

THE ROLE OF FORENSIC EXPERT ACTIVITY IN THE IMPLEMENTATION OF THE SANCTIONS POLICY IN UKRAINE

Olena Agapova¹, Tetiana Kolomoiets², Kateryna Holovko³

Abstract. This article examines the role of forensic experts in implementing the state's sanctions policy amid the Russian Federation's full-scale armed aggression. It analyses contemporary scholarly approaches to understanding the nature and place of sanctions within the system of public administration. It is evident that sanctions are a vital tool for ensuring national security, the effectiveness of which hinges significantly on adequate information, analysis, and evidence. Particular attention is devoted to researching the role of forensic examination in identifying foreign components used in Russian weapons systems. It has been demonstrated that a significant proportion of these components are dual-use goods. Identifying these goods and determining their manufacturers, countries of origin, production dates and other vital data forms the basis of the evidence required to apply, expand and reinforce sanctions restrictions.

The study analyses the activities of international institutions and initiatives in the field of sanctions policy. These include the List of Common High Priority Items (CHPL), the Tallinn Paper on Assessing the Effect of Sanctions and the activities of Conflict Armament Research (CAR). It also examines the European Union's sanctions response practice, including the interim package of sanctions against the Russian Federation, which was introduced on June 15. The emphasis of this study is directed towards the activities of the institutional actors responsible for the implementation of the state's sanctions policy. The proposed classification of these actors encompasses the following: entities initiating the application, amendment, or revocation of sanctions; entities responsible for decision-making regarding the application of sanctions; entities implementing and enforcing sanctions decisions; and entities providing informational, analytical, and evidentiary support for sanctions policy. The authors propose a novel definition of the concept of 'expert support in the field of the implementation of the state's sanctions policy'. This is defined as a complex of scientific, methodological, organisational, and procedural measures carried out by actors of forensic expert activity. The aim of these measures is to identify, document, examine, and evidentially confirm facts that can serve as a basis for the application, expansion, reinforcement, or revision of sanctions restrictions.

Keywords: sanctions, sanctions policy, forensic examination, weapons systems, dual-use goods, foreign made components, supply chains

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¹ Kyiv Scientific Research Institute of Forensic Expertise
of the Ministry of Justice of Ukraine, Ukraine;
Riga Stradiņš University, Latvia
E-mail: agapova-lena@ukr.net
ORCID: <https://orcid.org/0000-0003-1024-0238>

² Zaporizhzhia National University, Ukraine
E-mail: t_deputy@ukr.net
ORCID: <https://orcid.org/0000-0003-1101-8073>

³ National University "Kyiv Aviation Institute", Ukraine (*corresponding author*)
E-mail: k.v.mozharovska@gmail.com
ORCID: <https://orcid.org/0000-0001-7414-6078>



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1. Introduction

Problem Statement. The application, expansion and reinforcement of sanctions requires expert examinations to identify critical components used in the manufacture of the aggressor state's weapons systems. Particular attention is devoted to determining the role of forensic experts in establishing the evidence base for the implementation of sanctions and the mechanisms of the international sanctions response.

Research Objective. The objective of this study is threefold: to define the role of forensic experts in implementing the state's sanctions policy; to examine the evidentiary significance of their work in applying and enforcing sanctions restrictions; and to develop the concept of expert support in this area.

Literature Review. A considerable number of Ukrainian and foreign authors have dedicated their scholarly works to the issues of sanctions application and the implementation of Ukraine's sanctions policy. Among the prominent specialists in this field, the following names should be highlighted: G. Abuseridze, J. Galtung, R. Pape, K. Buhaichuk, S. Hrynenko, A. Menshenina, K. Flissak, and O. Shcherbaniuk.

For example, Johan Galtung defined sanctions as actions taken to punish recipients by depriving them of certain resources or forcing them to comply with norms deemed important by those who impose the sanctions (Galtung, 1967). Robert A. Pape's definition focuses more specifically on the aspect of 'compelling compliance', treating economic sanctions as 'measures designed to restrict trade relations in order to compel the target government to alter its political behaviour'. The author also emphasises that 'the objective of economic warfare is to degrade the adversary's aggregate economic potential in order to diminish its military capabilities in an arms race or in an ongoing war' (Pape, 1997).

The thesis advanced by K. Flissak is highly compelling, asserting that 'in recent years, the issue of sanctions in international relations, primarily economic ones, has resounded with increasing intensity, and the economic interests of states may recede into the background, giving way to the priority of national interests. The level of sanctions effectiveness is in direct proportion to the clarity of their definition, the precision of their classification, the substantiation and concretisation of the criteria for their introduction, the reasoned gradation of their impact capabilities, and the foresight and preliminary assessment of the level of risks for all actors in the process resulting from their application' (Flissak, 2019, p. 75). The author emphasises that sanctions are a complex state policy mechanism, encompassing not only political and economic instruments of influence, but also intricate regulatory and organisational support mechanisms. In this context, defining criteria and establishing a robust evidentiary foundation are of paramount importance.

Investigating the recovery of sanctioned assets into state revenue, scholar O. Shcherbaniuk notes: 'In general, restrictive measures are introduced in order to bring about a change in the policy or activity of a country, part of a country, government, organisations, or individuals. They are preventive, non-punitive instruments that should enable the EU to respond swiftly to political challenges and events' (Shcherbaniuk, 2025, p. 363). O. Shcherbaniuk's position is entirely persuasive. The application of sanctions is not identical to the imposition of punishment, nor is sanctions activity an end in itself. The primary purpose of sanctions is to prevent actions that threaten the international legal order.

There are solid grounds to agree with the thesis of R. Polyvach that 'international economic sanctions are a powerful foreign policy tool utilized by states or international organisations to compel other states or subjects of international law to comply with international standards or alter their policies on specific issues. They can be targeted at various aspects of economic activity, such as trade, finance, technology, or specific sectors of the economy, and have varying degrees of impact on the countries to which they are applied' (Polyvach, 2025, p. 292).

Russia's full-scale invasion of Ukraine has shaken the entire world, particularly the European Union. This war is fundamentally changing the way the international security system works. In response, the EU and the United States have initiated an 'economic war' against Russia by imposing large-scale sanctions. It is necessary to agree with the authors G. Abuseridze and O. Agapova that '...in the short and medium term, the Russian economy will experience a gradual and substantial contraction. Russia is heavily dependent on foreign technologies and critical components and is incapable of ensuring a full production cycle for a wide range of high-tech products—from semiconductors and microchips to household electronics' (Abuseridze & Agapova, 2023, p. 77).

2. Research Methodology

This study's methodological framework comprises a set of scientific cognitive methods selected based on the subject of analysis's purpose, objectives, and interdisciplinary nature. During the study, normative-dogmatic and formal-legal methods were employed to analyse the Law of Ukraine "On Sanctions", along with other regulatory acts and official institutional documents, to elucidate the legal nature of sanctions.

The systemic-structural and functional methods enabled the actors involved in implementing the state's sanctions policy to be categorised and scientifically classified, identifying four functional groups and defining the position of forensic science institutions within this system. The comparative-legal method was used to compare domestic experience with

international standards. The method of empirical and statistical analysis was applied to examine empirical data of international organisations (specifically, Conflict Armament Research reports on the identification of foreign components), statistical data of the Ministry of Justice of Ukraine regarding the recovery of sanctioned assets into state revenue, and the practice of the High Anti-Corruption Court (HACC) for the year 2024.

3. Main Body of the Study

The work of forensic experts is an exceptionally multifaceted resource for supporting various spheres of state administration. In the context of a full-scale invasion, the potential of forensic science becomes paramount for sanctions-related operations, which are inherently complex and require the comprehensive and coordinated efforts of all criminal justice stakeholders. The term 'sanctions' is highly polysemous. In domestic contexts, sanctions usually refer to a set of measures applicable to individuals who have violated a legal norm. Sanctions may have various objectives, such as defining the limits of acceptable behaviour, punishing wrongdoers and deterring potential offenders. However, regardless of a given sanction's specific objective, its essence lies in its connection with legal norms. It is precisely this connection that distinguishes sanctions from mere acts of coercion. In a national context, sanctions are used to ensure compliance with the law and reinforce the principle of the rule of law.

Pursuant to Article 1 of the Law of Ukraine "On Sanctions" dated August 14, 2014, No. 1644-VII, special economic and other restrictive measures may be applied with the aim of protecting national interests, national security, sovereignty, and the territorial integrity of Ukraine, countering terrorist activities, as well as preventing violations of, and restoring, the infringed rights, freedoms, and legitimate interests of citizens of Ukraine, society, and the state. From a scholarly and legal perspective, this provision establishes a conceptual framework and defines sanctions as a distinct instrument within public administration. In practice, the term 'sanctions' is applied to a wide range of measures carried out by different actors for various purposes and against different targets. The concept of 'sanctions' encompasses a wide variety of military and non-military actions that, under certain conditions, can achieve or facilitate the achievement of various foreign policy goals ranging from moderate to highly significant.

To systematise and standardise approaches to evaluate sanctions effectiveness at the international level, specialised methodological frameworks are being formulated. A prominent example is the 'Tallinn Paper – On Assessing the Effect of Sanctions'. This methodological guide is designed to provide an objective assessment of the consequences of the restrictive measures introduced by the European Union

in response to Russia's full-scale invasion of Ukraine. During its presidency of the Council of the EU, Estonia initiated the creation of the 'EU Sanctions Map' – a platform managed by the European Commission that consolidates information on all sanctions regimes implemented by the EU and the UN. This significantly facilitates access to the current regulatory framework.

4. Economic Significance of Forensic Expert Activity for the Implementation of Sanctions Policy

Contemporary challenges are transforming the role of forensic experts into a vital element of sanctions pressure mechanisms. In this context, the findings of forensic examinations can establish facts about the use of foreign components in Russian weapons systems. There is compelling evidence to suggest that Russian weapon manufacturers systematically use foreign components. A significant proportion of these components are of a dual-use nature, which requires them to be thoroughly investigated. This includes determining markings, manufacturers, countries of origin, production dates and other data of evidentiary significance. These results can then be used to build an appropriate evidentiary basis, establish supply chains and identify entities involved in circumventing sanctions restrictions.

This undermines trust in international export control mechanisms and has a negative impact on states and private enterprises that are directly or indirectly involved in the supply chains of components for weapons systems used in the war in Ukraine. In this context, forensic experts' conclusions regarding the identification of manufacturers, suppliers and technical specifications of weapon components play a decisive role in providing evidence and form the basis for the formulation of international sanctions.

The role of forensic experts is becoming increasingly important in the implementation of the state's sanctions policy. In modern times, sanctions serve not only as a means of political influence, but also as a way of restricting the economic potential of the aggressor state, particularly its military-industrial complex. The effectiveness of sanctions hinges heavily on the ability to reliably establish facts that confirm the use of foreign technologies and dual-use goods, as well as the participation of specific companies in international supply chains. Disclosing the actual manufacturers of components makes it easier to detect new re-export schemes and the involvement of third countries and shell companies. This contributes to the inclusion of non-compliant entities in sanctions lists.

In this context, the activities of Conflict Armament Research (henceforth referred to as CAR) are pertinent. Since its foundation in 2011, CAR has played a leading role in investigating the supply chains of weapons and ammunition in conflict zones. CAR research



Figure 1. Field-Programmable Gate Array (FPGA)

Manufacturer: Altera Corporation (Intel)

Country of Manufacturer: United States of America¹

teams inspect weapons in various settings, including those seized by state security forces, surrendered after the cessation of hostilities, cached, or held by insurgent forces. CAR investigators collaborate with Ukraine's security and defence forces, photographically documenting all items and georeferencing and dating documentation sites. They also incorporate contextual interview data collected by the forces controlling the items at the time of documentation.

Since Russia's full-scale invasion of Ukraine in February 2022, CAR field investigators have documented over 12,000 missile and UAV components in Ukraine. Many of these are microelectronics and semiconductors, including amplifiers, antennae, field-programmable gate arrays, inertial measurement units, global navigation satellite system modules, microprocessors and voltage regulators. To date, CAR has issued over 1,500 tracing requests to identify the supply chains of these components. In their responses, governments and manufacturing companies frequently informed CAR that these components were not subject to licensing requirements at the time of sale. Consequently, the work of forensic experts is particularly important in preventing the supply of critical components to the Russian military-industrial complex. Identifying component manufacturers helps to detect specific enterprises and their supply chains to the aggressor state. The economic efficiency of forensic support for sanctions policy is demonstrated by improving the quality of the evidentiary base, speeding up the adoption of sanctions decisions and minimising the circumvention of international sanctions.

The question naturally arises: how can such instances be effectively countered, and how can the international

community be made aware of the issue of supplying components for Russian weapons systems?

In February 2024, the G7 (comprising Canada, France, Germany, Italy, Japan, the United Kingdom and the United States, as well as the EU) released the List of Common High Priority Items (hereafter referred to as the CHPL). The list includes prohibited dual-use goods and advanced technology items used in Russian military systems which have been recovered from the battlefield in Ukraine, or which are critical to the development, production or use of such systems. Prior to the conflict in Ukraine, many of these components were not subject to strategic export controls. The CHPL directs targeted regulatory attention and risk management approaches towards components that play a key role in the advanced manufacturing of conventional weapons and have therefore been prioritised for coordinated export controls.

The timely detection and inclusion of entities involved in the production, supply or facilitation of the aggressor state's military-industrial complex in sanctions lists is crucial to ensuring the efficacy of sanctions policy. A prime example of a timely response to sanctions was the European Union's interim package of sanctions against the Russian Federation on June 15th. This package diminished the capabilities of the Russian military-industrial complex by introducing restrictive measures against entities directly engaged in such activities. This included not only armaments manufacturers, but also enterprises that facilitate their operations, such as ASFPV, Rustakt, IONOS and the Izhevsk Aviation Plant, which produces SKAT 350M reconnaissance UAVs for the Russian military.

It must be acknowledged that the number of specialists with expertise in investigating modern weapons systems and their electronic components is extremely limited globally. This makes Ukraine's experience unique and strategically vital for the international community. Currently, within the scope of examining weapons systems, forensic institutions conduct specialized forensic examinations, including:

1. Examination of weapons, their traces, and the circumstances of their use.
2. Explosive-technical examination.
3. Examination of materials, substances, articles, metals, and alloys.
4. Computer-technical examination.
5. Forensic commodity examination (examination of military property).

Taken together, these types of analysis provide a coherent, scientifically substantiated expert opinion on foreign-made components.

The work of forensic experts significantly speeds up the identification of critical components and helps to determine the manufacturing companies and suppliers of these elements. Thanks to their precise identification, expert opinions form an essential evidentiary basis for

¹ Defence Intelligence of Ukraine. (n.d.). *War&Sanctions: Components in weapons*. War&SanctionsURL: <https://war-sanctions.gur.gov.ua/components/7109>

decision-making in export control and sanctions policy. At the same time, experts can establish whether the manufacturer (the Russian Federation) has deliberately tampered with weapons systems by intentionally removing markings from critical components. Specifically, cases are documented in which additional holographic elements of a destructive nature are applied, resulting in the physical destruction of the primary markings and preventing their definitive identification. Thus, forensic examination plays a vital role in providing information, analysis and evidence, and establishes an appropriate foundation for the activities of entities authorised to initiate and apply sanctions.

An analysis of the system of actors responsible for implementing the state's sanctions policy highlights the crucial role of interagency co-operation. This is carried out in close collaboration with the Sanctions Policy Commissioner of the President of Ukraine, Vladyslav Vlasuk; the Office of the President of Ukraine; the Security Service of Ukraine; other Ukrainian law enforcement bodies; forensic expert institutions; and international organisations. Pursuant to Article 5 of the Law of Ukraine "On Sanctions", proposals regarding the application, revocation, and amendment of sanctions are submitted by the Verkhovna Rada of Ukraine, the President of Ukraine, the Cabinet of Ministers of Ukraine, the National Bank of Ukraine, and the Security Service of Ukraine. Subsequently, these state matters are deliberated by the National Security and Defence Council of Ukraine, whose decisions are enacted by decrees of the President of Ukraine.

Synthesising the current legislation and the practice of sanctions policy implementation, one can delineate the following categories of actors:

- Entities that initiate the application, amendment, or revocation of sanctions;
- entities responsible for decision-making regarding the application of sanctions;
- entities implementing and enforcing sanctions decisions;
- entities providing informational, analytical, and evidentiary support for the sanctions policy.

This final group should comprise forensic institutions, law enforcement bodies and other entities whose activities are required for the formulation of proposals regarding the application, revocation and amendment of sanctions.

The importance of sanctions policy in ensuring Ukraine's national security is further confirmed by the official results of its implementation. Specifically, the Ministry of Justice of Ukraine, in its report titled 'Sanctions against persons supporting the Kremlin's policy: Results of implementing the sanction of recovery of sanctioned persons' assets into state revenue in 2024' (published on January 6, 2025), emphasised that the year 2024 marked a pivotal stage in the evolution of the national sanctions mechanism and demonstrated the efficacy of sanctions application. Thus, in 2024, the High Anti-Corruption Court ruled in favour of 23 claims filed by the Ministry of Justice of Ukraine concerning the application of sanctions in the form of asset recovery for state revenue purposes. These sanctions were imposed on both individuals and organisations, including representatives of the Russian military-industrial complex, major enterprises, and individuals close to the leadership of the Russian Federation, as well as other entities whose activities facilitated aggression against Ukraine.

5. Conclusions

Today, the work of forensic experts does not merely serve an evidentiary function in criminal proceedings; it is also emerging as a vital element of state economic security. The results of forensic investigations provide the information and evidence on which sanctions policy is based, help to reduce opportunities to circumvent international sanctions and weaken the economic potential of the aggressor state's military-industrial complex. In summarising the foregoing, it is crucial to formulate the concept of *forensic support in the implementation of the state's sanctions policy*, which is proposed to be understood as a complex of scientific-methodological, organisational, and procedural measures carried out by forensic expert entities with the objective of identifying, documenting, examining, and evidentially confirming facts that may serve as a basis for the application, expansion, reinforcement, or revision of sanctions restrictions. The ultimate result of such activity is the formation of a robust evidentiary basis that is essential for making well-founded decisions about sanctions, establishing supply chains and identifying entities involved in circumventing sanctions regimes.

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