

# The Institution of Legal Liability in the Digital Age: International Legal Standards, Administrative, Financial and Criminal Aspects\*

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## **Abstract.**

The article reveals the issue of legal responsibility within the context of digitalization in society. It is indicated that legal obligation, as a tool for coercion and the restoration of law and order, has always depended on the form of social relations. Today, digitalization has given rise not only to new objects of legal protection (personal data, digital assets, information security), but also to new subjects, such as platforms, algorithms, and autonomous systems. It is stated that the formation of the digital state leads to the transformation of traditional forms of public law responsibility, primarily administrative. In the digital age, not only is the form of offenses changing, but also how they are committed, recorded, detected, and proven. Administrative liability is becoming a tool for rapid response to mass violations in the fields of e-governance, personal data processing, cybersecurity, digital platform use, artificial intelligence, and telecommunication services. It is concluded that, accordingly, the institution of legal responsibility in the digital age is a system of prevention, regulation, self-control, and international cooperation. It must be adaptive, technologically literate, and human rights. The quality of legal mechanisms in the digital sphere determines whether the rule of law will remain effective in the context of digital transformation.

**Keywords:** Digitalization; Digital Rights; Legal Responsibility; Administrative Responsibility; Financial Monitoring; Criminal Liability; International Legal Standards

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## A. INTRODUCTION

The development of countries in modern conditions is characterized by the formation and subsequent functioning of society, based on the digitalization of relations between its members, between individuals and the state, and between business entities and public authorities. The development of information technologies has one of its results in the introduction and possibility of implementing one of the fundamental principles of e-governance, which is the principle of transparency in the adoption of administrative acts, publicity of the activities of government entities, etc. ([A Digital Agenda for Europe, 2010](#); [Stepanov, 2012](#)). Therefore, it should be noted that in the XXI century. There has been a final transition from an industrial society to an information society, which is based on the use of digital technologies, requiring paying attention to the establishment of the concept, content, and system of digital rights of a person.

Such a digital transformation of society covers all spheres of public life; however, the digital environment has become a factor in new forms of offenses, including cybercrimes, digital fraud, privacy violations, disinformation, and the use of artificial intelligence for criminal purposes. Modern transformations have brought, among other things, significant transformations in all spheres of public life. In particular, the spread of artificial intelligence, blockchain technologies, and other digital tools has significantly complicated the traditional understanding of the offense, the subject of responsibility, the boundaries of jurisdiction, and the mechanisms of legal response to violations.

Under these conditions, a mechanism of state response to unlawful acts, such as the institution of legal responsibility, must meet new challenges. Therefore, it is necessary to understand the institution of legal responsibility in a new digital context to identify its features, application challenges, and potential for improvement.

## B. METHODS

The research is based on theoretical and practical conclusions drawn from the scientific works of both foreign and Ukrainian researchers, focusing on methodological approaches to establishing the international legal, administrative, and criminal aspects of legal liability in the digital age. The study was based on applying the epistemological method of scientific knowledge, which enabled an understanding of the essence of the institution of legal liability. With a view to providing an ontology of scientific knowledge on

improving the institute of legal liability in the digital era, the author employs methods of classification, systematisation, and structural and logical ordering.

### C. RESULTS AND DISCUSSION

Legal responsibility, as you know, is a tool that ensures the stability and predictability of social relations by establishing the boundaries of permitted behavior and implementing sanctions for their violation (Rabinovych, 2008). However, digital realities have created new challenges, both technical and legal, that require clarification of the very essence of responsibility. For example, in the digital environment, it is often difficult to identify the subject of the offense due to the anonymity of users, the use of proxy servers, VPN technologies, and other means of cloaking. All this complicates proving the fact of an offense and bringing the guilty person to justice. Thus, the modern digital age requires a revision or at least adaptation of traditional approaches to the classification of offenses, determining the limits of liability, the role of intent, and negligence in the electronic environment. ([Volova, 2022](#))

At the same time, the problems of administrative and criminal liability in the digital environment are also undergoing a significant rethinking. In the context of digitalization, a significant part of offenses has received new forms. In particular, violations in the field of personal data protection, phishing, digital fraud, and attacks on critical infrastructure. Ukraine's legislation is gradually adapting to these challenges, particularly through the implementation of international conventions. However, significant gaps remain in both procedural support and the formation of an appropriate evidence base.

Separately, attention should be paid to the challenges of establishing the responsibility of digital platforms. In particular, the activities of social networks, search engines, marketplaces, and cloud services give rise to new legal relations, in which there is a need to determine distributed or joint and several liability. In global practice, the proactive responsibility approach is increasingly used, involving not only punishment for offenses but also the obligation of platforms to prevent them. This approach combines legal responsibility with compliance requirements, digital ethics, and corporate social responsibility.

In the current context of forming the global digital space, unifying and harmonizing legal approaches to regulating liability for offenses in the information and communication environment is particularly important. The lack of uniform standards often creates space for a legal vacuum or

jurisdictional uncertainty, which hinders effective prosecution and promotes impunity ([Volkova, 2023](#)). That is why an important direction in the development of legal responsibility in the digital age is the development and application of international legal standards.

In this context, international legal standards, which are formed in order to unify approaches to liability in the digital sphere, are of particular importance. First of all, we are talking about the Convention on Cybercrime, which became the first international attempt to create a single regulatory framework for countering offenses committed using ICT. Data integrity violations, use of malware, computer fraud, and the misuse of electronic communications to distribute pornography or hate speech. Ukraine ratified this Convention back in 2006, and today it is a fundamental document for building national criminal legislation in the field of cybersecurity. ([Kumeiko et al., 2024](#))

To expand the standards of the 2021 Budapest Convention, the Second Additional Protocol was adopted. It provides for deepening international cooperation, particularly by simplifying access to electronic evidence and establishing procedures for direct interaction with Internet service providers. This opens up new opportunities for the effective implementation of criminal responsibility, but at the same time requires high guarantees for the protection of human rights.

Another powerful instrument of international regulation is the European Union's regulatory framework, which is being formed within the framework of EU digital regulation, namely the Digital Services Act (DSA) and the Digital Markets Act (DMA) within the European Union, which are designed to regulate the activities of digital platforms and determine their responsibility for the dissemination of illegal content or abuse of market power. Both are part of the Digital Services Package, a set of rules aimed at managing the digital sector that came into force in 2022.

These acts introduce a new model of responsibility of digital platforms (in particular, social networks, trading platforms, search engines), obliging them to: control illegal content, observe the transparency of algorithms, and respond to user complaints ([Horbalinskiy et al., 2023](#)). Thus, for the first time at the legislative level, the DSA establishes the concept of "systemic responsibility" platforms, which go beyond the classical post-tort model. From now on, digital intermediaries are legally responsible not only for failing to act after detecting an offense but also for not implementing effective preventive policies.

Digital offenses are increasingly becoming the subject of interstate legal relations, which, in turn, raises the question of the international legal responsibility of states for cyber actions. Thus, in the modern international legal plane, there is an active formation of a system of legal responsibility in the digital dimension, based on the principles of: transnationality of offenses; mutual recognition of digital evidence; cooperation of law enforcement agencies; a flexible mechanism for extradition and prosecution; the priority of human rights in the collection, storage and analysis of digital data.

The implementation of normative regulation of social relations in modern conditions is impossible without properly streamlining the processes for implementing and protecting digital rights. This requires focusing on establishing the content of the world and European standards for their reflection. For a long time, European countries have tended for management bodies to refrain from interfering in the information, telecommunications, and digital spheres, maintaining a relatively passive role in these areas. This approach existed for quite a long time in Germany, Finland, Great Britain, and the USA.

The financial and banking crises of 2008 raised an acute question about the need to increase the efficiency of state participation in regulating relations built through the use of information and digital technologies ([European Experience, 2014](#)). This period marked the beginning of the era of e-governance and the use of digital technologies in public management and legal relations. The introduction of e-governance is primarily associated with increasing the efficiency of administrative services and intensifying the population's participation in decision-making and regulations. Thus, in Austria, the mechanism of e-governance is being successfully implemented, the priorities of which include: the functioning of systems of access to public information; the availability of information on the activities of authorities and local self-government; the establishment of international cooperation on the implementation of transnational projects; the establishment of interaction between participants in public management legal relations at the domestic national level; the creation of public electronic resources and information bases. ([Matveenکو, 2016](#))

The introduction of e-governance and the implementation of digital rights require effective mechanisms for electronically identifying citizens as users of public electronic services. These mechanisms can be implemented through telephone applications and other software. (E-Government-Gesetz), The Electronic Signature Act and the Administrative Procedures Act

(*Verwaltungsverfahrensgesetz*), as well as several other legal acts. In Austria, there is a gradual transition from the e-government system to mobile government mechanisms.

Public electronic services in Belgium are also provided through a single portal of electronic services, which is a special subject of authority, which should ensure the use of personal smart cards in everyday life, which can be used both to achieve communication with managers, as well as to use the means that allow a person to participate in electronic commerce and bank settlements ([Pashchak, 2017](#)). However, despite the spread of digital governance in Belgium, about 39% of the adult population still does not have digital contact with public services (E-Government und E-Commerce sind im Vormarsch in Belgien).

The implementation of the e-government system and digital technologies in the UK is successful. The central governing body for ensuring the implementation of the idea of digitalization in the UK is the State Digital Service of the Secretariat of the Cabinet of Ministers, the functioning of which was launched in 2011 with the aim of digitalization of the provision of public services, as well as for the economic justification of determining the cost of transition to public electronic services, establishing the volume of profit and the formation of the State e-Strategy ([Syvolapenko, 2017](#)). An important component of the State e-Strategy is the protection of freedom of thought and speech, along with the protection of intellectual property, which forms the basis for innovations and serves as the "energy" content of e-commerce and digital business. Significant and growing public investment in research and innovation (R&D) (from £15 billion to £20 billion per year between 2020/21 and 2024/25), combined with extended tax incentives for R&D, is the means to encourage private investment and its accumulation of resources in the UK's socio-economic development. One of the priorities for developing the digital society in the UK is the use of future technologies, such as artificial intelligence, autonomous systems, and quantum computing, across various fields. In particular, the NHS, the healthcare sector in the UK, has the most extensive integrated artificial intelligence system. This system offers significant opportunities for research and development based on available data. It reflects the large number of populations served within a single system, leading to the creation of innovative healthcare products.

The adoption of digital technologies is actively carried out in the UK through the cooperation of government agencies with schools, universities, institutions of further education, and enterprises to form the digital skills and

competencies that are actually needed by the real economy, including training and skills training throughout people's careers, in an understandable and recognizable structure. In Ukraine, this experience has also been introduced, particularly through the creation and operation of the exceptional service of the Diia platform, "Digital Lawyers. IT in Law: Blockchain, Online Services, Chatbots and Legal Tech Startups."

The implementation of digital governance in the UK is based on the Direct Access project (Voitko, 2018). The implementation of digital rights of the individual in the UK is facilitated by the active implementation of electronic document management on such principles as: storage, transportation and operation of media used in data processing and storage of information, information security management, documentation management, legal admissibility and information with legal force contained in electronic document management systems, information management, personal data protection.

For Ukraine, as a state actively moving towards European integration, it is important not only to ratify the relevant international acts but also to effectively implement their provisions in national legislation, particularly to improve the institution of legal responsibility in administrative and criminal jurisdiction. Without this, it will be difficult to ensure both proper legal protection of the national digital space and compliance with global standards of the rule of law.

The formation of the information society in Ukraine began with the adoption in 1998 of the Law of Ukraine "On the National Program of Informatization". The Decree of the Cabinet of Ministers of Ukraine dated May 15, 2013 No. 386-r "Strategy for the Development of the Information Society in Ukraine" should be singled out among the strategic national documents that determine the impact on the formation of the information society, Order of the Cabinet of Ministers of Ukraine dated 24.07.2013 No. 614-r "On Approval of the Concept of the State Target Program for the Creation and Operation of the Information System for the Provision of Administrative Services for the Period up to 2017", the Concept for the Development of E-Governance.

The positive characteristics of Ukrainian society include: the introduction of e-governance mechanisms, which consist in the functioning of national registers, databases with the development of mechanisms for access to them by the public and stakeholders; introduction of a digital signature of a person, which allows to ensure electronic document management; functioning (and quite successfully) of the electronic justice system through access to the Unified

State Register of Court Decisions, the Unified Judicial Information (Automated) System and other information services and resources. ([Drozd, 2021](#))

The development of the Ukrainian state is inextricably linked with the further introduction of digital technologies into public administration and legal relations. It requires further law-making activities to guarantee the digital rights of the individual, which, in particular, is determined by the requirements of the Association Agreement between Ukraine, of the one part, and the European Union, the European Atomic Energy Community and their Member States, of the other part (Association Agreement with the EU), which states, that one of the areas of cooperation is to promote wide access, improve network security and widespread use of information and telecommunication technologies by individuals, businesses and administrative bodies through the development of local Internet resources and the introduction of online services, in particular e-business, e-government, e-health and e-learning. ([Volkova, 2024](#))

Digitalization of public administration involves integrating digital technologies into public legal relations, where regulating individual digital rights, particularly in the field of finance, is of great importance.

The modern financial market operates amidst transformation processes that are subject to constant changes, influenced by social, geopolitical, military, situational, economic, financial, cybernetic, unification, integration, and environmental factors. The financial market is a primary component of the Ukrainian economy, as the stability of the national economy depends on the efficiency of its functioning.

The advent of digital technology has significantly reshaped the contemporary world. The financial system is no exception; it is also changing due to innovations, which are the driving force behind the development of any economy. Today, the problem of digitalisation of the economy, which is characterised by the development of the electronic information environment and the latest technologies, is becoming increasingly relevant. The digital evolution of the financial market demonstrates the flexibility of the country's financial system and its ability to swiftly adapt to changes in the economic and political life on the international arena. ([Volkova, 2024](#))

A specific economic mechanism governs the operation of the digital financial market, with its foundation being the interconnectedness of its components. The main elements that determine the state and development of both the financial market as a whole and its individual components are the institution of financial monitoring. In particular, digitalisation processes,



which make it possible to carry out the duties of financial monitoring entities in electronic form, are, of course, a modern and progressive step that will provide significant savings in time and costs, reduce the time for obtaining the necessary information from the SFMS and the confidentiality of such information, etc. ([Matviichuk et al., 2022](#)).

In general, the introduction of digital financial technologies in the financial sector is an indicator of an effective combination of public and private interests. At the same time, the digital economy can generate new needs and products for its consumers, the quality of which is significantly higher and fundamentally different ([Demchyshak, Hlutkovskiy, 2020](#)). The introduction of the latest digital technologies opens up new opportunities for all sectors of the economy, including financial monitoring. First of all, new conditions for the development of financial monitoring in an economy undergoing digital transformation are based on the widespread use of digital technologies and modern financial services. Thanks to financial innovations like these, the financial sector enables the optimization of financial processes at various levels of the economy, which is especially important for the functioning of economic entities. ([Nalyvaiko et al., 2022](#))

Given the new conditions for the functioning of the financial market and the recent integration of digital technologies, concepts like "financial engineering", "financial innovations", "fintech (FinTech)" have entered scientific discourse, which are the result of the active development of new financial instruments and the modernisation of approaches to the provision of traditional financial services ([Volkova et al., 2024](#)). Therefore, in Ukraine, as well as in other countries of the world, it is possible, in our opinion, to identify three basic trends in the functioning of the financial market and the development of its architecture in the new conditions of the digital economy ([Semenoh, 2021](#)): 1) modernisation of market participants and methods of providing services by financial intermediaries (adaptation trends); 2) the development of alternative finance as something fundamentally new, which does not allow, in principle, to draw parallels with the previous features of market architecture (trends in innovation); 3) a combination of classic infrastructure elements, the usual modernised services, as well as fundamentally new elements of architecture in terms of market management institutions, mechanisms for supervising its work, taking into account the transition of many types of financial relations "online", the implementation of new technological solutions at different levels, the emergence of new financial services and tools, in particular, taking into account the potential of financial engineering. ([Sinkevych et al., 2024](#))

The latest digitalised technologies are being actively implemented in the financial sector through the provision of financial services and the emergence of a fintech ecosystem. The efficient functioning, development, and improvement of financial technologies are achieved through the introduction of innovative solutions. Financial innovation involves creating and promoting new financial instruments, technologies, institutions, and markets.

The development of the fintech ecosystem necessitates promoting the latest financial services and bringing them to the consumer. It modifies the implementation of financial market functions in financial institutions, thereby altering the market's structure and capabilities. First of all, this trend can be observed in the shift in approaches to the functioning of financial institutions, changes in financial regulations, the emergence of new opportunities and business models for business entities, and meeting consumer expectations. ([Pizhuk, 2020](#))

Among financial technologies, the RegTech direction is spreading rapidly. Regulatory Technology, or RegTech, is a regulatory technology that helps companies, organisations, and corporations meet and regulate new legal requirements ([Leheza et al., 2024](#))

The final reports on the development of domestic digital ecosystems in 2023 and plans for the implementation of digital opportunities in 2024 reflect the ability of the Ukrainian economy to quickly recover and create prerequisites for post-war reconstruction. One of the main goals of the digital transformation of the economy in Ukraine in 2024 is to increase the share of IT in the country's GDP to 10%. ([Zaporozhchenko, 2023](#))

*The Ministry of Digital Transformation of Ukraine, together with the Swiss Agency for Development and Cooperation, held an event during the International Economic Forum in Davos on January 17, 2024, dedicated to the development of digital Ukraine. It presented domestic experience in the development of the digital state, particularly through the WIN-WIN innovation development strategy, which aims to create benefits for all parties involved. Additionally, the implementation of the Mriya project will contribute to the digital transformation of specific areas.*

*In addition to that, the Ministry of Digital Transformation of Ukraine, together with the Public Union "Virtual Assets 2030", conducted a study "Web3 for Ukraine: Dialogue with Founders", the purpose of which was to identify the main factors limiting the development of the WEB3 industry in Ukraine. An innovative branch of the digital economy predicts significant technological*

progress for Ukraine and facilitates its post-war recovery based on blockchain technology. The latter allows you to store data in a secure, distributed network, interact with it, and create innovative applications and services through the use of smart contracts. The technology is based on the economic concepts of decentralisation (transfer of significant powers and budgets from state bodies to local self-government bodies). ([Kobrusieva et al., 2021](#))

Therefore, it is worth noting that the digital economy is increasingly intertwined with the traditional one, making the boundaries between them nearly imperceptible ([Bukht & Heeks, 2018](#)). In order to ensure the effective development of the financial market through the introduction of digital technologies, it is necessary to achieve the implementation of the following tasks ([Ostapchuk, Baksalova Babiy, 2022](#)): 1) formulating the conceptual foundations for technological changes in the financial market, which are necessary as a result of digitalisation of the economy, in particular, taking into account the regulatory and legal documents, strategies and concepts adopted in Ukraine in this direction; 2) creating conditions for the adoption of the latest digital technologies in the financial sector; 3) coordinating the functions of financial regulators to monitor financial transactions and minimising the threat of fraud in the financial market; 4) increasing the level of financial literacy among citizens and businesses; 5) unification of standards in the field of payments, settlements and other areas with generally accepted ones to implement the strategy of integration into the European space. ([Leheza et al., 2020](#))

Legal responsibility as an instrument of coercion and restoration of law and order has always depended on the form of social relations. Today, digitalization has given rise not only to new objects of legal protection (personal data, digital assets, information security) but also to new entities such as platforms, algorithms, and autonomous systems.

The formation of the digital state leads to the transformation of traditional forms of public law responsibility, primarily administrative. In the digital age, not only is the form of offenses changing, but also how they are committed, recorded, detected, and proven. Administrative liability is becoming a tool for rapid response to mass violations in the fields of e-governance, personal data processing, cybersecurity, digital platform use, artificial intelligence, and telecommunication services.

One of the key trends is the expansion of the grounds for administrative liability in the field of digital law and order. For example, in the legislation of many countries, administrative sanctions are applied for violations such as the

procedure for processing personal data (GDPR in the EU), non-compliance with the rules of electronic identification, abuse of electronic public services (e-gov), and unauthorized interference in the information resources of authorities. ([Halaburda et al., 2021](#))

In the European Union, administrative liability is increasingly imposed not by the court, but by special regulators. Such bodies have broad powers to investigate, impose fines, issue orders, and even temporarily restrict access to digital services. A feature of the digital age is the mass and automation of offenses, which requires the use of algorithmic monitoring, artificial intelligence, and video analytics systems.

Another important aspect is the digitization of the prosecution process. In particular, the submission of protocols, the issuance of resolutions, the payment of fines, and appeals against decisions are increasingly carried out through electronic systems. This reduces corruption risks but simultaneously increases the requirements for digital literacy among citizens and law enforcement officers, and exacerbates cyber defense problems.

The role of administrative proceedings is also changing. It should take into account: the dynamics of digital offenses, the transience of electronic evidence, and the problems of jurisdiction in transnational violations (for example, the actions of a user in one country caused damage to the information system in another). Thus, administrative responsibility in the digital age needs to be rethought in three dimensions: material (identification of new elements of administrative offenses), procedural (digitalization of procedures for imposing liability), and institutional (creation of capable digital surveillance and control bodies). ([Leheza et al., 2024](#))

Guarantees of human rights should accompany these changes, the principles of legal certainty and access to justice. Administrative responsibility should not become a purely technocratic tool of repression but should remain a component of the public legal order system, focused on balancing efficiency and justice. ([Zadyraka et al., 2023](#))

Thus, the analysis of administrative responsibility in the digital age shows that this institution plays an important preventive and regulatory role in ensuring law and order in the information environment. However, given the escalation in the scale and complexity of offenses in cyberspace, along with the growing threats to national and economic security, administrative measures alone are often insufficient. This objectively necessitates the need for expanded application of criminal law instruments that should ensure an adequate level of

protection of society from serious digital offenses ([Leheza et al., 2022](#)). Thus, the next level of legal response to the challenges of the digital age is the institution of criminal liability, which should ensure the prosecution of the most socially dangerous manifestations of digital crime: from unauthorized interference in computer systems to cyber fraud, terrorist financing through cryptocurrencies, attacks on critical infrastructure, etc. ([Tylchych et al., 2024](#))

In the context of the growing role of digital technologies and the cyber environment as a new space of public life, offenses committed using information and communication technologies have acquired a special character: they not only have a cross-border dimension, but also pose a threat to national security, economic stability, and the rights and freedoms of citizens. In such conditions, there is an objective need to rethink the role of criminal law as a tool for protecting positive legal relations from the most dangerous manifestations of digital crime. ([Leheza et al., 2023](#))

Criminal liability in the digital age is not only a matter of qualification of new *corpus delicti* related to unauthorized access to information, hacking of systems, fraud in the network, the use of malware, but also, more broadly, the problem of the adequacy of criminal law mechanisms for responding to dynamic and technologically complex forms of criminal activity. Crimes committed in the digital environment, as a rule, are characterized by high latency, a complicated evidentiary process, a transnational character, and often involve highly qualified technical specialists in their commission. ([Villasmil Espinoza et al., 2022](#))

In response to these challenges, many states are reforming criminal legislation by expanding the lists of crimes related to the use of information technologies, introducing specialized investigative tools, and forming institutional cyber police units. ([Leheza et al., 2024](#))

Ukrainian criminal legislation, adapting to international standards, is also gradually expanding the list of norms governing responsibility for committing crimes in the field of information security. At the same time, numerous issues remain open, particularly in proving digital traces, determining the boundaries of criminalization of behavior in virtual spaces, and ensuring a balance between protecting individual rights and the effectiveness of criminal prosecution. ([Tylchych et al., 2022](#))

## D. CONCLUSIONS

The world standards of legal support of digital rights of an individual are associated with: the development of the foundations of national and regional policies on digitalization; creation of a specialized entity authorized to implement obligations for the formation and implementation of digital policy; establishing international cooperation of states both with other states and with business representatives by introducing incentives for the introduction of innovative technologies in their activities; introduction of means to simplify procedures for the use of public services, which requires simplification of the method for identifying the user of services, the functioning of unified portals of administrative services, etc.; introduction of technologies of electronic justice, electronic document management and e-commerce, etc. Accordingly, the institution of legal responsibility in the digital age is a system of prevention, regulation, self-control, and international cooperation. It must be adaptive, technologically literate, and human rights.

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