

Proving Weapons Smuggling: Opportunities for Applying Specific Weaponry Expertise

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The Article Purpose is to delineate possibilities for applying specific expertise in the field of weaponry studies when proving weapons smuggling, and to assess specific expertise relevance for identifying elements of a crime and for ensuring efficiency in criminal proceedings. The following methods have contributed to the achievement of the set goal: general scientific methods of analysis and synthesis, induction and deduction, as well as philosophical and specialised methods — dialectical, systemic-structural, comparative-legal and generalisation. It has been substantiated that specific expertise in the field of forensic weaponry science is a key component of forensic technical support in weapons trafficking investigations. Specific expertise application extends far beyond the provision of expert advice and encompasses preliminary forensic examinations, participation of specialists in investigative (search) actions, and conduct of forensic examinations. A systematic overview of scientific approaches and case law has revealed that primary means of applying specific expertise in cases of the above-mentioned category is forensic examination of weapons, traces and circumstances of their use, which enables a scientifically substantiated determination of the type of weapon, its technical specifications, suitability for use and other features necessary for the criminal law qualification of an act. It has been emphasised that in cases involving weapons smuggling, weaponry experts, ballistics experts, and specialists from the expert units of the Security Service of Ukraine and the expert service of the

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Ministry of Internal Affairs of Ukraine, the Ministry of Justice of Ukraine play a pivotal role. Their research findings help identify items, establish links between episodes of criminal activity, verify weapons against records, and formulate investigative scenarios. It has been argued that enhancing the efficiency of a proof procedure in cases of weapons smuggling requires proper interaction between law enforcement agencies and forensic institutions, obligatory consideration of preliminary examination results, and providing a forensic expert with a full set of necessary tools and materials, including a crime scene inspection record.

Keywords: pre-trial investigation; smuggling; forensic examination; tactical support; ordering forensic examination; environmental damage.

Research Problem Formulation

Nowadays, combating weapons smuggling goes beyond purely customs-related, economic or criminal law considerations and is evolving into a security concern, since it directly impacts national security, public order and human lives. Unlawful transportation of weapons, ammunition and their components across the customs border poses a threat of illicit weapons trafficking, using these weapons in violent crimes and worsening the crime situation in a country. In such proceedings, technical specifications of a smuggled object are of fundamental importance, as they determine criminal nature of an offence's subject matter, the degree of public danger posed by an act, and the possibility of correctly classifying the offence.

Meanwhile, analysis of pre-trial investigation authorities' and the judiciary's practices regarding the investigation and trial of criminal proceedings relating to weapons smuggling reveals significant difficulties in determining the legal status of

seized items, their intended use, technical condition and suitability for use. It is not unusual for the assessment of such objects to be limited to a formal description of their external features, without a proper examination of their design features, technical specifications and suitability for their intended purpose. This approach leads to an incomplete understanding of case circumstances, creates risks of an incorrect legal assessment of an incident, and makes it more challenging to prove objective elements of a criminal offence.

Relevance of combating weapons smuggling in the current climate stems not only from the general rise in threats to public security, but also from the current statistics on weapons and ammunition seizures during border control. Based on analytical data from units of the State Border Guard Service of Ukraine, 195 units of weapons and 21,901 pieces of ammunition were seized during 2023 ¹. At the same time, a significant increase in the number of seizures was recorded in subsequent years: in 2024, 1,101 units of weapons and

1 Вичавка В., Андрушко О., Павлюк Т. Діяльність Головного експертно-криміналістичного центру Державної прикордонної служби України. *Наука і техніка сьогодні. Серія «Право»*. 2024. № 6 (34). С. 93—100. DOI: 10.52058/2786-6025-2024-6(34)-93-100 (date accessed: 10.02.2026).

224,824 pieces of ammunition; in 2025, 1,383 units of weapons and 239,243 pieces of ammunition². This pattern indicates an increase in the scale of the illicit weapons transportation across the state border and a high level of intensity in this type of unlawful activity.

The issue of proof in weapons smuggling cases is becoming increasingly critical, particularly regarding the objective establishment of characteristics of a crime's subject matter. Determining the type of weapon, its technical specifications, method of manufacture, evidence of modification, suitability for firing and compliance with technical standards and regulations requires specific weaponry expertise. Such expertise goes beyond the professional remit of an investigator, a prosecutor or a court: it can only be utilised by engaging specialists and ordering relevant forensic examinations.

In these circumstances, specific weaponry expertise is not secondary. It acts as an essential procedural tool for collecting evidence in criminal proceedings concerning weapons smuggling. It is forensic analysis that offers an evidence-based assessment of an object's characteristics, confirming its classification as a firearm, cold weapon or other type of weapon, and clarifying its method of manufacture and performance specifications, etc. Without specific expertise, a reliable determination of salient circumstances pertaining to criminal qualification of an act, assessment of evidence, and adoption of a lawful and reasonable procedural decision are unattainable. Consequently, in light of the proof of weapons smuggling, the study of specific expertise applicability in the field

of weaponry studies is a pressing task for contemporary forensics.

Article Purpose

Identify typical ways in which specific weaponry expertise is applied in collecting evidence in cases of weapons smuggling.

Research Methods

A range of general scientific, specialised, and philosophical methods have proven useful in achieving the set goal. Analysis and synthesis, induction and deduction, as well as dialectical, systemic-structural, comparative-legal methods, and generalisation enabled us to analyse procedural and organisational prerequisites for specific weaponry expertise application, to identify typical instances of its application in criminal proceedings concerning weapons smuggling, and to define practical challenges pertaining to interaction between the investigator, the forensic expert, and departmental forensic institutions.

Dialectical method has provided justification for the interdependence between the growing threat of illicit weapons trafficking, the increasing sophistication of methods used to conceal or modify such weapons, and the objective need for expert verification of characteristics of the offence's subject matter. Internal inconsistencies have been observed between the need for a prompt response (initial investigative [search] measures, preliminary expert examinations) and the requirements for procedural sufficiency of proof (ordering expert examinations, securing relevant materials).

2 Результати оперативно-службової діяльності Держприкордонслужби / Державна прикордонна служба України : офіц. вебсайт. 10.03.2026. URL: <https://dpsu.gov.ua/uk/the-results-of-operational-and-service-activities-of-the-state-border-service> (date accessed: 10.02.2026).

Systemic-structural method has helped model the mechanism for applying specific weaponry expertise during criminal proceedings: 1) delineate principal components of this mechanism (detection and seizure of weapons; preliminary forensic examination; verification of initial data against official records; ordering a forensic examination; significance of the expert's opinion in the proving process); 2) evaluate the involvement of each party (investigator, specialist, forensic expert, record-keeping units) and their respective roles; 3) assess the role of forensic weapons examination as a key tool for identifying features of smuggled items and for confirming a weapon's suitability for use.

Formal-logical methods (analysis, synthesis, induction, deduction) have been employed to analyse statutory provisions and doctrinal approaches governing the use of specific expertise in criminal proceedings, as well as to provide a logical rationale for the substantiation of conclusions regarding the evidential value of forensic weapons examinations. Analysis has aided in meticulously studying common issues: a formalized approach to describing seized objects, errors in posing questions to a forensic expert, and a lack of materials for scenario-based forensic tasks. Synthesis has facilitated the incorporation of these observations into holistic recommendations for the procedural preparation of case materials (submission of previous research findings, inclusion of inspection records, provision of data for verifying markings). Induction has contributed to the development of common patterns based on provided examples and practically-oriented reasoning; deduction has helped to analyse propositions by comparing them with procedural requirements and the rationale of proof in proceedings concerning weapons smuggling.

Comparative legal method has been utilised to compare approaches to proving weapons smuggling, taking into account the specific nature of an offence, as well as to assess the roles of various departmental actors (the Security Service of Ukraine, the State Border Guard Service, the National Police, and the Ministry of Justice) in detection, documentation, and forensic examination of weapons. This has made it possible to substantiate the significance of investigative jurisdiction for the practice of ordering forensic examinations and to illustrate potential risks of information fragmentation arising from the lack of coordination between forensic records and the varying subordination of security forces and expert organisations.

Generalisation has been useful for systematising findings and drawing conclusions regarding typical applications of specific weaponry expertise, as well as for specifying ways to more effectively prove a case. It demonstrates that there is a need to strengthen inter-agency cooperation when examining weapon markings and identifiers, to standardise approaches to preparing materials for forensic experts, and to ensure the continuity of applying specific expertise: from preliminary forensic examinations to the issuance of a procedural expert opinion.

Analysis of Essential Researches and Publications

Certain aspects of investigating smuggling as a criminal offence have been studied by L. Biletska, A. Buha, I. Hora, O. Zaverkhovskyi, L. Kapitanchuk, O. Kofanov, R. Maliuha, A. Poliakh, I. Rudnytskyi, V. Topchii, Ya. Furman, O. Kharaberiush, V. Shevchuk, et al. The researchers developed a forensic characterization of criminal offences involving smuggling,

defined specific elements of proof, typical investigative scenarios, as well as tactical approaches to conducting investigative (search) actions.

Academic papers by D. Andrieiev, V. Areshonkov, R. Veliiev, A. Voloboiev, V. Holubosh, S. Kozachenko, S. Melnychenko, M. Movchan, Ya. Novak, L. Pavlenko, S. Peretiatko, O. Tarasenko define forensic characterisation of criminal offences related to illicit weapons trafficking, general approaches to the collection and assessment of evidence in cases of illicit weapons trafficking, discuss the role of specific expertise in criminal proceedings, and the issue of cooperation between the investigator and forensic experts of various specialisations during investigations into these criminal offences.

Separate aspects of specific expertise application during weapon examinations have been addressed by A. Kofanov (2000) ³, D. Hamov (2005) ⁴, A. Poltavskyi et al. (2007) ⁵, Ya. Novak (2007) ⁶, T. Tyutyunnik (2008) ⁷, T. Bulba (2009) ⁸, R. Melnyk (2014) ⁹, V. Shapovalova (2015) ¹⁰, and others. Scientific papers by these scholars are devoted to the issues of ordering and con-

ducting forensic examinations, to forensic weaponry, identification of weapons, to assessment of their technical specifications and serviceability, as well as to methodological principles of expert examination of weapons and ammunition. Analysis of scientific sources reveals that the issue of applying specific weaponry expertise, particularly in the context of proving weapons smuggling, has not been covered systematically and in depth. Numerous works provide only a fragmented view of the subject or consider this issue within the framework of general provisions on specific expertise application, failing to highlight procedural and tactical challenges of its implementation in relevant proceedings.

Accordingly, although there is considerable academic literature on general principles of forensic examination and forensic aspects of investigating smuggling, procedural and methodological aspects of utilising specific weaponry expertise in cases involving weapons smuggling remain insufficiently developed. This calls for further research aimed at identifying current possibilities for expert examination of weapon features as the subject of a crime,

- 3 Кофанов А. В. Теоретичні та практичні аспекти криміналістичного дослідження гладкоствольної вогнестрільної зброї : автореф. дис. ... канд. юрид. наук. Київ, 2000. 20 с. URI: <https://dspace.nlu.edu.ua/handle/123456789/14006> (date accessed: 10.02.2026).
- 4 Гамов Д. Ю. Методика встановлення належності об'єкта до вогнепальної зброї та його придатності до стрільби (проведення пострілів) : методика. Київ, 2012. 34 с.
- 5 Полтавський А. О., Борзов О. П., Теплицький Б. Б. Порядок виявлення слідової інформації на вогнепальній зброї : метод. рек. Київ, 2007. 32 с.
- 6 Новак Я. В. Сучасний стан та перспективи розвитку криміналістичного дослідження вогнепальної зброї : автореф. дис. ... канд. юрид. наук. Київ, 2007. 20 с. URI: <https://dspace.nlu.edu.ua/handle/123456789/14018> (date accessed: 10.02.2026).
- 7 Тютюнник Т. І. Теоретичні та організаційно-технічні основи інформаційного забезпечення судово-балістичної експертизи : автореф. дис. ... канд. юрид. наук. Харків, 2008. 19 с.
- 8 Бульба Т. М. Виявлення, попереднє дослідження та вилучення саморобних вибухових пристроїв : дис. ... канд. юрид. наук. Київ, 2009. 212 с.
- 9 Мельник Р. В. Криміналістичне дослідження об'єктів, перероблених у вогнепальну зброю : автореф. дис. ... канд. юрид. наук. Київ, 2014. 18 с.
- 10 Шаповалова В. С. Поняття, співвідношення та класифікація кримінальної зброї (криміналістичний аспект) : дис. ... канд. юрид. наук. Кривий Ріг, 2015. 267 с.

enhancing the practice of ordering relevant expert examinations, and improving the efficiency of the process of proving in criminal proceedings of this nature.

Main Content Presentation

The growing number of crimes committed with various types of weapons, along with the emergence of new weaponry with modified tactical and technical specifications, has objectively complicated and further impedes the work of law enforcement agencies. Today's weapons are distinguished by their increased effectiveness, variety of design features and the possibility of concealed use, requiring the appropriate level of training from authorised individuals. This is not limited to the ability to identify, document, describe, and seize such forensic objects, but extends to the ability to conduct qualified research on these items using specific expertise. In this respect, academics have rightly argued for the establishment of a separate branch within the system of forensic science: forensic weaponry studies.

Forensic weaponry studies is an interdisciplinary field within the broader field of forensic technology that encompasses a range of knowledge about concepts and classification of weapons, their design features, patterns of operation and formation of traces of use, as well as methods for detection, documentation, seizure,

and forensic examination of relevant objects. Its subject matter is the patterns of creation and use of devices intended to damage a target or transmit special signals, and manifestation of these processes in physical traces and marks. We believe that bringing together provisions on firearms, cold weapons, pneumatic weapons, gas weapons, throwing weapons, ammunition, explosive devices and substances within a single academic discipline will ensure a systematic approach to their study and help standardise methodological principles for working with such forensic objects¹¹.

In cases concerning weapons smuggling (Art. 201 of the Criminal Code of Ukraine¹²), it shall be noted that this criminal offence comprises only those items which, by virtue of their physical, chemical or socially hazardous characteristics, are subject to special state control when being transported across the customs border. These include cultural values, toxic, potent, explosives, radioactive substances, weapons or ammunition (except for smooth-bore hunting weapons or ammunition thereto), as well as special technical means for secret obtaining of information. The high level of danger posed by such items is precisely what leads to criminalisation of their unlawful transportation.

Weapons smuggling violates both customs regulations and, above all, public security¹³. Instances involving smuggled

- 11 Пчеліна О. В. Щодо теоретичних і правових основ криміналістичного зброєзнавства. *Тенденції розвитку юридичної науки: проблеми та досягнення* : мат-ли Міжнар. наук.-практ. інтернет-конф. (Тернопіль, 11.10.2011). Тернопіль, 2011. С. 60–62. URI: <http://dspace.univd.edu.ua/xmlui/handle/123456789/16073> (date accessed: 10.02.2026).
- 12 Кримінальний кодекс України від 05.04.2001 р. № 2341-III (зі змін та допов.). URL: <https://zakon.rada.gov.ua/laws/show/2341-14#Text> (date accessed: 10.02.2026).
- 13 Мирошниченко Н. А. Об'єкт та предмет кримінально-каранної контрабанди. *Традиції та новації юридичної науки: минуле, сучасність, майбутнє* : мат-ли Міжнар. наук.-практ. конф. (Одеса, 19.05.2017). У 2 т. Т. 2. Одеса, 2017. С. 211–213. URL: <https://dspace.onua.edu.ua/server/api/core/bitstreams/c11a6357-4de1-4788-9dc4-98c208eb18c8/content> (date accessed: 10.02.2026).

firearms and cold weapons are quite common in investigative and courtroom practice¹⁴. Such items are pistols, rounds thereof, submachine guns, and improvised smooth-bore small arms¹⁵. Specifically, this refers to individual parts of rifled firearms.

The determinative feature of weapons, ammunition, explosive substances, explosive devices and radioactive materials, as specified in the Resolution of the Plenum of the Supreme Court of Ukraine: *On Judicial Practice in Cases of Kidnapping and Other Illegal Handling of Weapons, Ammunition, Explosives, Explosive Devices or Radioactive Materials* No. 3 dated 26 April 2002, is their purpose: to strike a living target, and to destroy or damage the environment¹⁶. Consequently, these definitions are essentially quite different from the mechanism of economic crimes and do not align with them in terms of content.

The answer to the question of whether an object falls within the category of weapons falls within the remit of forensic examination of weapons, gunshot traces, and situational circumstances of shooting. Procedural framework for ordering such forensic examinations is set out in Arts. 242–244 of the Criminal Procedure Code of Ukraine¹⁷ (hereinafter referred to as *the CPC of Ukraine*), while factual grounds for ordering such expert examinations are the requirement for specific

expertise that falls outside the scope of the investigator's or court's expertise. Therefore, ordering an expert examination stems from the need to apply specific expertise, otherwise it would be impossible to establish legally relevant facts regarding the subject matter of an offence.

Forensic examination of weapons and situational circumstances of shooting is a type of forensic analysis. It may be divided into several sub-categories depending on objects under study: firearms and ammunition, gunshot traces, cold weapons, weapons with a non-kinetic damage principle, grenade launchers and barrelled artillery weapons, and missile (rocket-propelled) weapons. Although this type of expert examination is not included in a list of those required to be ordered under Art. 242 of the CPC of Ukraine¹⁸, the investigator is still obliged to order a forensic examination, as it is clear that this matter falls outside the investigator's professional competence.

Analysis of court decisions in cases falling within the category under study has revealed that, typically, forensic examinations of weapons in smuggling cases are conducted by SSU expert institution: the Ukrainian Scientific and Research Institute of Special Equipment and Forensic Expertise (ISEE SSU). This naturally follows from investigative jurisdiction prin-

14 Вирок Комінтерн. райсуду м. Харкова від 13.12.2024 р. Справа № 641/6985/24. Провадж. № 1-кп/641/790/2024 / ЄДПРСР : вебсайт. URL: <http://reyestr.court.gov.ua/Review/123743119> (date accessed: 10.02.2026).

15 Вирок Горохів. райсуду Волин. обл. від 31.07.2024 р. Справа № 155/542/24. Провадж. № 1-кп/155/132/24 / Там само. URL: <https://reyestr.court.gov.ua/Review/120713820> (date accessed: 10.02.2026).

16 Про судову практику в справах про викрадення та інше незаконне поводження зі зброєю, бойовими припасами, вибуховими речовинами, вибуховими пристроями чи радіоактивними матеріалами : постанова Пленуму Верхов. Суду України від 26.04.2002 р. № 3. URL: <https://zakon.rada.gov.ua/laws/show/v0003700-02#Text> (date accessed: 10.02.2026).

17 Кримінальний процесуальний кодекс України від 13.04.2012 р. № 4651-VI (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/4651-17#Text> (date accessed: 10.02.2026).

18 Там само.

ciples laid down in criminal procedure legislation. As per provisions of Art. 216 of the CPC of Ukraine, criminal offences relating to smuggling are within the investigative jurisdiction of SSU investigators¹⁹. This means that it is precisely this authority that is authorised to carry out the bulk of investigative (search) actions, collect evidence, and initiate forensic examinations in such proceedings. As the subject of smuggling is often weapons, ammunition, explosives and other high-risk weaponry, it is paramount to utilise specific weaponry expertise at the initial investigation stage. Given this, investigators, acting in accordance with the principles of efficiency and procedural expediency, most often submit seized weapons to the forensic units within the SSU system, thereby establishing a long-standing practice of centralizing such expert examinations within a relevant agency's system.

In addition, the specific nature of offences relating to weapons smuggling necessitates not only determining technical specifications of an item, but also assessing its potential use in activities that could threaten national security, defence capabilities, or public order. This is precisely why SSU expert organisations, specialising in security research, are most commonly involved in conducting these forensic examinations. These studies require a combination of forensic, technical and security approaches in order to properly analyse objects under examination.

Consequently, predominance of SSU's forensic units in conducting forensic

weapons examinations is due to procedural and organisational factors: statutory investigative jurisdiction over smuggling assigned to security agencies, existence of specialised forensic units within the SSU system, and the need for multidisciplinary expert examination of items posing a heightened public danger. This has given rise to a consistent practice whereby it is SSU forensic units that are primary authorities conducting forensic weapons examinations in criminal proceedings of such a nature.

The most common type of forensic examination in cases involving weapons smuggling is expert examination of firearms and ammunition; this is due to practical considerations regarding the identification of seized items and the determination of their technical suitability for firing. This is why one of the distinctive features of forensic examination is its direct connection to the need to establish crime elements, which is critical for determining criminal qualification of an act.

Another important aspect is to consider the procedural status and evidential value of forensic examination findings, which are set forth in the expert's written opinion. Researchers note that, oftentimes, sound procedural decisions in cases involving illicit trafficking of weapons cannot be made without a weaponry expert's opinion; indeed, the expert opinion may become the main piece of evidence, particularly when it is necessary to determine whether a seized item is a firearm or whether a shot was fired from a specific weapon²⁰.

19 Кримінальний процесуальний кодекс ... URL: <https://zakon.rada.gov.ua/laws/show/4651-17#Text> (date accessed: 10.02.2026).

20 Кікінчук В. В., Романюк В. В., Книженко С. О. та ін. Документування та розслідування фактів незаконного поводження зі зброєю, бойовими припасами або вибуховими речовинами, а також кримінальних правопорушень у сфері незаконного обігу наркотичних засобів, психотропних речовин, їх аналогів або прекурсорів, учинених із застосуванням новітніх технологій (витяги) : наук.-метод. рек. / Науково-дослідна діяльність Харківського національного університету внутрішніх справ в умовах воєнного стану :

Researchers also highlight common mistakes arising from inaccurately phrased questions addressed to forensic experts: such as mechanically copying questions from reference guides and failing to take into account factual circumstances of a case. These can lead to delays in forensic examination and thereby undermine its evidential value²¹. Consequently, a key point about forensic weapons examinations is that their efficiency depends to a large extent on the investigator's professional training and on accurately phrased expert questions.

Multidisciplinary nature of forensic research is taking on increasing importance. Certain types of forensic examinations involving weapons require interdisciplinary or multidisciplinary research, especially when dealing with combination weapons or determining circumstances of shooting. These forensic examinations help not only identify an object, but also determine its mechanism of operation, method of manufacture or modification, which is pivotal in cases concerning illicit manufacture or smuggling of weapons²². This once again proves the interdisciplinary nature of forensic weaponry studies as a body of knowledge integrating technical, trace evidence, and identification approaches. Not less significant is the fact that a forensic examination can only be carried out provided that case materials have been properly prepared and integrity of physical evidence has been preserved. Multiple studies also point out that im-

proper packaging of physical evidence or inadequate recording of forensic objects seriously impede the investigation process or render it impossible.

Pursuant to procedure legislation, an expert opinion is drawn up solely from materials duly recorded in procedural documents, emphasising the procedural interdependence of investigative activities and forensic examinations.

Therefore, analysis of the sources cited above allows us to identify principal features of ordering a forensic weapons examination: its direct connection to the identification of crime elements; its crucial evidentiary value in criminal proceedings; questions are to be accurately worded and expert examinations have to be conducted in a logical sequence; prevalence of multidisciplinary forensic examinations; and the high degree of interdependence between the efficiency of forensic examination and the proper procedural preparation of case materials. Collectively, these findings confirm that forensic weapons examination is a key tool ensuring the optimal application of specific expertise in the field of criminalistics and an essential component of the modern *forensic weaponry* concept.

With a view to enhancing efficiency of pre-trial investigations into weapons smuggling, attention should be drawn to the need for close cooperation between law enforcement agencies of various institutional affiliations and forensic actors who are involved to carry out expert ex-

монографія // за заг. ред. В. В. Сокурєнка, Д. В. Швеця, О. А. Моргунова. Вінниця, 2023. С. 23–52. URL: <https://dspace.univd.edu.ua/handle/123456789/19431> (date accessed: 10.02.2026).

21 Тарасенко О. С. Розслідування незаконного поводження з вогнепальною зброєю, що вчиняється злочинними об'єднаннями : дис. ... канд. юрид. наук. Київ, 2017. 283 с. URL: <https://dduvs.edu.ua/wp-content/uploads/files/Structure/science/rada/dissertations/18/1.pdf> (date accessed: 10.02.2026).

22 Там само.

aminations in these types of cases. Unlike many other items subjected to expert examination, firearms require a preliminary comprehensive verification of their source data—factory numbers, markings, serial numbers on individual components, design modifications, and signs of alteration—against relevant records and databases. These actions are crucial for establishing the origin of a weapon, its possible theft, involvement in previous criminal offences, or links to other instances of criminal activity. Without timely cross-referencing of these data, expert examination findings may be inconclusive, and certain circumstances of forensic significance may be left unexplained.

Ballistic record-keeping is conducted exclusively by forensic institutions within the Expert Service of the MIA of Ukraine. Objects of ballistic record-keeping are firearms, bullets and cartridge cases with firing marks, ammunition, and other forensic objects with traces of gunshot or weapon impact. Analysis of scientific sources and criminal case files reveals that verification of such items against ballistic records holds substantial tactical value for pre-trial investigations. In particular, it facilitates the discovery of connections between specific criminal incidents, allows for the consolidation of criminal proceedings where the same weapon has been used, and enables the identification of common and individual weapon features and traces of its use. Verification also helps determine whether an item belongs to law enforcement agencies, military personnel or civilians, as well as establish whether improvised weapons have been manufactured using the same equipment²³.

It is worth noting that there are organisational challenges hindering the effective execution of tactical tasks related to investigating illicit trafficking of weapons, stemming from institutional lack of coordination between expert departments. Forensic organizations of the SSU and the NPU are subordinated to various governing bodies, thereby complicating real-time information sharing and limiting access to the full range of departmental records held by the MIA of Ukraine. This can lead to situations where individual weapons fall out of the sight of relevant law enforcement agencies or fail to undergo proper verification against all available information sources. This applies particularly to cases where weapon-related offences involve multiple authorities: for example, the theft of a weapon is investigated by the police, whilst its subsequent transportation across the state border is detected by units of the SBGSU, customs authorities, or the SSU. These information silos negatively affect investigative (search) actions, hinder the tracking of weapons throughout their entire “life cycle”, and potentially result in the loss of crucial evidentiary information. In this regard, it has become especially important to streamline collaboration across all parties involved in weapons trafficking and analysis, with a focus on harmonizing record-keeping systems, ensuring prompt data exchange, and coordinating expert examinations. It is through coordinated action during verification of source data and subsequent expert analysis that we can ensure completeness of a proof procedure and enhance the effectiveness of efforts to combat crimes involving the illicit trafficking and smuggling of weapons.

23 Вуйма А. Г. Використання спеціальних знань під час розслідування вбивств : дис. ... д-ра філос. в галузі права. Харків, 2023. С. 112—113. URL: <https://dspace.univd.edu.ua/server/api/core/bitstreams/649688f8-ab18-414d-bfc2-9b8ddf98b07b/content> (date accessed: 10.02.2026).

Note that during investigations into weapons smuggling, specific weaponry expertise may be applied in the context of an extra-procedural form such as a preliminary forensic examination. Such findings must be taken into account when subsequently ordering a forensic examination and must be submitted to a forensic expert along with case materials. This is due to the very nature of preliminary expert examinations, which, despite their non-procedural nature and lack of independent evidential value, provide important indicative information regarding circumstances of events, specifications of a weapon, possible manner of its use, shooting direction, distance, number of weapons used, etc. Such information provides an initial insight into the subject under study and enables researchers to more accurately formulate questions for a forensic expert, avoid duplication of research activities, and ensure completeness and logical consistency in the course of expert analyses.

Given that preliminary criminalistics examinations actually cover the entire scope of subsequent forensic weapons examination, including classification, diagnostic and situational aspects, preliminary examination results should serve as the informational baseline for expert examination. Ignoring such information may lead to a loss of context surrounding the discovery of a forensic object, thereby complicating scene reconstruction and reducing the accuracy of expert analysis, particularly in complex scenarios where it is necessary to establish circumstances of weapon use or the relative positioning of those parties involved in an event. Providing a forensic expert with preliminary research data ensures continuity in specific expertise application: starting from initial inspection and ending with a procedural expert opinion.

In order to supplement case materials provided to a forensic expert, it is advisable to include a crime scene inspection record detailing circumstances under which weapons or other relevant items were seized. It is this procedural document that contains information about a crime scene's layout, the method of locating and documenting a weapon, its position, its relative positioning in relation to other objects, and the presence of gunshot marks or damage, all of which are of fundamental importance for situational reconstructions in forensic examinations. Providing the forensic expert with these case materials enables him or her to conduct research not in isolation, but within the context of an actual investigative scenario, thereby enhancing the scientific validity and reliability of an expert opinion and promoting more effective proving of facts in criminal proceedings.

Conclusions

Development of forensic weaponry studies as a distinct branch of forensic technology is conditioned by both the practical demands of investigating crimes concerning illicit trafficking and use of weapons, and the need for a theoretical synthesis of knowledge in this field. At present, the full-scale development of this area requires adequate regulatory support to help integrate forensic, technical, and legal aspects of weapons analysis into a unified, systematic framework.

In today's world, weapons smuggling poses a security threat that goes beyond a mere customs offence, as such an item poses a heightened danger to the public and has a direct impact on public and national security. The numerous statistics on the seizure of weapons and ammunition during customs controls between 2023

and 2025 show a consistent upward trend, which objectively underscores the importance of developing forensic approaches to proving this category of offences. Given these circumstances, it is crucial not only to record the fact of transportation, but also to scientifically substantiate an item's specifications, since these are essential for qualifying an offence and proving its objective elements.

The study has demonstrated that specific weaponry expertise is a key means of proof in proceedings concerning weapons smuggling. This knowledge allows for a scientifically informed determination of whether a seized item is a weapon. It aids in identifying the type of weapon, assessing its technical specifications, understanding its method of manufacture or modification, and evaluating its suitability for use. In cases of this type, forensic examination of weapon traces, gunshot traces, and situational circumstances of shooting essentially acts as a structural core: it is impossible to reliably establish legally relevant features of the subject matter of an offence without obtaining results of such an expert examination. Given that smuggling cases fall under the investigative jurisdiction of the SSU, it is only logical that the relevant expert examinations are carried out by the SSU's departmental forensic institutions. This approach combines procedural expediency with the need to assess high-risk items within a security context.

However, efficiency of forensic analysis depends heavily on the rigor of preparatory work and proper organisation of inter-agency cooperation. Verifying the weapon's source data (markings, serial numbers, signs of modification) against relevant records remains a complex issue, as does exchange of information between expert and law enforcement agencies

working across disconnected departmental structures, potentially resulting in the disruption of meaningful identification ties (e.g., in the event of a weapon being stolen and subsequently discovered during an attempt at smuggling). This highlights the practical necessity of: 1) ensuring that results of preliminary forensic examinations are provided to a forensic expert as guiding information for developing a fully-fledged investigative approach; 2) including a crime scene inspection record in expert examination files so as to provide context for situational reconstructions; 3) developing agreed mechanisms for cooperation and access to records, thereby ensuring the completeness of proof and enhancing the effectiveness of counter-measures against weapons smuggling.

**Доказування контрабанди зброї:
можливості застосування
спеціальних знань
у галузі зброєзнавства**

Юрій Ковальов

Мета статті — визначити можливості застосування спеціальних знань у галузі зброєзнавства під час доказування контрабанди зброї та окреслити їх значення для встановлення ознак предмета злочину й забезпечення ефективності кримінального провадження. Реалізації поставленої мети сприяли загальнонаукові методи аналізу й синтезу, індукції й дедукції, а також філософські та спеціальні методи — діалектичний, системно-структурний, порівняльно-правовий і узагальнення. З'ясовано, що спеціальні знання в галузі криміналістичного зброєзнавства є важливим елементом техніко-криміналістичного забезпечення розслідування контрабанди зброї, а їх застосування виходить за межі консультативної допомоги, охоплюючи попередні криміналістичні

дослідження, участь спеціалістів у слідчих (розшукових) діях і проведення судових експертиз. На підставі узагальнення наукових підходів і судової практики з'ясовано, що основною формою реалізації спеціальних знань у справах цієї категорії є судова експертиза зброї, слідів та обставин користування нею, яка забезпечує науково обґрунтоване визначення виду зброї, її технічних характеристик, придатності до застосування та інших ознак, необхідних для кримінально-правової кваліфікації діяння. Наголошено, що в провадженнях щодо контрабанди зброї визначальну роль відіграють зброєзнавці, балісти, спеціалісти експертних установ Служби безпеки України й експертної служби Міністерства внутрішніх справ України, Міністерства юстиції України, а результати їх досліджень сприяють ідентифікації предметів, виявленню взаємозв'язків між епізодами злочинної діяльності, перевірці зброї за обліками та формуванню слідчих версій. Обґрунтовано, що підвищення ефективності доказування у справах про контрабанду зброї потребує належної взаємодії між правоохоронними органами й експертними установами, обов'язкового врахування результатів попередніх криміналістичних досліджень, а також надання експертові повного комплексу матеріалів, включно з протоколом огляду місця події.

Ключові слова: досудове розслідування; контрабанда; судова експертиза; тактичне забезпечення; призначення експертизи; шкода довіллю.

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