

COMMENTS

LEGAL VIEW ON THE INTRODUCTION OF NEW TECHNOLOGIES

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According to the Concept of Long-Term Social and Economic Development of the Russian Federation for the period up to 2020, in the next few years the imbalance in world trade, as well as capital flows, will continue to increase, which will lead to changes in foreign exchange rates. That is why the final goal is to promote priority national interests in the framework of bilateral and multilateral trade and economic relations with foreign countries. In pursuit of this goal, the following improvement of customs regulation, and export and currency control mechanisms in the Russian Federation will be aimed at reducing barriers to foreign economic activity of innovative enterprises. Achievement of the set goals today is subject to the influence of a constantly changing world and new technologies. New technologies are increasingly penetrating the life of modern society. Meanwhile, the speed of introduction of new technologies is such that point changes in current legislation will gradually nullify the effectiveness of legal regulation as a system. Therefore, the changes today should concern not only the monetary and financial sphere, but also take into account other areas. The article is devoted to the study of crucial problems of implementing modern technologies from the legal point of view. Thus, at the international level, uncertainty still remains over issues of currency and legal responsibility, which is largely due to various legal regulations. Starting in 2018, the new rules for calculating the liquidity of banks and the ratio of borrowed funds to assets will come into full force in the European Union. Several large banks in France, dissatisfied with the policy of the European Central Bank (ECB), even appealed to the European Court of Justice for a change in the rules. According to

FxPro analysts' reports, economic growth in Europe has accelerated slightly, and the ECB is on the verge of abandoning its ultra-easy monetary policy in the direction of neutral and is preparing for further tightening. One of the subjects of the research is the system of monetary relations from the point of view of analyzing the problems of ensuring its stability, including criminal and legal means. The purpose of this analysis is to illustrate how to protect the domestic foreign exchange market and the challenges facing the monetary system today. The article has been prepared on the basis of legal and technical analysis of legal norms, as well as comparative legal and formal logical methods and system analysis methodology. In the authors' view, this could contribute to a uniform approach to the problem, without which it would be extremely difficult to achieve success. It is concluded that in view of new challenges facing the global economy and the emergence of cryptocurrency, it is necessary to rethink the phenomenon of currency crimes, to study the experience of combating monetary crimes in other countries and to evaluate the common mechanisms for combating currency crimes. However, this approach cannot be considered legitimate insofar as different interpretation of the same term in different branches of legislation does not allow full realization of the constitutional rights and freedoms of citizens. After all, branches of legislation do not exist in isolation from one another, but are interrelated. It is concluded that the person conducting proceedings in a case can and is obliged, based on an analysis of the circumstances under consideration, to proceed from a comprehensive assessment of the category used in making the decision as applied to its understanding in aggregate in various branches of legislation. It is also necessary to create a universal state database for judges, prosecutors, investigators, etc., which would allow free cross-sectoral information exchange on the same subject. The new digital economy also requires retraining of civil servants and state employees, including the judiciary branch of government. At the same time, the article deals with the transformation of the legal profession in the future. It is concluded that classical legal education will not sink into oblivion. However, the lawyers of the future will play a slightly different role, namely, they will act as machinists, builders, operators and inventors of a useful model of legal relations for robot judges.

Keywords: monetary responsibility; surrogates; repatriation of funds; currency regulation; virtual currency; Ethereum; virtual rails.

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Introduction

An analysis of the legal regulation of foreign systems allows us to consider our own national experience through the lens of international practice, which forces us

to analyze and evaluate this problem from a different angle, in a new aspect, with an enriched understanding of the essence of the problem.¹ For nearly all countries with a developed market economy, protection of currency and currency assets by criminal law is typical, but only with respect to their falsification and forgery.² This approach applies, for instance, in Austria, Germany and Switzerland. There is complete freedom of foreign exchange operations and there is no criminal liability for operations related to the movement of foreign exchange capital. Thus, German criminal law does not provide a generally accepted and precise definition characterizing criminality in the area of currency circulation. Furthermore, the movement of capital to and from the country is practically unlimited, as a result of which there are no norms in the legislation establishing liability for crimes in the sphere of currency regulation and currency control.

In the criminal legislation of these countries there are no criminal prohibitions covering the export of currency assets outside the country and their non-repatriation, since such movement is carried out by free settlements under foreign economic transactions and investments. Currency control in these countries is based on other principles. In France, to make a foreign economic transaction or investment to an offshore jurisdiction you must pay all taxes first. In Japan, you must have a special license when such foreign transaction will be made outside an authorized bank or by an unusual method.

In contrast, countries with another type of economy (a transitional economy) provide special liability for failure to repatriate funds in foreign currency from abroad. All the criminal codes of the countries of the former Soviet Union have provisions that establish criminal prohibition on the production or sale of counterfeit money or securities, their illegal transfer across the customs border, and non-repatriation of funds from foreign countries in foreign currency (the Criminal Code of Azerbaijan – Art. 208, the Criminal Code of Belarus – Art. 225, the Criminal Code of Georgia – Art. 217, the Criminal Code of Kazakhstan – Art. 213, the Criminal Code of Tajikistan – Art. 287, the Criminal Code of Uzbekistan – Art. 178, and the Criminal Code of Ukraine – Art. 207).

However, the scale and significance of fraudulent actions in economic activity are increasing every year. Therefore, there is a need for common mechanisms to counter currency crimes.

Price stability is the main prerequisite for sustainable economic growth, which is confirmed by economic studies and past experience. The monetary regime in the Russian Federation is defined as

¹ *Comparative Labour Law and Industrial Relations in Industrialized Market Economies 4* (R. Blanpain & J. Baker (eds.), The Hague: Wolters Kluwer, 2001).

² Aaron Wright & Primavera De Filippi, *Decentralized Blockchain Technology and the Rise of Lex Cryptographia* (2015), available at <https://ssrn.com/abstract=2580664>.

an aggregate of legal means with the common subject of its regulation being the sphere of currency relations that determine such behavior of the subjects of these relations, under which the protection of the national currency and the normal functioning and development of the domestic foreign exchange market are guaranteed.³

Meanwhile, changes are coming in the modern world. Digital transformation in economics and law will require massive changes in legislation and education.

In the wake of the on-going digital revolution, we will see a dramatic transformation of our economy and most of our societal institutions. While the benefits of this transformation can be massive, there are also tremendous risks to our society.⁴

Today, more than ever before, an integrated approach to the use of cross-sectoral terminology is important. In our opinion, the unity of categorical understanding and material and legal basis in modern conditions will allow us to make that breakthrough on realizing the task of ensuring the rights and freedoms of the person and the citizen guaranteed by the Constitution of the Russian Federation.

It is also necessary to train civil servants in a new way, which we will talk about later when describing the third problem that occurs between innovations and the law. Such education will be needed in order to form a community of lawyers of the future. These lawyers will be busy building a virtual railway track in order to use modern technologies in making procedural decisions. In this regard, the lawyers of the future will act as machinists, operators, builders and inventors of a useful model of legal relations. Building a virtual railway for a robot that will make a decision on the merits of the case is what awaits us in the near future.

We will now turn to a direct study of the topic of the article.

1. Innovations and the Law: Problem One

It should be mentioned that the obligation to repatriate funds from abroad currently does not exist in countries with developed market economies. On the contrary, modern countries strive to make capital movement free. In this sense, the experience of China is also of interest.

³ Кучеров И.И. Валютное право России (Академический курс лекций) [Ilya I. Kucherov, *Currency Law of Russia (Academic Lecture Course)*] 38 (Moscow: Yustitsinform, 2011).

⁴ Dirk Helbing, *Societal, Economic, Ethical and Legal Challenges of the Digital Revolution: From Big Data to Deep Learning, Artificial Intelligence, and Manipulative Technologies* (2015), at 1 (Jul. 5, 2018), available at <https://ssrn.com/abstract=2594352>.

Foreign currency was mentioned for the first time in Chinese law in the Order on Strengthening Punishments for Persons Who Have Committed Serious Economic Crimes of 1982. However, amendments to the Criminal Code did not follow until 1988, when the illegal placement of foreign currency abroad was criminalized. Article 190 of the Criminal Code of China states that any state-owned company, enterprise or any other state-owned unit that, against State regulations, deposits foreign currency outside China or illegally transfers foreign currency to any other countries shall, if the circumstances are serious, be fined, and the persons who report directly and other persons who are directly responsible for the crime shall be sentenced to a fixed term of imprisonment of no more than five years or criminal detention.

Today, the Criminal Code of China includes some other types of currency crimes, namely, counterfeiting currency and securities. For example it provides different penalties for the following criminal activities: counterfeiting or altering a currently used coin, paper currency, or banknote with the intention to circulate; circulating a counterfeit or altered coin, paper currency, or banknote or collecting it from or delivering it to another with the intention to circulate; reducing the weight of a coin with the intention to circulate; circulating a coin of reduced weight or collecting it from or delivering it to another with the intention to circulate; manufacturing, delivering, or receiving an instrument or material with the intention of using it to counterfeit or alter a currently used coin, paper currency, or banknote or using it to reduce the weight of a currently used coin.

Globalism and modern international processes have such a strong influence on the modern world economy that the economic decisions of individual countries, regardless of their type, influence each other, as well as the overall global development trend. Therefore, there is a need for common mechanisms to counter currency crimes. This is especially associated with the appearance and popularization of virtual currency.

The development of Internet trading technologies and methods has now led to the revival of the idea of private money at present.

The emergence of cryptocurrencies and their active popularization in the world, on the one hand, and uncertainty about their legal nature, on the other, can significantly affect the national economy due to the need for consistent maintenance of the balance of payments. The danger is that, whereas previously it was possible to physically stop activities, for example, an underground printing house that printed banknotes (including counterfeit), and so on, it is impossible to do the same with cryptocurrency because of its decentralization.⁵ In other words, the records of a cryptocurrency account are stored on completely different computers around the world, which are not directly connected with each other. The attractiveness

⁵ Печегин Д.А. Крипториски // Российский журнал правовых исследований. 2017. № 3(12). С. 151–157 [Denis A. Pechegin, *Cryptorisks*, 3(12) Russian Journal of Legal Studies 151 (2017)].

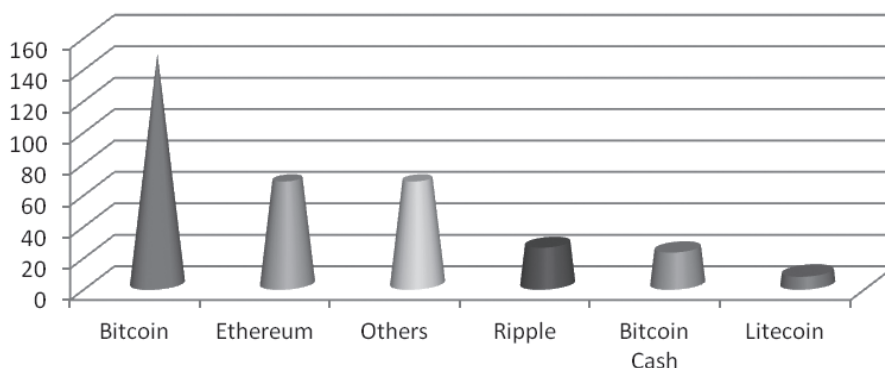
of cryptocurrencies and other cash surrogates is that the procedure for relevant payments is still not regulated in the legislation of most countries, which actually removes barriers to international transactions, although it creates conditions for the withdrawal of funds abroad (no need to pay any fees to banks, pay taxes, etc.).

However, there is still no consensus on the nature of such “money,” and the “founders” have repeatedly said that bitcoin can crash at any moment, even given its prevalence in the world and very large capitalization.⁶

Along with the doctrinal problems of identifying, investigating and suppressing currency crimes of non-repatriation of funds from abroad, there is also uncertainty in the regulation of relations associated with the use of virtual currency in mutual settlements. Despite this, as we can see in the diagram below, today total virtual currency capitalization is more than \$350 billion and growing.

Table 1

Virtual Currency Capitalization In Billion USD



This assertion is especially topical in connection with the increasing prevalence of virtual currency. The event of 17 June 2016, when Ethereum (an analog of Bitcoin) cryptocurrencies totaling about \$50 million disappeared from circulation for users, is quite indicative in this regard.⁷ From the outside, this project seemed to be ideal, since distributed electronic money systems cannot be hacked. Therefore, people quietly

⁶ Поннер Н. Цифровое золото: невероятная история Биткойна [Nathaniel Popper, *Digital Gold: The Untold Story of Bitcoin*] 11 (Moscow: Dialektika, 2016).

⁷ Dong He & Robert N. McCauley, *Offshore Markets for the Domestic Currency: Monetary and Financial Stability Issues*, BIS Working Papers No. 320 (September 2010), at 8 (Jul. 5, 2018), available at <https://www.bis.org/publ/work320.pdf>.

invested their money, and in return received so-called tokens, which they used to vote for where to invest the total capital – the expected profit was supposed to be distributed among the participants of the initiative. However, the money suddenly appeared on the account of one of the project participants, who could not rightfully claim it, but he did not violate the terms of the contract. If this had happened in the real world, people could go to court or challenge the terms of the contract, contact the bank and ask to block the account. But these events occurred on the Internet, the invested money was calculated not in dollars, but in units of the distributed Ethereum (“ethers”) cryptocurrencies. At the same time, the contract itself was of an innovative nature – it was a machine code that could not be changed without crashing the entire system; i.e. it was represented by a program that executed all the rules of the system when a transaction was made.⁸ In particular, it was also the fact that actions under the electronic contract were made not by people, but by computers. Therefore, it was almost impossible to break, cancel or bypass it, and if a participant wanted to leave the organization, a subsidiary organization was created to return the invested money, where funds were transferred from the main one. And as it turned out later, as a result of a mistake in the machine code, this operation could be repeated countless times, which was used to advantage by the attacker. In a short time, he transferred an amount equal to approximately \$50 million to his subsidiary organization. This money could be returned only by the attacker himself, but he did not intend to do this, because he had not formally violated the terms of the contract. In the end, it turned out that there were no other project participants in a position to make claims and no one to apply to for protection of their rights. As a result, it became obvious that the use of organizational and legal means to prevent such situations was more than relevant, and rules governed by self-executing smart contracts and decentralized (autonomous) organizations did not always work. It appears that the widespread use of this new decentralized technology will lead to an increase in the scope of new legislative regulation, which will determine the use of such rules. The features of these laws will most likely be determined by the fact that centralized authorities, such as government agencies and large multinational corporations, may lose the ability to monitor and shape the activities of individuals.⁹

This determines the need to focus on how to regulate and manage the creation and deployment of new decentralized organizations, as well as on how to apply government regulations to combat money laundering via Bitcoin and similar virtual currencies.¹⁰

⁸ Легальное ограбление // Lenta.ru. 3 сентября 2016 г. [Legal Robbery, Lenta.ru, 3 September 2016] (Jul. 6, 2018), available at <https://lenta.ru/articles/2016/09/03/ethereum/>.

⁹ Wright & De Filippi 2015, at 4.

¹⁰ Danton Bryans, *Bitcoin and Money Laundering: Mining for an Effective Solution*, 89(1) *Indiana Law Journal* 441 (2014).

The use of a digital currency narrowing the relationship between citizens and central banks and eliminating the need for the population to keep deposits in commercial banks may have profound consequences for the banking system. In particular, holders of cryptocurrencies could replace traditional shareholders, and could then appoint members of a governing body similar to a board of directors. This governing body could vote to issue the currency to the account holder, who could then act similarly to the chief financial officer to pay salaries to managers, employees and directors.¹¹

At the same time, the anonymity in blockchain technology is preserved, in spite of the fact that the information about networks of chains is kept forever and keeps growing, which works against anonymity.

It is often emphasized in legal doctrine how Bitcoin can be used for illegal activities.

There are concerns about the secretive purchase of illegal goods and the cross-border transfer of money either for money-laundering or to finance terrorism (Ron & Shamir, 2014; Tropina, 2014). Bitcoin was the normal means of settlement for trade in illicit goods (such as drugs, pornography and weapons) via online marketplaces such as the infamous Silk Road (Christin, 2013). On the other hand, due to the pseudo-anonymous character of the currency, detection of criminals is not impossible, as demonstrated by the closure of Silk Road in October 2013 and the prosecution of its founder.¹²

One of the most important regulatory developments has recently taken place in France.

While French authorities admit that Bitcoin does not pose a threat to financial markets, they have recognized that there is clearly room for concern with regards to criminal activity and fraud. These concerns are mostly concerned with the anonymity of transactions, which could have tax and money laundering implications.¹³

Ensuring effective management of blockchain technologies and smart contracts is essential to ensure its further evolution. Based on the mathematical principles underlying the location of the blocks, an alternative approach to existing legal

¹¹ Robert Leonhard, *Corporate Governance on Ethereum's Blockchain* (2017) (Jul. 5, 2018), available at <https://ssrn.com/abstract=2977522>.

¹² Michal Polasik et al., *Price Fluctuations and the Use of Bitcoin: An Empirical Inquiry*, 20(1) *International Journal of Electronic Commerce* 9, 20–21 (2015).

¹³ Andrés Guadamuz & Christopher Marsden, *Bitcoin: The Wrong Implementation of the Right Idea at the Right Time* (2014), at 15 (Jul. 5, 2018), available at <https://ssrn.com/abstract=2526736>.

practice is already being proposed.¹⁴ The so-called distributed jurisdiction is an open source platform ecosystem for reasonable resolution of contractual disputes, which allows users to select a conflict resolution mechanism by using crypto resources, as well as a mechanism for inherited enterprises that want to participate in the growing opportunities for crypto business and hope to avoid the inherited intermediary and transaction losses associated with it.

At the same time, it is important to note that currently, the creation of such conditions in the Russian Federation is hampered to some extent by the lack of legal opportunities for law enforcement agencies to prevent and respond to criminal manifestations in this area, in particular, related to financing terrorist activities with virtual currency, the use of which implies the anonymity of transactions and users, and rapid speed of transactions.

A very clear example of this is the conviction of Ali Shukri Amin, a teenager from Virginia, who was sentenced to 11 years in prison for providing financial support to ISIL, using social media to instruct people how to use bitcoin. He had over 4,000 followers on Twitter.

The willingness of terrorists to use new financial opportunities to increase their funding deserves close attention from legal scholars and practitioners, which is currently focused on addressing the need to counter the threat of proliferation of international terrorism.

Meanwhile, the practical implementation of measures to neutralize the criminal threats associated with the use of cryptocurrency involves the creation of appropriate conditions for implementing legal regulation of the investment industry. Creating these conditions is directly related to the need for a consistent legal policy, characterized by a certain level of legality, legal awareness and legal culture of the population. Such policies should be based on the following basic principles:

- the principle of justice, according to which measures taken against a particular person for his actions related to the use of cryptocurrency should be based on ensuring a balance of interests of the individual, society and the state;
- the principle of adequate response to any criminogenic manifestation, on the basis of which the offender is subject to certain state measures, regardless of his official, professional or property status, and law enforcement agencies are called on to neutralize negative consequences in the development of innovative economic processes.

The implementation of these principles involves the development of an organizational component associated with a clear delineation of powers, determining the competence of Federal and regional authorities, as well as local governments.

However, the Russian Federation has still not developed a uniform approach to understanding the nature of cryptocurrency. Russian judicial practice in this

¹⁴ Wulf A. Kaal & Craig Calcaterra, *Crypto Transaction Dispute Resolution*, 73(1) *Business Lawyer* 109 (2018).

highlighted matter is based on the fact that until due legal settlement of all key issues in the cryptosphere is achieved, neither individual persons nor legal entities will be able to find protection against governmental enforcement authorities. A lack of clarity in approaches to law enforcement practice prevails in foreign jurisdictions. Thus, according to one U.S. court decision, bitcoin is recognized as legal tender.¹⁵ Relying on the principle that, in the absence of regulation, a contractual term is to be understood in its literal sense, one U.S. court concluded that bitcoin is a form of money, since it acts as a universal monetary equivalent and is used to acquire things. In another decision, bitcoin was not recognized as money.¹⁶ This latter decision contradicts other judicial acts of 2013 and 2014 on similar issues.¹⁷ Moreover, in the U.S., the Internal Revenue Service's interpretation is that cryptocurrency is property, whereas FinCEN's interpretation is to recognize cryptocurrency as a form of currency.¹⁸

For ICO projects in the Russian Federation, a standard is being created that will make it possible to distinguish them from fraudulent schemes and financial pyramids. The specific criteria for the standard will be the accuracy of information about the founders and the team, the business plan of the project and the minimum viability of the product. At the same time, it should be taken into account that preparations are currently underway to create a single financial market for Russia, Belarus, Kazakhstan, Armenia and Kyrgyzstan; i.e. the countries of the Eurasian Economic Union (EAEU) plan to develop a common approach to the regulation of cryptocurrencies and ICO. We are talking about the development of model laws on cryptocurrencies and blockchain, providing unified regulation of their use. An example of this is the experience of the European Union, which recently adopted a Directive defining cryptocurrencies as a digital means of expressing value that is not issued by the state. Meanwhile, as might be expected, the diversity of views on the nature of the cryptocurrency and ICO projects is creating practical problems. But such problems cannot be called "new" in the legal doctrine of the Russian Federation. We mean the problem of a purely sectoral approach to the understanding of a term during the conduct of certain cases. We will dwell on this issue in more detail.

¹⁵ *United States v. Murgio*, No. 15-CR-769 (AJN) (S.D.N.Y. Apr. 21, 2016) (Jul. 7, 2018), available at <http://cdn.arstechnica.net/wp-content/uploads/2016/09/murgio-order.pdf>.

¹⁶ Судья из Майами отказалась признать биткоин деньгами // ForkLog. 26 июля 2016 г. [The Judge from Miami Refused to Recognize Bitcoin as Money, ForkLog, 26 July 2016] (Jul. 7, 2018), available at <https://forklog.com/sudya-iz-majami-otkazalas-priznat-bitkoin-dengami/>.

¹⁷ *Id.*

¹⁸ Хисамова З.И. Уголовно-правовые меры противодействия преступлениям, совершаемым в финансовой сфере с использованием информационно-телекоммуникационных технологий: Дис. ... канд. юрид. наук [Zarina I. Khisamova, *Criminal Law Measures of Combating Crimes in the Financial Sector Using Information and Telecommunication Technologies: Thesis for a Candidate Degree in Law Sciences*] 166 (Krasnodar, 2016).

2. Innovations and the Law: Problem Two

Today, more than ever before, an integrated approach to the use of cross-sectoral terminology is important. This is easy to see by the example of such terms as “currency” or “damage” in national legislation. In modern conditions, law enforcement should not be limited to a purely sectoral view of a particular term.

Budget, arbitration, criminal and criminal procedure legislation does not clearly distinguish one legal relationship from another. In order to protect the constitutional rights and freedoms of individuals and citizens, the terms and concepts used by law enforcement agencies must be understood in a comprehensive manner.¹⁹

However, the practical effect of a comprehensive understanding of a particular legal category by a particular law enforcement officer in today’s environment will largely depend on the quality of the material (data) base to which he has access.

We are referring to the creation of a single state data exchange platform, since digitalization is becoming an all-encompassing trend throughout the Russian Federation and all over the world. The idea of the Center for Strategic Research (CSR) that a “unified architecture for the state digital platform overcoming the fragmentation of departmental systems and based on a single array of data” must be created in the Russian Federation should be evaluated positively. Such a platform, in our opinion, should allow the person conducting criminal proceedings to become directly acquainted with the data of arbitration, civil, executive and administrative proceedings in electronic form and online.

According to the CSR idea, the digital platform “will help to perform the majority of management functions on the basis of platform solutions without the involvement of the authorities.” Thus, the public administration system will have to act as an advanced IT corporation, and civil servants will develop a “digital mentality.” At the same time, businesses will be interested in creating a state platform, as they will be able to use it for their own purposes: they will be able to develop and connect their applications to it, which can be paid. It is expected that this year the unified digital platform will unite 45 state portals (which currently number more than 5,000 in Russia). The new platform will be a marketplace with a high-quality interface, providing services for government, citizens and businesses. The need to introduce a single digital platform is explained, in particular, by the fact that today there is no single standard for public portals; they look different and have different interfaces.

This approach will significantly increase the speed of protecting the rights of citizens against any possible attacks, allow a response to any violations in time, effectively nullify corruption risks and so on.

¹⁹ Кулик Т.Ю. К вопросу о единстве терминологии, определяющей участие прокурора в арбитражном процессе // Арбитражный и гражданский процесс. 2017. № 11. С. 12–15 [Tatiana Yu. Kulik, *On Consistency of Terminology Defining Prosecutor's Participation in Arbitral Procedure*, 11 *Arbitration and Civil Procedure* 12 (2017)].

We emphasize that we are not talking about the total unity of terminology within a particular branch of law. For example, we do not take into account the relationship of terms such as information and data, the line between which is clearly drawn in the foreign states, such as Canada.²⁰

Meanwhile, in our opinion, the unity of categorical understanding and the material and legal basis will achieve this breakthrough in realizing the task of ensuring the rights and freedoms of the person and the citizen guaranteed by the Constitution of the Russian Federation under modern conditions.

The Austrian experience is of interest in this regard. The Austrian Criminal Procedure Code states that a civil plaintiff (*Privatbeteiligter*) is every victim who has filed a claim for damages in criminal proceedings, and if the Prosecutor refuses to press charges, the civil plaintiff becomes a supporter of the subsidiary (additional) charge (*Subsidiaranklager*). For some crimes, it is possible to involve a private Prosecutor (*Privatanklager*) in the case. It should be emphasized that, unlike Russian criminal proceedings, legal entities in Austria cannot be recognized as victims. Thus, on the one hand, Austrian legislation regulates the concept of the victim in criminal proceedings in more detail, if we are referring to a natural person; on the other hand, it avoids the dualism of legal regulation inherent in domestic criminal proceedings, inevitable in the recognition of victims of legal entities.²¹ A similar regulation is provided for in Swiss law.²² In Switzerland, the definition of damage caused to the victim, as well as to the victim of a crime, is based on a comprehensive approach with reference to the provisions of other branches of legislation, including civil law. This approach seems to be positive, reflecting current trends, and therefore it can be proposed to the legislative body in order to overcome sectoral barriers when the constitutional rights and freedoms of man and citizen must be protected. However, the problem of Russian criminal proceedings is just the opposite.

Whereas Russian arbitration courts view specific transactions in a citizen's accounts in dollar terms and calculate the debtor's amount of debt under bankruptcy proceedings based on the market value of the U.S. dollar on the day the obligation was to be performed under the terms of the preliminary contract, criminal law practitioners (*see* part 4 of Art. 159 of the Russian Criminal Code) presume that damages must be calculated in rubles at the Central Bank exchange rate on the day the attacker had the opportunity to dispose of such assets, i.e. on the day the funds were transferred.

²⁰ Donald K. Piragoff, *Computer Crimes and Other Crimes Against Information Technology in Canada*, 64(1–2) *International Review of Penal Law* 201, 210 (1993).

²¹ Илютченко Н.В. Оптимизация уголовного процесса: опыт Австрии // Актуальные проблемы российского права. 2015. № 12. С. 178–183 [Natalia V. Ilyutchenko, *Optimization of Criminal Procedure: Austrian Experience*, 12 *Actual Problems of Russian Law* 178 (2015)].

²² Трефилов А.А. Уголовный процесс зарубежных стран. Т. 1 [Alexander A. Trefilov, *Criminal Procedure of Foreign Countries. Vol. 1*] (Moscow: Voskhod, 2016).

This approach in Russian criminal law cannot be justified. In an unstable global and economic situation, there may be a sharp jump in the U.S. dollar against the ruble. In fact, it turns out that an attacker who stole a specific amount from a citizen (for example, \$50,000) must return not \$50,000 to him, but the amount in rubles at the Central Bank rate on the date of the theft. But who said that the citizen wanted to exchange the specified amount for rubles on this day? Furthermore, since the dollar to ruble rate is constantly changing (and in general only increases), the attacker (if he was caught and found guilty) does not need to return \$50,000 to the citizen, and it is enough to give the corresponding smaller amount in rubles, if anything at all.

The whole paradox of the situation described above is that in other parts of Article 159 of the Russian Criminal Code, namely parts 5–7, the same amount of money stolen by the same attacker will be calculated quite differently, since it is a theft in the business of commercial organizations (in this case, the person conducting the proceedings must focus on specific civil contracts, etc.). According to clause 15 of Resolution of the Plenum of the Supreme Court of the Russian Federation of 15 November 2016 No. 48 “On the Practice of Courts Applying Legislation Regulating the Characteristics of Criminal Liability for Crimes in the Sphere of Entrepreneurial and Other Economic Activity,” the amount of damage to be compensated is determined on the basis of civil contracts, primary accounting documents, statements (certificates) of settlement accounts, information on transactions using electronic means of payment, etc. If necessary, a forensic examination may be assigned to determine the amount of damage to be compensated.

In modern conditions, law enforcement should not be limited to a purely sectoral view of a particular term. Budget, arbitration, criminal and criminal procedure legislation does not clearly distinguish one legal relationship from another. In order to protect the constitutional rights and freedoms of individuals and citizens, the terms and concepts used by law enforcement agencies must be understood in a comprehensive manner. If attackers stole \$50,000 from individuals, they must return a minimum of \$50,000. Austrian, as well as Swiss,²³ experience is positive in this regard, which allows the calculation of damages to be based on the civil law system of rules and regulations in criminal cases. The positive experience of these states should be considered an acceptable approach for implementation in Russian legal practice.

However, this is not the only problem that arises when introducing new technologies into existing legal and social frameworks. In addition to the inconsistency of various branches of legislation, modern conditions require constant retraining of personnel and civil servants.

²³ Trefilov 2016.

3. Innovations and the Law: Problem Three

The third problem of introducing modern technologies in society and the state is training civil servants for the development of the digital economy. The issue of training is presented as central in the debate on the digital economy. The European Commission has made this a priority in the EU.

Demand for digitally skilled employees is growing by around 4% a year. Shortages of ICT professionals in the EU could reach 825,000 unfilled vacancies by 2020 if no decisive action is taken.²⁴

Training is envisaged simultaneously from the economic standpoint – the digital economy needs workers trained in new technologies – and the social standpoint:

Digital skill levels need also to be raised among employees in all economic sectors and among job seekers to improve their employability.²⁵

In his message to the Federal Assembly on 1 June 2017, the President of Russia Vladimir Putin gave instructions to prepare a program of measures for the development of the digital economy, which would reduce the lag between Russia and the most developed countries in the sphere of high technologies by almost half.

According to Vladimir Putin, the state should be engaged in the development of the digital economy in order to ensure the future of the national economy and the country as a whole during a “Direct Line” with the population on 15 June 2017.

Without the digital economy, we will not be able to move to the next technological mode. And without this transition to a new technological order, the Russian economy, and therefore the country, has no future. The development of the digital economy of Russia is the number one task in the economic sphere.

On 28 July 2017, Russian Federation Government Order No. 1632-R approved the “Digital Economy” (DE) program, which by 2024 must be implemented in in Russia in five areas relating to regulation, education, personnel, formation of research competencies, IT infrastructure and cyber security.

²⁴ European Commission, A Digital Single Market Strategy for Europe, 6 May 2015, COM(2015)192 final, at 16 (Jul. 5, 2018), available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52015DC0192>.

²⁵ Christophe Degryse, *Digitalisation of the Economy and Its Impact on Labour Markets*, ETUI Research Paper – Working Paper 2016.02 (2016), at 46 (Jul. 5, 2018), available at <https://ssrn.com/abstract=2730550>.

According to this program, the DE is represented by 3 levels affecting the markets and sectors of the economy (areas of activity), where specific entities (suppliers and consumers of goods, works and services), platforms and technologies, which form the competencies for the development of markets and sectors of the economy (areas of activity) interact in an environment that creates the conditions for the development of platforms and technologies and effective interaction of subjects of markets and sectors of the economy (areas of activity) and covers regulatory and information infrastructure, personnel and information security.²⁶

The main benchmarks for education are: creating the key conditions for training in the digital economy; improving the education system, which must provide the digital economy with competent personnel; the labor market, which must be based on the demands of the digital economy; creating a system of incentives for developing the necessary competencies and engaging staff in the development of the digital economy.

In its most general form, development of the DE can be defined as a means of carrying out socio-economic activities based on the use of electronic data.

However, new forms of managing the activities of public authorities and the business community are aimed at providing the population of Russia, the business community and government agencies with relevant socio-economic data, not only through the widespread use of information and telecommunication technologies, but also through artificial intelligence systems and robotics.

Taking this into account, the implementation of law enforcement (control and supervision) activities of state bodies and the professional development of civil servants must be associated not only with their professional careers, but also with the amount of professional knowledge and skills that accompany their career advancement (advanced training, retraining, self-education, etc.).

Thus, the need to implement the concept of unification of the rules for submission of procedural documents and evidence in electronic form during judicial procedures requires conducting training related to establishing the procedure for electronic interaction between the participants in the process.

Since the category of "human rights" contains the general humanistic potential associated with a decent human existence, any possible form of diminution of human freedom should be regarded as directed against its evolutionary development. Along with human freedom, one of the most important indicators in the development of the DE is its security. In considering human security as a phenomenon, it is important to identify it not only with the security of the individual, but also with society and the state, which provide the individual with the opportunity to make a free choice, with the confidence that its current capabilities will not be lost tomorrow.

²⁶ Об утверждении программы «Цифровая экономика Российской Федерации» // Правительство Российской Федерации. 31 июля 2017 г. [On the Approval of the Program "Digital Economy of the Russian Federation," The Russian Government, 31 July 2017] (Jul. 10, 2018), available at <http://government.ru/docs/28653/>.

Since the magnitude of the risk characterizes the danger to which subjects of law may be exposed, such danger must be associated with legal facts that involve manifestations of undesirable consequences. This makes it possible to predict the potential threats to human life at the earliest stages of their occurrence and to answer the following questions: a) how dangerous are the expected threats, as well as the side effects and their consequences for the person; b) whether the consequences of these threats are reversible; c) what other threats may cause risks and consequences for the person, similar to the risks under consideration, and how large these risks are for the person in comparison with other threats existing at the moment, as well as taking into account legal, political and economic factors; d) is there a likelihood that, along with reducing the degree of risk, the recommended decision will not cause the emergence of other risks or the development of side effects.

The end of the industrial age allowed Academician Nikita Moiseev to note in his book "Parting with Simplicity" that realization of the complexity of the world should lead to the complication of methods of interaction with it toward individualization of these methods and the future of a particular person aware of the values and advantages of their own individuality.²⁷

Furthermore, a state personnel policy that is designed to ensure economic growth and increase labor productivity and efficiency in the use of resources in the country leads to real improvements in the areas of demography, education, culture, the environment, security, as well as in such areas as the quality of public administration, and the participation of citizens in decision-making affecting their welfare and social situation.

The "World Development Report: The State in a Changing World" (1997), issued by the World Bank more than twenty years ago and devoted to consideration of the main functions and role of the state, as well as its place in the socio-economic development of countries, noted that an effective state is able to optimally respond to internal and external challenges, keeping society within the coordinates of its sustainable socio-economic development. In addition, the report emphasized that effective activity of the state, which plays the role of catalyst and assistant, stimulating and complementing the activities of private businesses and individuals, is an important prerequisite for successful socio-economic development of the country.²⁸

4. Innovations and the Law: Problem Four

The fourth problem is related to the competence of Executive and Judicial bodies in the Russian Federation within the scope of the DE. In speaking about the problem of

²⁷ Moiseev H.H. Расставание с простотой [Nikita Moiseev, *Parting with Simplicity*] (Moscow: Agraf, 1998).

²⁸ Доклад о мировом развитии 1997: Государство в меняющемся мире [World Development Report 1997: The State in a Changing World] (Вашингтон: Всемирный банк, 1997) (Jul. 10, 2018), also available at <https://docslide.net/documents/-1997--56df16c4cb36b.html>.

the digital competence of state bodies, we must take into account the fact that in 2018 there are plans to develop a number of priority measures to improve legal regulation in order to accelerate the development of the digital economy. These measures include the preparation of new legal regulations allowing Executive bodies and financial organizations to accept e-solutions, i.e. documents in electronic form, which will be designated as a legally authoritative counterpart of paper documents.

At the same time, it is proposed to bring legislation regulating legal proceedings and notarization into line with the requirements of the DE, related to unification of procedural rules for filing claims, complaints, petitions and evidence in electronic form for arbitration courts and courts of general jurisdiction.

Thus, the Supreme Court of the Russian Federation proposed to abolish the duty of plaintiffs to send a copy of the claim and its annexes to the participants of the process in the case of an electronic application, to establish the general duty of the court when it receives a notice in electronic form, to post it with the application defined for this purpose and grant the right to read and copy them, and to establish the rights of each of the parties to the proceedings to submit any document (including photos, audio recordings and videos) in electronic form to their account on the court's website or in the "Justice" system. There are also plans to develop electronic interaction between participants in the process, courts, bailiff service, other bodies and organizations involved in the execution of court decisions.

It assumes essential changes in Russian legislation and in the identification of subjects of legal relationships: the legislation must allow for identification and authentication of subjects in any technically possible way, including an electronic signature, biometric data, and subscriber number of an individual client (natural person), which are intended to unambiguously identify the person and to establish his will to commit actions.

In our opinion, in this case, we must talk about building a virtual railway network for Russian Federation justice. We all know that Themis is blind. However, she can become really blind only with respect to new technologies. In this regard, the new Russian invention seems to be a positive experience. Russian developers have just proposed to implement so-called virtual railways in car computers. Dozens of startups around the world, as well as automotive giants, dream of autopilot for land transport today. But, despite all budgets, nobody has built a full autopilot yet. The reason is the imperfection of computer vision and the absence of full-fledged artificial intelligence. Cameras and radar are blind in bad weather, and the virtual mind is not as smart as people. However, the problem can be partially solved by simplifying it – this was the path taken by the Russian company BaseTrack with its development of "virtual rails."²⁹ In the tests, the test sedan makes a full circle on an ice-covered river and stops at

²⁹ Autonomous Car on Ice. Snow Test (Jul. 10, 2018), also available at <https://www.youtube.com/watch?v=STzbbxuEmeU&feature=youtu.be>.

a predetermined point without any mistakes. No cones are hit, and all the turns are indicated clearly. This is possible because the route is entered in the memory of the car's control system – the car knows where and how to brake, accelerate and turn the steering wheel. The developers loaded the exact trajectory of the winter Myachkovo in the Cruze, and did it remotely from the Moscow office. Thus, the technology allows you to enter the route, speed, traffic, etc. in the car's computer.

In other words, the person's task now consists only in building the infrastructure for movement and ensuring proper loading of the rail map. The main advantage of "virtual rails" is that positioning the vehicle moving on them does not required external reference points, such as markings and infrastructure. They themselves are a reference point, ideal for this part of the path. Therefore, this car is not afraid of anything that stumps a traditional five-minute UAV, like fog, snow, or lack of road markings. In its pure form, this system can be used to control the movement of unmanned vehicles in closed areas, including in the workplace and in agriculture, and can also be useful in the development of machinery power units. Another option is to automate the movement of trucks, including columns and unusual roads, winter roads and other deserted routes. In all these cases, the development of BaseTrack can be a way to save fuel and energy (and health, in the case of the military). It remains only to set the machine's logic of behavior to allow it to accurately follow the virtual railways.³⁰

The long description of this development is directly linked to legal peace and justice. After all, this technology can be used in legal proceedings. Perhaps we should not yet talk about a fully autonomous robotic system for making procedural decisions. However, we fully imagine the advantages of such robots in so-called simple cases, issuing court orders, traffic offenses, criminal cases for minor, etc.

Lawyers of the future will be engaged in building a virtual railway network for justice, taking into account emerging practices, new rules, relevant explanations of higher courts, as well as doctrinal developments at both the national and international level. That is, they will prescribe the logic and effectiveness of the behavior of robots in a process of a particular case. Therefore, the legal profession will not disappear in the future, even with the advent of artificial intelligence. Very complex cases will still be considered in the classic style. You will need lawyers for simple cases, but they will play the role of machinists who monitor whether the computer correctly determines the conditions of movement of the "train" (case). In addition, such lawyers may act as consultants when complaints are received or on issues for which a robot solution has been developed, but will send the case for classical consideration by judge if there are errors. The system we have described

³⁰ Ласьков Д. Виртуальные рельсы: тест нового ассистента автономного вождения // Авто Mail. Ru. 14 мая 2018 г. [Dmitry Laskov, *Virtual Rails: Test of a New Autonomous Driving Assistant*, Auto Mail.Ru, 14 May 2018] (Jul. 10, 2018), also available at https://auto.mail.ru/article/68530-virtualnye_relsy_test_novogo_assistent_a_avtonomnogo_vozhdeniya/.

will help to minimize the number of complaints filed today in specific cases, will eliminate paperwork, and will strictly comply with the deadlines established by procedural legislation.

In other words, a kind of revolution is coming in the legal world. Lawyers in the future will act as developers of a useful model of legal relations, builders, machinists, operators, etc. And if we imagine that this process will be connected to a smart computer with a neural network, the horizon of legal science will truly become limitless.

Therefore, we cannot agree with Chris Anderson's conclusion regarding "the end of theory," i.e. the hypothesis that the data deluge makes the scientific method obsolete.³¹ It should be agreed that

we are currently experiencing a far-reaching digital transformation of work. The changes include the growth of automatic management and a move toward ever more precarious work. To the extent that technology can help us realize an increase in skilled knowledge work, that is a positive goal.³²

According to Zimmermann, the four main characteristics of DE are platforms and services, process, structure and product.³³ Based on this, separate rules must be developed to identify equipment, including communications equipment, robots and other machines.

In this context, it is impossible to ignore the very heated discussion about the legal status of robots. During analysis of the competence problem, it is quite natural to conclude that robots and other machines are objects of legal relations and cannot be independent subjects of law, since the law regulates social relations between people as biological beings. It is difficult to imagine that a machine with artificial intelligence can independently, "personally" enter into legal relations and be a subject of responsibility. That is why we were talking about lawyers as machinists, builders, operators, etc. However, some experts believe that there are no special legal obstacles to legislative allocation of the rights and obligations of subjects of various legal relations to robots. In early 2017, in Belgium, a robot named Frank Pepper (the name of a series of robots) became the first humanoid in the world to be officially included in the population register. And the humanoid robot Sofia recently received citizenship in Saudi Arabia.

However, granting robots the status of subjects of legal relations will require a radical change in our understanding of the law with respect to artificial intelligence, which includes solving philosophical questions about the place of artificial intelligence

³¹ Helbing 2015, at 3–4.

³² Miriam Cherry, *Beyond Misclassification: The Digital Transformation of Work*, 37(3) Comparative Labor Law & Policy Journal, Forthcoming 544 (2016).

³³ Hans-Dieter Zimmermann, *Understanding the Digital Economy: Challenges for New Business Models*, AMCIS 2000 Proceedings. Paper 402 (2000) (Jul. 5, 2018), available at <https://ssrn.com/abstract=2566095>.

within the existing human civilization. Changes will be necessary in the regulatory framework of the Russian Federation affecting the principles of legal regulation and synchronized with the technological features of the DE.

If we consider that the main function of the judiciary is the administration of justice, we can agree with the definition of “judicial information” as information generated as a result of the direct activities of the judiciary in the management, maintenance and administration of justice. Based on the need to apply uniform accounting standards in judicial practice, it is important to optimize the process of using such information in order to transform the concept of state activities from “state over its citizens” to “state citizens.” The court’s activities are designed to ensure a balance between the interests of the individual and the state – the judiciary is obliged to restore a violated right if any of the parties have ignored the law. That is why such power should be considered not just as a separate part of the state mechanism, but as an expression and confirmation of the justice of the state organization of society. This situation, in particular, can contribute to a computer-based assessment of the quality of a judicial act (sentence, decision), related to the development and creation of a comprehensive system of quality management of judicial acts through the use of modern software and hardware. Man and computer as independent phenomena, complementing each other and sharing the load evenly among themselves, are able to form a highly productive system designed to develop effective solutions in a short period of time based on such principles as phasing, composition and feedback.³⁴

In this regard, in 1990, Donald Norman described this phenomenon as follows:

People are wrong. This is the prose of life. People are not accurate machines. The fact that people are completely different from cars. Creativity, adaptability, flexibility – these are our trumps. Constant anxiety and inaccuracy in actions or memory are our weaknesses.³⁵

Creation of a comprehensive system of quality management of judicial acts is intended to exclude the possibility of abuse of rights.

It should be borne in mind that the prospects for the functioning of a comprehensive quality management system for judicial acts should be connected not only with a legal assessment of the actions of an individual, but also with the establishment of guarantees of response to such actions. Based on this observation, it is advisable to set out the method for a generalized scenario, the essence of which

³⁴ Степанов О.А. Перспективы повышения качества судебных актов за счет использования электронных технологий // Современное право. 2013. № 7. С. 101–107 [Oleg A. Stepanov, *The Perspectives of Improvement the Quality of the Judicial Acts with the Information Technologies*, 7 Modern Law 101 (2013)].

³⁵ Donald Norman, *Human Error and the Design of Computer Systems*, 33(1) Communications of the ACM 4, 4–5 (1990).

is that the assessment of actions and events involves the establishment of possible “nodal” positions related to law enforcement, which are determined by human rights standards, as the basis for the functioning of a comprehensive quality system for judicial acts. Since the category of “human rights” includes a general humanistic potential associated with the worthy existence of a person, any possible diminution of human freedom in modern society should be regarded as directed against its evolutionary development.

The use of neural network technologies for this purpose, in particular, will not only take into account the needs for freedom and security of the individual, society and the state, but will also open up new opportunities for further development of the judicial system as a whole. Thus, before the court verdict is announced, the judge is called, using the capabilities of a comprehensive quality system for judicial acts, and using software and hardware to compare the draft act prepared by him with a computer information model based on the normative image of actions (events) and the legal content of actions (events). At the same time, the use of this comparison is aimed at preventing a significant discrepancy between the draft judicial act prepared by the judge and the characteristics of an information model that takes into account the socially significant consequences of implementing the judicial act. If no principal (maximum permissible) discrepancy between the evaluation of the action (event) by the judge and the computer system is recorded, the judicial act is automatically marked with a special machine code giving it legal force.³⁶

This approach to creating a comprehensive quality management system for judicial acts makes it possible to raise the question of determining the measure of human responsibility by using the capabilities of the “judicial computer.” If we follow this approach in the Russian Federation, the concept of “future justice” should be associated with the increasing role of the court in maintaining a balance between the person, society and the state, and improving the quality of judicial acts through the use of electronic technologies should be considered as a factor in determining the formation of this balance. We propose the adoption of a Federal law on robotics and cyber-physical systems, as well as making the necessary amendments to the Russian Civil Code and other acts in terms of defining the concept of cyber-physical systems, the procedure for putting them into operation and civil turnover, including responsibility. All of the above is intended to provide a favorable legal regime for the introduction of new technologies and their use in the scope of the DE.

Conclusion

Funds are the core of the financial system of any modern state. Initially, the money came from private funds; however, the development of the economy and other factors at the time led to the abandonment of private money and the establishment

³⁶ Zimmermann 2000.

of a unified monetary system in most countries. Despite this, the development of Internet technologies and trading techniques in real time has led to the revival of the idea of private money.

The emergence of cryptocurrencies and their active popularization in the world, on the one hand, and the uncertainty surrounding their legal nature, on the other, may have a considerable impact on the national economy due to the need for consistent maintenance of the balance of payments.

Modern international processes have such a strong influence on the modern world economy that the economic decisions of individual countries, regardless of their type, influence each other, as well as the overall global development trend. The ECB is now on the verge of abandoning its ultra-easy monetary policy in the direction of neutral and is preparing for further tightening. Since the ECB adheres to inflation targeting quite rigidly, and the trade and budget balance has long been in favor of the euro, discipline in monetary policy could turn into a new long-term trend toward strengthening the euro. In view of new challenges facing the global economy and the emergence of cryptocurrency, it is necessary to rethink the phenomenon of currency crimes, to study the experience of combating monetary crimes in other countries and to evaluate the general mechanisms for combating currency crimes. To achieve this goal, it is necessary not only to analyze the phenomenon of currency crimes and study the experience of combating currency crimes in other countries,³⁷ but also to evaluate common mechanisms for combating currency crimes, regardless of the economic type of a particular country.

Today, more than ever before, an integrated approach to the use of cross-sectoral terminology is important. In our opinion, the unity of categorical understanding and the material and legal basis will achieve this breakthrough in realizing the task of ensuring the rights and freedoms of the person and the citizen guaranteed by the Constitution of the Russian Federation under modern conditions.

The third problem of introducing new technologies in society and the state is training civil servants for the development of the digital economy. The training of relevant personnel for implementation of the objectives of the DE should focus on the fact that the state, through its prohibitions and the threat of sanctions, on the one hand, encourages the subjects of the right to appropriate behavior, and on the other hand, when conduct contrary to the law is detected, establishes and promulgates methods (means) of impact on them. At the same time, it is important to note that the embodiment of the ideas of the digital economy in public practice should be associated with further progress within the Russian Federation not only in state and legal relations, but also in the development of culture.

³⁷ Dominick Salvatore et al., *Dollarization as an Investment Signal in Developing Countries: The Case of Croatia, Czech Republic, Peru, Slovak Republic and Turkey*, Fordham University Department of Economics Discussion Paper No. 2008-16 (September 2008) (Jul. 5, 2018), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1272092.

The fourth problem relates to the functioning of the Executive and Judicial bodies in the state within the scope of the DE. In our opinion, the legal profession will be as popular in the future as it is today. However, lawyers will be busy building a virtual railroad track in order to use modern technologies in making procedural decisions. In this regard, the lawyers of the future will act as machinists, operators, builders and inventors of a useful model of legal relations. Building a virtual railway for a robot that will make a decision on the merits of the case is what awaits us in the near future. The scientific approaches in law will change accordingly. However, classical legal education is not going to sink into oblivion. After all, the construction of a high-quality railway of future justice will be possible only by taking into account the doctrine and practice of higher courts, which will operate in the classic style. But if we imagine that this process in the Russian Federation will be connected to a smart computer with a neural network, the horizon of legal science will truly become limitless.

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