISO 131482: 2014 (Robots and robotic devices - Safety requirements for personal care robots).

Today, the European Commission is conducting active research aimed at developing common technical standards for certification and licensing of activities related to robotics and AI, as well as harmonizing the existing standards of the Contracting States in the field of robotics, product safety, as well as in the field of unmanned vehicles.

In China, the Development Plan for the robotic industry (for 2016-2020) (2015), as one of the main tasks, provides for the development of systems for evaluating and standardizing robots and AI.

### **2.3 Licensing and the System of State Supervision of Certain AI Technologies that have an Increased Hazard Class**

The registration system for robots was proposed by the European Parliament on February 16, 2017 by the EU Parliament in Resolution 2015/2103 (INL) "Civil Law Standards on Robotics" (2017).

Within the framework of this document, the creation of a single register of the European system for registering robots with AI elements was implied, having internal detailing and cataloging of robots in the context of additionally developed criteria for classifying robots. In addition, a separate issue of the authority to maintain this register was studied by a specialized EU agency for robotics and AI.

The mechanism of further work with the registry itself implied the possibility of tracking (tracking) robots, linking each robot and its individual number with a special compensation fund, which, in case of damage to property or health, would provide payment to the injured party or its relatives.

It should be noted that the degree of detail of information is being developed and includes, among other things, information about the persons managing the fund and their functions, the number of robots, functional features of robots, etc.

Given the increased danger of certain technologies, a number of countries reserve the use of additional tools for monitoring the robotics market.

For example, in Norway and Germany, testing highly automated and unmanned vehicles on public roads is possible only with a preliminary license from the Ministry of Transport, in Finland testing highly automated and unmanned vehicles is possible only with the permission of the transport agency of Finland.

In Beijing, a permit is issued by the Municipal Transport Commission.

In the USA, the permit is issued by the National Transport Agency, in Denmark - by the Danish Road Agency, in Sweden - by the Swedish Transport Agency.

In other words, in the vast majority of countries, the responsible authority for issuing permits for testing and operating unmanned vehicles is the Ministry of Transport or transport agencies, which are usually departmental bodies of the Ministry of Transport of the respective country.

Perhaps the exception is Japan, where the national police department of Japan is the responsible authority.

The mandatory registration in Russia is implemented in relation to unmanned aerial vehicles (or "drones"). So, in July 2016 in paragraph 3.2 of Art. 33 of the Air Code of the Russian Federation (1997), an amendment was introduced according to which unmanned civil aircraft with a maximum take-off weight of 0.25 kilograms to 30 kilograms imported into the Russian Federation or produced in the Russian Federation are subject to accounting in the manner established by the Government of the Russian Federation. However, as of the time of the present study, this procedure has not been approved.

The Russian Ministry of Transport developed Order № 255 of July 6, 2017, "On Amending the Administrative Rules of the Federal Air Transport Agency for the provision of state services for state registration of civil aircraft and maintaining the State Register of Civil Aircraft of the Russian Federation, approved by order of

the Ministry of Transport of the Russian Federation of December 5 2013 No. 457 ”, according to which“ drones ”with a maximum take-off mass of more than 30 kilograms are subject to registration established by the Administrative Regulation of the Federal Air Transport Agency for the provision of state services for state registration of civil aircraft and the maintenance of the State Register of Civil Aircraft of the Russian Federation, approved by order of the Ministry of Transport of the Russian Federation dated December 5, 2013 No. 457 (2017).

However, for the operation of unmanned aerial vehicles in the airspace of the Russian Federation, the approval of such use with the authorities (centers) of the Unified Air Traffic Management System of the Russian Federation is required with the receipt of an appropriate permit (Information Bulletin, 2017).

### **3 DOCTRINAL APPROACHES IN DETERMINING THE OPTIMAL APPROACHES TO REGULATE THE TURNOVER OF THE ROBOTICS AND AI MARKET**

It should be understood that the market for robotics and AI is quite extensive and the need for the introduction of common standards is reflected in the works of scientists of various industry areas.

Chinese researchers underline the need to implement common standards for clinical screening and imaging associated pulmonary nodes (Tian, 2019).

Japanese specialists also share the need to introduce common approaches to standardizing AI in the field of interaction with the patient using the technologies of “emotional” AI (Hayasaka, Fujikura, & Kashimura, 2018).

Winter and Davidson, in a joint review, consider the need to implement uniform rules for processing a large array of personal data related to patient medical records (Winter, & Davidson, 2019).

Researchers also consider the advantages of implementing mandatory standards for the development and verification of manned and unmanned aerial vehicles (using AI), as well as the complexity of risk assessment in the design of certified drones (Schirmer, Torens, Nikodem, & Dauer, 2018).

Besides, scholars analyze in detail the complexities and heterogeneous approaches in online communication using chatbots and AI technologies, as well as the heterogeneous regulation of this market both by market participants and the state, which necessitates the introduction of uniform game rules in this sub-segment of the AI market (Gollatz, Beer, & Katzenbach, 2018).

### **4 EMERGING AREAS OF AI-BASED LEGAL PRACTICE**

In relation to legal science and the approaches of jurists, it is necessary to emphasize the formation of a separate direction in legal science that today is mentioned as Legal tech.

Other impressive examples cover computer-based legal translation, arrangement of legal procedural documents, forecast of the verdict on legal case, and the AI use as a provocative tool to catch criminals (Rhim, & Park, 2019).

One of the noteworthy projects that affects the legal services market, the legal profession, and the legal status of chat bots is the appearance of the chat bot “DoNotPay”, which was originally programmed to challenge illegal fines in the UK. Today this project subsequently covers more than 1000 areas of law (Mannes, 2017).

Chat bots use more aggressive tactics in the fight and prevention of pedophilia; chat bots such as Negobot, Sweetie are the most specific and controversial development.

The purpose of these chat bots is to behave as provocatively as possible and to attract the attention of potential clients of the sex market to commit a crime, thus fulfilling the potential role of instigator (Scharr, 2013; BBC, 2017).

As a result, it has become a precedent that, based on correspondence with the chat bot, Australian Scott Robert Hensen was sentenced to two years in prison (Crawford, 2014).

### **5 CONCLUSION AND RECOMMENDATIONS**

Based on the study, the following conclusions can be drawn about the current regulation of AI robotics turnover:

Various countries use several tools to regulate the market of robotics and AI, while not always synchronizing their approaches with generally accepted world practice.

In view of the absence of a single regulation determining the degree of public danger of robotics with AI technology and the procedure for interacting with humans, as well as the procedure for responsibility, there are significant different regulatory and doctrinal approaches to regulating this market.

Current international initiatives in the field of standardization and certification of robotics and AI are under development and will be deepened taking into account the progress of technology, as a result of which a single unified solution in the current reality does not find a complete solution to the social problem.

At the same time, given the paramount importance of human security assurance and that of specific regulations on safety standards in the field of unmanned vehicles, in the near future we can expect common standards in this area of public relations.

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