

Status and Risks of Artificial Intelligence: Legal Aspects

Alexander Kartskhiya

Professor of Gubkin Russian state University of oil and gas, Ph.D. Law, Moscow, Russia.
E-mail: arhz50@mail.ru

Dmitry Makarenko

General Director General "National legal service" LLC, Moscow, Russia.
E-mail: m54321@yandex.com

Abstract: The article analyzes some legal points of artificial intelligence technologies usage risks seen from the perspective of a new technological environment formation, digital rights and digital assets of new entity and legal regulation, that are created by modern digital technologies (crypto currencies and tokens, virtual property, artificial intelligence and robotic devices, digital twins, Big data). The authors proceed from the substantiate the need to create a legal framework for the practical usage and application of artificial intelligence technologies, propose the construction of a comprehensive model of legal regulation, including the formation of universal standards and rules for AI technologies utilization in legal turnover and digital virtual technological environment.

Keywords: artificial intelligence, digital technologies, digital rights, smart contracts, intellectual property, intellectual property rights, patents and trademarks, risk management, subjects of law.

1. Introduction

Modern digital technologies abolish the traditional boundaries between areas of knowledge and technology, contribute to the penetration of innovation in new, more complex areas of technology. Under the impact of digital technologies, new digital objects are created (crypto currencies and tokens, virtual property, artificial intelligence and robotic devices, digital twins, big data, etc.), that are involved in commercial turnover, new types of services (cloud computing and services, various "smart" devices, digital technology platforms, smart contracts, etc.), a new environment of virtual communication is formed in the form of social networks, digital technological platforms-aggregators. The spread of disruptive technology in the digital era, new technological environment are determined modern creation of a special systematized legislation for artificial intelligence, including the legal status of artificial intelligence, legal means of AI technologies usage, new grounds and limits of AI responsibility.

2. Problem statement: new sphere of legal regulation mainstream

Digital technologies impact determines the need for a modern legal regulation development regarding the digital assets, artificial intelligence technologies, digital technology platforms, new types of digital services, subjects of civil property turnover. The use of modern digital technologies contributes to the formation of a new technological environment for legal regulation and, at the same time, actualizes the problem of adaptation of law to the possibilities of modern digital technologies, legal protection and use of intellectual property, as well as, intellectual rights protection. Digital technologies have a significant impact on the development of traditional sectors of the economy and have become an integral part of modern management systems in business, public administration, in the areas of national defense, state security and law enforcement, new models of doing business [1, 10].

Due to giant exercise of artificial intelligence technologies in various fields, widespread of new digital objects, changing current civil legislation and legal institutions, digital rights and digital assets, a new legal area of civil ownership circulation – digital circulation, the centerpiece of which is the digital rights to new objects that are created by modern digital technologies.

As a whole all the factors, such as, a new technological environment structure, lack of legal regulation for artificial intelligence, modern widespread of artificial intelligence technology practice, demonstrate an urgent demand for creating a structured legislation that is to integrate, incorporate appropriate provisions of law on legal status of artificial intelligence, legal means of AI technology usage, grounds and limits of AI liability.

3. Subject features of the research: legal phenomenon of artificial intelligence

Artificial intelligence in legal environment regulation is considered as a new challenge for the legal system, a new phenomenon that has a multiplier effect, a legal phenomenon in the structure of legal relations, a new subject for legal regulation

Artificial intelligence (AI) is increasingly driving significant developments in technology and business, from autonomous vehicles to medical diagnostics and advanced manufacturing. Nowadays, AI has become a subject of not only theoretical research, but has entered the global market, its growth is stimulated by the abundance of digitized data and rapidly developing computing power of data processing [4].

The phenomenon of AI is revealed through the following factors:

- AI means of usage: advanced forms of statistical and mathematical models (machine learning, fuzzy logic, and expert systems) to compute tasks commonly performed by humans. Means of AI usage serve as a means of implementing various AI functions.

- AI functionality features such as: predictive analytics, control methods, planning and dispatching, robots, storage, processing and presentation of knowledge and rationale; distributed AI; speech and computer vision; speech functions (including general speech processing, speech recognition, phonology, speech synthesis, speech dialogue, speaker recognition), and computer vision (including augmented reality, biometrics, image and video segmentation, character recognition, object tracking, scene understanding, general vision); natural language processing (including information extraction, machine translation, dialogue). These functions are used either alone or can be implemented in the aggregate of several functions.

- AI applications: various fields (industry, transport, agriculture, medicine, education, public administration, etc.) or disciplines where AI methods or functional applications can find application, including affective computing, personal computers and PC applications; Internet of things (IoT), computer networks/Internet; aerospace and avionics, autonomous vehicles and their management; broadcasting and television, all types of communication; anomaly detection/surveillance, identification, cryptography and computer security; smart cities and other smart facilities; social communications; customer service and e-Commerce; law, social and behavioral sciences.

Varieties (applications) of artificial intelligence are rapidly being developed in a number of sectors where it is possible to detect patterns in large amounts of data and simulate complex, interdependent systems to improve decision making, and cost savings [3], including autonomous vehicles, R&D with large-scale data processing, intelligent medicine and healthcare, finance and calculations, marketing and advertising, agriculture; forecasting policing and the assessment of risk of re-offending, prediction of lawmaking and enforcement, as well as automation of detection and response to threats in real-time.

From a legal point of view and commercial turnover involvement AI is a computer system that is operated by some basic principles to follow certain

given set of goals defined by a person, make predictions, recommendations or decisions affecting the real or virtual environment, and is designed to work with different levels of autonomy.

AI has become an instrument of legal regulation, but, nevertheless, from the point of view of modern law, AI does not have an independent legal personality and is considered as a subject of legal regulation, *i.e.* ownership that is controlled by an individual or legal entity.

In this context, AI acts as a software and hardware complex. Varieties of AI: “weak” AI, is able to solve only highly specialized tasks and universal (“strong”) AI, is able to solve complex problems like a person, think independently, interact and adapt to changing conditions, use large-scale information (Big data).

A legal protection regime of artificial intelligence used by modern law is clearly not sufficient as being provided solely through intellectual property rights protection of computer programs by copyright law. Legal protection of artificial intelligence rights to AI self-created works of art (as copyright) is not able to solve the problem of artificial intelligence technologies extensive usage and do not fully meet the prospective possibilities of AI widespread application, that entails certain obstacles to unceasing expansion of modern digital technologies.

Advanced artificial intelligence technologies are driven by the interaction of computer science and cognitive science. The idea of a deep neural network (used for artificial intelligence application in autonomous vehicles, creation of new drugs and genetic subjects, *etc.*) is based on the mechanisms of the human brain, the use of machine learning based on a variety of computer systems organized on authenticated neural networks principles.

Artificial intelligence is also considered as a complex of technological solutions that mimics human cognitive functions (including self-learning and search for solutions without a predetermined algorithm) and is able to obtain results comparable to the results of human intellectual activity when performing specific tasks. Such a complex of technological solutions includes information and communication infrastructure, software, processes and services for data processing and solution search, which allows us to consider it as a subject of intellectual property law regulation, intellectual property rights protection.

4. Research focus: AI legal risks, assessment and management

Security as one of the basic principles of AI use is “inadmissibility of using artificial intelligence for the purpose of intentional harm to citizens and legal entities, as well as prevention and minimization of risks of negative consequences of the use of artificial

intelligence technologies", as noted in the Russian Federation National strategy for the development of artificial intelligence.

That's assuming, among other things, that there is an ability to forecast AI usage risks and adverse events, reducing the level of direct human participation in processes associated with increased risk to human person's life and health. Thus, AI becomes a factor of information security [5].

Usually, risk assessment implies certain process of identifying internal and external threats vulnerabilities, identifying the probability of hazardous events encountered in the implementation of these threats or vulnerabilities, defining critical activities, which require ensuring smooth operation, definition of management tools in the field required to reduce the spread of the consequences of hazardous events, and estimating the cost of such controls.

Stakeholders of commercial turnover have to obtain required skills and systems to identify threats and dangers, risk assessment, vulnerabilities and dangers, of business activities analysis. Thereby, AI can be widely used for these goals, including an ability of enactment of various business models of entrepreneurial activity in the Internet.

The development of AI implementation is associated with several values? Such as:

(a) safety standards of AI practical application;

(b) comprehensive security system of AI technologies usage, (c) ethical rules for human interaction with AI.

Hence, it is proposed to identify and systematize AI usage risks and legal aspects of such risks, which include the grounds, forms and scope of AI liability, creation special law regulation of AI usage, including intellectual property rights protection, as well as, creation of a reference classification of AI technologies in order to determine legal protection regime and legal means of AI usage for each of classifier group.

5. Conclusions and recommendations

The spread of digital technology and increased use of AI technologies as a commercial subject and new business activities models determined modern demand of special legal regulations of AI technologies, including rules of AI liability and legal regimes of AI technologies usage, AI technologies legal means of protection, as well as, design classification of AI technologies [14, 15].

There is an objectively requirement for legislative base of AI technology practical use and legal means of application, that coupled with a complex model of legal regulation, including setting of universal

standards and rules of application of AI in material world and virtual technological environment, legal regulatory regimes and intellectual property rights protection for AI technology.

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