ETHICAL ISSUES OF DIGITALIZATION

INTRODUCTION

As part of this work, we will attempt to generalize the ethical problems of digitalization that require regulatory resolution, including legal one. Digitalization in a broad sense is understood as a wide range of economic, managerial, and social processes associated with the use and widespread dissemination of digital, computer, information, electronic and network (telecommunication) technologies and artificial intelligence systems in modern life.

In the future, autonomous robotic devices (ARDs) equipped with AI can radically change not only production, business, services, everyday life, the military sphere, but also morality, culture, ideology and legal regulation. The legal vacuum in relations related to the development and use of AI and ARDs is largely due to the lack of ethical principles for mediating such relations.

The development and dissemination of artificial intelligence systems has the greatest ethical coloration of the entire spectrum of social and legal digitalization problems of, so the problems associated with it are worth highlighting. Technological progress in general has the ability to exacerbate moral issues, giving obvious practical significance to speculative ethical dilemmas. Ethical issues arise with almost any new technology. But experts say - and it is rightly so! - that the ethical issues of AI differ significantly from ethical issues, for example, genetic engineering, informatics, medicine, and natural science. The fact is that "... in AI, ethical issues are closer to understanding ethics in a philosophical or socio-humanitarian sense and these ethical aspects are associated primarily with the fact that they relate to issues of behaviour and decision-making" (ROIZENZON, 2018).

MATERIALS

The following materials were studied as policy documents of a strategic and recommendatory nature, in which the issues of legal and ethical regulation of AI were touched upon to one degree or another: the National Strategy for the Development of Artificial Intelligence for the Period up to 2030 (approved by Decree of the President of the Russian Federation dated 10.10.2019 N 490 "On Development of artificial intelligence in the Russian Federation"), the Doctrine of information security of the Russian Federation (approved by the Decree of the President of the Russian Federation dated 05.12.2016 No. 646); Strategy for the Development of the Information Society in the Russian Federation for 2017-2030 (approved by the Decree of the President of the Russian Federation dated 09.05.2017 No. 203); State Program of the Russian Federation "Information Society (2011-2020)" (approved by the Decree of the Government of the Russian Federation of 15.04.2014 No. 313).

The theoretical basis of the research was made up of scientific works devoted to the issues of the moral and legal status of AI in modern society (PETRENKO, 2018; ROIZENZON, 2018; GOLENKOY, 2018; RYABUKHINA, 2018). Doctrinal positions concerning negative forecasts of social development under the pressure of the technological revolution are analysed in the works by Ponomarenko (2016); Chicherova (2019); Malysheva (2018); Antpov (2016); Timchenko (2016). Significant results for the formation of the author's position on the model of optimal legal regulation of relations using AI and ARD were provided by monitoring publications in the media and the Internet concerning the problems of technological...
unemployment, social inequality in a high-tech society of the future, and the prospects for using lethal autonomous systems (LAS).

**METHODS**

The research is based on such methods as logical, which allows using methods of analysis and typology to systematize ethical problems of the technological revolution; systemic and structural analysis, which allows problematizing the relations associated with the use of AI and ARD and formulating the ethical and legal problems of these relations. It is also based on the formal legal method, with the help of which the normative legal acts regulating relations with the use of AI and ARD are analysed; a predictive method and a modelling method, on the basis of which trends in the development of Russian society under the influence of digital technologies in the near future were identified. The statistical method and the method of expert evaluation, within the framework of which published scientific reports and statistical data of the All-Russian Centre for the Study of Public Opinion (VTsIOM) were also studied.

**RESULTS**

Ethical issues are multifaceted as applied to the context of global digitalization (Gupta Pallavi, 2019). Depending on the level of scientific generalization, as well as considering the content of the problems, all ethical topics can be divided into two large blocks of problems. First, there are proper ethical problems, classic ethical dilemmas that defy algorithmic resolution. People resolve such incidents based on emotional intelligence, spiritual values, and these decisions turn out to be ambiguous, significantly depending on the mentality and sociocultural context. The classic ethical dilemma is the "trolley problem" invented by the philosopher Philippa Ruth Foot (1967). The essence of the dilemma is as follows: “A heavy uncontrollable trolley rushes along the rails. There are five people working on its way on the rails. Fortunately, you can switch the switch and then the trolley will go on a different, emergency route. But there is only one working person on the emergency route. No one has time to run away. What are your actions?” (RYABUKHINA, 2018).

Such dilemmas are not unambiguous by definition. It is in such situations that human nature manifests itself, subjective opinion and emotional intelligence rule the day. The acceptability of one or another moral choice here will largely be determined by culture, era, archetypal values of the ethnos, and the dominant ideology of recent years. However, such dilemmas must be resolved when it comes to the widespread introduction into practice of devices based on AI systems and designed for autonomy and independent decision-making in typical and atypical situations. Moreover, they should be resolved based on transparent rules, turning them into algorithms of behaviour and / or principles of decision-making in a situation of conflict of interests. The ethical dilemmas of the first group form a layer of problems that we will call philosophical.

Secondly, there is a group of ethical problems of digitalization, which are probabilistic forecasts of the development of society under the influence of the active implementation of new technologies related to AI. Such forecasts are often apocalyptic and predict the destruction, significant change or degradation of humanity and the spiritual values available today. The development and application of technologies that can lead to a future in which there is no man becomes a serious ethical (and political) problem in itself. As a result, solving the ethical problems of digitalization is about considering negative scenarios of technological progress and developing solutions that can prevent such scenarios from happening.

In addition, ethical problems of digitalization can be divided into several groups depending on the sphere of public relations that affect the problems, as well as considering the level of scientific knowledge mediating the corresponding layer of problems. Within the framework of this study, we will single out those groups of ethical problems that, in our opinion, are of primary practical importance from the point of view of the widespread introduction of AI and ARD systems in different spheres of life. The authors do not aim to create a clear typology of ethical problems of digitalization and robotics; their division into groups may be somewhat arbitrary. Let us emphasize that from all the diversity of social problems we are now interested in the ethical aspect, therefore we propose to consider the philosophical, humanitarian, socio-ethical and ethical-legal problems of digitalization.
PHILOSOPHICAL PROBLEMS

They pose the questions “What is man?”, “What is life?”, “What is freedom?”, “What is personality?”, “What is reason?” and the like. This group of problems has an existential character in the sense that it concerns the essence of human nature, human existence, the uniqueness of human experience. This also includes the problem of the value of human life and the comparative importance of the interests of an individual, an individual and society. For AI developers, ethical issues turn into a question of choosing a course of action in complex morally coloured situations in which an AI device may find itself.

An illustration is the dilemma already described in many works and in different variations: an unmanned vehicle gets into an emergency situation in which any direction of movement (and braking) will lead to harm to people: either the passengers of this car, or pedestrians, or people in other cars (RYABUKHINA, 2018). There are studies in which respondents were asked to answer the question of how the autopilot of a car should behave in such situations, while the characters were specified: there were relatives and friends of the respondent, children, women, pregnant women, old people, men, young and middle-aged people, criminals, doctors, etc. among the passengers and pedestrians (PONOMARENKO, 2016). The problem is aggravated by the fact that the idea of calculating the average statistical significance of a person and determining the value of an individual life by the opinion of the majority, which underlies such studies, is already an ethical problem in itself and is highly controversial from the point of view of morality. By the way, one of the unexpected results of the survey (MASSACHUSETTS INSTITUTE OF TECHNOLOGY, 2016) was that the respondents were not ready to buy such a car for themselves and would not recommend buying it to their loved ones (PONOMARENKO, 2016).

Philosophical problems of digitalization are classic ethical dilemmas that defy algorithmic resolution. People resolve such incidents on the basis of emotional intelligence, spiritual values, and these decisions turn out to be ambiguous, significantly depending on the mentality and sociocultural context. The self-driving car dilemma is a modern “digital” version of the “mine cart problem” described above. The parallels are obvious. Only in the problem with an unmanned car, the practical aspect prevails: the need to lay motivational schemes and action algorithms in the car programs.

The question “What is man?” acquires a new relevance in the light of the development of digital technologies. The development of digital, genetic, medical and other technologies creates conditions, in which certain, rather formal and algorithmic answer to this fundamental question of philosophy is required. The future gives us hope for a long and healthy life by replacing worn out or sick organs and body systems with the most complex artificial analogues. In the future, there could be creating a digital copy and / or analogue of a brain. What is the critical limit of modifications when a man would remain human? How would he differ from a robot in this development of events? What would be taken as a comparison criterion in an environment where, on the one hand, artificially created robots with strong AI will be present surpassing humans in intellectual performance and demonstrating the behavioural and emotional characteristics of a person, and on the other, subjects that were originally biological people by birth, but have no longer body parts and organs that have not been replaced? If we dream up and imagine the prevalence of such a situation, biological birth as the main or only criterion for dividing into people and non-people looks unconvincing and unfair. And biological birth will undergo significant changes in the development of biotechnology.

At the same time, the biological base is a fundamental point for determining the human essence. According to V.V. Ryabukhina: “The biggest drawback of artificial intelligence when compared with a person is the area of ethics, because a robot does not have biological existence, and, therefore, biological sensors for awakening moral feelings” (RYABUKHINA, 2018). The moral experience and moral sense of a person are associated with his biological nature; therefore, they can hardly be accessible to a robot.

A similar position is demonstrated by supporters of continuity in the development of intelligence: they believe that the gap between natural human intelligence and AI of robots will not be fundamental, because the AI capabilities are limited by “sceptical problems” (GOLENKOV, 2017). In the terminology of Joseph Corabi, "sceptical problems" are situations
in which it is fundamentally impossible to make a rational choice between possibilities based only on the intellectual abilities of the mind. These are situations of "Buridan’s ass", in which a person uses not only intellectual, but emotional and organic (sensory) resources, and AI can be paralyzed "due to problems and conflicts in their own motivational schemes" (GOLENKOV, 2017). As you can see, the resolution (or non-resolution) of the philosophical problems of digitalization not only determines the possibilities of using future technologies, but also sets the boundaries of the digital transformation of society.

**HUMANITARIAN PROBLEMS OR PROBLEMS OF HUMANITARIAN LAW**

Ethical problems relate, first of all, to autonomous military robots, in relation to which it is necessary to solve questions about their principled admissibility and about the limits of their independence, and about the motivational schemes embedded in them. To date, flying, underwater and land robotic vehicles are in service with many countries. For example, a robot watch developed by Samsung guards the border between North and South Korea on the side of the latter. Currently, the robot is working on a warning system, and a decision is made at the command post whether to open fire or not. However, it has a function of full autonomous operation, in which the robot will make all decisions independently (ANTIPOVA & TILICHENKO, 2016). The American autonomous submarine "Sea Hunter" is designed to track enemy submarines and can operate without contact with the operator for 2-3 months. At the moment, no guns are installed on this sample. Israeli development "Harpy" is a missile fired from a ground vehicle; it automatically detects, attacks and destroys enemy radar emitters. These examples show the reality of autonomous weapons and the high level of technical sophistication of weapons systems. But the legal status and limits of applicability of such weapons are not defined either at the international or national levels.

Having made a choice for themselves, some of the researchers of artificial intelligence in their open letter stated that they are not interested in creating weapons based on AI. As before, most chemists and biologists were not interested in the creation of nuclear and chemical weapons (Autonomous weapons: an open letter from researchers of AI). The letter caused a wide public outcry and, thanks to the initiative of scientists and public organizations, a campaign has been launched since 2013 to prohibit combat robots. Discussions are currently under way at the United Nations to ban the development and use of automated combat installations. Unfortunately, until now this process has not led to the appearance of any definite documents.

**SOCIO-ETHICAL PROBLEMS OF DIGITALIZATION**

The problem of human degradation. The prospect of human and humanity degradation as a result of technology development has several scenarios. First, the possible parasitization of society, the loss of spiritual needs and further regression described in the classics of science fiction. According to I. Ashmanov, an AI expert, president of the IT company “Kribrum”, people “will turn into foul-smelling mucus” in a case of an unconditional basic income (LORIA & NODELMAN, 2019). Such a perspective gives its contours to reality and other ethical problems: enslavement of degrading humanity by strong artificial intelligence; destruction of man as an independent species by immersing him in the lifelong “Matrix” of virtual gaming.

Another scenario associates degradation with a decrease and loss of the intellectual, and, as a consequence, the spiritual potential of a man due to the transfer of complex intellectual functions to artificial intelligence. The absence of the need for regular intellectual efforts gives rise, in turn, to a loss of meaning in higher and / or vocational education and a person’s exclusion from the social context (due to the loss of existing social institutions associated with the need for compulsory labour).

From this point of view, social degradation associated with a decrease in incentives for self-development in conditions of ensuring basic physical needs and comfort due to the automation of work and life, as well as generated by a decrease in the quality of education and the loss of the need for active intellectual development becomes an easily predictable reality and requires preventive use political and legal means to preserve human nature.

Another ethical issue highlighted by researchers is the increase in human irresponsibility (CHICHKAREVA, 2019). This means that a person will rely on AI algorithms and the data
provided by it, refusing to analyse independently. For example, in medicine, the opinion of an experienced doctor may not coincide with the data of the machine, which will lead to conflicts between people or erroneous decisions.

The loss of the right to privacy and total control is one of the ethical problems of digitalization. Electronic document management, electronic government, and electronic medicine: all this makes a person “transparent” for subjects with access to numerous machine data. The technology of speech and image recognition, in particular, of faces, makes it possible to track almost all human movements, at least within the framework of megacities equipped with a large number of video cameras. If you have access, comparing data from official databases and from social networks makes it possible to identify a personality and invade his privacy. This group of problems has not only social, but also ethical and legal nature and needs to be promptly resolved.

The problem of unemployment. Even a weak AI replaces a huge number of mid-level managerial jobs, and a strong AI raises the question of a fundamentally different organization of employment, labour and human life. According to a survey by VTsIOM in August 2019, Russians are not particularly worried about the confrontation with robots in the labour market. Thus, the prospect of replacing people at workplaces with robots does not scare 78% of the surveyed working Russians. More than half of the respondents do not believe that robots will be able to replace people in many areas of activity in the near future (51%). On the other hand, 47% are of the opposite opinion, and in this group the majority were persons from 18 to 34 years old (ROBOTS AND WORK, 2019).

In fact, the prospect of the disappearance of many professions and a serious restructuring of the labour market as a whole is absolutely real. Experts from the World Economic Forum, a Swiss nongovernmental organization, presented the Future of Jobs 2018 study, data for which was collected using online questionnaires over 9 months (https://www.adme.ru). According to the Future of Jobs 2018 report, by 2022 automation will destroy 75 million jobs and many familiar jobs will disappear. According to the forecast, robots will replace managers, secretaries, partially - accountants, cashiers, factory workers and storekeepers. Machines will replace humans in the search, processing and transmission of information, project coordination, consulting and management. Companies admit that by 2022, 54% of employees will have to retrain, but some of the companies will prefer to hire new specialists, rather than spend money on retraining existing ones.

According to the Russian Minister of Education O. Vasilyeva, since September 1, 2020, almost 100 titles will be deleted from the list of professions in Russian colleges (Falyakhov, 2019). Weavers, dryers, radio operators, electronics assemblers, and enamel cookware manufacturers will give way to mechatronics and robotics. New popular directions are: “mechatronics and mobile robotics”, “graphic design”, “technical operation and maintenance of robotic production”, “additive technologies”, “maintenance and repair of biotechnical medical devices and systems”.

Despite the optimistic words of experts that the digital revolution will create tens of millions of new jobs, the problem of unemployment is urgent. The fundamental change in the structure of the labour market and employment under the influence of digitalization has a number of ethical aspects, both purely ethical, and moral-legal. New professions, mainly of a technical orientation, await yesterday’s schoolchildren, while digitalization is releasing the adult population with a “humanitarian” education from the labour market. As political scientists point out, “full-scale robotization of production can cause colossal imbalances between demand and supply in the labour market. This will lead to an increase in technological unemployment and make the labour of millions of workers unclaimed, depriving them of the opportunity to receive labour income” (MALYSHEVA, 2018). Retraining will be able to offer a significant part of former managers and other humanitarians less qualified work with lower pay, that is, a decrease in social status and quality of life. Large-scale changes in the structure of jobs will result in a sharp increase in social inequality. The massive nature of the process actualizes the issues of social maladjustment and human degradation in the technogenic era. Of course, this is only a forecast and, so to speak, one side of the coin. But such a forecast makes one think about the
limits of digitalization and the possibility / necessity of external control in order to preserve social stability.

ETHICAL AND LEGAL PROBLEMS OF DIGITALIZATION

Replacing humans with robots naturally raises questions about giving robots certain rights and responsibilities and whether, in principle, AI units can have freedom of choice. The question of the autonomy of AI and ARD units, and, consequently, their potential legal personality was problematized at the official level in the Recommendations of the Commission on Civil Law Rules on Robotics of the European Parliament back in 2016 (Commission on Civil Law Rules on Robotics). According to European politicians, “ultimately, the autonomy of robots raises the question of their nature in the light of existing legal categories - whether they should be considered as individuals, legal entities, animals or other existing legal entities - or should a new category be created with its own characteristics and accepted consequences in the context of the distribution of rights and obligations, including liability for damage” (Draft Report of Committee on Legal Affairs).

There is clearly a tendency to humanize robots in research on AI and robotics and this tendency is quite dangerous, in our opinion. A demonstrative experiment is described in one of the studies on robotics. In 2011, at the Radiolab radio show, a group of children was tasked with keeping a Barbie doll, a hamster and a Furby robot upside down as long as possible. The results were as follows: the children kept the Barbie doll in this state until their hands got tired; the children stopped tormenting the wriggling and squeaking hamster very quickly; the children also quickly returned to a “normal” state the Furby robot, which was programmed only to periodically scream “I’m scared”. The description of the experience emphasizes that the children were old enough to understand that Furby is just a toy (ANTIPOVA & TILICHENKO, 2016). Experience shows that humans tend to treat robots as their own kind and build an emotional connection with them.

In our opinion, the “humanization” of robots is influenced by two significant factors: the autonomy and anthropomorphism of AI units. Industrial robots have long been actively used in production; they are complex robot carriers of a developed weak AI. And no one had any thoughts about the legal personality of such machines, the extension of human rights to them or other ways of giving them subjectivity. They did not arise until autonomous anthropomorphic robots appeared on the stage of technological progress. No, they have not even appeared yet: they have become possible and they are just emerging; and along with them, there is a whole complex of questions of an ethical and legal nature discussed by philosophers, anthropologists, neurobiologists, lawyers, and engineers.

According to lawyers, “…the two main questions in the field of morality are whether a person has a moral obligation to provide AI with legal personality, and whether AI can be a subject of moral norms” (DREMLYUGA & DREMLYUGA, 2019). The prospect of the emergence of a strong AI puts us face to face with ethical and philosophical questions: can a person be the creator of an independent inhuman entity and can an AI created by a person be equal to a person in rights and obligations? According to some researchers, in the case of a positive answer to these questions “it would be reasonable to correlate the status of AI with the legal status of a person and proceed from their identity” (PETRENKO, 2018). And this position has been very common lately.

However, humanization is not always an absolute good. The benefit of AI is that it provides support for decision-making, not that it would drive humans out of the process. Initially, technological progress was aimed at improving the quality of life of people. Technologies should help a person, and not shape a reality in which a person becomes a “weak link”, where the meaning of sociality and humanity is lost. Digitalization for the sake of digitalization is a dangerous trend. We also see the idea of humanizing anthropomorphic robots as a dangerous illusion. It is impossible to resist the desire of a person to become a creator and create something “in his own image and likeness”. But it is necessary to use restraining mechanisms so as not to extend the elements of the legal status of a person to artificial intelligence units. The position of some AI researchers seems to be balanced and reasonable, according to which we do not have a moral obligation to recognize AI and ARD units as subjects of law, since modern AI systems do not have enough characteristics in common with humans, but there is
no reason to assume that this is impossible in the future (DREMLYUGA R.I., DREMLYUGA, 2019).

CONCLUSION
The classification has both cognitive and applied value. The level of abstractness and the degree of generalization of the problem affect the choice of a model for regulating relations in which the corresponding ethical problems appear. An analysis of ethical issues in the use of ARDs and digitalization in general makes it possible to ascertain the scale and diversity of moral topics: from philosophical generalization to the applied level of knowledge. This nature of the problem also requires an appropriate regulatory mechanism, which includes several levels: regulatory principles enshrined at the level of international standards; concepts of legal regulation at the national level, which should be of an ethical and legal nature and contain declarative norms and mandatory principles for the development and use of ARD and AI systems; separate normative acts within states regulating some processes / relations in the field of creation and application of ARD and AI systems; acts of technical regulation containing mandatory restrictive requirements for developers of ARD and AI systems and determining the final functionality of ARD and AI systems. At all levels of regulation, the legitimacy of managerial decisions that endow robotic technologies with the potential to make decisions in the civil and military spheres should be determined from the point of view of ethical principles of regulating such relations.

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Ethical issues of digitalization

Resumo
O objetivo da pesquisa do artigo é generalizar os problemas éticos associados ao desenvolvimento e implementação de tecnologias robóticas autônomas (dispositivos robóticos autônomos, ARD) nas esferas civil e militar. Problemas éticos não resolvidos dificultam o desenvolvimento da regulamentação legal de novas tecnologias. Os autores propõem uma tipologia de problemas éticos de digitalização com o objetivo de criar uma regulamentação legal sobre o uso de inteligência artificial (IA) e outras tecnologias. Dependendo do âmbito das relações sociais abrangidas e das formas de regulação propostas, os autores identificaram quatro grupos de problemas éticos da digitalização global, que são considerados no artigo: problemas filosóficos, humanitários, sócio-éticos e ético-jurídicos. Conclui-se que a legitimidade das decisões gerenciais que dotam as tecnologias robóticas de potencial para a tomada de decisões nas esferas civil e militar deve ser determinada em termos de princípios éticos que regulam tais relações.

Palavras-chave: Inteligência artificial. Digitalização. Roboética. Dispositivos robóticos autônomos. Dilemas éticos.

Abstract
The research objective of the paper is to generalize the ethical problems associated with the development and implementation of autonomous robotic technologies (autonomous robotic devices, ARD) in the civil and military spheres. Unresolved ethical problems hinder the development of legal regulation of new technologies. The authors propose a typology of ethical problems of digitalization for the purpose of creating legal regulation concerning the use of artificial intelligence (AI) and other technologies. Depending on the scope of social relations covered and the forms of regulation proposed, the authors identified four groups of ethical problems of global digitalization, which are considered in the paper: philosophical, humanitarian, socio-ethical, and ethical-legal problems. It is concluded that the legitimacy of managerial decisions that endow robotic technologies with the potential to make decisions in the civil and military spheres should be determined in terms of ethical principles of regulating such relations.

Keywords: Artificial intelligence. Digitalization. Roboethics. Autonomous robotic devices. Ethical dilemmas.

Resumen
El objetivo de investigación del artículo es generalizar los problemas éticos asociados al desarrollo e implementación de tecnologías robóticas autónomas (dispositivos robóticos autónomos, ARD) en el ámbito civil y militar. Los problemas éticos no resueltos obstaculizan el desarrollo de la regulación legal de las nuevas tecnologias. Los autores proponen una tipología de problemas éticos de la digitalización con el fin de crear una regulación legal sobre el uso de la inteligencia artificial (IA) y otras tecnologías. Dependiendo del alcance de las relaciones sociales cubiertas y las formas de regulación propuestas, los autores identificaron cuatro grupos de problemas éticos de la digitalización global, que son considerados en el trabajo: problemas filosóficos, humanitarios, socio-éticos y ético-legales. Se concluye que la legitimidad de las decisiones gerenciales que dotan a las tecnologías robóticas del potencial para tomar decisiones en las esferas civil y militar debe determinarse en términos de principios éticos de regulación de dichas relaciones.

Palabras-clave: Inteligencia artificial. Digitalización. Roboética. Dispositivos robóticos autónomos. Dilemas éticos.