ANALYSIS OF TERMINOLOGY FOR IDENTIFYING THE RISKS OF ENSURING SECURITY AND SUSTAINABILITY OF CRITICAL INFORMATION INFRASTRUCTURE IN UKRAINE

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Annotation. The article is devoted to the definition of the concept of risk in the context of ensuring safety and sustainability of critical information infrastructure in Ukraine. It has been specified that, in general, the risks, which may arise and affect critical information infrastructure objects of Ukraine, are a highly specialized subject matter of research searches. Therefore, there is no clear identification of the term «risk» in the context of the proposed public relations at the scientific level. It has been emphasized that the legislative doctrine also does not define its content and essence.

The general theoretical and legal definition of the term «risk» has been analyzed. An attempt to differentiate its characteristics as a distinct legal phenomenon from related legal categories has been made.

It has been summarized that the category of risk in the context of ensuring safety and sustainability of critical information infrastructure in Ukraine is a form of manifestation of danger caused by the presence of phenomena, factors, circumstances, events, etc., which can potentially have negative consequences on the course of public relations, functionality of objects or specific legally protected interests in this sphere. In addition, we have clarified that the category of threat should also be understood as a form of manifestation of danger, which is due to the presence of phenomena, factors, circumstances, events, etc., but only those that will damage safety and sustainability of critical information infrastructure in Ukraine in the future (in particular, if it is not neutralized, it will become a risk).

It has been summarized that to ensure that potential risks in the field of critical information infrastructure protection do not become an actual problem, the State, in formulating its policy in this area, should clearly define, i.e. establish at the legislative level what is a risk to critical infrastructure in general and for information one – in particular. This is necessary to develop clear methodologies for monitoring and forecasting certain risks in the future to avoid their negative effects.

Key words: critical infrastructure, critical information infrastructure, danger, threat, risk, sustainability, problem, crisis.

1. Introduction.

In recent years, threats of terrorism, extremism and separatism have been growing in the world, as well as there is an increase in the number of man-made and natural emergencies, cyber-attacks on the State institutions, companies, and enterprises. This is taking place against the backdrop of complicating and branching interactions and mutual influences in ensuring the vital activities of the modern State, its national security and defense. The influence of the listed factors significantly
increases the vulnerability of objects and systems that are vital for ensuring the daily functioning of each modern State [1]. This vulnerability is magnified in situations of armed conflict, in which Ukraine has been in protracted.

Risk monitoring for State systems, specifically designed to ensure the protection (security) and sustainability of critical infrastructure, both in general and in information infrastructure in particular is among the tools and mechanisms necessary and sufficient to respond to existing security challenges. Moreover, the main legislative act, regulating the issue of protection of critical infrastructure in Ukraine, defines that the sphere of its influence is public relations on the operation and protection of critical infrastructure in general and its objects in peacetime [2]; in armed conflict other regulations should be applied.

It is important to stress that currently the main criterion for assigning various objects, systems and networks (either physical or virtual ones) to the category of critical information infrastructure is their crucial importance for safe and sustainable daily life of the country. In other words, we are talking about objects vulnerability or loss of which (partial or total) may lead to rapid and serious consequences for the population, society and the state as a whole. Therefore, their protection should be given high priority.

After all, the Law of Ukraine «On Critical Infrastructure» enshrines that the stability of critical infrastructure is such a state that ensures its ability to function normally, adapt to constantly changing conditions, resist and quickly recover from the influence of threats of any kind [2].

However, before establishing a security measures system, it is necessary to identify the risks that exist or may arise and affect the operation of the objects of the critical information infrastructure of Ukraine.

2. Analysis of scientific publications.

In general, the risks, which may arise and affect critical information infrastructure objects of Ukraine, are a highly specialized subject matter of research. Accordingly, there is no clear identification of the term risk in the context of the proposed social relations. However, it should be noted that this category has a fairly broad scientific study from the standpoint of general theoretical value. For example, P. Koiuda and O. Koiuda revealed risks, their features and methodical approaches to their classification considering the scope and subject matter of activity, organizational and legal form of business and industry [3]; T. Tsvihun characterized the modern view on its identification [4], and V. Kryvoshein revealed it from the policy attribute position [5].

3. The aim of the study.

Given the importance of the problems of ensuring security and sustainability of critical information infrastructure in Ukraine, the purpose of this scientific publication is to provide a generalized definition of the term «risk» in the context of the proposed social relations.

4. Review and discussion.

The general public opinion that has been formed is that risk is an active factor, or a factor of the developing process, which has a potentially negative impact on the process. In simple terms, risk is something that can potentially make things difficult [6]. Recently, the risk has been linked to the extent of damage from a dangerous accident (for example, from a natural hazard – flooding, earthquake or accident, explosion, fire), as a rule, in kind or in value terms (number of victims and fatalities, hazard area size). That is, in this interpretation of the category «risk», the effects that have occurred or potential effects are chosen as the basis. It has been also emphasized that it is a persistent negative factor that can affect or influence anything – process, object, actor.
At the same time, in jurisprudence, risk is considered not only as a negative factor. Thus, in the criminal law, when characterizing the grounds for exemption from criminal liability, socially dangerous acts, which have led to negative consequences, but related to the risk, are described. Thus, part 1 of Article 42 of the Criminal Code of Ukraine defines that: «no act (action or omission) in prejudice of legally protected interests shall be held to be a criminal offense where it was committed in circumstances of justified risk to achieve a significant purpose valuable to the community». Moreover, Part 2 of the same article determines what is risk in criminal law, that is, when the damage caused is considered to be justified, in particular: «Risk shall be justified if the goal pursued could not, under the circumstances, be achieved otherwise than by an action (omission) involving risk and the person that allowed the risk reasonably believed that he/she exercised enough caution to avert harm to the legally protected interests» [7].

In turn, in civil law risk is also considered as a negative factor, and as a positive or neutral (zero). For example, I. Volosenko interprets risk as a legal fact (action, event) included under civil obligation or professional activity, which may or may not occur, and the consequence of which may be three economic results: negative (loss, damage, harm), zero and positive (gain, benefit, profit) [8, p. 14–18; 9].

There is also an «acceptable risk». In particular, the Law of Ukraine «On the Main Principles of State Supervision (Oversight) in the Area of Commercial Activity» states that «acceptable risk shall be defined as socially, economically, technically and politically justified risk not exceeding the maximum allowable level» [10].

Thus, from a legal standpoint, the category of risk can be characterized as both negative and positive factor (depending on the specific situation and the actor’s attitude to this situation) or even as acceptable.

It should be noted that the legal instruments regulating the protection of critical information infrastructure refer to negative types of risks. Moreover, both the term «risk» and «threat» are applicable at the same time. Thus, the Law of Ukraine «On Critical Infrastructure» when interpreting the term «protection of critical infrastructure» defines that «it is the timely detection, prevention and neutralization of threats to the safety of critical infrastructure objects, as well as minimizing and eliminating of consequences in case of their implementation» [2].

In total, the word «threat» is used more than 50 times in this Law, and the word «risk» – 25 times. For example, when defining the main principles of the State policy, it is indicated that one of the approaches is «enabling and implementing measures to effectively mitigate and control security risks, reduce the risk of implementing possible threats, eliminate and/or minimize the consequences of realized threats, crisis situations, etc.» [2]. However, there is no clear understanding, what does the legislator mean by the terms «threat» and «risk» in the field of critical protection. However, it is clear that these terms are different.

Determining their common and distinctive features, we note that threat is interpreted as: «blunt, bold promise to do any harm, trouble; threatening, nagging» [11]; «a variety of contradictions that pose a danger to the security, life-support for its system-forming elements»; «danger at the stage of transition from possibility to reality» [12].

The authors of theoretical and methodological studies on security theory are unanimous in their opinion on the threat as a category close to the concept of danger, but its distinctive feature is more specific form by the level of impact on the object of action [13]. That is, the authors believe that first there is a danger, and then – a specific threat.

But there are also completely opposite opinions. For example, O. Arefieva understands threat as «a set of conditions, processes, factors preventing the implementation of national economic interests or posing danger for them and the actors of economic activity» [14, p. 30]. That is, the author puts a threat at the beginning, after which danger arises.

Besides, the terms «risk» and «threat» are often equated. Thus, V. Lipkan states that “threat is a risk, which began to be implemented under an undesirable option, or a predetermined scenario of adverse developments, and thus go beyond the normal uncertainty of the conditions of economic
activity” [15]. O. Liashenko suggests that «threat» and «risk» reflect some current events, while «danger» indicates probable ones, that is, such events that may not occur [16]. At the same time, L. Kalinichenko emphasizes that «risk and threat are forms of danger, which reduce the level of security» [17]. We agree with the latter statement, because both risk and threat are factors preventing objects or entities from being secure.

Some scientists believe that risk is a possible danger of negative consequences. Therefore, it is an objective category, since the existence of a risk of accidental negative effects does not depend on the will and consciousness of people [18, p. 37]. Others believe that risk is a subjective category, because it exists in parallel with guilt, but can also exist alongside it, as a mental attitude of actors to the result of their own actions or the actions of other persons, as well as to the consequences of objective-accidental or accidental-impossible actions (events), expressed in assumption of negative, including property consequences that cannot be compensated [19, p. 177; 20, p. 161].

For completeness of consideration of this issue, we note that in the legislation the term «risk» is interpreted as: 1) the possibility of a harmful effect on human health and the degree of this effect, originating from dangerous (harmful) factor (factors) in a food product (Law of Ukraine «On Quality and Safety of Food Products and Food Raw Materials») [21]; 2) possibility and likely extent of the effects of an adverse event during the specified period (Law of Ukraine «On Plant Quarantine») [22]; 3) possibility of any dangerous event during a certain period or under certain circumstances (Law of Ukraine «On Extremely Dangerous Objects») [23]; 4) potential and possible extent of adverse effects during a certain period of time (Law of Ukraine «On Technical Regulations and Conformity Assessment») [24]; 5) combination of total probability or negative incident frequency, which is determined by danger or seriousness of this effect (Orders «On the approval of the Rules of certification of entities providing air navigation services» [25] and «On the approval of the Regulations on the Supervision of Aviation Safety in the Air Organization System and amendments to some legal acts» [26]); 6) potential negative effects of economic activity and possible losses as measured in quantity and quality (Law of Ukraine «On the basic principles of state supervision (control) in the field of economic activity») [27]; 7) probability of occurrence of circumstances and reasons that cause road accidents, catastrophes, crashes (Order «On the approval of the Procedure for the technical investigation of traffic accidents, catastrophes, accidents on automobile and urban electric (tram, trolleybus) transport») [28]; 8) any circumstance or event that can reasonably be found to have a potential negative impact on the security of network and information systems (Directive (EU) 2016/1148 concerning measures for a high common level of security of network and information systems across the Union) [29].

In turn, the term «threat» is understood as: 1) existing and potentially possible phenomena and factors with a negative impact on anything (for example: a) on the sphere of State border security (Order «On the approval of the Instructions for conducting risk analysis in the State Border Service of Ukraine») [30]; b) values or social relations protected by law (Order «On some issues of implementation of the SOCTA Ukraine assessment system in the activities of central executive bodies») [31]; 2) nature of the dangerous substance or physical situation, that can potentially cause damage to the environment and human health (Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC Text with EEA relevance) [32]; 3) potential for vulnerability realization (Order «On establishing security and information protection requirements for qualified providers of electronic trust services and their separate registration points») [33]. Moreover, the information threat is interpreted separately as potentially or actually negative phenomena, trends and factors of information influence on people, society and the State, which are used in the information sphere to prevent or complicate the pursuit of national interests and the preservation of national values of Ukraine and can directly or indirectly cause damage to the interests the State, its national security and defense (Information Security Strategy) [34].

The analysis of the above indicates that the boundary between the studied phenomena from the legislative discourse is insignificant. At least this is evidenced by the indication that they are phenomena, factors, circumstances, events, etc., but of a different legal nature.

We can assume that the threat is less dangerous. That is, first there is a threat, which is transformed into a risk, which, if there is sufficient evidence to suggest that it will have a negative effect on a certain object or subject.
Therefore, we agree with T. Romanchyk, who, when studying danger, threat and risk, came to the conclusion that: «danger can be considered as a state, threat – as an action, risk – as an action with probable consequences regarding the loss of a part of resources under the negative influence of random poorly predicted events» [13].

Thus, we can summarize the following features that are characteristic of the legal definition of the term of risk: it is an action that causes an event (or their combination), certain circumstances existing for a certain time (period) and have a negative effect, which is likely to have consequences of an unspecified size.

It should be noted that the Information Security Strategy uses the term «crisis» along with the category of «threat» [34]. In the context of tasks aimed at achieving the strategic goal of creating an effective system of strategic communications, it is considered as a factor that must be prevented. In turn, the following terms are used in the legal instruments regulating the sphere of critical information infrastructure protection: critical infrastructure security incident [2], crisis situation [2], negative impact [35]. The difference between these terms is as follows: the first one is an adverse event of an unintentional nature [2]; the second one is violation or threat of violation of the regular mode of operation of critical infrastructure or its individual object, the response to which requires the involvement of additional forces and resources [2]; the third one is a negative impact with consequences that may occur in the event of the critical infrastructure object malfunction [35].

It is also worth distinguishing between the concepts of «risk» and «problem». In particular, problem is something that is already happening and has a negative impact, that is, it is a risk that has already taken place. Thus, the main task in relation to risks is to identify them in time, predict them, and take maximum measures to minimize their occurrence, that is, to make sure that theoretical risk does not become an actual problem [6].

5. Conclusions.

The conducted research helped to summarize that the category «risk» in the context of ensuring safety and sustainability of critical information infrastructure in Ukraine is a form of manifestation of danger caused by the presence of phenomena, factors, circumstances, events, etc., which could potentially have negative effects on the course of social relations, functionality of objects or specific legally protected interests in this area.

Let us further clarify that in this context the category of threat should also be understood as form of danger manifestation, which is due to the presence of phenomena, factors, circumstances, events, etc., but only those which in the future will harm security and stability of critical information infrastructure in Ukraine (in particular, they will become risk if no action is taken to neutralize them).

Accordingly, to prevent potential risks in the protection of critical information infrastructure from becoming an actual problem, the State, when formulating its policy in this area, should clearly define the terminology, that is, enshrine what constitutes a risk for critical infrastructure in general and for information one in particular at the legislative level. This is necessary to develop clear methods of monitoring and forecasting certain risks in the future to avoid their negative effects.

References:


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