



PRINCIPLES OF USING DIGITAL TECHNOLOGIES IN THE FIELD OF ROAD SAFETY IN UZBEKISTAN

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ABSTRACT

This article provides a scientific analysis of the theoretical and legal foundations and priority principles for using digital technologies in the field of road safety in the Republic of Uzbekistan. The impact of the digitalization process on the road safety system, the main directions of state policy in this area, and existing problems of current regulatory and legal regulation were studied. The author scientifically substantiates the main principles of using digital technologies in ensuring road safety, including legality, personal data protection, information openness, and the completeness and reliability of information. Additionally, systemic problems related to scientific-theoretical, organizational-legal, material-technical, financial, and personnel support in the field were analyzed, and practical proposals aimed at their elimination were developed. Based on the research results, scientific conclusions are presented regarding the improvement of legal mechanisms for the effective implementation of digital technologies in the field of road safety, the development of state programs, and the improvement of "Road Traffic Legislation" based on modern digital transformation requirements.

There was a relatively limited number of publications on the terms "digitalization" and "digital technologies" during 2019-2024, and most of them were related to public administration and the economy, while very few articles were directly dedicated to road safety. These works mainly addressed some aspects of using road cameras and various technological devices to ensure road safety.

Digitalization is a process that began much earlier in the world's most developed countries than in Uzbekistan; therefore, scientific approaches to it were primarily developed in foreign literature. For this reason, most authors, relying on a system of already established concepts and scientific categories, focus their research on specific problems of legislation and law enforcement practice. Such an approach is perfectly reasonable, but when digitalization is studied in relation to more narrow areas of activity, not to the economy or public administration, the need to develop many theoretical issues along with the terminological

apparatus inevitably arises. Research on ensuring road safety on this topic is currently practically non-existent, which creates the prerequisites for many other problems—primarily those related to the development of state policy and regulatory frameworks for the use of digital technologies in the field of road safety.

Since the basis for developing state policy in the field of road safety is the state program for ensuring road safety in the Republic of Uzbekistan, it seems appropriate to consolidate the directions of this policy regarding the implementation and use of digital technologies to enhance road safety. To this end, the Program should be supplemented with a new clause, which should reflect: the principles of using digital technologies in ensuring road safety, the main directions for their implementation, an analysis of the situation in each direction and a justification of how it can be improved based on the use of new technologies, and an approximate quantitative assessment of the impact of RT use on the state of road safety.

Activity in any field relies on a specific system of principles—these principles characterize the essence of activity, its purpose, and social role, and manifest as general rules, ideas, and fundamental requirements. The formation of a system of principles contributes to improving the organizational and legal foundations of activity and reducing shortcomings of a managerial nature. In this regard, the use of digital technologies in the field of ensuring road safety must undoubtedly be carried out based on clearly formulated principles.

First of all, it is necessary to introduce the principle of legality into them. This principle is based on the provisions of the Constitution of the Republic of Uzbekistan; therefore, it is universal in nature and implies the unconditional execution of laws and other legal acts in accordance with them by all state bodies, officials, and citizens, as well as their non-contradiction with the Constitution. Legality in the use of digital technologies in the field of ensuring road safety implies the existence of the necessary regulatory framework underlying the implementation of this activity, as well as mandatory compliance with the norms established therein.

The principle of personal data protection plays an important role. The protection of personal data is among the priorities for the development of the information society. According to the Law of the Republic of Uzbekistan "On Personal Data," personal data refers to information recorded in electronic form, on paper, and (or) in another material medium that relates to a specific individual or allows for their identification.

The general requirements for handling personal data are as follows:

- 1.collection and processing only in accordance with the law and by the appropriate authorized bodies;
- 2.to be in accordance with pre-established goals;
- 3.accuracy and completeness of information;
- 4.processing only with the consent of the data subject;
- 5.openness and accessibility for data subjects;
- 6.reliable data protection.

It is also necessary to highlight the principle of information openness. This principle is considered the fundamental principle of public administration in legal democracies, ensuring the realization of citizens' rights to information, increasing the level of civic participation, and

developing civil society. This principle fully applies to specific areas of public administration, including the provision of road safety.

Information openness in public administration includes the full use of internet resources in the activities of municipal and state structures. This not only forms the basis for the development of democracy in society but also strengthens the involvement of citizens in public administration. It ensures public control over the activities of these bodies and promotes the recruitment of qualified specialists for municipal and public service.

Information openness in the use of digital technologies in the field of road safety is the provision of public access to necessary information regarding road traffic, its organization, the jurisdictional activities of authorized bodies regarding traffic violations, and other issues.

Finally, the fourth principle we highlight is the completeness and reliability of information. Digitalization of information support for various processes in the field of road safety should be considered one of the priority tasks. Therefore, the information provided to citizens, organizations, and authorities must meet the requirements of completeness and reliability. The second part of the group of problems under consideration consists of shortcomings in regulatory and legal regulation.

The current pace of technological development is so high that the legal system cannot manage to regulate new social relations in a timely manner. The stability of the legal system is an inherent feature of its existence; however, it also has its own negative consequences. At the same time, the stability of the legal system is not the same as staticity. The opinion of V.V. Sorokin is appropriate: "The legal system should not always lag behind the rapidly changing and complex social practice."

Many scholars believe that Uzbekistan's legislation is not yet ready to fully encompass the evolving relations in the field of digital technologies. Given the number of bills adopted annually and the constant changes and additions made to existing laws and bylaws, it is difficult not to agree with this view. One of the most negative trends is the frequent introduction of amendments to recently adopted laws, which indicates the overall quality of the legislative process.

In our view, the formation of regulatory documents is carried out in violation of the fundamental rules of the theory of state and law, legal axioms, current legislation, and sometimes the fundamental principles of general and sectoral law. Legislation is becoming increasingly adaptable to the situation: new norms are developed without an assessment of long-term effectiveness, aimed at solving specific and narrow problems. As a result, the increase in the number of regulatory legal acts leads to a weakening of the systemic nature of legislation and an increase in legal contradictions.

In conclusion, the process of implementing digital technologies in ensuring road safety in Uzbekistan has identified five groups of problems based on a systemic and structural analysis: lack of scientific and theoretical foundations; shortcomings in regulatory and legal regulation; lag in material, technical, and methodological support; inefficient financing; and a shortage of qualified personnel. Among these problems, the basic ones are the lack of scientific development and shortcomings in state policy, which directly create the basis for the emergence of the remaining secondary problems. To eliminate them, it is necessary to: Form the regulatory framework for the use of digital technologies in ensuring road safety; The

necessity of strengthening the principle of "Using the achievements of science and technology" in the Law "On Road Traffic" as one of the principles of ensuring road safety; the necessity of developing mechanisms to encourage narrow specialists in the field of digital technologies to serve in state bodies was justified as a conclusion of the study.

References:

1. Dosi G. Technological paradigms and technological trajectories // Research Policy, 1982, № 11, pp. 147–162; Kash D.E., Rycroft, R.W. Patterns of innovating complex technologies: A framework for adaptive network strategies // Research Policy, 2000, № 29, pp. 819–83; Sahal D. Technological guideposts and innovation avenues // Research Policy, 1985, № 14, pp. 61–82; Ziman J. Evolutionary models for technical change, in: Technological Innovation as an Evolutionary Process, J. Ziman (ed.), Cambridge University Press, London, UK 2000, pp. 442.
2. Зубарев С.М. Правовые риски цифровизации государственного управления // Актуальные проблемы российского права. 2020. № 6 (115). С. 23–32.
3. Ўзбекистон Республикаси Президентининг 2017 йил 11 июлдаги “Йўл ҳаракати хавфсизлигини таъминлаш тизимини янада такомиллаштириш чора-тадбирлари тўғрисида”ги ПҚ-3127-сон қарори // Электрон манба: <https://lex.uz/docs/3266524>
4. Климович Е.В. Правовые и организационные основы использования информационных технологий в сфере обеспечения безопасности дорожного движения: дисс. ... канд. юрид. наук. Омск, 2008. С. 36.
5. Ўзбекистон Республикасининг 02.07.2019 йилдаги “Шахсга доир маълумотлар тўғрисида”ги ЎРҚ-547-сон Қонуни // Электрон манба: <https://lex.uz/docs/4396419>
6. Калашникова С.В., Хамирзова С.К. Влияние уровня информационной открытости региона на формирование его имиджа (на материалах Республики Адыгея) // Новые технологии. 2010. № 2. С. 118.
7. Сорокин В.В. Теория государства и права переходного периода: Учебник. Новосибирск: Изд-во НГИ, 2008. С. 8.
8. Иминов А.А. Жамоат хавфсизлигини таъминлашда рақамли технологиялар, инновациялар: муаммо ва ечимлар // Халқаро on-line илмий-амалий конференция материаллари 2022 йил 8 июнь