EasyChair Preprint

№ 2991

# Mediator between Computer Science and Classic Law Education: Russian Experience

Sona De Apro



March 19, 2020

# Mediator between Computer Science and Classic Law Education: Russian Experience

Sona De Apro
Lomonosov Moscow State University
s.deapro@yandex.ru

**Abstract**

**The article discusses the need to introduce an interprofessional and interdisciplinary approach to solving legal problems in the field of law, information technology and information security and provides Russian experience in the transition to a digital economy and the training of competent personnel. The introduction of a mediator - a specialist as a link between the classical legal education and technical competencies and knowledge in the field of information technology and the information sphere as a whole is proposed. The article also provides non-trivial questions that are already facing lawyers and technical experts. This is the complex nature of the information sphere, which incorporates other branches of law and fields of activity, the cross-border nature of the Internet, and the development of artificial intelligence as a new subject of legal relations, which incorporates other entities (creators, developers, users, sellers, distributors), and etc.**

**The article analyzes and proposes the possible introduction by universities of the relevant disciplines in the field of information technology, the study by specialists of the legal branch of the technical sciences and their use in professional practice for the best solution and counteraction of problems in the information sphere.**

The rapid development, the widespread introduction and use of new technologies and the Internet has led to the emergence of new public relations that require legal regulation by competent personnel. The advent of the Internet has led to a tremendous impact on almost all areas of relations that are traditionally subject to legal regulation. The information sphere, of which the Internet is a part, various information technologies, including automated and robotic systems, artificial

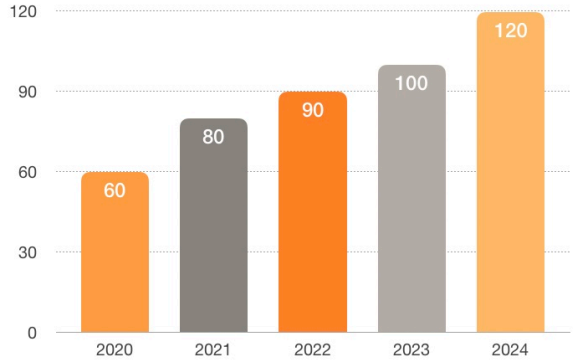
intelligence, Uberization, the Internet of things, big data, cloud computing, distributed registry technology, including blockchain, cryptocurrencies, 5G, virtual reality, augmented reality has become a link between other areas of activity (economy, state, medicine, education, the labor market, media, etc.) and the branches of law (constitutional, civil, copyright, criminal, administrative, tax, etc.). In other words, social relations that arise in the information sphere, for the most part, exist in other areas, but as part of technological development, they underwent so-called digitalization and exist at the junction of traditional industries and the technical component, which leads to the need for regulation in a far from traditional way.

In 2017 in Russia, in order to implement the Strategy for the Development of the Information Society in the Russian Federation for 2017-2030, approved by Decree of the President of the Russian Federation dated May 9, 2017 No. 203 "On the Strategy for the Development of the Information Society in the Russian Federation for 2017-2030" was proclaimed course on building a digital economy [1]. It is important to note that its functioning is impossible without the use of applied Internet services, analytical systems, information systems of state authorities of the Russian Federation, organizations and citizens. In this Strategy, the digital economy is defined as economic activity in which the key factor in production is digital data, the processing of large volumes and the use of analysis results which, compared with traditional forms of management, can significantly increase the efficiency of various types of production, technologies, equipment, storage, sales, delivery of goods and services. Consequently, activities in various spheres of life are inextricably linked with technology.

Moreover, by decree of the President of the Russian Federation Vladimir Putin dated May 7, 2018 No. 204, the National Project “Digital Economy of the Russian Federation” was created, in which one of the areas concerns personnel and education in the digital economy [2]. This direction involves improving the educational system, providing the digital economy with competent specialists and creating the conditions for their professional training. Among other areas, such as regulation, information security, information infrastructure and the formation of research competencies. According to the passport of the national

program “Digital Economy of the Russian Federation”, about 120 thousand people should receive higher professional education in the field of information technology by the end of 2024 [3].

Diagram 1. Dynamics of accepted for higher education programs in the field of information technology until the end of 2024.




The presence of a technical component creates a need for understanding not only a specific legal problem, but also its solutions from a technical point of view. For example, in the case of protecting the honor, dignity and good name of a person while disseminating information about him through the Internet that discredits honor and dignity and does not correspond to reality, it is difficult for lawyers to determine the subject of legal relations, who must be held responsible for what happened. Is the network user responsible for disseminating false, illegal information? Or should responsibility be assigned to the website administrator? There are more and more such legal cases every day, since doing business on the Internet is accessible to almost everyone around the world. And this is just one type of possible and existing questions that need to be regulated with the help of a mediator who has both a classical legal education and rather deep technical knowledge for an interprofessional assessment of a particular issue and competent conduct of an interprofessional dialogue with technical specialists (programmers, engineers, developers).

Nowadays for solving informational issues, it is not enough for lawyers to have knowledge in such areas as intellectual property, regulation of the protection of personal data, electronic document management, e-commerce, etc. The foundation of information security, as well as the information sector as a whole, is the technical component. In the legal regulation of public relations arising on the Internet, lawmakers are faced with a number of technical difficulties, namely, the need to determine and establish the national jurisdiction of the Internet, its borders, determine the responsibility for the actions of robotic technologies, determine the responsibility of programmers for their development of computer programs and other.

In this regard, an integrated approach is also needed in working with the information sphere, since this sphere includes legal relations in the field of mass media and advertising, civil, administrative and criminal legal relations. The information industry actively interacts with all other industries and gives rise to new subjects of legal relations that can be classified as bearers, suppliers of information and its recipients [5]. It is important for lawyers to master the technical sciences, for example, programming, for the most accurate determination of the problems of legal regulation of public relations related to technology. It is important to note that the study of technical disciplines will allow future and already practicing lawyers not only to independently identify a particular problem in the field of information security, but also to freely communicate with technical specialists, namely, developers, system administrators and engineers. The lack of training of personnel in law enforcement agencies, in the information security departments of private and state organizations leads to a decrease in the number of cybercrimes uncovered, specialists to misunderstand the phenomena and processes in the field of modern technologies and commit illegal actions with the help of them.

An increase in the number of crimes using information technology is noted in the Ministry of Internal Affairs of the Russian Federation. In November 2019, the Russian Ministry of Internal Affairs announced the need to increase the level of competencies of employees of the department, as well as finalizing educational processes and creating new units designed to solve problems in the field of information technology.

The direction of education and training is fundamental. According to studies, by 2022 the shortage of specialists in the field of information security will be almost 2 million, and 75% of this amount will be existing employees whose competencies and skills will not meet the conditions and tasks. In addition, for 2020, the threat to information security is among the top ten global risks [4], according to the report of the World Economic Forum [5]. The need for high-quality training of specialists in the field of information technology, namely IT lawyers, today is becoming increasingly tangible. Such specialists are necessary to control, monitor and regulate the information sphere. So a mediator (or an IT lawyer) should have an understanding of the specifics of the interaction of law and technology, be able to use the necessary technical resources to identify violations in the information sphere, eliminate them in a timely manner, and in the ideal case, prevent them. The term "IT lawyer" is often found in English-language legal and scientific literature. This indicates the relevance and need for such personnel.

At the same time, interstate cooperation is important, because the worldwide network is a single platform for all users, including both adults and children. The development of laws governing the information sphere should also be carried out at the interstate level, since the Internet is one, no matter how state jurisdictions and borders are established in it. Consequently, the laws should be uniform for all users, regardless of their location. And this also needs to be sorted out by IT lawyers. For the quality training of future IT lawyers, along with the traditional curriculum in the field of jurisprudence and economics, it is necessary to introduce additional specialized, so-called IT courses in the framework of information law and information security, such as cryptography, forensics, computer-technical expertise, programming, organizational and technical support of information security, virtual intelligence, information geopolitics, blockchain, etc. For the development of certain disciplines (e.g. actual problems of information security) will be sufficient to two years, for the development of the more technical subjects (e.g. cryptograthy, programming) should be given at least three years in order to develop sufficient practice.

The process of digitalization is already quite actively being introduced in Russia, both at the state level and at the level of finance, economy and

other spheres of life. And at the same time, there is a significant, acute shortage of specialists at the junction of law and information technology, owning technical knowledge, that is, those same mediators or IT lawyers. At the educational level, in higher education institutions the training programs for such specialists are not so widespread. However, it should be noted that the direction of educational training of IT specialists, namely lawyers, is gaining momentum. Some programs are presented in leading universities in Russia, among them Lomonosov Moscow State University (Computer Law and Information Security - Master's degree programme, 27 students in 2019), Financial University under the Government of the Russian Federation (Information Security - Master's degree programme, 20 students in 2019), All-Russian State University of Justice (Information Society, Digital Economy and Information Security - in 2019 admission to this area was not conducted), Kutafin Moscow State Law Academy (Master of IT-law; Master in Intellectual Property and the Law of New Technologies - 66 students in 2019), etc. In addition, the Institute of Development of the Digital Economy has been established at the Financial University. The goal of this project is to promote the development of higher education in the field of digital technologies, the retention of technical skills by non-technical specialists and the provision of interdisciplinary dialogue. In addition, in a number of Russian technical universities additional courses on the legal support of information technologies are presented. Such courses can be taught by specialists in areas such as development, programming, engineering, etc., which in turn will help technical specialists to most effectively conduct an interprofessional discussion with lawyers. Among such universities - National Research Nuclear University MEPhI (Moscow Engineering Physics Institute) (course "Organizational and legal support of information security", course "Normative regulation in the field of applied cryptography"), The Bauman Moscow State Technical University, BMSTU (course "Organizational and legal support of information security"), Moscow Institute of Physics and Technology (MIPT) (course on the choice of "Information Law and Intellectual Property Law").

Historically, the first university that began to carry out activities in the field of training specialists for work in the information sphere was the

Moscow Engineering Physics Institute (National Research Nuclear University). At the very beginning of 1996 at this university was created the Department of Computer Law. The Department has been active for 17 years. Later at the initiative of the then Chairman of the Accounts Chamber of the Russian Federation Sergei Stepashin department was recreated at the Higher School of State Audit (Faculty) of Lomonosov Moscow State University. In fact, Higher School of State Audit (Faculty) has become a pioneer in the creation of the Department of Computer Law and Information Security.

In its turn, the Department of Computer Law and Information Security, in the process of training future IT lawyers, makes a focus on studying existing and possible problems in the information sphere, which covers activities carried out on the Internet, the functioning of online media, e-justice, virtual intelligence, organizational and technical support information security of the state, corporations, citizens. The training is focused on advancing technological improvement and finding the roots of the problems. And the root of the problem lies largely in the technical aspects. And it is precisely in such cases that knowledge is needed that will make it possible to analyze [6][7] the problem in detail from both a legal and technical point of view, avoiding possible professional disagreements between, for example, legislators and programmers. The department offers its students disciplines such as legal basis for the formation of the information society, e-document management, legal support of information security, legal issues of access to information, legal regulation of relations in the field of electronic commerce and bank secrecy, legal regulation of relations on the Internet international aspects of information law [8], legal topology of intersections of real and virtual spaces, forensics, computer crimes (qualifications and criminological features), offenses in online spaces and traditional legal systems, computer ethics, online media.

The department initiates and organizes all-Russian and international conferences on cyber security, the digital economy and the information sphere. Such events receive a positive response both from students of the Department of Computer Law and Information Security and Moscow University as a whole, and from students, young scientists, and teaching staff of other Russian and foreign universities, including technical ones,

whose students present their own projects and practical recommendations. Representatives of departments and organizations also take part in scientific and practical conferences, actively discussing student achievements. As part of the presentation of scientific reports, participants discuss the main trends in the development of modern society and the digital economy, and also present possible legal mechanisms to increase the effectiveness of combating abuse in the field of computer law and information security of citizens. This experience shows the relevance of the topics of information orientation of students of different universities and areas, which are somehow closely interconnected. Each year, the number of participants only increases, applying for participation in such conferences is more than 80 people, among the participants were students from Venezuela, Armenia, Tajikistan.

Returning to the subject of the taught disciplines, it should be noted that among the disciplines taught at the department, unfortunately, there are no such as programming or cryptography, and this is very felt during professional practice. For instance, to counteract the illegal conduct of financial activities through the use of the Internet, it is necessary to determine by whom exactly, from where and when this or that website is registered, where and how funds are received through victims of online fraud. Such processes are important to understand from the inside. Of course, interprofessional cooperation is important, but the possession of technical skills [9] is extremely necessary for the lawyer himself. On the one hand, there is a need for a lawyer-engineer, lawyer-programmer, lawyer-specialist in smart contracts and blockchain [10]. On the other hand, the legal profession is also being transformed for technical specialists. In the next few years there will be engineers, programmers with a knowledge of jurisprudence.

The cross-border nature [11], the uncertainty of the limits of state jurisdiction on the Internet and, in general, the technical basis of the information sphere make its legal regulation unusually difficult, since the application of traditionally developed approaches is not always possible in relation to problems related to information technologies (robotics, virtual space, artificial intelligence and etc.). Consequently, the so-called “virtual law firms” [12] will inevitably appear in our country. In the

scientific and legal literature, the so-called interindustry and interstate interaction of highly qualified specialists - lawyers, economists, programmers, mathematicians, specialists in the field of cybersecurity, etc., provides a comprehensive solution to emerging problems. The legal basis for such interaction both in Russia and abroad has not yet been developed, and many segments of the information sphere are not regulated in any way, which allows for illegal activities, for example, of a financial and economic nature, theft of personal data, and to remain with this unpunished.

In turn, Russian companies in the field of digital law offer short-term courses and are intensive for specialists in this field, lawyers, corporate lawyers, as well. The need for new competencies and knowledge of the information sphere is increasing. However, even companies focusing on issues related to the information industry, while offering services in the field of intellectual property protection in the vast expanses of the network, the development of relevant documents and contracts, the protection of personal data, copyright protection. Then it should also take into account the activities of artificial intelligence, automated and robotic technologies, territoriality and spatiality of the Internet, etc. So far, these problems have no solutions at the legislative level. Proper training will help future professionals to understand how to solve them.

Speaking about the curriculum for training IT lawyers, it is important to note that fundamental disciplines (for example, the history of state and law, economics, law, philosophy) should not be reduced due to new, so-called IT courses. Fundamental subjects should be studied in depth within the framework of the bachelor's program, while the master's program involves familiarization with more specialized disciplines. Additional specialized disciplines include such as expertise in computer offenses, virtual intelligence, qualifications and criminological features of computer crimes, cryptography, programming, forensics (investigation of evidence of computer incidents), organizational and technical support of information security, vulnerability of information systems, software technical means of ensuring information security, etc.

An interdisciplinary approach to the educational training of IT lawyers in practice will help future professionals successfully resolve issues such as preventing fraudulent activities in the financial and

economic sector (for example, in the field of electronic banking), legal regulation of electronic document management, robotic technologies, and anti-fraud in the field of electronic commerce, professional activities of programmers, distribution of content in the Internet, protection of big data, biometric data, etc.

In the framework of the Gaidar Forum 2020, "Russia and the World: Challenges of the New Decade", a panel discussion on the topic of legal education in the context of digital transformation noted that, on the one hand, there is a need for a lawyer-engineer, lawyer-programmer, lawyer-specialist , for example, on smart contracts and blockchain. On the other hand, the legal profession is more and more differentiated, transformed for technical specialists. In the next few years, engineers, programmers and cryptographers with a knowledge of jurisprudence will appear. And while among lawyers there is still a skepticism regarding their study of more technical disciplines, then technical experts, in turn, advocate the development of such disciplines by lawyers. This will contribute to a more competent construction of interprofessional dialogue in resolving issues in the field of information security.

Nowadays technical skills have become an integral part of the development of any person and rather inevitability. The young generation is almost born with technology in their hands. But their free use of gadgets in the future remains at the level of users or advanced users. They do not understand and cannot explain the essence of the processes occurring in information and communication devices. Thus, pre-school and school education in the field of information technology should become the basis for further professional training in the IT sphere.

It is worth noting that in both professional and scientific and teaching circles, one often encounters a lack of understanding and rejection of the introduction and study of programming, cryptography by future and already practicing and experienced lawyers. It could often heard that all technical aspects can be resolved by appropriate specialists, there is no need to go into people with a humanitarian bias in technical sciences. However, supporters of an interdisciplinary approach to the training of IT lawyers are becoming more and more. It is not uncommon that one can already meet in the requirements of vacancies for intellectual property and information technology lawyers a technical understanding

of computer programs, databases, inventions, industrial designs and utility models. In any case, sooner or later everyone will have to face the inevitable dominance of technology and software codes. Lawyers will also be forced to accept this challenge. It is a fact. Legal practice shows that there are more and more cases when victims of network offenses cannot protect their rights. The reason for this is the incompetence of the courts and the legislative framework in identifying and solving problems. Due to the underdevelopment of legislation in the field of information legal relations, it is still difficult to determine their subjects, responsible persons, etc. And this will help highly qualified personnel - lawmakers, versed in technical and legal issues. To provide competent personnel to a world that is rapidly changing under the influence of digital transformation, it is necessary to conduct appropriate educational training at universities.

However, at this stage, another misunderstanding arises. The process of discussion and approval of a new curriculum in Russian universities is largely bureaucratic. The reason for this is, on the one hand, the existing educational standards, on the other hand, the skeptical and conservative attitude of the legal profession to attempts to introduce new academic disciplines, directions and create full-fledged departments and faculties. Technological development is not waiting. And it is very important to keep up with the times and prepare the appropriate highly qualified personnel.

Digital transformation has become a requirement of the time. Technological and organizational challenges require appropriate preparedness and competence. Today in Russia, as well as around the world, there is a digitalization of the financial and economic sector, public services, medicine, education, the labor market, business, etc. Technological development is rapidly rushing ahead, ahead of legislation, which requires interprofessional cooperation with a special focus on the engineering and technical part of issues arising for lawmakers. Just understanding the legal aspects like interpreting the definition of certain concepts in the law and a superficial understanding of technology will not lead to the correct legal regulation of public relations in the information sphere. It is not uncommon to find in the

requirements of a vacancy of lawyers in intellectual property and information technology a technical understanding of computer programs, databases, inventions, industrial designs and utility models. Therefore, lawyers should be both experts in the field of information technology, engineers, programmers to fully and deeply understand the essence of the problem and find the best solutions.

Thus, an interdisciplinary approach in the field of legal regulation of the problems of the information sphere is fundamental for both lawyers and technical specialists. Today's realities, which are a digital transformation of various fields of activity, the introduction of technological solutions, the division of the world into traditional and virtual parts, require a more modern, meeting the requirements of a rapidly developing world of educational training and professional activity. Cybercrime, information law offenses, non-transparency of doing business on the Internet every day only gain momentum at the global international level. In this connection, interdisciplinary inter-university programs for the training of specialists in law and information technology are becoming increasingly relevant and inevitable. Consequently, the regular updating of the necessary competencies in the conditions of rapid transformation of various fields of activity becomes an urgent need for future personnel in the information sphere.

**References**

[1] Decree of the President of the Russian Federation of 05.09.2017 N 203 "On the Strategy for the Development of the Information Society in the Russian Federation for 2017 - 2030"

[2] Decree of the President of the Russian Federation of May 7, 2018 No. 204 "On national goals and strategic objectives of the development of the Russian Federation for the period until 2024"

[3] Passport of the national project "Digital Economy of the Russian Federation" URL: http://static.government.ru/media/files/urKHm0gTPPnzJlaKw3M5cNLo6gczMkPF.pdf

[4] The 2019 official annual cybersecurity jobs report. A special report by cybersecurity ventures, sponsored by Herjavec Group.

[Electronic resource] URL: https://www.herjavecgroup.com/2019-cybersecurity-jobs-report-cybersecurity-ventures/

[5] The official website of the World Economic Forum URL: https://www.weforum.org

[6] Baturin Yu. Computer Crimes, Computer Security and Computer Law: Phenomenon's Dynamics. Notes from the Russian Chair of Computer Law. – In: Proceedings 2017 International Workshop on Engineering Technologies and Computer Science (EnT 2017). 28 September 2017, Moscow, Russia. – IEEE Computer Society, 2017, p.3-7.

[7] Frolov D. B., Grunyushkina S. A., Starostin A.V. Information geopolitics and the Internet. - M .: RFK. Image Lab, 2008.

[8] Kalyatin V.O. Internet law. - M .: Norma, 2004.

[9] Lillian Ablon; Martin Libicki, Hacker's Bazaar: The Markets for Cybercrime Tools and Stolen Data, 82 Def. Counsel J. 143 (2015)

[10] Mark Fenwick; Wulf A. Kaal; Erik P. M. Vermeulen, Legal Education in the Blockchain Revolution, 20 Vand. J.Ent. & Tech. L. 351 (2017)

[11] Morozov A.V., Filatova L.V., Polyakova T.A. Actual problems of information law. - S .: VSUU (RPA of the Ministry of Justice of Russia), 2015.

[12] Nizan Geslevich Packin, RegTech, Compliance and Technology Judgment Rule, 93 Chi.-Kent L. Rev. 193 (2018)