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The forty-third collection issue presents content on criminalistics, theory and methodology of forensic science, as well as information about scientific-practical conferences and educational projects and participation of the NSC staff in them.

Our authors are representatives of forensic science institutions, higher education institutions, law enforcement agencies from Ukraine.

The collection can be used by students and employees of higher education institutions, law enforcement agencies, legal experts, and researchers.

UDC 343.98

The editorial board uses double anonymized peer review.

Authors are responsible for the accuracy of the provided terms, facts, quotations, figures and surnames.

The authors declare that their opinions and views expressed in these articles are free of any impact of organizations where they work.

Distributed to scientific libraries and state forensic science institutes in Ukraine and internationally.

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<https://khrife-journal.org/index.php/journal>.



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Full-text online versions of the collection are available on Internet on the platforms of the V. I. Vernadskyi National Library of Ukraine, libraries of forensic science institutions of Ministry of Justice of Ukraine, higher education institutions of Ministry of Internal Affairs of Ukraine, in the NSC FSI institutional repository, etc.

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Editorial Board address: National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute»,
8a, Zolochivska St., Kharkiv, Ukraine, 61177.

Phone: +38 (057) 372-12-20, e-mail: zbirnyk_nscfsi@hniise.gov.ua

Unshakable Science: A History of the *Theory and Practice of Forensic Science and Criminalistics Research Paper Collection* and its Adaptation to War Challenges

Ella Simakova-Yefremian *

* Doctor of Legal Sciences, Professor, NSC «Hon. Prof. M. S. Bokarius FSI», Kharkiv, Ukraine, ORCID: <https://orcid.org/0000-0002-8246-7688>, e-mail: simakova@hniise.gov.ua

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The Research Paper Purpose is to shed light on the academic development of the “Theory and Practice of Forensic Science and Criminalistics” Research Paper Collection: a professional research paper journal. The previous issues of the Collection elaborate on existing barriers in adapting forensic and criminalistics practices to the challenges of wartime following the outbreak of full-scale military aggression against Ukraine. This article showcases the traditional section-by-section overview of the current journal, with its content organised under the headings “Research Papers”, “Case Notes” and “Scientific News”.

Keywords: *print edition; research paper collection; forensic science; pre-trial investigation; judicial proceedings; special knowledge; forensic examination; workplace bullying; digital forensics; DNA identification; papillary ridge patterns.*

In the year marking the 25th anniversary of the *Theory and Practice of Forensic Science and Criminalistics Research Paper Collection* (hereinafter referred to as the *Collection*), we continue to acquaint readers with the history of the journal's creation: a brief overview of its first twenty-five issues (up

to and including 2021) was provided in the preceding issue. The preceding issue recalled the launch and early days of this academic journal, topics covered in the first issues, changes in the journal's publishing schedule, and the release of parallel issues in Ukrainian and English from

This article is translation of the original Ukrainian content, which source is available at the link: <https://khrife-journal.org/index.php/journal> (translated by Daryna Dukhnenko). The author acknowledges translation as corresponding to the original.

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2014 onwards ¹. Especially noteworthy is the sixth Collection issue, which included 69 scientific and practical papers devoted to pertinent issues concerning criminalistics, forensic science, and methodological framework for individual types of forensic examinations. The issue was prepared by over 100 authors, including 15 Doctors of Science and 23 Candidates of Science. The Collection has been officially recognised: the journal has been included in an international periodicals database (ISSN 1993-0917) ². Since its seventh issue, the edition has attained the status of a research paper collection. Among the salient issues are urgent issues of criminalistics and forensic science, cutting-edge methodologies of criminal investigation, etc. A particular practical value of this Collection lies in the *Forensic Expert Practice: Methodological Approaches to Addressing Challenges* Section. This section covers content on various types of research and forensic analyses. A separate section focuses on the first *Arotsker Readings*. This event was hosted at Hon. Prof. M. S. Bokarius Kharkiv Research Institute of Forensic Examinations of the Ministry of Justice of Ukraine (hereinafter referred to as *KhRIFE*; currently National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute» — NSC FSI) on 30 May 2007 to mark the 80th birthday of L. Yu. Arotsker. In their papers, participants in the scientific and practical event elaborated on

the contribution to science made by Lev Yukhymovych Arotsker, Doctor of Legal Sciences, Professor and Founder of Kharkiv School of Experimental Research into Altered Handwritten Documents (Signatures): the scientists, who held positions ranging from Head of Museum to Deputy Director for Academic Affairs at the Kharkiv Scientific Research Institute of Experimental Studies over the course of 33 years. The attendees also touched upon students' and colleagues' memories of him. This collection comprises nearly 100 articles written by over 140 authors (of whom 16 hold a Doctor of Sciences degree and 34 hold a Candidate of Sciences degree) ³. On the occasion of the 85th anniversary of the *KhRIFE*'s founding, the eighth volume of the Collection has been published, featuring over 100 papers, with a special section devoted to historical development and the scientific and expert legacy of Kharkiv School of Criminalistics ⁴. The ninth issue took as its focus specific types of forensic analysis, including newly introduced ones, along with challenges concerning forensic expert practice, papers from academic conferences, and the academic legacy of Honoured Professor M. S. Bokarius, in commemoration of the 140th anniversary of his birth ⁵. The Editorial Board introduced the practice of labelling each article with a copyright notice (©) in the 2010 anniversary issue ⁶. As set forth in Art. 9 of the Law of Ukraine:

- 1 Сімакова-Єфремян Е. Від теорії до практики: 25 років науковому виданню «Теорія та практика судової експертизи і криміналістики». *Теорія та практика судової експертизи і криміналістики*. 2026. Вип. 1 (42). С. 5–14. DOI: [10.32353/khrife.1.2026.01](https://doi.org/10.32353/khrife.1.2026.01) (date accessed: 20.06.2026).
- 2 Теорія та практика судової експертизи і криміналістики : зб. наук.-практ. мат-лів. Вип. 6 Харків, 2006. 448 с.
- 3 Теорія та практика судової експертизи і криміналістики : зб. наук. пр. Вип. 7. Харків, 2007. 576 с.
- 4 Там само. Вип. 8. Харків, 2008. 656 с.
- 5 Там само. Вип. 9. Харків, 2009. 624 с.
- 6 Там само. Вип. 10. Харків, 2010. 672 с.

On Copyright and Related Rights, this symbol indicates that a scientific publication is protected by copyright ⁷. The following issues continued to further expand the Collection's traditional subject matter, presenting up-to-date trends in criminalistics and updated approaches to forensic science.

The first (26th) issue of the Collection published in 2022 was a remarkable one. The Editorial Board worked on it under unfavourable circumstances as Russia's aggression against Ukraine unfolded. Despite martial law and the constant shelling of Kharkiv, the Editorial Team proceeded to accept and edit manuscripts from both Ukrainian and international authors. Strong evidence that science cannot be suppressed by any war is our colleagues' perseverance and devotion to the pursuit of knowledge ⁸. Since 24 February 2022, the decisive factor in activities of the journal's co-founders has been the situation in which both researchers and expert practitioners—just like other people in Ukraine—are striving to uphold their professional responsibilities amidst the war with the Russian aggressor. Kharkiv, a Hero City on the front line, is operating at full capacity. Frontline city-hero Kharkiv functions under extreme strain: its residents are enduring all hardships of war, as air alerts wail across Ukraine and people are forced to spend time in shelters, hiding from a potential and often very real threat; the border regions are being shelled nearly on a regular basis. The diabolical enemy makes active use of weapons prohibited by international treaties. Our country has been living through the years of intense hostilities, which have resulted in the loss

of life due to artillery shelling, missile strikes and aerial bombardments. Many of those who survive lose their homes and possessions. Regardless of the incredibly challenging circumstances of martial law, the Editorial Board of the *Theory and Practice of Forensic Science and Criminalistics* Research Paper Collection, similarly to many Ukrainian people, has been steadfastly fulfilling the tasks and duties entrusted to it since the start of the full-scale invasion. Not only does this promote the development of the professional edition, but also advances the country's scientific life.

The Armed Forces of Ukraine and other military units succeeded in almost completely liberating the territory of the Kharkiv region in September 2022. As of today, Kharkiv is a Hero City, and Kharkiv citizens take pride in this title. From the very first days of the full-scale invasion, our city has become a shield for many regions of the country, whereas the rest of the country has served as a buffer against Russian aggression protecting the peaceful nations of Europe. Founders of the *Theory and Practice of Forensic Science and Criminalistics* Journal have made their choice (as reflected in their diligent work): keep working and continue to do their utmost to bring about peace.

After reviewing the content of previous issues, particular emphasis should be placed on the journal's publishing activity during a defining period for our country: from the start of the full-scale war in 2022 to this day. This period has been a time of profound challenges and adaptation for the journal. In times of war, one of the main guiding principles of Ukrainian science is innovation to bring victory

7 Про авторське право і суміжні права : Закон України від 01.12.2022 р. № 2811-IX (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/2811-20#Text> (date accessed: 20.06.2026).

8 Теорія та практика судової експертизи і криміналістики. 2022. Вип. 1 (26). 159 с. DOI: [10.32353/khrife.1.2022](https://doi.org/10.32353/khrife.1.2022) (date accessed: 20.06.2026).

closer and rebuild the country. Academic community is doing an excellent job of adjusting to the realities of war, confidently handling challenges of the current situation, and promptly tackling pressing tasks facing the country in its fight against the Russian aggressor.

Throughout this period, the Editorial Team has reviewed nearly 200 manuscripts prepared by Ukrainian and international researchers (from the Baltic states, Israel, Turkey, Armenia, the Czech Republic, Montenegro, Poland, Moldova and others). Academic community, both in Ukraine and beyond its borders, enthusiastically supports advances in Ukrainian science, forensic science and criminalistics. With the introduction of the DOI, the journal's digitalisation rate stands at 29 per cent (this is a share of the journal's scientific papers which were cited in editions indexed in the *Web of Science Core Collection* and/or *Scopus* databases over the past two years) and 34 per cent (a share of active DOIs in sources cited by authors of the Collection's articles following the analysis of the past two years' data). These indicators demonstrate the journal's solid scholarly standing and its international recognition. Peer review of articles, open access policy, principles of academic integrity, publication ethics and editorial transparency, and the Collection's quality assurance: all of them adhere to European guidelines (standards) for scientific journals.

Scientists who meet the requirements set out in Order No. 56 of the Ministry of Education and Science of Ukraine: *On Approval of the Procedure for Forming the List of Scientific Professional Publications of Ukraine* dated 19 January 2026 have been appointed to the Collection's Editorial

Board. The essential inclusion criteria are: a specific percentage of foreign citizens; academic degree; research in the *Law* cluster and publication of results in journals indexed in scientometric databases such as *Web of Science Core Collection* and/or *Scopus*, etc.⁹. To that end, the Editorial Board has been expanded and now includes scientists from Slovenia (**Gorazd Meško**, PhD, Professor, and Head of Criminology Chair, Faculty of Criminal Justice and Security, University of Maribor), Latvia (**Inga Kudeikina**, PhD, Associate Professor of the Faculty of Social Sciences, Riga Stradiņš University; **Sandra Kaija**, PhD, Professor of Faculty of Social Sciences, Riga Stradiņš University). The geographical scope of academics working on this scientific edition is steadily growing.

The Collection is indexed in *Google Scholar*, international abstract and citation databases *Academic Research Index* (*ResearchBib*), *Bielefeld Academic Search Engine* (*BASE*), *Directory of Research Journals Indexing* (*DRJI*), *ERIH PLUS*, *EuroPub*, *Index Copernicus International*, *RefSeek*, *WorldCat*, as well as in the Register of Scientific Publications of Ukraine and on the site of the registrar of digital identifiers DOI. Full text electronic versions of the edition are freely available on the *Internet* on the platforms of Vernadsky National Library of Ukraine, in the repository of National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute», libraries of forensic institutions of the Ministry of Justice of Ukraine, higher education institutions of the Ministry of Internal Affairs of Ukraine, etc.

The Collection has retained its established sectional structure: *Research Papers* and *Case Notes*. The final pages of the 43rd is-

9 Про внесення змін до Порядку формування Переліку наукових фахових видань України : наказ Міносвіти і науки України від 19.01.2026 р. № 56. URL: <https://zakon.rada.gov.ua/laws/show/z0129-26#Text> (date accessed: 20.06.2026).

sue address scientific events that have taken place over the past three months.

The *Research Papers* Section opens with the *Practice of the European Court of Human Rights in Shaping Standards for the Ordering and Conduct of Forensic Examinations in Criminal Proceedings* scientific paper by **Valerii Sokurenko**, Doctor of Legal Sciences, Professor, Corresponding Member of the National Academy of Legal Sciences of Ukraine, and **Volodymyr Tverdokhlib**, Doctor of Philosophy in Law. The authors single out standards governing the ordering and conduct of forensic examinations in criminal proceedings, shaped by the practice of the European Court of Human Rights, and contextualize their significance for ensuring the right to a fair trial and streamlining the national practice of applying special knowledge.

The section continues with a research paper by **Nataliia Filipenko**, Doctor of Legal Sciences, Professor, where the author examines mobbing as one of the most harmful forms of psychological pressure within workplace collectives, undermining employee well-being and organizational stability. In this context, the collective bargaining agreement assumes particular importance as a preventive tool, enabling the institutionalization of corporate ethics, the establishment of clear grievance procedures, guarantees of protection against unfounded sanctions, and a precise definition of the parties' liability. At the same time, the role of forensic expertise as a crucial evidentiary mechanism in mobbing cases is underscored. The researcher pinpoints that forensic examinations provide objective substantiation of psychological pressure, facilitate the analysis of workplace communications, and assess their impact on employees' mental health. The synergy between the preventive function of collective bargaining agreements and the evidentiary strength of foren-

sic expert studies creates a comprehensive system of protection against mobbing.

The research paper: *The Court's Role in Verifying Expert Evidence: From Presumptive Competence to Reliability Assessment* by **Mykhailo Shcherbakovskiy**, Doctor of Legal Sciences, Professor, and **Yurii Myroshnychenko**, Doctor of Legal Science, aims to define judicial oversight limits when it comes to evaluating the scientific validity of expert evidence in criminal proceedings, given the rapid development of special knowledge (such as digital and algorithmic research methods). The academics reveal conceptual differences between the Anglo-American and continental models for judicial verification of expert evidence, determine their impact on the scope of judicial oversight, and justify feasibility of transitioning to a procedural scientific validity review of expert methodologies used in criminal proceedings. Integrating components of *reliability inquiry* and institutionalising the *overriding duty* concept have been recognised as promising approaches, as they complement each other and guarantee the scientific validity of expert evidence; these will help enhance the quality of proof and minimise the risk of judicial errors.

Next in the section is the *Conducting Forensic Examination as Part of Measures to Secure Evidence Prior to Filing Lawsuit in Administrative Proceedings* paper by **Viktoria Bila**, Doctor of Legal Sciences, Docent, and **Stanislav Sheptukhovskiy**, Candidate of Legal Sciences. The authors develop the idea of the appointment of forensic examination as a way of securing evidence before commencement of proceedings in administrative case. In particular, there are no clear comments on forensic research on issues that will only be the subject of judicial consideration. Conclusions were drawn according to which satisfaction of

the evidentiary needs of potential plaintiff by the courts of first instance does not overlap with the concept of topical or territorial jurisdiction and is a unique phenomenon that is only formally, but not substantively, covered by instance jurisdiction.

The research paper: *Signs of Errors Made by Forensic Experts: How They Differ From Errors in Other Areas of Human Activity* by **Iryna Petrova**, Doctor of Legal Sciences, Professor, **Tetiana Kipusheva** and **Daryna Dukhnenko**, Researchers, highlights the pressing need to identify specific signs of expert errors that are distinct from errors in other areas of human activity, and the urgent necessity for defining these signs. It has been pointed out that error is always unintentional, which distinguishes it from falsehood (lying/misrepresentation) and disinformation (false information disseminated as true in order to mislead). The researchers emphasise that causes of errors can be either objective (measurement instrument errors, unrecorded environmental influences on objects under study, etc.) or subjective (overconfidence, negligence of a forensic expert, his/her over-reliance on erroneous expert opinions, etc.).

The article: *Forensic Classification of Criminal Offences against Justice Administration* by **Tetiana Bobko**, Candidate of Legal Sciences, discloses theoretical and applied aspects of forensic classification of criminal offences against justice. Prospects for further research related to development of forensic recommendations and methods for individual types of criminal offenses against justice are outlined.

The research paper: *Use of Special Knowledge in Investigations Into Criminal Offences Involving Provision of Professional Legal Aid* by **Kristina Romanauskas**, Doctor of Philosophy in Law, is worthy of note. The author concludes that application of special knowledge serves as a foundation-

al component of the proof procedure and is an essential element of forensic support for investigations into criminal offences involving provision of professional legal aid.

The section concludes with the *Restrictions on Application of Causal Modeling Methods in Forensic Mining and Technical Examination and Ways to their Overcoming* research paper by **Ivan Puhach**, Candidate of Technical Sciences, Docent, **Yurii Cheberiachko**, Doctor of Technical Sciences, Professor, **Vadym Kharchenko** and **Inna Puhach**. The article underscores the scientific issue of methodological gap between modern causal models of analysis of complex accidents and the procedural requirements of forensic mining and technical examination, within the limits of which forensic expert is obliged to rely only on the materials provided, his competence and substantiation procedures that are subject to verification. The academics stress that phase-modular decomposition makes it possible to localize causality in technically homogeneous fragments of the event, establish an evidentiary basis for each module, procedurally correctly respond to the lack of initial data and form a logical, transparent expert conclusion. The suitability of the approach for analyzing events in open-pit and underground mining operations is confirmed by practical testing.

The *Case Notes* Section begins with a scientific paper by **Galina Avdeeva**, Candidate of Legal Sciences, Senior Researcher (by academic rank), and Leading Researcher at Academician V. V. Stashis Scientific Research for the Study of Crime Problems. It acquaints readers with the global practice of prioritization which is viewed as an innovative tool for enhancing the effectiveness of forensic support in criminal investigations.

Viktor Kvashyn, Candidate of Legal Sciences, Doctoral Candidate at Yaroslav

Mudryi National Law University, examines the statutory construction of the right of an administrative body to administrative assistance, identifies the conditions for exercising this right and the possibilities of its application in the activities of public financial control bodies. The scholar emphasizes the need to introduce safeguards against abuse of the right to administrative mutual assistance.

An article by **Dmytro Nesterov**, Crypto Analytics Consultant (NDA), reveals peculiarities of forensic characteristics of crimes related to illegal circulation of virtual assets, as well as determines the main elements of their commission mechanism.

Oleksii Lozovyi, Postgraduate Student, Yaroslav Mudryi National Law University, analyses emergence history, formation and content peculiarities of existing forensic DNA registries in the world and in Ukraine, outlines possible development prospects. Formation analysis of Ukrainian DNA identification system indicates gradual transition from separate forensic examinations to centralized system creation, that in its structure and principles is close to European models of average completeness.

The section continues with an article by **Volodymyr Lezhnin**, Postgraduate Student, which addresses the administrative and legal aspects of reducing corruption risks when customers apply non-price criteria in public procurement and summarises the theoretical provisions regarding the role and place of judicial economic expertise as a means of reducing corruption risks in Ukraine.

Oleh Haiduk focuses on methodological aspects of detecting traces of papillary patterns on paper surfaces by the method of electrostatic reproduction of images with visual examples of the results of using the ESDA 2/B device. Difference between this method of research and exist-

ing methods of detecting traces of papillary patterns is analyzed.

The *Case Notes* Section ends with a research paper by **Mykhailo Kuzmenko** and **Serhii Ostapov**. The researchers elaborate on forensic examinations involving violation of health and work safety requirements and define signs of employees' non-compliance with personal safety requirements that have led to accidents.

The final pages of the 43rd issue address scientific events that have taken place over the past three months.

The Editorial Board would like to extend its profound gratitude to all the authors for placing their trust in us and for submitting noteworthy papers that make up this issue. Your research contributions help advance academic thought. We also welcome new collaborations and invite authors, researchers, and practitioners to contribute to the development of forthcoming issues. Publishing in our Journal is an exceptional opportunity to showcase your research, discuss ideas with counterparts and make an important contribution to the progress of science.

The team is looking forward to reading your manuscripts in our upcoming issue! Let's shape the future of science together!

**Наука, яку не зупинити:
до історії збірника наукових праць
«Теорія та практика
судової експертизи і криміналістики»
та його адаптації до викликів війни**

Елла Сімакова-Єфремян

Мета статті полягає у висвітленні наукового поступу фахового збірника наукових праць «Теорія та практика судової експертизи і криміналістики» на основі аналізу його попередніх випусків, зокрема, у контексті адаптації судово-експертної та

криміналістичної думки до викликів воєнного часу після початку повномасштабної агресії проти України. Наведено традиційний постатейний огляд поточного часопису, матеріали якого об'єднано в рубрики «Дослідницькі роботи» (*Research Papers*), «Наукові нотатки» (*Case Notes*) і «Новини наукового життя» (*Scientific News*).

Ключові слова: видання друком; збірник наукових праць; криміналістика; судове розслідування; судове провадження; спеціальні знання; експертиза; мобілізація; цифрові дослідження; ДНК-ідентифікація; сліди популярних узорів.

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The author declares no conflict of interest; although Ella Simakova-Yefremian

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Practice of the European Court of Human Rights in Shaping Standards for the Ordering and Conduct of Forensic Examinations in Criminal Proceedings

Valerii Sokurenko ^{*a}, Volodymyr Tverdokhlib ^{**b}

^{*} Doctor of Legal Sciences, Professor, Corresponding Member of the National Academy of Legal Sciences of Ukraine, Kharkiv National University of Internal Affairs, Vinnytsia, Ukraine, ORCID: <https://orcid.org/0000-0001-8923-5639>

^{**} Doctor of Philosophy in Law, Doctoral Candidate at NSC «Hon. Prof. M. S. Bokarius FSI», Kharkiv, Ukraine, ORCID: <https://orcid.org/0009-0007-6544-2378>, e-mail: volodymyr.1117@ukr.net

^a Writing – original draft, Project administration, Supervision.

^b Writing – original draft, Validation.

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The Article Purpose is to single out standards governing the ordering and conduct of forensic examinations in criminal proceedings, shaped by the practice of the European Court of Human Rights, and to contextualize their significance for ensuring the right to a fair trial and streamlining the national practice of applying special knowledge. To accomplish this goal, we employed a range of general scientific and legal methods, including analysis and synthesis, induction and deduction, as well as dialectical, systemic-structural, comparative legal and generalisation approaches. It has been clarified that the practice of the European Court of Human Rights already encompasses a multifaceted system of procedural standards applicable to the ordering and conduct of forensic examinations, although these are not explicitly enshrined in provisions of Art. 6 of the European Convention on Human Rights. It has been concluded that the ECtHR regards forensic examination not as an isolated procedural tool for applying special knowledge, but rather as a component of the proof procedure, and any violation of this procedure is capable of affecting the overall fairness of criminal proceedings.

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The following standards have been recognised as fundamental in the practice of the European Court of Human Rights: sufficiency of case materials, adversarial proceedings, principle of equality of arms, reasonableness of ordering a forensic examination, promptness, independence of a forensic expert, and investigation efficiency. It has been observed that the respective standards constitute an interrelated system of procedural requirements covering the stages of ordering, conducting and evaluating forensic examinations. Reasoned arguments have been put forward to show that the practice of the European Court of Human Rights covers both common procedural approaches and specific forensic rules governing the application of special knowledge. More specifically, ensuring sufficient evidence is provided to a forensic expert should be regarded as a core procedural safeguard for the parties' right to examine evidence; repeated ordering of forensic re-examinations without proper justification may point to an ineffective investigation and a forensic expert's independence should be determined not only through their procedural status, but also by taking into account any institutional or functional links that could affect credibility of research findings. It has been proven that enhancing the efficiency of forensic examinations used in criminal proceedings requires the systematic consideration of ECtHR standards during the implementation of provisions of Art. 242 of the Criminal Procedure Code of Ukraine, the refinement of the practice of providing reasons for procedural decisions on the ordering of forensic examinations, the assurance of effective adversarial nature of proceedings, and the strengthening of independence guarantees in forensic expert activities.

Keywords: pre-trial investigation; judicial proceedings; special knowledge; forensic examinations; ordering forensic examination; forensic expert; specialist; expert's opinion; ECtHR practice; proof; standard of proof; due process.

Research Problem Formulation

In criminal proceedings, forensic examination is viewed as a way to apply special knowledge in order to determine circumstances of significance to criminal proceedings. An expert's opinion profoundly shapes the development of evidentiary basis, the evaluation of factual circumstances surrounding a case, and certain procedural decisions. Forensic examination findings are of critical relevance par-

ticularly in complex categories of criminal cases, where establishing facts relevant to a case requires the application of special knowledge in medicine, psychiatry, economics, technology, computing and other fields.

Notwithstanding the fact that national criminal procedure legislation quite comprehensively regulates the procedure for ordering and conducting forensic examinations, current law application practice reveals a number of challenging issues re-

lating to procedural equality of arms when engaging forensic experts, with regard to compliance with the adversarial proceedings principle, the proper substantiation of the necessity of forensic examinations, the timely conduct of such forensic examinations, the completeness of case materials provided to forensic experts, and the independence and impartiality of forensic activities. Such obstacles may adversely affect both the efficiency of pre-trial investigations and the guarantee of an individual's right to a fair trial.

The practice of the European Court of Human Rights (hereinafter referred to as the *ECtHR*) demonstrates that, although provisions of Art. 6 of the European Convention on Human Rights (hereinafter referred to as the *Convention*) are not directly applicable to the procedure for ordering or conducting forensic examinations¹, approaches developed by the ECtHR set out a system of procedural standards to be followed by states when utilising special knowledge in criminal proceedings². Having analysed the ECtHR's judgments, it is reasonable to delineate requirements for equality of arms, investigation efficiency, reasonable timelines, sufficiency of evidentiary basis, proper substantiation of experts' opinions, and independence of forensic experts.

This makes it even more urgent to conduct a comprehensive study of the ECtHR's practice in establishing standards for the ordering and conduct of forensic examinations, including possibilities for incor-

porating these standards into Ukrainian criminal procedural legislation and its relevant practice. Such an approach will play a pivotal role in boosting efficient application of special knowledge, in providing guarantees of a fair trial, and in refining the mechanism of proof in criminal proceedings.

Article Purpose

Define standards for ordering and conducting forensic examinations in criminal proceedings, shaped by the ECtHR's practice, as well as avenues for enhancing national law application practice and provisions of criminal procedural legislation.

Research Methods

General scientific and special research methods, selected based on the subject matter of the study and the specific features of analysing the practice of forensic examinations through the prism of ECtHR standards, have contributed to the fulfilment of the stated objective.

Using formal-logical methods (analysis, synthesis, induction, deduction), provisions of Ukrainian criminal procedure legislation have been reviewed, with particular emphasis on Art. 242 of the Criminal Procedure Code of Ukraine³ (hereinafter referred to as the *CPC of Ukraine*), provisions of Art. 6 of the Convention, and doctrinal principles governing the ordering and conduct of forensic examinations

- 1 Конвенція про захист прав людини і основоположних свобод (Європейська конвенція з прав людини) : від 04.11.1950 р. ; ратифік. Закон. України від 17.07.1997 р. № 475/97-ВР ; чинна для України з 11.09.1997 р. (зі змін. та допов.). URL: https://zakon.rada.gov.ua/laws/show/995_004 (date accessed: 03.05.2026).
- 2 Щербаковський М. Г. Вплив рішень Європейського суду з прав людини на формування стандартів проведення судових експертиз. *Український політико-правовий дискурс*. 2025. Вип. 10. DOI: 10.5281/zenodo.15225970 (date accessed: 03.05.2026).
- 3 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: 05.05.2026).

in criminal proceedings. These methods have been utilised to disclose the content of individual ECtHR standards, identify distinctive features thereof, and draw conclusions as to the procedural significance of forensic expert activities.

Dialectical method helped to find a balance between the need for efficient criminal investigations and the necessity to uphold procedural safeguards when applying special knowledge. This approach revealed contradictions between the need to obtain evidentiary information in a timely manner and the need to uphold the principles of adversarial proceedings, procedural equality of arms, reasonable timelines and a fair trial.

System-structural method made it possible to study forensic expert activities as a holistic mechanism encompassing the stages of ordering, conducting and evaluating forensic examination findings, thereby developing a classification of ECtHR standards for ordering and conducting forensic examinations and identifying interrelationships between standards for sufficiency of case materials, procedural equality of arms, promptness, reasonableness of ordering a forensic examination, independence of a forensic expert, and investigation efficiency.

Using comparative legal method, provisions of Ukraine's criminal procedural legislation were compared with approaches shaped by the ECtHR's practice on the use of forensic examinations. These comparisons enabled us to determine the level of consistency between the provisions of national legislation and the standards of the Convention, and to identify specific areas for their practical implementation.

Generalisation method proved useful for systematising the ECtHR's practice, developing the author's classification of the relevant standards, and formulating practical recommendations on their application in activities of investigators, prosecutors and courts when ordering and conducting forensic examinations in criminal proceedings.

Analysis of Essential Researches and Publications

Analysis of recent scientific contributions indicates that, lately, the development tendency of the problematics of utilising special knowledge has gradually shifted from general theoretical aspects to application-oriented issues, especially in documenting and investigating crimes and offenses pertaining to military aggression. Research papers by present-day scholars focus predominantly on the issues of digital forensics, use of OSINT technologies, UAVs, multidisciplinary and panel forensic examinations, individual aspects of documenting traces of hostilities, interdisciplinary collaboration, and the application of special knowledge amid martial law. In addition, special knowledge is widely regarded not only as a means of obtaining pieces of evidence, but also as a comprehensive organisational, analytical and managerial tool for efficient investigations. This shift in scientific research points to the emergence of a distinct field of study focusing on adapting conventional approaches to the use of special knowledge in the context of investigating war crimes and acts of aggression ⁴.

Despite the intensification of academic research in this field and the sig-

4 Бершов Г. Є. Теоретико-правові та праксеологічні основи використання спеціальних знань при розслідуванні військових злочинів : дис. ... д-ра юрид. наук. Харків, 2024. 410 с. URL: <https://dspace.univd.edu.ua/server/api/core/bitstreams/959a2411-029d-49f0-ab7e-469652fe77a3/content> (date accessed: 05.05.2026) ; Сергеева Д. Б. Використання спеціальних

nificant expansion of the range of issues associated with the application of special knowledge during war crimes investigations, the problematics of standards that must be adhered to when gathering evidence and utilising procedural, and, occasionally, non-procedural forms of special knowledge, has been neglected. First and foremost, the influence of international standards on organising such activities, its impact on admissibility of criteria and credibility of obtained findings, and the significance of corresponding approaches remain out of focus. Specifically, the ECtHR's practice as a source of standards defining requirements for the application of special knowledge when obtaining, verifying and evaluating evidentiary information calls for an in-depth academic analysis. It is precisely this that necessitates further exploration of the issue and underscores the relevance of its scientific coverage.

Main Content Presentation

The standard of a fair trial, as enshrined in Art. 6 of the Convention, is a priority in the context of research into standards governing the ordering and conduct of forensic

examinations⁵. Although views expressed in this article do not provide any special regulations governing forensic expert activities, the ECtHR's practice shows that guarantees of a fair trial extend to all procedural mechanisms affecting the determination of circumstances of an event and the development of evidentiary basis. In this respect, forensic examination is not exclusively a technical tool to apply special knowledge: it constitutes an integral part of the system ensuring an individual's right to a fair trial.

Note that in the ECtHR's practice, the concept of a fair trial is multifaceted and encompasses a set of interrelated procedural safeguards, such as the right to be heard, the principle of equality of arms, the principle of adversarial proceedings, the right to an effective remedy, compliance with reasonable timelines, and due process requirements regarding evidence. Since an expert's opinion can seriously affect the way factual circumstances of an event are evaluated, the procedure for obtaining, examining and using this opinion should also meet those requirements.

The standard of proof *beyond reasonable doubt* is paramount in this context. The ECtHR's practice regards this as the

знань у розслідуванні воєнних злочинів і злочинів проти людяності: процесуальні аспекти, експертна взаємодія та цифрова криміналістика. *Аналітично-порівняльне правознавство*. 2025. Вип. 6. Ч. 3. С. 234—247. DOI: 10.24144/2788-6018.2025.06.3.36 (date accessed: 05.05.2026) ; Сиводєд І. С. Застосування спеціальних знань і призначення експертних досліджень під час розслідування кримінальних правопорушень, які були вчинені на окупованих територіях України. *Вчені записки Таврійського національного університету імені В. І. Вернадського. Серія: Юридичні науки*. 2024. Т. 35 (74). № 2. С. 108—116. DOI: 10.32782/TNU-2707-0581/2024.2/17 (date accessed: 05.05.2026) ; Синоверський А. Організаційно-тактичні та психологічні основи використання спеціальних знань під час розслідування кримінальних правопорушень, вчинених організованими злочинними групами в умовах воєнного стану. *Юридична психологія*. 2023. № 2 (33). С. 129—140. DOI: 10.33270/03233302.129 (date accessed: 05.05.2026) ; Тимошко В. В. Використання спеціальних знань під час документування та розслідування воєнних злочинів. *Вісник Кримінологічної асоціації України*. 2024. № 1 (31). С. 307—314. DOI: 10.32631/vca.2024.1.25 (date accessed: 05.05.2026).

5 Конвенція про захист прав URL: https://zakon.rada.gov.ua/laws/show/995_004 (date accessed: 03.05.2026).

criterion for establishing the sufficiency of evidence to prove a person's guilt. This standard is rooted in the need to achieve a level of credibility in evidentiary information that would exclude any reasoned uncertainty regarding circumstances in question. However, this standard does not imply absolute mathematical credibility; rather, it requires the development of a coherent, logical and sufficient body of evidence to reach a convincing opinion about circumstances of an event.

Academic literature points out that the standard *beyond reasonable doubt* is the level of certainty required to prove circumstances of an event; it must be achieved by the party bearing the burden of proof and through the establishment of a sufficient body of relevant, admissible and credible evidence ⁶. Practical implementation of this standard, however, heavily relies on the quality of expert research conducted, since an improper expert's opinion or procedural breaches during its preparation could call into question the credibility of the entire body of evidence.

The ECtHR's judgement in *Zorina and Others V. Ukraine* is illustrative in this context, as the Court emphasized that investigation efficiency presupposes adherence to the requirements of thoroughness and due diligence when establishing circumstances of an event. The ECtHR stressed that government authorities must not rely exclusively on hasty or unfounded opinions in order to justify procedural decisions, instead they are obligated to take all reasonable and available measures to ensure that evidence is gathered, and this in-

cludes conducting relevant forensic examinations ⁷. Deficiencies in investigations that prevent establishing circumstances of a criminal offense or identifying individuals involved in its commission may be evidence of non-compliance with the standard of investigation efficiency.

In this regard, the ECtHR suggests that forensic examination should be understood not as an isolated procedural step, but rather as part of the overall mechanism for safeguarding the right to a fair trial. Accordingly, any violations associated with improper ordering of a forensic examination, insufficiency of case materials, deficiencies in research procedure, or a formalistic approach to evaluating an expert's opinion might lead to a breach of guarantees set forth in the Convention and raise doubts about overall fairness of criminal proceedings.

An essential standard that has a direct impact on the procedure for ordering and conducting forensic examinations within criminal proceedings is the principle of adversarial proceedings and equality of arms. This principle entails granting each participant in criminal proceedings a real chance to present their legal arguments under circumstances that do not place one party in a less disadvantaged position than the other. This provision takes on extra importance in the context of applying special knowledge, as forensic examination findings can be a major factor in establishing circumstances of a criminal offense and in shaping a court's internal conviction.

According to Art. 6 of the Convention, the principle of adversarial proceedings

6 Крет Г. Р. Міжнародні стандарти доказування у кримінальному процесі України: теоретико-правові та практичні основи : дис. ... д-ра юрид. наук. Одеса, 2020. 530 с. URI: <https://hdl.handle.net/11300/13756> (date accessed: 03.05.2026).

7 Справа «Зоріна та інші проти України» (Заява № 20295/07 та 3 інші заяви — див. перелік у додатку) : ріш. ЄСПЛ від 14.02.2019 р. URL: https://zakon.rada.gov.ua/laws/show/974_e22#-Text (date accessed: 03.05.2026).

is one of the fundamental components of the right to a fair trial. Enforcing this principle requires not only granting procedural rights to parties in a formal sense, but also establishing practical mechanisms to enable them to exercise those rights efficiently. Within the scope of forensic expert activities, this means ensuring that parties can familiarise themselves with materials used in forensic analyses, pose questions to forensic expert, dispute opinions, initiate additional forensic examinations or forensic re-examinations, and obtain alternative expert opinions.

These approaches have been further refined by the ECtHR. A notable example in this regard is the judgment in *Brandstetter v. Austria*, whereby the ECtHR formulated important guidelines for securing procedural equality of arms when expert opinions are utilised. The ECtHR stated that the right to an adversarial trial, as an integral part of the right to a fair trial, requires that each party shall be given the opportunity to examine all evidence and comments submitted to a court, and to express his or her views on them⁸. Accordingly, the defence counsel shall not be deprived of the opportunity to adequately respond to expert opinions submitted by the prosecution.

A key aspect within the scope of this case was the recognition that formal equality of procedural rights cannot always ensure real equal opportunities. Should any of the parties has a significant advantage in terms of accessing expert resources, engaging specialists or obtaining special knowledge, then this may create procedural imbalance and affect overall fairness of proceedings. This is precisely why the ECtHR proceeds from the necessity of ensuring not only legal but also actual equality of arms.

Of particular relevance in this context is the defence counsel's right to an alternative forensic examination. The ECtHR's practice shows that refusal to allow the expert's opinion to be challenged with another expert opinion may, in certain circumstances, be regarded as a limitation of the right to an effective remedy. Under such circumstances, alternative forensic analysis is not a means of duplicating research that has already been conducted, but rather a procedural mechanism for balancing interests of parties to criminal proceedings.

Therefore, the issue of admissible experts' opinions and procedural conditions for their admissibility gains importance. Rules for evaluating evidence should not result in a situation where one of the parties is deprived of the opportunity to challenge the reliability or validity of an expert's opinion. Otherwise, the expert's opinion risks becoming evidence with predetermined weight, which contradicts general principles of criminal proceedings.

An analysis of the ECtHR's practice reveals that the adversarial proceedings principle applicable to forensic expert activities extends beyond the parties' right to participate in examination of evidence; it also entails the State's duty to guarantee substantive equality of procedural opportunities when special knowledge is utilised. This provides the necessary groundwork for developing a fair mechanism of proof and reduces the risk of one party dominating the process of determining circumstances of a criminal proceeding.

The next critical standard established in the ECtHR's practice pertaining to the use of forensic examinations is the requirement to observe reasonable timelines in criminal proceedings and the

8 Case of *Brandstetter v. Austria* (Application No. 11170/84; 12876/87; 13468/87). 28 Aug. 1991 / HUDOC : web. URL: <https://hudoc.echr.coe.int/?i=001-57683> (date accessed: 03.05.2026).

impermissibility of unjustified delays in investigations resulting from repeated scheduling of forensic re-examinations. This standard is specifically linked to guarantees of a fair trial provided for in Art. 6 of the Convention, as well as to the procedural obligation of the State to ensure an adequate investigation of circumstances of a criminal offence.

It is worth noting that conducting a forensic examination inevitably involves a certain amount of time required to obtain, examine, and evaluate materials, apply specialised methodologies, and reach reasonable conclusions (opinions). Nevertheless, neither the complexity of the forensic examination nor the need to rely on special knowledge can automatically justify an excessive length of criminal proceedings. The ECtHR's practice consistently follows an approach under which pre-trial investigation authorities and courts must organise the evidence-gathering process in ways that ensure promptness of relevant procedural actions, without allowing for any unjustified delays.

This provision assumes particular relevance in cases where forensic re-examinations are ordered. Obviously, carrying out a forensic re-examination does not contradict the requirements of a fair trial, since in certain scenarios this process may be justified when there are reasonable doubts regarding the accuracy of an initial opinion: its insufficiency, contradictory nature, or the emergence of new factual circumstances requiring extra research. However, regular ordering of multiple forensic re-examinations with no proper procedural justification could point to an inefficiently organised investigation and

serve as a covert means of delaying criminal proceedings.

The judgment in *Basyuk v. Ukraine* is a good example of this. After analysing circumstances surrounding the case, the ECtHR found that during the investigation of traffic accident, which had resulted in the death of the applicant's daughter, pre-trial investigation authorities ordered six forensic automotive re-examinations. Furthermore, although the ECtHR acknowledged that conducting a forensic re-examination may be justified on a case-by-case basis, it emphasized the need for providing proper procedural grounds for such a decision. The court observed that repeated forensic examinations of the same nature into identical issues, which lacked convincing reasoning, resulted in the investigation being dragged out for more than eight years, thereby violating the requirement for criminal proceedings efficiency⁹.

This approach is also seen in *Mehmet Günay and Güllü Günay v. Turkey*. The Court found that, during the proceedings concerning the death of a child following surgery, repeated forensic medical examinations were ordered on numerous occasions to determine cause-and-effect relationships between medical procedures and the death. Extensive studies had spanned more than a year; yet, even a substantial number of forensic examinations failed to clarify circumstances of an event. The ECtHR underscored that neither the complexity of the case nor the specific nature of the subject matter of the forensic analysis could justify such excessive delays. Following its consideration, the ECtHR concluded that the proceedings did not meet reasonable timelines¹⁰.

9 Справа «Басюк проти України» (Заява № 51151/10) : ріш. ЄСПЛ від 05.02.2016 р. URL: https://zakon.rada.gov.ua/laws/show/974_b15 (date accessed: 03.05.2026).

10 Affaire Mehmet Günay et Güllü Günay c. Turquie (Requête n° 52797/08). 20 Fév. 2018 / HUDOC : web. URL: [https://hudoc.echr.coe.int/#{%22itemid%22:\[%22001-181259%22\]}](https://hudoc.echr.coe.int/#{%22itemid%22:[%22001-181259%22]}) (date accessed: 03.05.2026).

The ECtHR's legal positions discussed above are also relevant to the national practice on enforcing criminal procedural legislation. For instance, Art. 332 of the CPC of Ukraine foresees the possibility of ordering a forensic re-examination only if there are sufficient grounds to consider the opinion (conclusion) of the expert (experts) unfounded or contrary to other materials of the case or raise other reasonable doubts about its correctness. Therefore, a forensic re-examination should not be turned into a tool for merely duplicating previous findings or a means of covering up shortcomings in the conduct of pre-trial investigation.

A distinct standard established by the ECtHR is the requirement to provide a forensic expert with a sufficient amount of material for forensic analysis. This standard is crucial because the quality and validity of an expert's opinion depend not only on the expert's professional competence or employed methods, but also on the scope and content of initial data provided for forensic analyses. Insufficient materials or materials of a selective nature can have a profound impact on forensic examination findings and, consequently, on overall reliability of evidence.

Under the ECtHR's practice, the parties must be allowed both to review the expert's opinion and to assess the adequacy and relevance of evidence supporting it. In *Matytsina v. Russia*, the ECtHR ruled that the parties must be able to review documents and materials that a forensic expert used in formulating his/her conclusions. Furthermore, the court must be able to verify whether the forensic expert possessed sufficient information to con-

duct research¹¹. The ECtHR, in fact, took special note not only of the forensic analysis findings but also of whether the information on which they had been based was credible.

A similar stance was also expressed in *Mirilashvili v. Russia*. The ECtHR noted that an expert's opinion cannot be regarded as meeting the requirements of a fair trial unless the defence counsel has been given a real chance to challenge its validity¹². We are talking both about the right to review final research findings and about the right to access initial data, documents, materials, and other resources underlying the opinion.

This standard is highly relevant to criminal proceedings. When ordering a forensic examination, the investigator or court sets the scope of the upcoming research by compiling a list of materials to be handed over to the forensic expert. Should objects under study be deemed insufficient, lack details relevant to a case, or have been subject to selective sampling, there is a risk that opinions drawn will not accurately reflect all essential aspects of criminal proceedings. This issue gains particular importance during multidisciplinary forensic, medical, psychiatric, economic, and computer examinations; results of these studies heavily depend on the exhaustiveness of available information.

Accordingly, the ECtHR's practice has developed a procedural standard whereby the proper preparation of materials for subsequent forensic analyses constitutes an integral part of the guarantee for a fair trial. In light of this, sufficiency of materials is no longer a technical requirement for organising a forensic examination, but

11 Case of *Matytsina v. Russia* (Application no. 58428/10). 27/06/2014 / HUDOC : web. URL: <https://hudoc.echr.coe.int/?i=001-141950> (date accessed: 03.05.2026).

12 Case of *Mirilashvili v. Russia* (Application no. 6293/04). 05/06/2009 / Ibid. URL: <https://hudoc.echr.coe.int/?i=001-90099> (date accessed: 03.05.2026).

rather a procedural safeguard that ensures the parties' right to challenge and scrutinise evidence with high precision.

A separate set of standards developed by the ECtHR is the requirements to adequately substantiate grounds for ordering a forensic examination. This approach comes to the forefront specifically in forensic psychiatric examinations, which results have the potential to lead to significant limitations of an individual's rights (such as involuntary commitment and restrictions on freedom of movement). Under these circumstances, a forensic examination cannot be ordered as a matter of formality or be based on conjecture, since its very procedure may significantly interfere with rights protected by the Convention.

In *Winterwerp v. the Netherlands*, the ECtHR set out a crucial approach whereby restraint of a person's liberty in connection with a mental disorder is permissible only if there is objective medical evidence confirming the condition. Furthermore, such opinions must rest not on general assumptions or subjective assessments, but on proper medical examination¹³. The ECtHR has, in fact, provided the groundwork for the requirement that sufficient initial data be available as a prerequisite for application of special knowledge.

This approach was further elaborated in *Varbanov v. Bulgaria*, where the ECtHR found a violation of Art. 5 of the Convention due to the placement of a person in a psychiatric hospital without a prior

medical examination. The ECtHR noted that imposing psychiatric measures without sufficient factual grounds poses risks of arbitrary interference with human rights¹⁴. The decision as to the necessity of conducting a forensic examination or applying related restrictive measures must therefore stem from available objective data, rather than being used as a means of obtaining such data.

Another notable case is *Zaichenko v. Ukraine* (No. 2). The applicant was subjected to a thirty-day inpatient forensic psychiatric examination. The ECtHR concluded that the relevant judgment was not properly substantiated and that the case materials did not contain sufficient medical data to support such an intervention. Separately, the ECtHR noted the lack of judicial oversight over the adoption of the relevant decision¹⁵. In other words, there must be specific circumstances justifying the need for a forensic examination; it cannot be reduced to a mere formality requiring application of special knowledge.

A similar approach can be observed in *Buzadji v. the Republic of Moldova*. The ECtHR ruled that there must be sufficient factual grounds for any procedural decisions that result in limitations of a person's rights¹⁶. While the case did not directly concern forensic examination, the approach outlined by the ECtHR is also of relevance to forensic expert activities, because it demonstrates the need for a comprehensive evaluation of all available evidence before rendering a procedural decision.

13 Case of *Winterwerp v. the Netherlands* (Application no. 6301/73). 24 Oct. 1979 / HUDOC : web. URL: <https://hudoc.echr.coe.int/?i=001-57597> (date accessed: 03.05.2026).

14 Case of *Varbanov v. Bulgaria* (Application no. 31365/96). 5 Oct. 2000 / Ibid. URL: <https://hudoc.echr.coe.int/?i=001-58842> (date accessed: 03.05.2026).

15 *Справа «Заїченко проти України (№ 2)»* (Заява № 45797/09) : ріш. ЄСПЛ від 06.07.2015 р. URL: https://zakon.rada.gov.ua/laws/show/974_a87 (date accessed: 03.05.2026).

16 Case of *Buzadji v. the Republic of Moldova* (Application no. 23755/07). 5 Jul. 2016 / HUDOC : web. URL: <https://hudoc.echr.coe.int/?i=001-164928> (date accessed: 03.05.2026).

Therefore, the ECtHR's practice enables the formulation of a procedural standard under which the ordering of a forensic examination—particularly one involving a potential restriction of a person's rights—must rest on a sufficient body of objective evidence. Failure to provide adequate grounds justifying the need to conduct a forensic examination or the use of a forensic examination as a means of seeking grounds in support of further procedural decisions violates the requirements of the Convention and poses risks of arbitrary interference with human rights.

When it comes to upholding the principle of adversarial proceedings, the ECtHR focuses on situations where the defence counsel seeks to challenge opinions of forensic experts involved by the prosecution through alternative forms of special knowledge. We share the viewpoint of M. Shcherbakovskyi that depriving the defence counsel of the opportunity to challenge the admissibility of experts' opinions, or limiting their right to present alternative professional positions, may give rise to a procedural imbalance between the parties. In such cases, the ECtHR is guided by the principle that formal existence of rights is not sufficient if one of the parties is *de facto* deprived of the opportunity to adequately exercise their rights of defence. Where appropriate, this may be regarded as a violation of cl. 1, subcl. (d) and cl. 3 of Art. 6 of the Convention¹⁷.

This approach is also practically relevant to national criminal proceedings. Recently, Ukrainian practice has seen a trend towards

the use of so-called specialist reviews of forensic experts' opinions; such reviews are most often initiated by the defence counsel. Usually, these documents provide a rigorous analysis of the research conducted and aim to assess its scientific and methodological soundness. Subject matter of such studies encompasses compliance with approved forensic examination methodologies, suitability of applied methodological guidelines, sufficiency of initial data, and coherence of conclusions drawn¹⁸.

Although current criminal procedural legislation does not recognise a specialist's review as an independent procedural source of evidence, such reviews are becoming increasingly common in practice. Well-reasoned observations containing references to academic sources, professional standards, methodological guidelines, and other specialised information are subjected to scrutiny during trials. While such documents do not have independent evidentiary status, they can shape the internal conviction of the investigator or the court when these legal authorities evaluate experts' opinions in terms of validity and reliability¹⁹.

From this perspective, it is advisable to consider the ECtHR's practice more broadly and not only as recognition of the defence counsel's right to present alternative opinions. The relevant legal provisions culminate in a procedural rule whereby any form of application of special knowledge used to verify or refute opinions must be evaluated through the lens of guaranteeing the actual equality of arms

17 Щербаковський М. Г. Знач. твір. DOI: 10.5281/zenodo.15225970 (date accessed: 03.05.2026); Конвенція про захист прав URL: https://zakon.rada.gov.ua/laws/show/995_004 (date accessed: 03.05.2026).

18 Щербаковський М. Г. Знач. твір. DOI: 10.5281/zenodo.15225970 (дата звернення: 03.05.2026).

19 Щербаковський М. Г. Знач. твір. DOI: 10.5281/zenodo.15225970 (date accessed: 03.05.2026); Конвенція про захист прав URL: https://zakon.rada.gov.ua/laws/show/995_004 (date accessed: 03.05.2026).

and the real possibility of mounting effective defence.

Conclusions

The research conducted has enabled us to conclude that the ECtHR has developed a comprehensive system of interrelated standards for ordering and conduct of forensic examinations in criminal proceedings, and although these standards are not directly laid down in Art. 6 of the Convention, nevertheless, they stem from the right to a fair trial, requirements of an efficient investigation, and the principles of adversarial proceedings and procedural equality of arms. Contrary to a purely procedural approach, in the ECtHR's practice, forensic examination is viewed as an integral part of the mechanism of proof, and any violation of this procedure is capable of affecting the overall fairness of criminal proceedings.

Having analysed the ECtHR's practice, it has been proposed that the ECtHR's standards for ordering and conducting forensic examinations be grouped into several intertwined categories. These include: sufficiency of case materials, adversarial proceedings, principle of equality of arms, reasonableness of ordering a forensic examination, promptness, independence of a forensic expert, and investigation efficiency. It has been observed that the respective standards constitute an interrelated system of procedural requirements that must be observed at all stages of special knowledge application in criminal proceedings.

It has been substantiated that the ECtHR's practice ultimately boils down to a rule whereby validity of an expert's opinion is determined not only on the basis of the accuracy of the methodology applied or a forensic expert's qualifications, but

also through adherence to procedural safeguards in the formation of such an opinion. The standard of sufficiency, for example, requires that the forensic expert be provided with a sufficient volume of initial data, and that the parties be given the opportunity to examine materials supporting the expert's opinions. The principle of adversarial proceedings and procedural equality of arms, however, requires ensuring that the defence counsel has not only a declarative but a real opportunity to challenge the expert's opinions, pose additional questions, submit alternative research and participate in the examination of evidence on an equal footing with the prosecution.

It has been established that the standard of reasonableness for ordering a forensic examination precludes its use as a formal tool to seek grounds for making subsequent procedural decisions. This is crucial when conducting forensic psychiatric examinations and other forensic examinations that may entail a substantial restriction of a person's rights. The standard of promptness stipulates that criminal proceedings shall not be unduly delayed through repeated ordering of further forensic examinations and when there are no proper procedural grounds for doing so.

The standard of a forensic expert's independence must be evaluated both in terms of his or her formal procedural status, and from the perspective of institutional and functional links potentially affecting credibility of research findings. Furthermore, the standard of investigation efficiency demands that pre-trial investigation authorities utilise all available procedural means to establish circumstances of an event in full, including timely and well-substantiated ordering of forensic examinations.

Provisions of Art. 242 of the CPC of Ukraine defining grounds for ordering a forensic examination and circumstances under which it is mandatory generally align with the standards set out in the Convention; however, their practical application requires a more rigorous consideration of the approaches adopted by the ECtHR. We therefore deem it appropriate to strengthen the practical focus of procedural decisions by introducing guidelines on substantiating the need for forensic examinations, on ensuring sufficiency of materials provided to a forensic expert, and on providing appropriate grounds for ordering a forensic re-examination.

Practical value of the study lies in the possibility of using established standards as guidelines for investigators, prosecutors and courts; these standards can be implemented when deciding on the ordering, organisation and evaluation of forensic examinations. Their adoption will help to enhance the quality of proof, minimise procedural risks and ensure that national practice meets international human rights standards.

**Практика Європейського суду
з прав людини
у формуванні стандартів
призначення та проведення
судових експертиз
у кримінальному провадженні**

**Валерій Сокурєнко,
Володимир Твердохліб**

Мета статті — визначити стандарти призначення та проведення судових експертиз у кримінальному провадженні, сформовані у практиці Європейського суду з прав людини, а також окреслити їхнє значення для забезпечення права на справедливий судовий розгляд і вдосконалення національної практики застосування

спеціальних знань. Реалізації поставленої мети сприяв комплекс загальнонаукових і спеціально-юридичних методів, зокрема аналізу й синтезу, індукції й дедукції, а також діалектичний, системно-структурний, порівняльно-правовий та узагальнення. З'ясовано, що практика ЄСПЛ уже містить цілу систему процесуальних стандартів, які поширюються на сферу призначення та проведення судових експертиз, хоча безпосередньо вони не закріплені в положеннях ст. 6 Європейської конвенції з прав людини. З'ясовано, що ЄСПЛ розглядає судову експертизу не як ізольований процесуальний інструмент застосування спеціальних знань, а як складник механізму доказування, порушення якого здатне впливати на загальну справедливість кримінального провадження. Визначено, що до основних стандартів, сформованих у практиці ЄСПЛ, належать стандарти: повноти матеріалів, змагальності, процесуальної рівності сторін, обґрунтованості призначення експертизи, оперативності, незалежності експерта й ефективності розслідування. Простежено, що відповідні стандарти утворюють взаємопов'язану систему процесуальних вимог, яка охоплює етапи призначення, проведення та оцінювання результатів експертного дослідження. Обґрунтовано, що зміст практики ЄСПЛ передбачає не лише загальні процесуальні підходи, а й конкретні криміналістичні правила застосування спеціальних знань. Зокрема, забезпечення достатності наданих експертові матеріалів слід розглядати як процесуальну гарантію права сторін на перевірку доказів; неодноразове призначення повторних експертиз без належного обґрунтування може свідчити про неефективність розслідування; а незалежність експерта потрібно оцінювати не лише за його процесуальним статусом, а й з ура-

хуванням інституційних і функційних зв'язків, здатних впливати на довіру до результатів дослідження. Доведено, що підвищення ефективності використання судових експертиз у кримінальному провадженні потребує системного врахування стандартів ЄСПЛ під час застосування положень ст. 242 Кримінального процесуального кодексу України, удосконалення практики мотивування процесуальних рішень із призначення експертиз, забезпечення реальної змагальності сторін і посилення гарантій незалежності експертної діяльності.

Ключові слова: досудове розслідування; судове провадження; спеціальні знання; експертиза; призначення експертизи; експерт; спеціаліст; висновок експерта, практика ЄСПЛ; доказування; стандарт доказування; належна правова процедура.

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Declaration of Competing Interest

The authors declare no conflict of interest.

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Counteracting Mobbing: The Role of Collective Bargaining Agreements and Forensic Expert Studies

Nataliia Filipenko *

* Doctor of Legal Sciences, Professor, National Aerospace University “Kharkiv Aviation Institute” (KHAI), Kharkiv, Ukraine, ORCID: <https://orcid.org/0000-0001-9469-3650>, e-mail: n.filipenko@khai.edu

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This scientific paper examines mobbing as one of the most harmful forms of psychological pressure within workplace collectives, undermining employee well-being and organizational stability. To accomplish the goal, general scientific methods have been employed: observation, comparison, abstraction, analysis, synthesis, modelling, etc. It emphasizes that, despite the statutory incorporation of the concept of «harassment (mobbing)» into the Labour Code of Ukraine, existing legal mechanisms require further development, while anti-discrimination legislation calls for stronger practical instruments. In this context, the collective bargaining agreement assumes particular importance as a preventive tool, enabling the institutionalization of corporate ethics, the establishment of clear grievance procedures, guarantees of protection against unfounded sanctions, and a precise definition of the parties' liability. At the same time, the role of forensic expertise as a crucial evidentiary mechanism in mobbing cases is underscored. Specifically, forensic examinations – psychological, linguistic, and sociological – provide objective substantiation of psychological pressure, facilitate the analysis of workplace communications, and assess their impact on employees' mental health. The synergy between the preventive function of collective bargaining agreements and the evidentiary strength of forensic expert studies creates a comprehensive system of protection against mobbing. The article also explores international standards, notably International Labour Organization's Convention No. 190 and ILO Recommendation No. 206, as well as European Union – Directive 2000/78/EC, which establish

principles of equality and prohibit psychological violence in the workplace. Their fundamental role in harmonizing national legislation and building a multi-level system of mobbing prevention – based on the integration of legal guarantees, organizational measures, socio-psychological methods, and forensic expert studies – is substantiated.

Keywords: *mobbing; labour relations; collective bargaining agreement; discrimination; social dialogue; counteraction; prevention; forensic expert studies.*

Research Problem Formulation

International jurisprudence and comparative legal analysis indicate that counteracting mobbing has become a cornerstone in the evolution of labor law and social policy within European jurisdictions. Ukraine is progressively harmonizing its national framework with international standards on the protection of employees against psychological harassment. Recent amendments to the Labour Code of Ukraine (notably Law No. 2759-IX and subsequent normative acts effective as of 2026) – together with contemporary legislative initiatives – are aimed at institutionalizing response mechanisms and strengthening both direct and vicarious employer liability. This phenomenon acquires heightened legal and social significance amidst the ongoing state of war – wherein the psychological burden on human capital escalates sharply. Under such circumstances, mobbing functions as an additional factor destabilizing work collectives. Ensuring a psychologically safe and supportive occupational environment therefore transcends statutory compliance – it constitutes a fundamental element of national resilience and post-conflict recovery. At the same time, forensic expertise is underscored as a pivotal evidentiary instrument in mobbing litigation. Multidisciplinary forensic examinations – psychological, linguistic, and sociological – provide

objective corroboration of psychological pressure, deconstruct hostile communication patterns within the workforce, and assess their impact on employees' mental health. The synergy between the preventive function of collective bargaining agreements and the evidentiary strength of forensic studies establishes a comprehensive, multi-tiered system for counteracting mobbing – indispensable for maintaining social stability during wartime challenges and subsequent national recovery.

Analysis of Essential Researches and Publications

In scholarly literature, mobbing is characterized as a complex, multidimensional phenomenon encompassing legal, social, victimological, and psychological dimensions. The collective works of L. Harashchenko, A. Kolota, O. Kachmar, O. Korablyova, N. Mekheda, O. Serdyuk, O. Soroka, N. Filipenko, and others analyze the causes of mobbing, its impact on work collectives, and international approaches to counteracting this phenomenon. Their research highlights the need to establish effective legal mechanisms for employee protection and to integrate international standards in occupational health, safety, and corporate social responsibility. Within the scope of this article, emphasis is placed not only on investigating the causes of mobbing but

also on identifying practical pathways for its mitigation – including the management of victimological risks and the strategic application of forensic expertise. Psychological, linguistic, and sociological examinations serve as essential instruments for substantiating psychological pressure, analyzing intra-collective communications, and assessing their harmful impact on employees' mental health. The synthesis of preventive measures and evidentiary mechanisms enables the formation of a comprehensive system for counteracting mobbing. It is important to note that Ukrainian scholars conceptualize mobbing as a factor undermining organizational resilience – and, in the context of armed conflict, as an additional threat to workforce psychological well-being and social stability. Consequently, the integration of global best practices, adaptation of corporate governance standards, and formulation of national strategies for counteracting mobbing must incorporate the systemic use of forensic expertise as a primary evidentiary resource in labor relations.

Article Purpose

The aim of the study is not only to synthesize the fundamental provisions regarding the nature of mobbing within work collectives but also to model the causes of its occurrence – with due regard for contemporary socio-economic conditions. Particular emphasis is placed on developing comprehensive counter-mobbing measures that integrate national legislation with international standards and the practical application of forensic expertise. Comprehensive forensic examinations are characterized as a pivotal evidentiary instrument – enabling the objective corroboration of psychological pressure, the assessment of its impact on employees' mental health, and the provision of an admissible evidentiary basis to the court.

Research Methods

General scientific methods are used: observation, comparison, abstraction, analysis, synthesis, modeling, etc.

Main Content Presentation

In examining contemporary issues surrounding mobbing, it is methodologically essential to conduct a comparative legal analysis of practical experience in European jurisdictions – which have developed distinct, multi-layered models for counteracting this phenomenon. These paradigms encompass not only robust statutory frameworks and institutionalized adjudication protocols within work collectives – but also a sophisticated reliance on forensic evidentiary standards to address the multifaceted nature of psychological harassment in the modern workplace.

In Germany, mobbing is not categorized as a discrete criminal offense; however, it is adjudicated by courts as a violation of the employee's personality rights and a systematic form of discrimination. The landmark ruling of the Federal Labour Court (Bundesarbeitsgericht, 15.01.1997 – 7 ABR 14/96) defines mobbing as «systematic hostility or harassment that creates unacceptable working conditions and infringes upon the dignity of the employee». The Court emphasized that the employer bears a legal duty of care to prevent such conduct, and failure to fulfill this obligation may result in civil liability. The jurisprudence of German courts frequently incorporates psychological and medical forensic evaluations to substantiate the harm occasioned by mobbing. For instance, in the case of the Higher Labour Court of Thuringia (Landesarbeitsgericht Thüringen, Urteil vom 10.04.2001 – 5 Sa 403/00), the court recognized mobbing as systematic actions by a supervisor that induced a psychological disorder in an

employee. The court awarded compensation for non-pecuniary damage, relying on the findings of a forensic psychological examination. In such instances, forensic evaluations are of paramount importance for establishing the causal nexus between the employer's conduct and the impairment of the employee's health – in strict accordance with forensic standards of proof ¹.

In France, both labour and criminal legislation define mobbing – specifically categorized as «moral harassment» (*harcèlement moral*) – as repetitive acts that deteriorate working conditions and are capable of causing prejudice to an employee's rights or dignity. Pursuant to Article L.1152-1 of the French Labour Code (*Code du travail*): «No employee shall be subjected to repeated acts of psychological pressure which have as their object or effect a deterioration of working conditions that is likely to infringe upon their rights and dignity, to affect their physical or mental health, or to compromise their professional future» ². The jurisprudence of the Court of Cassation of France (*Cour de cassation*) classifies as «moral

harassment» such conduct as demotion in rank, the unauthorized disclosure of medical confidentiality, the removal of personal effects, the imposition of tasks inconsistent with an employee's professional designation, and systematic derogatory criticism ³. It is of paramount legal significance that in France, the «burden of proof» (*onus probandi*) is shifted to the employer, while employees are afforded procedural guarantees of protection against disciplinary sanctions and termination throughout the period of judicial proceedings.

Conversely, in Italy, the judiciary also recognizes mobbing as systematic hostile acts that result in deleterious consequences for an employee's health. However, in accordance with the Italian Code of Civil Procedure, the evidentiary burden remains with the employee, who must substantiate both the fact of the harm and its specific «causal nexus» with the occupational environment ⁴. The Supreme Court of Cassation of Italy (*Corte Suprema di Cassazione*), in its ruling dated January 27, 2017 (*Cass.*, no. 2142), stipulated that for the legal es-

- 1 See more: Das Bundesarbeitsgericht (BAG). Urteil vom 15. Januar 1997 (7 ABR 14/96). Mobbing als Verletzung von Persönlichkeitsrechten / Bundesarbeitsgericht : web. URL: <https://www.bundesarbeitsgericht.de> (date accessed: 20.03.2026) ; Workplace bullying: The complete guide for victims and companies / Rotwang Law : web. 01 Aug 2025. URL: <https://rotwang-law.de/en/mobbing-am-arbeitsplatz-der-komplette-leitfaden-fur-betroffene-und-unternehmen/> (date accessed: 20.03.2026) ; Weberndörfer F., Posluschny C., Bachmeier M., et al. Bullying in the Workplace: What Employers Should Consider / Norton Rose Fulbright : web. Oct 2024. URL: <https://www.nortonrosefulbright.com/en/knowledge/publications/d2be19cc/bullying-in-the-workplace-what-employers-should-consider> (date accessed: 20.03.2026) та ін.
- 2 Code du travail. Article L1152-1 / Légifrance : web. URL: https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000006900818 (date accessed: 20.03.2026).
- 3 See more: Cour de cassation : web. URL: <https://www.courdecassation.fr/decision/harcement-moral> (date accessed: 20.03.2026) ; Artus C., & Chihi S. Harassment in the Workplace: A Major Challenge for Employers in France. *National Law Review*. 2025. Vol. XVI. No. 86. URL: <https://www.natlawreview.com/article/harassment-workplace-major-challenge-employers-france> (date accessed: 20.03.2026).
- 4 See more: Santagata de Castro R. Workplace Bullying in Italy. Malicious Intent and Role of EU Anti-discrimination Law. *Biblioteca '20 Maggio'*. 2019. Vol. 2. Pp. 209–224. URL: https://csdle.lex.unict.it/sites/default/files/Documenti/Articoli/2019-2_deCastro.pdf (date accessed: 20.03.2026) ; Trifirò E., Moretti J. Straining e Mobbing: quando le condotte diventano giuridicamente rilevanti secondo la Cassazione / Trifirò & Partners : web. 7 Gen 2025. URL: <https://www.trifiro.it/approfondimenti/straining-e-mobbing/> (date accessed: 20.03.2026).

tablishment of the fact of mobbing, it is necessary to substantiate «a series of persecutory acts over a prolonged period, which in their totality infringe upon the dignity and mental health of the employee»⁵. In this legal context, forensic expertise acquires paramount significance, as it facilitates the substantiation of the «causal nexus» between the employer's conduct and the resulting harm occasioned to the employee. Psychological and linguistic forensic examinations have emerged as pivotal evidentiary instruments within the forensic analysis of mobbing.

The Montenegrin Law «On the Prohibition of Abuse at Work» (Official Gazette of Montenegro No. 30/2012, as amended by No. 54/2016) constitutes a *lex specialis* – a dedicated legislative act that directly regulates the issues of mobbing. Pursuant to Article 1: «*This Law regulates the rights, obligations, and responsibilities of employers and employees regarding the prevention of abuse at work (mobbing), as well as other matters of significance for protection against mobbing*» (Official Gazette of Montenegro, No. 30/2012)⁶. The Law defines «mobbing» as any systematic behaviour or series of acts that have as their object or effect the infringement of an employee's dignity and the creation of a hostile or offensive atmosphere. Pursuant to these provisions, the employer is legally mandated to ensure a safe and healthy working environment, implement measures for the prevention of mobbing, and develop internal policies and

procedures for the adjudication of complaints (Official Gazette of Montenegro, No. 54/2016)⁷. An employee is entitled to lodge a formal complaint with the Labour Inspectorate or the court, to receive protection against disciplinary sanctions during the pendency of the case, and to claim compensation for both «pecuniary and non-pecuniary damage». The 2016 amendments reinforced procedural guarantees by codifying the employee's right to job security (retention of the workplace) throughout the judicial process and by refining the specific procedures for the adjudication of complaints. The Law provides for both civil and administrative liability for employers who fail to implement anti-mobbing measures – including the imposition of punitive fines and the provision of restitution to victims.

In Lithuania, mobbing is directly regulated in labor legislation as «psichologinis smurtas darbo ukrytė» (psychological violence in the workplace). According to Article 30 of the Labor Code of the Republic of Lithuania (Darbo kodeksas, 2017), the employer is obliged to ensure a safe and healthy working environment, and any manifestations of psychological harassment are recognized as a violation of labor rights⁸. Judicial practice confirms that mobbing is qualified as systematic actions that infringe upon the dignity of an employee and may result in impairment of their health. For instance, in a case adjudicated by the Supreme Court of Lithuania (Lietuvos Aukščiausioji Teisma, June 19, 2015,

5 Mobbing: necessario l'intento persecutorio da parte del datore di lavoro : Cassazione Civile, Sez. Lav. 27 gennaio 2017. N. 2142 / Olympos : web. URL: <https://surli.cc/hvbylq> (date accessed: 20.03.2026).

6 The Law on Prohibition of Harassment at Work. *Official Gazette of Montenegro*. 2012. No. 30. URL: <https://wapi.gov.me> (date accessed: 20.03.2026).

7 Report on the Non-Accepted Provisions of the Revised European Social Charter. Montenegro, 2016. 48 p. URL: <https://rm.coe.int/montenegro-report-on-the-non-accepted-provisions-of-the-revised-europe/1680b692ae> (date accessed: 20.03.2026).

8 Lietuvos Respublikos darbo kodekso patvirtinimo, įsigaliojimo ir įgyvendinimo įstatymas. 2016-09-14. Nr. XII-2603. TAR, 2016-09-19, Nr. 23709. URL: <https://www.e-tar.lt/portal/lt/legalAct/f6d686707e7011e6b969d7ae07280e89/asr> (date accessed: 20.03.2026).

No. 3K-3-408/2015) it was established that the systematic ignoring of an employee and the deprivation of their actual job functions constitutes «psychological violence», and that the compensation for «non-pecuniary damage» must be predicated upon the findings of a forensic psychological examination. Scientific research further underscores the critical importance of forensic expertise in mobbing litigation: Gumbyte (2022) ⁹ the research analyzes the theoretical and practical aspects of the legal regulation of mobbing, emphasizing the imperative need for «comprehensive psychological and sociological studies» to substantiate the harm sustained; J. Vveinhardt and W. Sroka (2020) in their work on corporate social responsibility within Polish and Lithuanian organizations, they state that: «*Forensic expertise is a pivotal evidentiary instrument in establishing the causal nexus between the employer's conduct and the employee's state*» ¹⁰.

In contrast to other European nations, the issue of counteracting mobbing in Sweden is regulated not only through legislation but also via robust institutional mechanisms. In addition to statutory norms, there exists the Ombudsman for Labour and Social Relations, who coordinates the activities of expert groups and develops recommendations for the prevention of psychological harassment. This model integrates legal regulation with practical prevention tools – including educational programs and public information campaigns – and provides for the active uti-

lization of expert studies as the evidentiary basis in labour disputes ¹¹.

Numerous nations have already established progressive anti-mobbing systems that synthesize legal mechanisms with preventive and educational measures aimed at fostering a safe and healthy working environment. These systems demonstrate the efficacy of an institutional approach – wherein specialized bodies not only react to violations but actively work to prevent them. Drawing upon this international experience, it is expedient for Ukraine to establish a dedicated institution – for instance, an «Ombudsman for Countering Mobbing and Psychological Violence in the Workplace» – who would coordinate interaction between employers, trade unions, and state authorities, develop methodological recommendations, monitor mobbing incidents, and guarantee the protection of aggrieved employees.

In the context of the ongoing war, the application of «comprehensive forensic examinations» – psychological, linguistic, sociological, and medical – acquires particular significance. These examinations enable the objective corroboration of psychological pressure, the determination of its impact on the mental health and professional future of employees, and the provision of an admissible evidentiary basis to the court. Such an approach will ensure not only prevention but also the substantive protection of human rights in the workplace, marking a crucial step towards the implementation of international standards

9 Gumbyte G. A. Mobbingo teisinio reguliavimo teoriniai ir praktiniai aspektai. Theoretical and Practical Aspects of Mobbing Legal Regulation : Magistro darbas. Vilnius, 2022. 56 p. URL: <https://epublications.vu.lt/object/elaba:175680744/index.html> (date accessed: 20.03.2026).

10 Vveinhardt J., Sroka W. Workplace Mobbing in Polish and Lithuanian Organisations with Regard to Corporate Social Responsibility. *International Journal of Environmental Research and Public Health*. 2020. Vol. 17. Is. 8. DOI: 10.3390/ijerph17082944 (date accessed: 20.03.2026).

11 European Social Charter (Revised) (ETS No. 163). Strasbourg, 03/05/1996 / Council of Europe : web. URL: <https://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/163> (date accessed: 20.03.2026).

and the formation of a national anti-mobbing system in Ukraine.

The study of the European experience in combating mobbing is impossible without reference to Council Directive 2000/78/EC, which established a general framework for equal treatment in employment and occupation. The significance of this document lies in its legal definition of «harassment», which is inherently identical to the mechanisms of mobbing. Furthermore, it enshrines the principle of equal treatment and defines the harassment of an employee as a form of discrimination. Pursuant to Article 2(3): *«Harassment shall be deemed to be discrimination when unwanted conduct related to any of the grounds referred to in Article 1 takes place with the purpose or effect of violating the dignity of a person and of creating an intimidating, hostile, degrading, humiliating or offensive environment»* (Council Directive 2000/78/EC, 2000)¹². This implies that both the State and the employer are mandated not only to react to instances of aggression but also to ensure an environment where psychological pressure and systematic harassment are rendered impossible due to their «unlawful nature». It is upon this foundational basis that the Court of Justice of the European Union (CJEU) formulates its jurisprudence in labour and discrimination cases, where mobbing is adjudicated as a form of harassment. For instance, in the case of *«Kücükdeveci v Swedex GmbH»* (C-555/07, 2010)¹³ the Court ruled that national courts are obliged to disapply provisions that contravene the principle of non-dis-

crimination – even if they remain formally in force within national law – thereby reinforcing the protection of employees against systematic harassment.

Furthermore, in the recent landmark case of *«Bervidi»* (C-38/24, 2025)¹⁴ the Court reaffirmed the prohibition of indirect discrimination on the grounds of disability in instances where an employee is subjected to harassment due to their role as a caregiver for a child with a disability. This ruling effectively encompasses situations of psychological pressure and mobbing. Both judgments demonstrate how the provisions of the Directive are transformed into practical mechanisms for protection against psychological aggression within work collectives.

A crucial element of the European employee protection system is the provision of the European Social Charter (1961, revised in 1996), which in Article 26 explicitly establishes the obligation of State Parties *«to promote the prevention of recurrent reprehensible or distinctly negative and offensive actions directed against individual workers in the workplace or in relation to work and to take all appropriate measures to protect workers from such conduct by employers»*¹⁵. The practice of the European Committee of Social Rights (ECSR) confirms the efficacy of this norm: in the case of *«Marangopoulos Foundation for Human Rights v. Greece»* (Complaint No. 47/2008), it was established that the absence of adequate measures to prevent harassment constitutes a violation of Article 26. Furthermore, in the

12 Council Directive 2000/78/EC of 27 November 2000 establishing a general framework for equal treatment in employment and occupation / EUR-Lex : web. URL: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32000L0078> (date accessed: 20.03.2026).

13 Seda Küçükdeveci v Swedex GmbH & Co. KG : Case C-555/07. Judgment of 19 Jan 2010 / EUR-Lex : web. URL: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:62007CJ0555_SUM (date accessed: 20.03.2026).

14 Bervidi : Case C-38/24. Judgment on 11 Sept 2025 / EUR-Lex : web. URL: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:62024CJ0038> (date accessed: 20.03.2026).

15 European Social Charter URL: <https://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/163> (date accessed: 20.03.2026).

case of «Finnish Society of Social Rights v. Finland» (Complaint No. 106/2014), the Committee recognized that insufficient attention to the problem of mobbing and the lack of effective institutional mechanisms represent a breach of international standards¹⁶.

According to the definition provided by the International Labour Organization (ILO), mobbing is interpreted as a form of «psychological harassment» of a collective nature, manifesting in systematic actions aimed at undermining the dignity and professional status of an employee. This may encompass negative remarks, social isolation from the collective, exclusion from professional communications, the dissemination of false information, or other forms of pressure. In the ILO study «Workplace Violence in Services Sector – Case Studies and Good Practices» (Geneva: ILO, 2003), it is stated: «*Mobbing is a form of collective psychological harassment, characterized by repeated hostile remarks, social exclusion, denial of communication, and dissemination of false information, which may seriously affect the victim's mental health and professional life*»¹⁷. This definition underscores that mobbing is not merely an interpersonal conflict, but a systematic practice that can lead to long-term psychological consequences – including the development of stress disorders, depression, and occupational burnout. Crucially, the ILO interprets mobbing as a component of the broader phenomenon of «workplace violence», which necessitates comprehensive

counter-measures, including legal, organizational, and psychological instruments.

The legal nature of countering mobbing is predicated upon the protection of fundamental human rights, which find their supreme expression in the norms of the Basic Law. In particular, Article 3 of the Constitution of Ukraine establishes that: «*The human being, his or her life and health, honour and dignity, inviolability and security are recognized in Ukraine as the highest social value*» (Constitution of Ukraine, 1996)¹⁸. This constitutional norm serves as the primary source and the legal bedrock for the protection of the work collective against any manifestations of «psychological terror». Consequently, mobbing – as a phenomenon accompanied by the systematic degradation of dignity – constitutes a direct infringement upon the constitutional order and the fundamental principles of a state governed by the rule of law.

A pivotal stage in the evolution of national labour law was the official codification of the concept of mobbing within the Labour Code of Ukraine (Law No. 2759-IX of 16.11.2022). The legislator defines mobbing as: «*Systematic (repeated) prolonged intentional acts or omissions by an employer, individual employees, or a group of employees of the work collective, aimed at humiliating the honour and dignity of an employee, their professional reputation, including for the purpose of the acquisition, modification, or termination of their labour rights and obligations, manifesting in the form of psychological and/or economic pressure, particularly*

16 Finnish Society of Social Rights v. Finland : Complaint No. 106/2014. 29 Apr 2014. Decision on 08 Dec 2016 / Council of Europe : web. URL: https://www.coe.int/en/web/european-social-charter/processed-complaints/-/asset_publisher/5GEFkjmH2bYG/content/no-106-2014-finnish-society-of-social-rights-v-finland (date accessed: 20.03.2026).

17 Workplace violence in services sector. Country case studies and good practices / Synthesis report by V. di Martino. Geneva, 2002. 49 p. URL: <https://www.who.int/docs/default-source/documents/violence-against-health-workers/wvsynthesisreport.pdf> (date accessed: 20.03.2026).

18 Конституція України : Закон України від 28.06.1996 р. № 254к/96-ВР (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/254к/96-вр#Text> (date accessed: 20.03.2026).

through the use of electronic communication, creating a tense, hostile, or offensive atmosphere towards the employee, including such that compels them to underestimate their professional fitness» (Article 2-2 of the Labour Code of Ukraine)¹⁹. This definition encompasses both psychological and economic pressure – including the use of «electronic communication» – which aligns with the contemporary challenges of the digital environment. Furthermore, Part 2 of Article 2 of the Labour Code of Ukraine guarantees employees the right to «*healthy and safe working conditions, as well as dignified treatment by the employer and other employees*». This provision is directly linked to the concept of countering mobbing, as the creation of a safe working environment constitutes a foundational guarantee of labour rights.

Of equal importance is the provision of Point 7, Part 1 of Article 1 of the Law of Ukraine «On the Principles of Prevention and Combating Discrimination in Ukraine», where harassment (ukr. *utysk*) is defined as «*conduct that is unwanted by a person and/or a group of persons, the purpose or effect of which is the humiliation of their human dignity based on certain characteristics, or the creation of a tense, hostile, offensive, or contemptuous atmosphere towards such a person or group of persons*»²⁰. This concept possesses a broader legal application, encompassing diverse spheres of legal relations; however, within the labour sphere, it is concretized through the category of «mobbing».

In the system of countering mobbing, the Law of Ukraine «On Collective Bargaining Agreements and Accords» merits separate consideration²¹. This Law defines the legal framework for the conclusion of collective bargaining agreements and accords between employers and employees, while also establishing mechanisms for the regulation of labour relations at the enterprise, sectoral, and national levels. The Law explicitly mandates that collective agreements and accords must contain provisions for the assurance of appropriate, safe, and healthy working conditions, as well as guarantees for the social protection of employees. Within this context, mobbing – as a form of psychological pressure – may be subject to regulation through the incorporation of special norms into collective agreements aimed at preventing harassment and the creation of a hostile atmosphere within work collectives.

Significantly, the Law grants the parties to social dialogue the right to define additional guarantees and employee protection mechanisms. This implies that trade unions and employers may jointly entrench provisions within collective agreements regarding a «zero tolerance» policy towards mobbing, procedures for investigating instances of psychological harassment, and support measures for aggrieved employees. Such an approach aligns with international standards, which emphasize the necessity of establishing preventative mechanisms in the sphere of labour.

19 Кодекс законів про працю України від 10.12.1971 р. № 322-VIII (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/322-08#Text> (date accessed: 20.03.2026) ; Про внесення змін до деяких законодавчих актів України щодо запобігання та протидії мобінгу (цькуванню) : Закон України від 16.11.2022 р. № 2759-IX (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/2759-20#Text> (date accessed: 20.03.2026).

20 Про засади запобігання та протидії дискримінації в Україні : Закон України від 06.09.2012 р. № 5207-VI (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/5207-17#Text> (date accessed: 20.03.2026).

21 Про колективні договори і угоди : Закон України від 01.07.1993 р. № 3356-XII (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/3356-12#Text> (date accessed: 20.03.2026).

The Law of Ukraine «On Forensic Expertise»²² is a key legislative act that defines the legal framework for conducting examinations in criminal, civil, and administrative proceedings. In the context of mobbing and labour disputes, its significance is paramount, as expert opinions often emerge as the decisive evidence in court.

Firstly, the Law enshrines the court's right to appoint an examination to establish facts requiring specialized knowledge. In cases of mobbing, this may include: psychological examinations – to determine the presence and consequences of psychological pressure; linguistic examinations – to analyze official correspondence or communications containing offensive language; medical examinations – to substantiate harm to health.

Secondly, in labour disputes, forensic expertise facilitates the establishment of the «causal nexus» between the actions of the employer or the collective and the psycho-emotional state of the employee. This is particularly crucial since mobbing often manifests in covert forms – such as isolation, systematic insults, or the dissemination of false information – necessitating objective corroboration.

Thirdly, the Law «On Forensic Expertise» integrates with the provisions of the Labour Code of Ukraine, where mobbing is defined as a violation of labour rights. Consequently, in cases involving the termination of an employment contract, claims for compensation, or reinstatement, expert opinions become the pivotal evidence allowing the court to qualify the employer's actions as unlawful.

An analysis of the application of forensic expert opinions in mobbing-related litigation indicates that Ukrainian courts already appoint psychological examinations to corroborate instances of harassment. For instance, in a case involving an employee's resignation due to systematic psychological pressure, the court recognized an expert's conclusion regarding the presence of «signs of mobbing» as sufficient evidence to grant a claim for the compensation of non-pecuniary damage²³.

In the context of countering mobbing, pivotal significance is held not only by the collective agreement as an instrument of corporate ethics – but also by the formalization of procedures within it that provide access to forensic expertise. While the agreement itself forms a system of social control within the work collective, its efficacy is enhanced when it contains provisions regarding grievance mechanisms, the liability of the employer and employees, and the procedure for engaging experts to corroborate instances of psychological harassment. This facilitates not only the resolution of conflicts at the level of commissions or authorized persons – but also ensures the evidentiary basis in the event of a legal dispute.

In this instance, the collective agreement may synthesize local and special-criminological measures at the level of the work collective, based on accumulated theoretical and practical experience in countering mobbing. The most critical among these include:

1. Overcoming anomie within the work collective – an essential element of mobbing prevention. This pertains

22 Про судову експертизу : Закон України від 25.02.1994 р. № 4038-XII (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/4038-12#Text> (date accessed: 20.03.2026).

23 Данилюк В. Протидія мобінгу в Україні: механізми захисту працівників і судова практика / LIGAZAKON : web. 18.09.2025. URL: https://jurliga.ligazakon.net/analitics/239126_protidya-mobngu-v-ukran-mekhanizmi-zakhistu-pratsvnykv--sudova-praktika?form=MG0AV3&form=MG0AV3&utm_source=copilot.com (date accessed: 20.03.2026).

not merely to eliminating chaotic or destructive tendencies – but to creating a transparent and equitable system of interaction. Practical steps include implementing clear career advancement procedures, fair distribution of resources and rewards, precise articulation of corporate values and ethical standards, and regular communication between management and employees to avoid an information vacuum.

2. Victimological prevention – effective counter-measures against mobbing are impossible without victimological prevention, which contemporary criminologists regard as a strategic direction of preventive policy. Its objective lies not only in reducing vulnerability to victimization – but also in fostering an active stance among employees regarding the protection of their own rights. As N. Filipenko and H. Spitsyna notes: «*Victimological prevention must be regarded as a constituent of state security policy, integrating legal, organizational, and information-analytical mechanisms to influence criminogenic factors*»²⁴. In the sphere of labour relations, this implies that mobbing prevention must encompass not only psychological training – but also legal literacy and institutional protection guarantees that provide employees with a genuine opportunity to defend their rights. It is expedient to entrench within the collective agreement the employer's obligation to organize training in methods of psychological self-defence – such as assertiveness, conflict de-escalation, and the development of emotional competence – as well as algorithms for legal counter-action: preserving official correspondence, documenting testimony, and appealing to trusted persons. A vital element is the implementation of a «zero tolerance» policy towards mobbing – which clearly defines the impermissibility of any forms of psychological harassment or bullying in the workplace. Such a policy should be accompanied by the creation of internal channels for anonymous reporting of mobbing incidents – guaranteeing employees confidentiality and protection from potential reprisals.
3. Neutralization of the aggressor's criminogenic influence – a critical direction in countering mobbing within the work collective. If a manager demonstrates destructive or aggressive behavioural models, these rapidly transform into a «role model» – increasing the risk of emulation by subordinates and triggering a «chain reaction» of negative influence. Therefore, it is necessary to implement systems for the control and evaluation of managerial conduct – enabling the timely detection and neutralization of such patterns. The use of internal monitoring tools is advisable, and in the event of conflicts – the engagement of psychological and sociological examinations, which allow for an objective assessment of the collective's atmosphere and the determination of the risk level for the spread of aggressive models.
4. Procedural guarantees in the collective agreement – the following provision may be entrenched: in the

24 Філіпенко Н., Спіцина Г. Віктимологічна профілактика як складова сучасної кримінологічної політики. *Архів кримінології та судових наук*. 2025. № 2 (12). С. 147–158. DOI: [10.32353/acfs.12.2025.17](https://doi.org/10.32353/acfs.12.2025.17) (date accessed: 20.03.2026).

event of an employee filing a mobbing complaint, they have a guaranteed right to initiate an independent examination to corroborate facts of psychological harassment; the findings of the examination are recognized as official evidence in internal investigations and may be utilized in judicial proceedings; an employee who has exercised the right to an examination shall not be subjected to discrimination, harassment, or dismissal in connection with the realization of this right.

Conclusions

In summarizing the above, it should be emphasized that the collective agreement serves as a fundamental and comprehensive mechanism for countering mobbing – capable of ensuring the genuine efficacy of employee protection through the integration of legal, organizational, psychological, and expert instruments of influence. It must be regarded not as a formal document, but as a potent preventive tool – wherein it is expedient to entrench norms of corporate ethics and mutual respect, transparent grievance procedures, guarantees of protection against unsubstantiated disciplinary sanctions, and clear liability of the parties for violations of established rules. Particular significance is acquired by the implementation within collective-bargaining regulation of the employee's right to initiate an independent examination for the objective corroboration of mobbing facts. Such a systemic approach forms a reliable regulatory framework for cultivating a safe and healthy working environment – where mobbing is recognized as an impermissible phenomenon that violates labour and social rights, and forensic expertise becomes the key instrument for verifying and protecting the employee's dignity.

Протидія мобінгу: роль колективного договору та судово-експертних досліджень

Наталія Філіпенко

Мета статті — розглянути проблему мобінгу як одну з найбільш небезпечних форм психологічного тиску в трудових колективах, що негативно впливає на добробут працівників і стабільність організацій. Для досягнення поставленої мети застосовано загальнонаукові методи: спостереження, порівняння, абстракцію, аналіз, синтез, моделювання тощо. Підкреслено, що, попри закріплення поняття «цькування (мобінг)» у Кодексі законів про працю України, наявні правові механізми потребують деталізації, а антидискримінаційне законодавство — посилення практичного інструментарію. У цьому контексті особливого значення набуває колективний договір як локальний превентивний інструмент, що дає змогу закріпити правила корпоративної етики, передбачити чіткі механізми розгляду скарг і гарантії захисту від необґрунтованих санкцій та визначити відповідальність сторін. Водночас наголошено на ролі судової експертизи як основного доказового механізму у справах про мобінг. Саме експертні дослідження — психологічні, лінгвістичні й соціологічні — забезпечують об'єктивне підтвердження фактів психологічного тиску, аналізування комунікацій та оцінювання його впливу на психічне здоров'я працівника. Поєднання превентивної функції колективного договору й доказової сили судової експертизи створює комплексну систему захисту від мобінгу. Проаналізовано також міжнародні стандарти, зокрема Конвенцію Міжнародної організації праці № 190, її Рекомендацію № 206 і Директиву Ради Європи 2000/78/ЄС, які визначають принципи рівності й недопущення психологічного насильства у сфері праці. Обґрунтовано

їх фундаментальне значення для гармонізації національного законодавства та побудови багаторівневої системи превенції мобінгу, що має ґрунтуватися на синергії правових гарантій, організаційних заходів, соціально-психологічних методів і судово-експертних досліджень.

Ключові слова: мобінг; трудові відносини; колективний договір; дискримінація; соціальний діалог; протидія; превенція; судово-експертні дослідження.

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The Court's Role in Verifying Expert Evidence: From Presumptive Competence to Reliability Assessment

Mykhailo Shcherbakovskyi^{*a}, Yurii Myroshnychenko^{**b}

^{*} Doctor of Legal Sciences, Professor, Kharkiv National University of Internal Affairs, Kharkiv, Ukraine, ORCID: <https://orcid.org/0000-0003-1990-1231>, e-mail: shcherbakovskyi@gmail.com

^{**} Doctor of Legal Sciences, Mukachevo City District Court of Zakarpattia Region, Mukachevo, Ukraine, ORCID: <https://orcid.org/0000-0002-9114-1495>, e-mail: zaruba264@gmail.com

^a Writing – original draft, Supervision.

^b Writing – original draft, Project administration.

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The primary concerns of this paper are the issue of defining judicial oversight limits when it comes to evaluating the scientific validity of expert evidence in criminal proceedings, given the rapid development of special knowledge (such as digital and algorithmic research methods). The relevance of this issue stems from contradictions between the traditional status-based model for evaluating expert opinions—which presupposes institutional trust in a forensic expert's professional qualifications—and the requirement to ensure that a methodology employed by a forensic expert is reliable. The Article Purpose is to reveal conceptual differences between the Anglo-American and continental models for judicial verification of expert evidence, to determine their impact on the scope of judicial oversight, and to justify feasibility of transitioning to a procedural scientific validity review of expert methodologies used in criminal proceedings. Research methodological framework comprises dialectical, systemic, comparative legal, functional and formal-legal methods, as well as overview of legal practice. In common law countries, it has been observed that a forensic expert is a party's witness, and their opinion is subject to preliminary judicial scrutiny based on criteria of reliability and to further testing in the context of adversari-

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al proceedings. In contrast, the “gehilfe des richters” (judicial assistant) model prevails within the continental system. This approach relies heavily on presumption of a forensic expert’s competence and places less emphasis on scrutinising a methodology employed. It has been argued that the Ukrainian model incorporates elements of both approaches, but in practice leans towards status verification, thereby posing risks associated with utilisation of opinions lacking sufficient scientific substantiation, especially in the field of innovative research. It has been shown that formal accreditation and professional status do not guarantee reliable results due to cognitive biases and a lack of institutional oversight. An opinion has been reached on the need to move towards a model for procedural verification of expert evidence. It envisages an active role of a court in verifying reliability and validity of the research methodology. At the same time, it does not involve interference in the domain of special knowledge. Integrating components of reliability inquiry and institutionalising the overriding duty concept have been recognised as promising approaches, as they complement each other and guarantee the scientific validity of expert evidence; these will help enhance the quality of proof and minimise the risk of judicial errors.

Keywords: *expert opinion; judicial verification; scientific validity; criminal proceedings; comparative legal analysis; presumptive competence; overriding duty¹; reliability inquiry².*

Research Problem Formulation

Fast-paced development of special knowledge (such as digital and algorithmic research methods) is profoundly reshaping a forensic expert’s role in criminal proceedings. In light of these circumstances, the issue of defining judicial oversight limits when it comes to evaluating the scientific validity of an expert’s opinion in criminal proceedings is becoming even more crucial. Traditional evidence assess-

ment models, aimed primarily at formally reviewing procedural aspects of forensic examinations, forensic experts’ status and internal reasoning behind their opinions, are frequently found to be inadequate for guaranteeing the scientific validity of judgments.

Therefore, a need arises to re-define the relationship between institutional trust in a forensic expert’s status and procedural scrutiny of the reliability of a methodology they employ. A compara-

- 1 *Overriding duty* is an established legal concept in common law systems. It defines an *expert witness’s* primary duty as follows: an expert must help the court to achieve the overriding objective by giving opinion which is independent, objective and unbiased, and falls within the expert’s area of expertise. This duty overrides any obligation to the person from whom the expert receives instructions or by whom the expert is paid. See: The Criminal Procedure Rules 2025. Part 19. Expert evidence / Legislation.gov.uk : web. URL: <https://www.legislation.gov.uk/ukxi/2025/909/part/19> (date accessed: 03.05.2026).
- 2 *Reliability inquiry* is a procedural mechanism in the US legal system whereby a judge assesses the scientific validity and reliability of an expert’s methodology, which is a prerequisite for admitting the expert’s testimony.

tive analysis of the Anglo-American and continental (civil-law) models for the use of forensic examinations reveals a variety of approaches to this challenge and provides an opportunity to explore possibilities for adapting these approaches to national judicial proceedings.

Article Purpose

Reveal conceptual differences between the Anglo-American and continental models for judicial verification of expert evidence, determine their impact on the scope of judicial oversight based on the scientific validity of a methodology used in forensic examinations, and substantiate the need to shift from a status-based model of evaluating expert opinions towards a model for procedural verification of a methodology used by forensic experts in Ukraine's criminal proceedings.

Research Methods

We used various intertwined methods to reach our goal: general scientific methods (dialectical, analysis and synthesis, induction and deduction, systems analysis). These were key to understanding how the role of a court in verifying expert evidence has evolved. Specific ones (comparative legal, functional and institutional analysis, legal modelling) were employed to compare the Anglo-American and continental models and to substantiate the possibility of their adoption. Special legal ones (formal-legal, interpretation of legal rules, judicial practice analysis) were utilised to study regulatory provisions and

law-application approaches to evaluating the expert's opinion.

Analysis of Essential Researches and Publications

The problematic nature of forensic expert activity in criminal proceedings has traditionally remained at the centre of attention in Ukrainian academic circles. Over recent decades, numerous theoretical contributions have been made, pertaining to the procedural nature of forensic examinations, their ordering and implementation, to the development of evidentiary basis and admissibility criteria for experts' opinions. These issues have been extensively studied by V. Bazhaniuk, A. Vorobchak, A. Dudych, N. Klymenko, I. Pyrih, A. Protsenko, D. Sydorenko, E. Simakova-Yefremian, A. Tymchyshyn, N. Tkachenko, K. Shunevych, D. Shcherbaniuk, V. Yurchyshyn, by the authors of this research paper and other scholars. The aforementioned approaches generally interpret forensic examination as a procedural institution with a defined legal status and established safeguards for its admissibility.

However, contemporary legal theory is increasingly turning to a comparative legal analysis of expert support organisation. Scientific papers by V. Chumak ³ and O. Makarova ⁴ shed light on institutional models of how expert organisations operate in European Union countries and on international standardisation matters. V. Mykhailov's doctoral thesis is devoted to transforming administrative and le-

3 Чумак В. В. Зарубіжний досвід організації діяльності судово-експертних установ. *Вісник Харківського національного університету внутрішніх справ*. 2020. № 4 (91). С. 235—244. DOI: 10.32631/v.2020.4.22 (date accessed: 03.05.2026).

4 Макарова О. П. Міжнародний досвід використання експертних висновків у кримінальному судочинстві. *Там само*. 2024. № 3 (106). С. 207—217. DOI: 10.32631/v.2024.3.17 (date accessed: 03.05.2026).

gal regulation in this field in Ukraine ⁵. K. Shunevych took a comprehensive look at the approaches to organising and conducting forensic examinations in criminal proceedings adopted by various European countries and Ukraine ⁶. O. Dufeniuk conducted a comparative study of theoretical and practical issues associated with how the forensic examination system operates in Ukraine and Poland ⁷. A. Antoniuk ⁸ analysed competitive models of forensic expert activities and the role of independent forensic examinations. N. Tkachenko et al. compared accreditation systems and public register operations against an international backdrop ⁹. A. Poltavskiy and M. Nechesniuk elaborated on standardisation of procedures involving the use of special knowledge in criminal proceedings across countries with distinct legal

systems, at the level of UN and European Union conventions ¹⁰. Although these papers have significantly advanced our understanding of institutional models for forensic expert activity and of their regulatory framework, individual aspects of evaluating the scientific validity of expert research remain unexplored to this day.

Main Content Presentation

International practice has developed two fundamental approaches to understanding a forensic expert's status and mechanisms for verifying their findings, which can be tentatively defined as *expert witness* and *judicial assistant*. Studying this international experience—*gatekeeping* doctrines ¹¹ in the Anglo-American system and *Vermutung der Sachkunde* ¹² in civil

- 5 Михайлов В. О. Адміністративно-правове регулювання судово-експертної діяльності в Україні : дис. ... д-ра філос. в галузі права. Київ, 2025. 207 с. URL: <https://lnk.ua/WcsGaluZ> (date accessed: 04.05.2026).
- 6 Шуневич К. А. Моделі організації та проведення судової експертизи у кримінальному судочинстві в державах Європи і в Україні : дис. ... д-ра філос. в галузі права. Львів, 2023. 351 с. URL: <https://lnu.edu.ua/thesis/shunevych-kateryna-andriivna/> (date accessed: 04.05.2026).
- 7 Дуфенюк О. М. Експертиза у кримінальному провадженні за законодавством України та Польщі: порівняльне дослідження : монографія. Львів, 2018. 272 с. URI: <http://dspace.lvduvs.edu.ua/handle/1234567890/3601> (date accessed: 03.05.2026).
- 8 Антонюк А. Б. Організаційні форми судово-експертної діяльності в контексті зарубіжного досвіду. *Європейський правничий часопис*. 2024. Вип. 3. С. 78—82. DOI: 10.36919/3041-1149(Print).3.2024.78-82 (date accessed: 03.05.2026).
- 9 Tkachenko N., Aliexsieichuk V., Yusupov V., et al. Comparative analysis of models of organisation of forensic activities: International experience. *Social & Legal Studios*. 2024. Vol. 7. No. 3. Pp. 55—65. DOI: 10.32518/sals3.2024.55 (date accessed: 03.05.2026).
- 10 Полтавський А. О., Нечеснюк М. В. Уніфікування судово-експертної діяльності у кримінальному провадженні в країнах із різними правовими системами : практ. посіб. / за заг. ред. І. П. Красюка та ін. Київ, 2023. 120 с. URL: <https://elar.navs.edu.ua/server/api/core/bitstreams/d23ff6ed-c2e5-42b1-afbd-bb149b1cc44e/content> (date accessed: 03.05.2026).
- 11 *Gatekeeping responsibility* is a judge's obligation set forth by the US Supreme Court in its judgment in *Daubert v. Merrell Dow Pharmaceuticals, Inc.* (509 U. S. 579, 1993) within the framework of interpreting Federal Rule of Evidence 702. Testimony by Expert Witnesses. See: Legal Information Institute : web. URL: https://www.law.cornell.edu/rules/fre/rule_702 (date accessed: 03.05.2026).
- 12 *Vermutung der Sachkunde* (translated from German as *presumptive competence*) is a doctrinal provision of civil law under which a forensic expert engaged by a court is presumed to be competent by virtue of their professional status or purpose. In German legal doctrine, this

law—is of practical significance for shaping the modern framework for the use of scientific evidence in Ukrainian criminal procedure.

***Procedural order for engaging
a forensic expert: expert witness
vs Gehilfe des Richters***

Countries with Anglo-American legal systems do not typically associate the involvement of a forensic expert with the procedural initiation of a forensic analysis via an official act of a court or an investigative authority. A forensic expert's involvement in a case is the result of the parties' adversarial efforts to build their body of evidence. Parties themselves engage professionals possessing special knowledge to conduct forensic examinations and pay for the expert's services. These forensic experts act on behalf of the parties, that is, they represent either the prosecution or the defence, and thereby acquire the status of a witness in proceedings. In such countries, the parties become the catalysts for the process, and the process itself takes the form of a competition or dispute: it unfolds as a debate between two forensic experts before a relatively passive judicial arbiter, whose main duty is to pass a judgment¹³. Nevertheless, it is

possible that the outcome determined by a forensic expert in an adversarial setting could be influenced by financial resources of the parties involved. In the adversarial system, however, a forensic expert should offer well-constructed opinions based on all available evidence, including independent evaluation, and be prepared to justify those opinions. The expert has no "duty of care" to endorse an opinion adopted by the party that has retained him/her. Moreover, the expert has a responsibility to offer an *opinion which is designed to assist the court to discover the truth within any given case*¹⁴.

For instance, Rule 19.2 of the Criminal Procedure Rules for England and Wales stipulates that an expert must help the court to achieve the overriding objective by giving opinion which is objective and unbiased, and within the expert's area or areas of expertise. This duty overrides any obligation to the person from whom the expert receives instructions or by whom the expert is paid¹⁵. The expert's role is therefore not to support a narrative presented by the party that has retained him/her, but to offer an unbiased opinion which is based on his or her special knowledge and designed to assist the court in discovering the truth within any given case.

is closely intertwined with the role of a forensic expert as a judicial assistant (German: *Gehilfe des Richters*), where internal conviction of a judge helps him/her evaluate an expert's opinion (§ 261 *Strafprozessordnung*). However, the judge relies largely on scientific knowledge established within the official forensic community, challenging it only in the presence of well-reasoned and substantial doubts.

- 13 Decaigny T. Inquisitorial and Adversarial Expert Examinations in the Case Law of the European Court of Human Rights. *New Journal of European Criminal Law*. 2014. Vol. 5. Is. 2. Pp. 149–166. DOI: [10.1177/203228441400500203](https://doi.org/10.1177/203228441400500203) (date accessed: 03.05.2026).
- 14 Beran R. G. The role of the expert witness in the adversarial legal system. *Journal of Law and Medicine*. 2009. Vol. 17. Is. 1. Pp. 133–137. URL: https://www.researchgate.net/publication/26829344_The_role_of_the_expert_witness_in_the_adversarial_legal_system (date accessed: 03.05.2026).
- 15 The Criminal Procedure Rules 2025. Part 19 Rule 19.2. Expert's duty to the court / Legislation.gov.uk : web. URL: <https://www.legislation.gov.uk/ukxi/2025/909/part/19> (date accessed: 03.05.2026).

On behalf of the prosecution, forensic analysis is usually carried out by in-house forensic scientists at state institutions (such as FBI or police laboratories). All of this takes place within the scope of official duties and pursuant to administrative guidelines. Instead, experts are engaged by the defence on a contract basis; moreover, the right to *obtain expert services* is explicitly guaranteed under 18 U. S. Code § 3006A (furnishing representation for any person financially unable to obtain adequate representation in accordance with this section)¹⁶. This rule underscores the extra-procedural nature and service-oriented purpose of an expert's initial engagement, intended to facilitate defence preparation. Subsequently, the expert's opinion is presented to a court; the court evaluates the opinion and, if accepted, the latter acquires the status of evidence within adversarial proceedings.

From a judicial perspective, both the in-house forensic expert for the prose-

cution and the private expert engaged by the defence counsel act under a unified procedural status as *expert witnesses*, and their opinions are required to be disclosed in line with *Rule 16 (a)(1)(G) of the Federal Rules of Criminal Procedure*¹⁷ in the US, or *Rule 19.3 of the Criminal Procedure Rules (Part 19)*¹⁸ in England and Wales. Such status usually requires the expert's personal presence for cross-examination. The theory of adversarialism presupposes that any expert evidence (and scientific one), on which the prosecution proposes to reply, will be open to scrutiny and vigorous cross-examination by the defence, lending piquancy to criticism, the possibility of "adversarial deficit"¹⁹.

Contrary to the adversarial approach, countries with a *Continental Law* tradition predominately engage experts under public law principles, where forensic examination is seen as a tool to assist a court in discovering objective truth. In Germany, pursuant to § 73 of *Strafprozessordnung*

16 The term *obtaining expert services* is an accepted legal concept set forth in § 3006A(a) of Title 18 of the United States Code (18 U.S. C.). Within the framework of American criminal procedure, this term denotes not just formal engagement of a specialist, but rather a party's right to receive qualified expert assistance in pursuit of *adequate defence* under the Sixth Amendment to the US Constitution. The use of the term *services* instead of the inquisitorial *appointment* emphasises that forensic examination is an instrumental asset for the party, and not a binding court order. See: 18 U. S. Code § 3006A — Adequate representation of defendants / Legal Information Institute : web. URL: <https://www.law.cornell.edu/uscode/text/18/3006A> (date accessed: 03.05.2026).

17 Federal Rules of Criminal Procedure. Rule 16(a)(1)(G). Discovery and Inspection (Expert Witnesses) / Ibid. URL: https://www.law.cornell.edu/rules/frcrmp/rule_16 (date accessed: 03.05.2026).

18 The Criminal Procedure Rules 2025. Part 19 Rule 19.3. Introduction of expert evidence / Legislation.gov.uk : web. URL: <https://www.legislation.gov.uk/ukxi/2025/909/part/19> (date accessed: 03.05.2026).

19 Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U. S. 579, 596 (1993). The US Supreme Court states that thorough cross-examination, presentation of counter-evidence, and a comprehensive explanation of the burden of proof are traditional and appropriate means of countering unreliable but admissible evidence. See more: Roberts P. Paradigms of forensic science and legal process: a critical diagnosis. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*. 2015. Art. 370(1674):20140256. DOI: [10.1098/rstb.2014.0256](https://doi.org/10.1098/rstb.2014.0256) (date accessed: 03.05.2026).

(hereinafter referred to as *StPO*)²⁰, it is for the judge to select the experts to be consulted and to determine their number, and an expert's status shall be of that of a judicial assistant/or judge's marshal (German: *Gehilfe des Richters*)²¹, rather than an *expert witness*. However, the parties may submit *private expert opinions* (German: *Privatgutachten*), which a court evaluates at its own discretion (§ 261 *StPO*)²². These opinions are treated as a qualified party statement and usually carry less evidential weight, owing to the inherent risk of bias such private opinions may pose.

In France (art. 156 *Code de procédure pénale*, hereinafter referred to as *CPP*)²³, ordering a forensic examination (French: *ordonner une expertise*) involves the issuance of a court order²⁴, and the expert acquires the status of a *legal representative* (French: *auxiliaire de justice*). The defence shall have the right to request an expert

examination or submit *private expert opinions* (French: *expertise privée*), which are not a substitute for an official expert examination; however, a court evaluates these opinions under the principle of *in-time conviction* (Art. 427 *CPP*)²⁵ and they may influence the final decision.

Accordingly, in the civil law model, appointment of a forensic expert is primarily a procedural act of a public authority (a court or magistrate), as opposed to the contractual and administrative procedures for obtaining expert services in common law countries. Whilst in *Common Law* forensic examination is regarded as an element of the parties' strategy of proof, in *Continental Law* it is viewed as a component of the public function of proof, although present-day systems are increasingly demonstrating examples of converging approaches. It is worth pointing out that these two main models for the involvement of forensic ex-

20 *Strafprozessordnung* (*StPO*). § 73. Auswahl der Sachverständigen / Dejure.org : web. URL: <https://dejure.org/gesetze/StPO/73.html> (date accessed: 03.05.2026).

21 *Gehilfe des Richters* (judicial assistant) is a category rooted in German legal doctrine and judicial practice, defining the procedural status of a forensic expert as a neutral professional who assists a court in finding objective truth. Contrary to the Anglo-Saxon *expert-witness* model, *Gehilfe des Richters* fulfils the role of a scientific assistant to a court, vested with authority to scrutinize circumstances of an event. This status means that they have to be completely unbiased and objective, as their opinion is not seen as a subjective opinion but rather as a professional analysis of facts necessary for rendering a court judgment. See more: Schmitt B., Köhler M. *Strafprozessordnung. Gerichtsverfassungsgesetz, Nebengesetze und ergänzende Bestimmungen*. 67. Aufl. C. H. Beck, 2024. 2654 p.).

22 *Strafprozessordnung* (*StPO*). § 261. Grundsatz der freien Beweiswürdigung / Bundesministerium der Justiz und für Verbraucherschutz : web. URL: https://www.gesetze-im-internet.de/stpo/_261.html (date accessed: 03.05.2026).

23 *Code de procédure pénale*. En vigueur du 02 septembre 1993 au 01 janvier 2029. Article 156 / Légifrance.gouv.fr : web. URL: https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000048441775 (date accessed: 03.05.2026).

24 *Ordonner une expertise* (translated from French: *ordering a forensic examination*) is a well-established procedural term used in French law, stipulating the exclusive authority of a pre-trial investigation body or a court to initiate an expert examination. In the inquisitorial model of French criminal procedure (Art. 156, *CPP*), this term emphasises that a forensic examination is a judicial investigative measure (French: *mesure d'instruction*), rather than a party-driven process. As opposed to the Anglo-Saxon *retaining or obtaining services, ordering a forensic examination* (*ordonner une expertise*) requires issuance of a court order (French: *ordonnance*), turning a forensic expert into a *legal representative* and their opinion into a direct product of the judicial process.

25 *Code de procédure pénale* ... Article 427 / Légifrance.gouv.fr : web. URL: https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000037108959 (date accessed: 03.05.2026).

perts, albeit distinct, coexist in most countries worldwide ²⁶.

Despite the apparent similarity in the practical mechanisms whereby the prosecution, both in Ukraine and in common law countries, benefits from the institutional infrastructure of specialized state agencies, and the defence maintains contractual relationships with state institutions or private experts ²⁷, these two systems are profoundly different in terms of procedural mechanisms governing the formation of evidentiary basis.

Ukrainian model (Arts. 242–243 of the Criminal Procedure Code of Ukraine; hereinafter referred to as the *CPC of Ukraine*) prioritises a procedural act of ordering a forensic examination: it vests an expert's opinion (result) with the status of evidence ²⁸. In the US and the UK, however, obtaining an expert's opinion through administrative or contractual instruments is preparatory in nature; the purpose of this process is to establish the party's legal standing. Special knowledge becomes pro-

cedurally relevant not through an act of “ordering”, but rather through the procedure of evidence disclosure and further judicial scrutiny of an expert's qualifications ²⁹ as well as of methodological reliability.

In this sense, Ukrainian administrative mechanism for engaging certified forensic experts presupposes that expert opinions will de facto be vested with higher probative value and presumptive validity. On the contrary, *Common-Law* systems treat such opinions as *testimony adduced by a party*, which must undergo rigorous scrutiny in adversarial proceedings (including cross-examination) ³⁰.

Verification of expert status: *ad hoc* vs *Öffentliche Bestellung*

An expert's competence, qualifications and good faith are paramount in the functioning of the entire justice system. Comparative analysis of distinct legal systems reveals discrepancies in ways of verifying qualifications of an expert. In Common Law, the status of an expert is *ad hoc* ³¹ and

26 The Global Practice of Forensic Science / ed. by Douglas H. Ubelaker. John Wiley & Sons Ltd, 2015. 364 p. URL: <https://onlinelibrary.wiley.com/DOI/book/10.1002/9781118724248> (date accessed: 03.05.2026).

27 Про судову експертизу : Закон України від 25.02.1994 р. № 4038-XII (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/4038-12#Text> (date accessed: 03.05.2026).

28 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: 03.05.2026).

29 *Voir dire* (translated from French: *to speak the truth*) is a term of French origin used in present-day law as a technical designation for a preliminary procedural step characteristic of a common law system, involving judicial review of evidence admissibility or of procedural suitability of participants (particularly forensic experts) before a case is heard on its merits.

30 Godden D. M., Walton D. Argument from Expert Opinion as Legal Evidence: Critical Questions and Admissibility Criteria of Expert Testimony in the American Legal System. *Ratio Juris*. 2006. Vol. 19. Is. 3. Pp. 261–286. DOI: [1111/j.1467-9337.2006.00331.x](https://doi.org/10.1111/j.1467-9337.2006.00331.x) (date accessed: 03.05.2026).

31 *Ad hoc* expert status (from Latin: *for this purpose/for this*) is a conceptual approach in common law jurisdictions. Under this model, a person does not enjoy a permanent, pre-determined forensic expert status, and only acquires it during a specific judicial proceeding. Contrary to the Continental European status-based model, where a forensic expert is certified and listed in a special register, *ad hoc* status means that a court re-verifies a forensic expert's qualifications in each specific case through a *voir dire* procedure (competence assessment). This allows for the appointment as forensic experts of persons with unique, highly specialised experience who do not hold formal state certificates but possess knowledge relevant to a certain case.

depends entirely on a person's professional competence. Across common law systems, it is generally accepted that expert testimony does not require mandatory state accreditation or entry into national registers to be admissible as evidence. Formal education is optional either: an experienced practitioner can be far more productive than a theoretician; through this requires a rigorous judicial review of methodological reliability. Conversely, the continental model (Austria, Belgium, Germany, France, Hungary, Ukraine and other states) is grounded in mechanisms of public swearing-in and appointment (German: *Öffentliche Bestellung*; French: *Agrément*)³². Under this paradigm, expert's legitimacy stems primarily from a preliminary act of state recognition: their entry into official registers or lists. This provides a basic guarantee of quality, but at the same time poses a risk of monopolisation and hinders involvement of niche experts, the ones who possess relevant expertise but do not hold official forensic expert status.

Registration of forensic experts varies depending on a country's legal system. However, efforts to enhance the quality of forensic analyses involve establishing criteria for assessing forensic experts' competence and implementing mechanisms to ensure adherence to these criteria. The *European e-Justice Portal* is a tool enabling the search for a forensic expert in the European Union. It contains links to national forensic expert registers of most Member States³³. Ukrainian legislation stipulates a hybrid form of expert participation in criminal proceedings. Normally, parties and a court engage those forensic experts who have undergone relevant training at state-run specialised institutions and are entered in the Register of Certified Forensic Experts³⁴. It is also envisaged that, in individual cases, a forensic examination shall be entrusted to other (non-certified) experts in the respective disciplines³⁵.

Presumptive competence applies, first and foremost, to those experts who are employees of organisations affiliated with the *European Network of Forensic Science In-*

32 *Öffentliche Bestellung* (translated from German: *public swearing-in and appointment*) is a state-recognised process where forensic experts who are top-qualified and have a solid track record are publicly appointed, and they take an oath to validate professional expertise, provide proof of relevant experience, and show that they are unbiased. This gives courts, public authorities and the public confidence that they can rely on trustworthy forensic experts, as titles of such experts are safeguarded by law and appointed specialists undergo rigorous vetting and supervision. The French equivalent is *agrément* (translated from French: *approval/autorisation or accreditation*) and it presupposes enrolling forensic experts (French: *experts judiciaires agréés*) in registers approved by *Cour d'appel* or the *Cour de cassation* (as per Law No. 71-498 of 1971 and Decree No. 2004-1463). This concept encompasses competence assessment, character and fitness assessment, and the obligation to take an oath, but the mechanism is not identical (as opposed to *vereidigung*, there is no single "public oath" and registers must be renewed annually). See more: Loi № 71-498 du 29 juin 1971 relative aux experts judiciaires / Légifrance. gouv.fr : web. URL: <https://www.legifrance.gouv.fr/loda/id/JORFTEXT000000874942> (date accessed: 03.05.2026).

33 Forensic experts / European e-Justice Portal : web. 17/11/2021. 2 p. URL: https://e-justice.europa.eu/topics/find-legal-professional/forensic-experts_en (date accessed: 03.05.2026).

34 Реєстр атестованих судових експертів : вебсайт. URL: <https://rase.minjust.gov.ua/> (date accessed: 03.05.2026).

35 Про судову експертизу URL: <https://zakon.rada.gov.ua/laws/show/4038-12#Text> (date accessed: 03.05.2026).

stitutes (hereinafter referred to as *ENFSI*). Primary objective of ENFSI is to ensure that the quality of development and delivery of forensic science throughout Europe is at the forefront of the world, enhance the scientific soundness of forensic analyses through the development of standards, organise research to improve forensic expert practice, introduce new avenues of forensic analysis, and establish favourable conditions for the conduct of forensic examinations by top-qualified specialists who are duly accredited and listed in official forensic expert registers³⁶. Stellar reputation of the ENFSI system's institutions is backed by accreditation in compliance with the ISO/IEC 17025 standard, guaranteeing that institutions carry out research in a specific area (specialisation) with the assistance of top-qualified staff and employing methods that meet applicable and internationally recognised quality assurance standards³⁷.

Despite its well-earned reputation, any forensic analysis conducted by ENFSI network staff members needs to be comprehensively evaluated: scientific validity and reliability of obtained findings are assessed. Current research clearly shows that even certified experts are not immune to *cognitive biases*. Notably, empirical studies by I. E. Dror point to at least

eight sources of bias in expert decision making that might affect forensic examination findings, even within government laboratories (e.g., due to institutional pressure or the influence of contextual information)³⁸.

M. DiCiro and S. Sreenivasan, adapting I. E. Dror's model to forensic psychiatric examinations, identify six typical expert errors: the notion of expert immunity or the "technological protection" of methods, making expert evaluations susceptible to implicit biases³⁹. This demonstrates that purely formal registration status of forensic experts is restrictive in nature, thereby underscoring the need to transition to a functional judicial review of both the expert's qualifications and reliability of methodologies.

Introduction of scientific evidence into criminal proceedings: the gatekeeping doctrine vs Vermutung der Sachkundee

Analysis of the procedure for presenting scientific evidence reveals a fundamental difference in the mechanisms for guaranteeing its *reliability*. In the US, the *gatekeeping role of the judge* model is utilised, under which the judge is obligated to independently verify the accuracy and relevance of a methodology employed by the

36 European Network of Forensic Science Institutes. (n. d.). *Constitution / ENFSI : web*. 14 p. URL: https://enfsi.eu/wp-content/uploads/2016/09/151021_enfsi_constitution.pdf (date accessed: 03.05.2026).

37 ДСТУ EN ISO/IEC 17025:2019 Загальні вимоги до компетентності випробувальних та калібрувальних лабораторій (EN ISO/IEC 17025:2017, IDT; ISO/IEC 17025:2017, IDT) : затв. наказ. ДП «УкрНДНЦ» від 23.12.2019 р. № 483 [Чинний від 2021-01-01]. Київ, 2019. 30 с. URL: https://zakon.isu.net.ua/sites/default/files/normdocs/dstu_en_iso_iec_17025_2019.pdf (date accessed: 04.05.2026).

38 Dror I. E. Cognitive and Human Factors in Expert Decision Making: Six Fallacies and the Eight Sources of Bias. *Analytical Chemistry*. 2020. Vol. 92. Is. 12. Pp. 7998–8004. DOI: 10.1021/acs.analchem.0c00704 (date accessed: 03.05.2026).

39 DiCiro M., Sreenivasan S. A Forensic Science-Based Model for Identifying and Mitigating Forensic Mental Health Expert Biases. *The Journal of the American Academy of Psychiatry and the Law*. 2025. Vol. 53. Is. 2. 11 p. DOI: 10.29158/JAAPL.250019-25 (date accessed: 03.05.2026).

forensic expert before evidence is accepted for expert examination. Under *Federal Rule of Evidence* 702⁴⁰, shaped by the so-called *Dober trilogy*, —a landmark series of three cases: *Frye* (1923)⁴¹, *Daubert* (1993)⁴² and *Kumho Tire* (1999)⁴³— scientific validity of an expert's opinion is not presumed but is subject to prior judicial verification⁴⁴. The judge is responsible for acting as a *gatekeeper*, that is, for verifying both the admissibility of an expert's opinion and the reliability of the expert methodology prior to the opinion being presented to jurors. Thus, the *standard of general acceptance* (the so-called *Frye standard*) has given way to the *standard of judicial gatekeeping for scientific evidence* (the so-called *Daubert standard*), favouring a flexible assessment of the scientific method that takes into account testability, existence of peer-reviewed publications, margin of error, and existence of control standards.

The modern academic community supports the judicial “filtering” (gatekeep-

ing) of scientific evidence, emphasising that science in the courtroom should be evaluated by means of a rational methodological analysis rather than blind reliance on institutional authority or expert credentials. As *Th. D. Albright* notes, the legitimacy of an expert's opinion is grounded in high standards of proof, transparency of methods and in an inextricable link between science and law. Formality of an expert's status is not the basis for such legitimacy⁴⁵.

Judicial practice and academic reports suggest that gross errors in expert testimony are often due to insufficient validation of methodologies at the stage of evidence admission. This is uniquely pronounced in cases involving the use of unreliable *forensic science* methods, leading to *wrongful convictions*, as extensively documented in the reports of the *National Academy of Sciences* (2009)⁴⁶ and *PCAST* (2016)⁴⁷. Under such circumstances, a judge is not expected to become a researcher, although he or

40 Federal Rule of Evidence 702 URL: https://www.law.cornell.edu/rules/fre/rule_702 (date accessed: 03.05.2026).

41 *Frye v. United States*, 293 F. 1013 (D. C. Cir. 1923) / The New York State-Federal Judicial Council : web. 61 p. URL: <https://nys-fjc.ca2.uscourts.gov/programs/10-4-18%20Frye%20v%20US.pdf> (date accessed: 03.05.2026).

42 *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U. S. 579 (1993) / Justia U. S. Supreme Court : web. URL: <https://supreme.justia.com/cases/federal/us/509/579/> (date accessed: 03.05.2026).

43 *Kumho Tire Co. v. Carmichael*, 526 U. S. 137 (1999) / Justia : web. URL: <https://supreme.justia.com/cases/federal/us/526/137/> (date accessed: 03.05.2026).

44 Щербаковский М. Г. Стандарты допустимости результатов экспертных исследований в судопроизводстве США и Украины: сравнительный анализ. *Криміналістика і судова експертиза*. 2021. Вип. 66. С. 37—48. DOI: 10.33994/kndise.2021.66.05 (date accessed: 04.05.2026).

45 Albright Th. D. A scientist's take on scientific evidence in the courtroom. *Proceedings of the National Academy of Sciences*. 2023. Vol. 120. No. 41. Art. e2301839120. 11 p. DOI: 10.1073/pnas.2301839120 (date accessed: 03.05.2026).

46 *Strengthening Forensic Science in the United States: A Path Forward*. Washington, DC : The National Academies Press, 2009. 348 p. DOI: 10.17226/12589 (date accessed: 03.05.2026).

47 Report to the President. *Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feature-Comparison Methods*. Executive Office of the President President's Council of Advisors on Science and Technology. September 2016. 174 p. URL: https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/PCAST/pcast_forensic_science_report_final.pdf (date accessed: 03.05.2026).

she must be familiar with the fundamentals of assessing the extent to which forensic examinations are valid and reliable.

In contrast, the continental tradition (especially in Germany and Austria) stems from the concept of an expert's *presumptive competence* (German: *Vermutung der Sachkunde*). From the perspective of C. Roxin and B. Schünemann, this notion is rooted in the public trust that an expert has relevant professional qualifications. This person has been previously approved by the State as suitable to fulfil duties of a forensic expert. If the expert is employed by an official forensic institution, their expertise is, *a priori*, deemed to be credible⁴⁸. Contrary to the *gatekeeping* doctrine, which presupposes judicial scrutiny of a methodology's validity, presumptive competence significantly reduces the rigorousness of such verification. In this context, the logic of *status verification* prevails, according to which credibility of results is guaranteed through preliminary government certification of the expert's professional level, although it is for a court to decide on the result of the taking of evidence at its discretion and conviction (§ 261 StPO)⁴⁹ and the court may reject such evidence for well-founded reasons.

It is our belief that this approach harbours the risk of *methodological immunity* and brings us back to the concept of *expert—scientific judge* expressed in the 19th

century by C. J. A. Mittermaier⁵⁰, a German jurist. A court's heightened focus on the status of an expert increases the probability of adopting an opinion that is formally consistent, procedurally admissible, and, at the same time, is based on outdated, erroneous scientific principles or inaccurately evaluated findings. Innovative methods (e.g., virtual modelling, digital footprints examination) should not be limited to presumptive competence, since it does not guarantee the reliability of a specific software or algorithm that has not undergone systemic scientific validation. Although the judge retains the right to scrutinise and possibly order a re-examination, the status-based presumption of expert qualification objectively reduces the scrutiny of a methodology.

Assessing scientific reliability of an expert's opinion⁵¹: reliability inquiry as a strategic benchmark

In the criminal trial paradigm, reliability of evidence means that such pieces of evidence truly reflect circumstances of objective reality⁵². Scientific reliability of evidence in criminal proceedings indicates that information obtained with the use of special knowledge (expert judgment) corresponds to the actual circumstances of a criminal offense. That is to say, it is the conviction of the court and the investigation that a method used by the forensic

48 Roxin C., Schünemann B. *Strafverfahrensrecht. Ein Studienbuch*. C. H. Beck, 2022. 620 s.

49 Strafprozeßordnung (StPO). § 261 Grundsatz der freien richterlichen Beweiswürdigung / Bundesministerium der Justiz und für Verbraucherschutz : web. URL: https://www.gesetze-im-internet.de/stpo/_261.html (date accessed: 03.05.2026).

50 Mittermaier C. J. A. *Die Lehre vom Beweise im deutschen Strafprozesse*. Darmstadt, 1834. 504 s. URL: <https://www.digitale-sammlungen.de/en/view/bsb10395052> (date accessed: 03.05.2026).

51 Щербаковський М. Стандарт достовірності висновку експерта у кримінальному процесі. *Теорія та практика судової експертизи і криміналістики*. 2021. Вип. 3 (25). С. 21–39. DOI: 10.32353/khrife.3.2021.03 (date accessed: 04.05.2026).

52 Павлишин А. А. Достовірність доказів / Велика українська юридична енциклопедія. У 20 т. Т. 19 : Кримінальний процес, судоустрій, прокуратура та адвокатура // редкол.: В. Т. Ноп (голова) та ін. Харків, 2020. С. 209.

expert to obtain evidence is valid, reliable, and a result is not accidental or erroneous.

The judge (court) must meticulously evaluate the expert's opinion, and question infallibility, experience, impeccable qualifications or certification of an expert⁵³. In the justice system, forensic examination findings do not have the value of "super-evidence" (irrefutable evidence); however, they are subjected to scrutiny just like any other evidentiary material. The expert's opinion is evaluated both formally and substantively, and the judge, prosecutor, investigator should verify not only answers to questions, but also research methodology. Obviously, it poses certain challenges associated with the need for the relevant procedural participant to understand the "language" of experts, since experts undergo specialised training to evaluate a scientific source of evidence.

Evaluating scientific validity of forensic examination findings, regardless of the type of proceedings, is a significant cognitive issue that has been discussed by Ukrainian /foreign scholars and practitioners for an extended period. The obstacle is rooted in objective factors asso-

ciated with law enforcers' incapacity to comprehensively evaluate to what extent expert research is credible, as they lack expertise and do not possess required special knowledge for this purpose. In present-day scientific literature, there are two approaches to evaluating an expert's opinion. Proponents of the first approach claim that investigators, prosecutors, and court shall extensively and comprehensively evaluate a forensic examination as per Art. 94 of the CPC of Ukraine⁵⁴. They believe that knowledge acquired by the investigator is sufficient for an accurate and objective evaluation of any expert's opinion⁵⁵; reliability of an opinion is bound up with confidence in a forensic expert who fulfils his/her duties, and therefore is inextricably linked to uncritical trust in the professionalism and dedication of forensic experts⁵⁶. Judicial practice stands on the same footing. Accordingly, Ukrainian Supreme Court is of the opinion that the choice of means for conducting research, specifically a forensic analysis methodology and respective research methods, falls within the professional discretion of a forensic expert within the limits of the assigned research⁵⁷, and a court is not

53 Мирошніченко Ю. М. Використання спеціальних знань під час судового розгляду кримінальних справ : наук.-практ. посіб. / за ред. проф. М. Г. Щербаковського. Харків, 2022. 97 с. URL: https://court.gov.ua/storage/portal/img/files/file_10205.pdf (date accessed: 04.05.2026).

54 Воробчак А. Р. Висновок експерта як джерело доказів у кримінальному провадженні : дис. ... канд. юрид. наук. Одеса, 2019. 236 с. URI: <https://hdl.handle.net/11300/12104> (date accessed: 04.05.2026).

55 Тертишник В. М., Варава В. В., Сачко О. В. Судова експертологія: курс лекцій для підготовки здобувачів освітнього ступеня «магістр» за спеціальністю 081 «Право» та 292 «Правоохоронна діяльність»/ за заг. ред. д-ра юрид. наук, проф. В. М. Тертишника. Дніпро, 2021. 155 с. URL: <https://files.znu.edu.ua/files/Bibliobooks/Inshi78/0057993.pdf> (date accessed: 04.05.2026).

56 Мироненко Т. Є. Проблеми оцінки експертного висновку прокурором. *Право і суспільство*. 2019. № 2. С. 148—152. URL: https://pravoisuspilstvo.org.ua/archive/2019/2_2019/part_1/27.pdf (date accessed: 04.05.2026).

57 Постанова Верховн. Суду від 23.03.2021 р. Справа № 233/3473/17.с Провадж. № 51-4459км20 / ЄДРСР : вебсайт. URL: <https://reyestr.court.gov.ua/Review/95848981> (date accessed: 04.05.2026).

authorised to evaluate methods and approaches utilised by the forensic expert. This is due to the fact that the court does not possess special knowledge in the relevant area of expertise⁵⁸.

Other scholars point to the limited evaluation of expert opinions by proof-seekers, which prevents evaluating the scientific validity of research findings⁵⁹. In fact, the objective reason why it is impossible to establish the full scientific validity of forensic examination findings lies in the need to utilise special knowledge in a specific field of expertise; investigators, prosecutors, lawyers and the court lack this expertise. That said, one must agree with *T. Ward*, who warns non-specialists against blindly trusting forensic experts, as this could lead to disastrous consequences⁶⁰.

Although law enforcers are, in reality, unable to carry out a full and comprehensive evaluation of scientific evidence, it is nevertheless possible to single out scientific validity criteria for forensic examination. The court may delineate these criteria through the assistance of external specialists or during interrogations of forensic experts.

In *Common Law* countries, scientific validity criteria for expert opinions are based on widely known precedents, and evalua-

tion of forensic examination is framed as *reliability inquiry*⁶¹, serving as a strategic benchmark for judicial review. It is rooted in a sceptical stance, whereby an expert's opinion is viewed not as a source of objective truth, but rather as the subjective judgment of a witness; admissibility of this judgement varies depending on the availability of a verifiable and scientifically sound methodological framework. Such an opinion must meet formal requirements of proceedings, pass preliminary judicial scrutiny for reliability, as well as withstand subsequent cross-examination in adversarial proceedings.

As opposed to a formal assessment of the expert's credentials, *reliability inquiry* centres on the research method and its scientific basis. According to the criteria set forth in *Federal Rule of Evidence 702*, expert evidence is admissible if the testimony is based on sufficient facts or data, is the product of reliable principles and methods, and reflects the reliable application of those principles and methods to the circumstances of a case⁶². Similar to the above criteria, four rules governing admission of expert evidence in court were laid down in the Canadian case *Mohan*: relevance; necessity in assisting the trier of fact; the absence of any exclusionary rule;

58 Постанова Верховн. Суду від 18.04.2024 р. Справа № 758/6794/18. Провадж. № 51-5567км19 / Там само. URL: <https://reyestr.court.gov.ua/Review/118592551> (date accessed: 04.05.2026).

59 Дементьев М. В. Гносеологічні та процесуальні засади оцінки і перевірки висновку експерта : дис. ... д-ра філос. в галузі права. Харків, 2023. 243 с. URL: <https://dspace.nncise.org.ua/server/api/core/bitstreams/008ecbdb-a613-45a7-92d0-d3bd99837f5a/content> (date accessed: 04.05.2026).

60 Ward T. Explaining and trusting expert evidence: What is a 'sufficiently reliable scientific basis'? *The International Journal of Evidence & Proof*. 2020. Vol. 24. Is. 3. Pp. 233–254. DOI: [10.1177/1365712720927622](https://doi.org/10.1177/1365712720927622) (date accessed: 04.05.2026).

61 *Reliability inquiry* is a procedural mechanism in the US legal system whereby a judge assesses the scientific validity and reliability of an expert's methodology which is a prerequisite for admitting the expert's testimony.

62 Federal Rule of Evidence 702 URL: https://www.law.cornell.edu/rules/fre/rule_702 (date accessed: 04.05.2026).

and a properly qualified expert⁶³. These criteria were subsequently supplemented with information on expert testimony based on new or non-traditional scientific methods⁶⁴. The UK court, in its ruling on the *Ikarian Reefer* case, defined reliability criteria for expert opinions for the first time: validity of a methodology employed by an expert, its peer review, and publications in reputable journals; statistical significance of results, including the degree of precision or margin of uncertainty; recognition by the academic community; objectivity of data on which a conclusion is grounded⁶⁵. These criteria are legislatively enshrined in *Criminal Practice Directions*⁶⁶ and *Criminal Procedure Rules*⁶⁷.

Instead, in the continental system (Germany, France), evaluation of an expert's opinion rests on the principle of free evaluation of evidence (§ 261 StPO, art. 427 CPP), taking into account the institutional reliance on the expert as a judicial assistant. Presumptive confidence builds confidence in the expert's findings and shifts the focus of scrutiny from a systemic verification of scientific basis to an analysis of logical sequence, internal consistency and soundness of the opinion. At the same time, the judge retains the power to criti-

cally assess a methodology used and to reject an opinion if its scientific reliability is reasonably doubted.

The main guiding principle for Italian judges today is Cozzini criteria (Italian: *Sentenza Cozzini*), formulated by the Italian Supreme Court of Cassation, which consider a judge to be an *expert among experts* (Latin: *peritus peritorum*). This means that he/she must critically evaluate the method used to obtain expert opinions. Evaluation involves the following: validation of a scientific theory; acceptance of a methodology within the international academic community; independent verification of the methodology; adherence to research protocols; use of objective data; reproducibility or repeatability of research; and potential error margin of the method used⁶⁸.

Issues surrounding the limits of judicial oversight over the scientific validity of forensic examinations are among the most controversial points of intersection between law and science. Contemporary Ukrainian legal doctrine consistently argues for the need for courts to conduct a substantive assessment of the scientific reliability of expert opinions. As A. Tymchyshyn aptly notes, the focus of forensic

63 R. v. Mohan, [1994] 2 SCR 9 / Supreme Court of Canada : web. URL: <https://decisions.scc-csc.ca/scc-csc/scc-csc/en/item/1131/index.do> (date accessed: 04.05.2026).

64 R. v. J.-L.J., [2000] 2 SCR 600/ Networked Knowledge – Law Report : web. URL: <http://netk.net.au/Canada/JLJ.asp> (date accessed: 04.05.2026).

65 National Justice Cia Naviera SA v. Prudential Assurance Co. Ltd (“The Ikarian Reefer”)4 [1993] 2 Lloyd’s Rep 68 / United Settlement : web. URL: <http://www.uniset.ca/other/cs2/19932LLR68.html> (date accessed: 04.05.2026).

66 Criminal Practice Directions 2015. Division V. Evidence 19A: Expert evidence / Courts and Tribunals Judiciary : web. 261 p. URL: <https://www.judiciary.uk/wp-content/uploads/2022/05/CrimPD-13-CONSOLIDATED-MAY-2022.pdf> (date accessed: 04.05.2026).

67 The Criminal Procedure Rules 2025. Part 19 URL: <https://www.legislation.gov.uk/uksi/2025/909/part/19> (date accessed: 04.05.2026).

68 Cassazione Penale, Sez. 4, 13 dicembre 2010, n. 43786 – Esposizione ad amianto in ambito ferroviario (sentenza Cozzini) / Benvenuti sul sito web dell'Osservatorio Olympus : web. URL: https://olympus.uniurb.it/index.php?option=com_content&view=article&id=3919:cassazione-penale-sez-4-13-dicembre-2010-n-43786&catid=17&Itemid=138 (date accessed: 04.05.2026).

analysis should be not only on the internal logic of the argument, but also on the appropriate application of specific methodologies, on the extent to which they have been tested, and on their relevance to the most recent scientific knowledge⁶⁹.

It should be noted that certain criteria for evaluating scientific validity of expert research are set out in Pt. 3 of Art. 356 of the CPC of Ukraine, providing a list of questions that may be raised during interrogations of forensic experts and pertain to the research scientific basis. These are as follows: *“methods used, and theoretical developments; sufficiency of information based on which findings were prepared; scientific basis and methods used to arrive at the conclusion; and applicability and correctness of application of principles and methods to facts of the criminal proceedings”*⁷⁰. The letter from the High Specialized Court of Ukraine specifies that reliability of an expert opinion is assessed *“taking into account: a) evaluation of the reliability of a methodology used by the forensic expert; b) sufficiency of materials provided to the expert for further research; c) accuracy of initial data presented to the forensic expert; d) verification of the comprehensiveness of an expert’s*

*examination <...>; e) accuracy of the expert’s interpretation of the evidence presented and its sufficiency for the expert opinion”*⁷¹. It is worth noting that the issue of evaluating the scientific validity of an expert’s opinion has been addressed on numerous occasions in the scientific and methodological literature as part of a broader analysis of expert studies⁷². However, the proposed recommendations have not been adequately addressed in regulatory acts, the importance of which is imperative and which are often ignored in practice.

We believe that certain aspects of an expert’s opinion subjected to judicial scrutiny are most adequately set out in the official *Criminal Practice Directions* of England and Wales; these practices supplement procedural rules that judges are required to follow. This document provides a detailed account of circumstances surrounding an expert examination, which a court should bear in mind when evaluating findings (in particular, their scientific validity). These circumstances pertain to:

- the expert’s qualifications: competences, accreditation status;
- research objects: exhaustiveness of materials and information on which

69 Тимчишин А. М. Спеціальні знання у кримінальному процесі України: теорія та практика : дис. ... д-ра юрид. наук. Кропивницький, 2023. 438 с. URL: https://dnuvs.ukr.education/wp-content/uploads/2023/10/dysertacziya_tymchyshyn.pdf (date accessed: 04.05.2026).

70 Кримінальний процесуальний кодекс ... URL: <https://zakon.rada.gov.ua/laws/show/4651-17#Text> (date accessed: 04.05.2026).

71 Про деякі питання порядку здійснення судового розгляду в судовому провадженні у першій інстанції відповідно до Кримінального процесуального кодексу України : лист Вищ. спеціаліз. суду України від 05.10.2012 р. № 223-1446/0/4-12. URL: <https://zakon.rada.gov.ua/laws/show/v1446740-12#Text> (date accessed: 04.05.2026).

72 Щербаковський М. Г., Проценко А. М. Експертизи в судовому провадженні : монографія. Харків, 2024. 280 с. URI: <https://dspace.univd.edu.ua/handle/123456789/24257> (date accessed: 04.05.2026) ; Бабенко А. М., Матвеевський О. В., Федоров І. В. Судові експертизи у кримінальному провадженні (судова експертологія) : навч. посіб. Одеса, 2026. 240 с. URI: <https://dspace.oduvs.edu.ua/handle/123456789/335> (date accessed: 04.05.2026) ; Сімакова-Єфремян Е. Б., Купріянова А. О., Спіцина Г. О. та ін. Концептуальні засади судової експертології : монографія / за заг. ред. Е. Б. Сімакової-Єфремян. Харків, 2025. 408 с. URL: <https://res2.weblium.site/res/64e5d4a1196a4b000eb26345/69cd0c4c702af08095afd8e> (date accessed: 04.05.2026).

conclusions are based; volume and quality of initial data;

- research methodologies: materials used by a forensic expert; conformity of research methods to best practices and whether these methods have been peer-reviewed in publications; the degree of accuracy or the margins of uncertainty affecting the accuracy and reliability of findings; explanation of reasons for using unconventional methods; validity of tools and methods for research objectives⁷³.

Practical fulfilment of a court's duty faces major challenges. In law application practice, there remains a tendency to rely on an approach that assumes the absolute methodological independence of a forensic expert, whereas scientific progress requires more active and substantive judicial oversight of the reliability of methodologies.

This conflict between present-day scientific thought and judicial practice poses a risk that the use of special knowledge could be uncontrollable. The methodological independence of expert research must not be confused with a lack of procedural oversight. The judge shall not interfere with the content of a scientific method and shall not replace a forensic expert; however, he/she is obligated to verify procedural reliability of a method, including its testing, scope of applicability, and margin of error, thereby acting as a gatekeeper.

Investigative and judicial practice shows that with the development of sci-

ence, the role of forensic experts in criminal proceedings is consistently expanding. Therefore, investigators, prosecutors, judges, juries, and lawyers will assume an even greater responsibility to properly evaluate and verify scientific evidence and reduce the likelihood of judicial errors. Moreover, the core issue here is that expert opinions are quite challenging for legal enforcers to comprehend, and it is hard for non-specialists to grasp the opinions experts draw⁷⁴.

In these circumstances, the Ukrainian judicial system objectively needs to incorporate certain elements of the reliability inquiry model, in which the judge acts as a gatekeeper and verifies the reliability and validity of the evidence's scientific grounding prior to its use in passing a judgment. As *G. Edmond* rightly points out, traditional procedural safeguards—cross-examination and the adversarial proceedings principle—are inadequate and sometimes even illusory if the court lacks empirical data on the reliability and validity of the expert methodology, its margin of error and scope of application. Where such verification is lacking, the court's evaluation of expert evidence risks turning into blind trust in an expert, which is incompatible with requirements of rational justice⁷⁵.

Conclusions

A comparative legal analysis reveals that the current model for incorporating expert findings into criminal proceedings in Ukraine is internally contradictory. It

⁷³ Criminal Practice Directions 2015 URL: <https://www.judiciary.uk/wp-content/uploads/2022/05/CrimPD-13-CONSOLIDATED-MAY-2022.pdf> (date accessed: 04.05.2026).

⁷⁴ Maxton J., McCaul C. The challenge of expert evidence / Counsel : web. Jan 23 2018. URL: <https://www.counselmagazine.co.uk/articles/the-challenge-of-expert-evidence> (date accessed: 04.05.2026).

⁷⁵ Edmond G. Forensic science evidence and the conditions for rational (jury) evaluation. *Melbourne University Law Review*. 2015. Vol. 39. Is. 77. Pp. 77–127. URL: https://law.unimelb.edu.au/__data/assets/pdf_file/0011/1586360/03Edmond2.pdf (date accessed: 04.05.2026).

combines the civil law model of forensic examination with certain adversarial expert engagement elements, without providing adequate procedural mechanisms to verify the scientific validity of applicable methodologies. The resulting consequence is that institutional trust in the expert's status takes precedence over evaluation of methodological validity.

National law application practice in fact reproduces the *Vermutung der Sachkunde* model, prioritising formal expert status criteria. The lack of mandatory procedural verification of the reliability of research methods means there is a risk that conclusions that are coherent but insufficiently grounded in science will be relied upon, especially in the field of innovative and digital research.

Criminal liability for an expert who provides a knowingly false opinion is a required guarantee against deliberate distortion of research findings and intentional falsification of evidentiary information. However, criminal liability cannot neutralise the effects of cognitive biases and methodological distortions that are not intentional. With this in mind, it is necessary to create a fundamental ethical and procedural standard for forensic expert practice, one that is geared towards serving the interests of justice. The concept of *overriding duty* is a preventive academic integrity standard securing that the expert's duty to the court takes precedence over contractual or institutional interests. The institutionalisation of this concept shifts the emphasis from the expert's loyalty to a party in criminal proceedings to methodological transparency and the expert's duty to the court.

Enhancing reliability of expert evidence necessitates transition from a model involving formal acceptance of an opinion to a model requiring procedur-

al verification of methods employed by a forensic expert. On such occasions, the court cannot replace the forensic expert, and instead exercises procedural oversight over the sufficiency and credibility of data pertaining to research's scientific validity. An expert's opinion, substantiated by general scientific and methodological provisions and based on the findings of a specific forensic examination (combined with requirements for relevance and admissibility of an expert's opinion and its consistency with the rest of evidence in criminal proceedings), constitutes the common standard for assessing the reliability of an expert's opinion. A viable avenue for developing domestic criminal procedure is a step-by-step integration of *reliability inquiry* components—i.e., a mandatory review to assess the scientific soundness of research findings and forensic examination procedures—along with the institutionalisation of *overriding duty*. These mechanisms, which complement one another, provide a sound framework for the proof procedure.

**Роль суду у верифікації
експертних доказів:
від презумпції компетентності
до перевірки достовірності**

**Михайло Щербаковський,
Юрій Мирошніченко**

Досліджено проблему визначення меж судового контролю за науковою обґрунтованістю експертних доказів у кримінальному провадженні в умовах стрімкого розвитку спеціальних знань (зокрема, цифрових і алгоритмічних методів дослідження). Актуальність зумовлена протиріччям між традиційною статусною моделлю оцінювання висновку експерта, що ґрунтується на інституційній довірі до його кваліфікації, і необхідністю забезпечити

перевірку достовірності застосованої ним методології. Метою дослідження є виявлення концептуальних відмінностей між англо-американською й континентальною моделями судової верифікації експертних доказів, визначення їхнього впливу на межі судового контролю та обґрунтування доцільності переходу до процедурної перевірки наукової надійності застосованих у кримінальному провадженні експертних методик. Методологічну основу становлять діалектичний, системний, порівняльно-правовий, функційний і формально-юридичний методи, а також аналіз судової практики. Простежено, що в країнах загального права експерт є свідком сторони, а його висновок підлягає попередній судовій перевірці за критеріями достовірності й подальшому випробуванню в умовах змагального процесу. Натомість у континентальній системі домінує модель «помічник суду», що базується на презумпції компетентності експерта і знижує інтенсивність контролю за застосованою методикою. Обґрунтовано, що українська модель поєднує елементи обох підходів, але фактично тяжіє до статусної верифікації, що створює ризики застосування науково недостатньо обґрунтованих висновків, особливо у сфері інноваційних досліджень. Доведено, що формальна акредитація та професійний статус експерта не гарантують достовірності результатів через вплив когнітивних упереджень і обмеженість інституційного контролю. Дійдено висновку про необхідність переходу до моделі процедурної верифікації експертних доказів, яка передбачає активну роль суду в перевірці надійності й валідності методології дослідження без утручання у сферу спеціальних знань. Перспективним напрямом визначено інтеграцію елементів *reliability inquiry* й інституціоналізацію концепції *overriding duty* як взаємодоповнювальних механізмів забезпечення наукової обґрун-

тованості експертних доказів, що сприятиме підвищенню якості доказування й мінімізації ризиків судових помилок.

Ключові слова: висновок експерта; судова верифікація; наукова достовірність; кримінальне провадження; порівняльно-правовий аналіз; презумпція компетентності; *overriding duty*; *reliability inquiry*.

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The authors declare no conflict of interest; although Mykhailo Shcherbakovskiy is a member of the collection advisory board, he did not participate in the decision to publish, and this article has undergone a full peer review and editing.

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Conducting Forensic Examination as Part of Measures to Secure Evidence Prior to Filing Lawsuit in Administrative Proceedings

Viktoriia Bila ^{*a}, Stanislav Sheptukhovskiy ^{**b}

* Doctor of Legal Sciences, Docent, Ukrainian Research Institute of Special Equipment and Forensic Science of the Security Service of Ukraine, Kyiv, Ukraine, ORCID: <https://orcid.org/0000-0002-8201-219X>, e-mail: nauka_ict@ssu.gov.ua

** Candidate of Legal Sciences, Ukrainian Research Institute of Special Equipment and Forensic Science of the Security Service of Ukraine, Kyiv, Ukraine, ORCID: <https://orcid.org/0009-0007-0087-1868>, e-mail: nauka_ict@ssu.gov.ua

^a Writing – original draft, validation.

^b Writing – original draft, project administration, supervision.

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Despite high level of development of interdisciplinary procedural evidence doctrine, rather narrow aspects; appointment of forensic examination as a way of securing evidence before commencement of proceedings in administrative case, difference between territorial jurisdiction and authority to secure evidence by its location have not been the subject of attention of researchers of administrative proceedings or forensic researches, at least recently. In particular, there are no clear comments on forensic research on issues that will only be the subject of judicial consideration. At the same time, theoretical potential of the issue of securing evidence before the commencement of administrative proceedings seems to be high determined the purpose of this article, namely: investigate specified procedural mechanism through the prism of appointment of forensic examination by the court in proceedings that have not yet been initiated by any court. The following tasks are subordinate to this purpose: identify legislative grounds for such a court decision, to determine nature of the court authority to secure such evidence, including existence of relevant rights in a general local court. Using a special

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legal dogmatic method, systematic interpretation and comparative analysis, it was found that pre-litigation provision of evidence does not require a clearly formulated subject of the dispute and evidence obtained through such provision, including forensic expert conclusions can be used outside the administrative proceedings (even in case of violation of requirement to further file a claim), since the actual receipt of evidence was carried out in accordance with the law. Conclusions were drawn according to which satisfaction of the evidentiary needs of potential plaintiff by the courts of first instance does not overlap with the concept of topical or territorial jurisdiction and is a unique phenomenon that is only formally, but not substantively, covered by instance jurisdiction.

Keywords: *evidence loss risk; forensic science; application for evidence provision; administrative proceedings; territorial jurisdiction; court of first instance; equality of parties; obligation to file claim statement; evidence obtained in accordance with law; procedural relations outside proceedings.*

Research Problem Formulation

Constitution of Ukraine guarantees everyone the right to appeal in court decisions, actions or inaction of State authorities, local self-government bodies, officials and service personnel (P. 1 of Art. 55) ¹. Such an appeal generally corresponds to a public-law dispute that is resolved in the administrative judicial procedure. On the other hand, the above-mentioned subjects are required to act within the limits of their powers, in the manner and on the basis of the Constitution and laws of Ukraine (P. 2 of Art. 19 of the Constitution of Ukraine) ². Therefore, two competing presumptions have been formed: (1) legality of the actions and requirements of a person as a participant in public-law relations (clearly formulated in Art. 15 of the Law of Ukraine: *On Administrative Proce-*

dure ³), that includes the legality of actions on appeal and (2) the legality of the actions and decisions of government bodies (validity of which is increasingly being understood by legal science). With the separation of administrative proceedings into an independent method of administering justice, it borrowed, sometimes in an almost verbatim presentation, the norm under which the aforementioned right of everyone to appeal is exercised in general adversarial conditions; corresponding complaint in the form of a statement of claim should be based on evidence. Thus, constitutional guarantee has been significantly clarified: filing complaint with the court or a statement of claim is subject to a fee (a court fee is charged), it should comply with a certain form, be filed in a certain manner, meet specific requirements (in particular, contain a subject

1 Конституція України : Закон України від 28.06.1996 р. № 254к/96-ВР (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/254к/96-вр#Text> (date accessed: 21.04.2026).

2 Там само.

3 Про адміністративну процедуру : Закон України від 17.02.2022 р. № 2073-ІХ (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/2073-20#Text> (date accessed: 21.04.2026).

matter, formulate claims and be based on evidence). In case of non-compliance, the court leaves such a complaint (statement of claim) without consideration, without action or returns it to the person.

However, evidence as data on disputed facts is not always available to complainant in sufficient volume. Without evidence, it is difficult or impossible to determine specific violation content, choose a method of protecting the violated right. In addition, both by themselves and as a result of legal dispute development, evidence can be lost even before the filing of a claim. Thereby administrative proceedings borrowed from other procedural regimes of justice administration, already formed at the time of its occurrence, idea of securing future proceedings, creating appropriate conditions for taking action on the appeal. In the *Code of Administrative Proceedings* of Ukraine, such *pre-procedural* security covers influence on the behavior (primarily: the power) of the future defendant (securing the claim) and evidence protection of that can be lost (securing evidence)⁴. Both of these security measures can be applied later, during or after the filing of a claim. But then nature, content, status and circle of participants in the relations regarding such security will differ significantly from those related to procedural legal relations that arise before the moment of submitting the dispute to the court, id est before the beginning of the administrative proceedings as such. The subject of such, conditionally speaking, *pre-claim* security is the court, the initiator is not yet the plaintiff, but the *person who can become the plaintiff*. The court adopts binding decisions, limits and obliges the holders of evidence, orders an examination, interrogates witnesses in a case that can only be

initiated on the basis of a future statement of claim. Although the *person who can become the plaintiff* has an obligation to file a lawsuit in the event of satisfaction of his application for securing evidence, legal liability for its violation does not arise, and the consequences are limited to procedural sanctions. This seems reasonable, since otherwise constitutional right would turn into a burden, an obligation to complain. Meanwhile, it is evidence content of the obtained through their provision that can prompt a person to reconsider his or her opinion regarding the validity of the dispute and the grounds for the appeal. The result of such a review is generally positive, providing procedural economy and, in the best-case scenario, termination of legal conflict between the person and the State.

However, application of the above legal conditions to the examination makes possible to State some obvious risks for the expert system in terms of execution terms of relevant court decision, sources of its financing, further handling of information, research object and the actual obtained evidence.

The analysis of the issue of *pre-suit* securing of evidence (as well as, more broadly, securing of proceedings) opens up an interesting, but, in the author's opinion, underestimated direction availability in administrative (and, apparently, in civil and commercial) proceedings of a fourth type of jurisdiction not directly articulated by procedural law – security. It is only partially conditioned by the instance – since such *pre-suit* securing is entrusted to the first instance. The procedural consequences of failure to comply with “security” jurisdiction are not as clear as, for example, a violation of subject or ter-

4 Кодекс адміністративного судочинства України від 06.07.2005 р. № 2747-IV (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/2747-15#Text> (date accessed: 20.03.2026).

ritorial jurisdiction. We raise the question of the ability of evidence obtained within the framework of *pre-suit* securing of evidence, but prohibited from use in other cases, in administrative proceedings to have probative force in other types of proceedings. Jurisdiction choice for the purpose of protecting a violated right is a person's right. It can dispose of it up to the moment of filing a complaint within one or several types of legal proceedings at the same time. If answer to the question is positive, institution of securing evidence acquires *inter-jurisdictional* dimension.

Analysis of Essential Researches and Publications

Legality presumption of actions and decisions of the authorities mentioned during the formulation of the problem contains such ideological directions as "*presumption of legality of an administrative act*"⁵, "*presumption of constitutionality and legality of acts of power subjects*", which in con-

ditions of the rule of law is obviously inferior to human-centered presumptions; result of this priority was the presumption defendant guilt, power subject, characteristic of administrative proceedings⁶.

Topic of the available work is evidence admissibility, that is the conclusion of forensic examination, prepared at the request of parties during various stages of administrative proceedings and ambiguous approaches of judicial practice to the suspension of procedural deadlines in connection with the need to conduct such forensic examination⁷, procedural and functional justification of the deadlines for conducting judicial examinations⁸. Topic of the publications is the analysis of judicial practice regarding the evidentiary procedure in administrative proceedings (in particular, in terms of securing evidence)⁹. The position on appointment of procedural mechanism for securing evidence that consists in obtaining and preventing its probable loss, substantiating the relevant risk with objective facts, was

- 5 Ситников О. Критерії оцінки правомірності рішень, дій чи бездіяльності суб'єкта владних повноважень / Advokat Post : вебсайт. 11.07.2025. URL: <https://advokatpost.com/kryte-rii-otsinky-pravomirnosti-rishen-dij-chy-bezdiialnosti-sub-iekta-vladnykh-povnovazhen-advokat-sytnykov/> (date accessed: 21.04.2026).
- 6 Берназюк Я. Презумпції в праві: види та значення / Національна школа суддів України. Програма підготовки та підвищення рівня кваліфікації за стандартизованою програмою помічників суддів окружних та апеляційних адміністративних судів // Верховний суд : офіц. вебсайт. 07.11.2023. 37 с. URL: https://supreme.court.gov.ua/userfiles/media/new_folder_for_uploads/supreme/2023_prezent/presumption_bernaziuk.pdf (date accessed: 21.04.2026).
- 7 Халюзов Є. Експертний висновок в адміністративному судочинстві. *Зовнішня торгівля: економіка, фінанси, право*. 2025. № 2. С. 95—105. DOI: 10.31617/3.2025(139)08 (date accessed: 21.04.2026); Його ж. Призначення експертизи судом як підстава для підготовки висновку експерта в адміністративному судочинстві. *Правова держава*. 2025. № 58. С. 89—97. DOI: 10.18524/2411-2054.2025.58.330998 (date accessed: 21.04.2026).
- 8 Годзь В. С., Рябенко І. Ю. Строки у судовій експертизі: проблемні питання та шляхи їх вирішення. *Криміналістика і судова експертиза*. 2024. Вип. 69. С. 5—19. DOI: 10.33994/kndise.2024.69.01 (date accessed: 21.04.2026).
- 9 Зелінська Я. Особливості доказування в адміністративному судочинстві. *Вісник Національної асоціації адвокатів України*. 2024. № 3 (99). С. 51—59. URL: https://unba.org.ua/assets/uploads/news/vidannya/2024-04-01-vidannya-v-snik-3-2024_660abd5a402f3.pdf (date accessed: 21.04.2026).

formulated by the Grand Chamber of the Supreme Court in 2019 (*cf.* paragraphs: 19-22 of the Resolution)¹⁰.

Admissibility issue of conducting forensic examination prior to commencement of court proceedings has been analyzed on numerous occasions in practice-oriented publications. The authors focused on fundamental admissibility of such examination, expert's warning regarding criminal liability and disadvantage to the other party in the dispute, who was unable to ask expert questions, unlike in examinations conducted during proceedings. There is no shortage of court decisions across various types of proceedings where expert examination conducted before the parties to the case acquired their procedural status was challenged as

having been obtained in a manner not prescribed by law.

In general, addressed issues concern the question of evidence and the burden of proof in administrative proceedings as a whole. A wide range of authors focus on the concepts and evidence classification¹¹, principle of official fact-finding¹² and the status of parties to the proceedings¹³. However, such research papers concentrate on the evidence presentation within the context of *already initiated* proceedings and do not treat the *pre-litigation* stage as a separate research context. Research papers devoted to preservation of evidence in civil proceedings are somewhat closer to the issues outlined here; however, specific nature of administrative proceedings¹⁴, in particular, public-law

- 10 Постанова Верховн. Суду від 09.10.2019 р. Справа № 9901/385/19. Провадж. № 11-9293ai19 / ЄДРСР: вебсайт. URL: <https://reyestr.court.gov.ua/Review/84900513> (date accessed: 21.04.2026) ; Те саме від 03.07.2019 р. Справа № 9901/845/18. Провадж. № 11-3433ai19 / Там само. URL: <https://reyestr.court.gov.ua/Review/82998205> (date accessed: 21.04.2026).
- 11 Мельник М. П. Поняття доказів у адміністративному судочинстві України. *Держава і право*. 2010. Вип. 48. С. 269—274. URL: <https://nasplib.isoftware.kiev.ua/server/api/core/bitstreams/5d194b28-eaf6-4514-8e61-f14fca05ace5/content> (date accessed: 21.04.2026) ; Калмикова Я. С. Належність та допустимість доказів в адміністративному судочинстві. *Юридична осінь 2012 року* : зб. тез доп. та наук. повідомл. учасн. всеукр. наук.-практ. конф. молод. учен. та здобув. (Харків, 13.11.2012). Харків, 2012. С. 152—155. URL: <https://dspace.nlu.edu.ua/server/api/core/bitstreams/421d0c9a-1356-4e51-a201-832606b7c0f5/content> (date accessed: 21.04.2026) ; Рекуненко Т. Доказування в процесі розгляду справ про адміністративне правопорушення. *Підприємництво, господарство і право*. 2019. № 3. С. 169—173. URL: <http://pgp-journal.kiev.ua/archive/2019/3/32.pdf> (date accessed: 21.04.2026) ; Козинець І. Г., Кравченко В. Я. Окремі питання доказів та доказування в адміністративному судочинстві на сучасному етапі. *Юридичний науковий електронний журнал*. 2021. № 2. С. 173—177. DOI: [10.32782/2524-0374/2021-2/40](https://doi.org/10.32782/2524-0374/2021-2/40) ; Колеснікова М. В. Докази та доказування в адміністративному судочинстві. *Аналітично-порівняльне правознавство*. 2024. № 4. С. 378—383. DOI: [10.24144/2788-6018.2024.04.61](https://doi.org/10.24144/2788-6018.2024.04.61) (date accessed: 21.04.2026).
- 12 Колпаков В. К., Гордєєв В. В. Принципи офіційного з'ясування всіх обставин у справі в системі принципів адміністративного судочинства. *Право України*. 2014. № 3. С. 47—56 ; Рябовол Л. Т. Принцип офіційного з'ясування всіх обставин у справі: питання теорії та практики. *Вісник Запорізького національного університету. Юридичні науки*. 2020. № 3. С. 111—117. DOI: [10.26661/2616-9444-2020-3-16](https://doi.org/10.26661/2616-9444-2020-3-16) (date accessed: 21.04.2026).
- 13 Гордєєв В. В. Суб'єкти доказування в адміністративному судочинстві України. *Форум права*. 2022. № 72 (1). С. 6—12. DOI: [10.5281/zenodo.5529542](https://doi.org/10.5281/zenodo.5529542) (date accessed: 21.04.2026).
- 14 Лезін Є. Поняття і зміст забезпечення доказів у цивільному процесі України. *Jurnalul Juridic Național: Teorie și Practică*. 2017. Dec. С. 93—97. URL: <https://surl.li/ceddux> (date accessed: 21.04.2026).

nature of the dispute and peculiarities of jurisdictional rules; prevent direct transfer of relevant scholarly findings. At the same time, the *pre*-litigation preservation of evidence through appointment of forensic examination has not been studied as an independent analysis topic in Ukrainian administrative procedural doctrine.

Article Purpose

Thus, available theoretical and judicial-practical basis is sufficient to conclude that it is relevant to consider in detail the issue of conducting a *pre*- or *extra*-procedural forensic examination in administrative proceedings. Without setting ourselves the goal of generalizing various views on this issues or joining its discussion in terms of all aspects, we will focus only on the issues of the grounds, conditions and procedural consequences of conducting an examination on issues that will be the subject of judicial consideration in administrative proceedings. Such consideration is the **purpose** of our article. Since the issue of independent involvement of experts (examination ordered by the parties) has already been studied by other authors, we will set ourselves a less studied **task**; its conduct under a court decision adopted: a) before filing statement of claim; b) after such filing, but before the start of consideration of the case on the merits; c) without further filing; d) by judicial body other than the one conducting consideration (or should conduct it in accordance with its jurisdiction). Since forensic examination is directly related to the issue of evidence in legal proceedings, above aspects should be considered through the prism of the category of *evidence* in administrative legal proceedings. In particular, this concerns procedural status of evidence and the methods of

collecting it in a possible, not yet initiated legal proceedings, but already with application of binding nature of court decision, *id est* an application to the administrative court and accordingly, its decision to secure evidence before filing claim.

Research Methods

The task set by us requires an appeal, first of all, to the *Code of Administrative Proceedings of Ukraine* of Ukraine and the Law of Ukraine: *On Judicial Examination* (hereinafter referred to as the *profile Law*), which determines the use of a special legal dogmatic method and the method of systematic interpretation as the main means of achieving research goal. Isolated constructions that testify to understanding of basic concepts were analyzed by means of the comparative method and categorical analysis. At all stages of writing the work, search and editorial tools were used as an auxiliary tool, available within the group of information technologies under the general name of *artificial intelligence*, with careful control of the results obtained in this way.

Main Content Presentation

According to parts 1 and 2 of Art. 114 of the cap of Ukraine (hereinafter, except for specially specified cases, it will be about the articles *Code of Administrative Proceedings* of Ukraine):

*"1. The court, at the request of a party to the case or person who may acquire the status of a plaintiff, must provide evidence if there is reason to believe that the **means of proof** may be lost or collection or submission of relevant evidence will subsequently become impossible or difficult.*

2. Application for provision of evidence may be filed with the court both before and

after *filing statement of the claim*.“¹⁵ [*Emphasis added, bold type and their combination* in our quotations.— *Auth.*].

Therefore, application for securing evidence may be filed before filing claim by a person who “may acquire” the status of a plaintiff.

It follows from Art. 115, P. 9 of Art. 117 that one of the ways to provide evidence by the court is appointment of forensic examination¹⁶. In the light of the provisions of relevant Law, this means that court decision is the basis for the examination¹⁷.

1. Forensic examination preceding trial

In administrative proceedings, trial as such can be preceded by pretrial settlement, can be mandatory in cases provided for by law. In particular, in accordance with Art. 17: “*The parties shall take measures for the pre-trial settlement of the dispute by agreement between themselves or in cases where such measures are mandatory according to the law*” (please note that here participants in the legal relationship are called *parties*, although there is no proceeding at this stage by definition), and “*persons who have violated the rights and legitimate interests of other persons are obliged to renew them without waiting for the filing of a lawsuit*”¹⁸. Any administrative procedure can be considered as a separate method of such pre-trial settlement,

which is mandatory for a wide group of subjects of power. Within its limits, the administrative body appoints an examination, in cases provided for by law (Art. 57 of the Law of Ukraine: *On Administrative Procedure*)¹⁹. Therefore, administrative legal relations in conditions that may cause a dispute, for conflict-free development or settlement of the dispute in a *pre-trial* procedure, require expertise. Is it possible to say that this examination, carried out knowingly before the trial, is subject to all the prescriptions of a special legislative act – the specific Law – and, accordingly, is a *forensic* examination? The authors are inclined to a positive answer. Since the party in the administrative procedure is always (P. 1 of Art. 2) subject of the authorities, which very often is the administrative body itself²⁰. The issues arising from the legal relationship with him are obviously compatible with the characterization “will be the subject of legal proceedings”.

However, it is impossible not to notice categorical nature of the definition of *forensic examination*; it is a research “on issues that are or will be the subject of litigation” (Art. 1 of relevant Law)²¹. They cannot be (as, for example, “*statements of claim and other statements, complaints and other procedural documents determined by law that are submitted to the court and may be the subject of litigation*” – P. 2 of Art. 18 of the cap of

15 Кодекс адміністративного судочинства ... URL: <https://zakon.rada.gov.ua/laws/show/2747-15#Text> (date accessed: 21.04.2026).

16 Там само.

17 Про судову експертизу : Закон України від 25.02.1994 р. № 4038-XII (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/4038-12#Text> (date accessed: 21.04.2026).

18 Кодекс адміністративного судочинства ... URL: <https://zakon.rada.gov.ua/laws/show/2747-15#Text> (date accessed: 21.04.2026).

19 Про адміністративну процедуру ... URL: <https://zakon.rada.gov.ua/laws/show/2073-20#Text> (date accessed: 21.04.2026).

20 Кодекс адміністративного судочинства ... URL: <https://zakon.rada.gov.ua/laws/show/2747-15#Text> (date accessed: 21.04.2026).

21 Про судову експертизу ... URL: <https://zakon.rada.gov.ua/laws/show/4038-12#Text> (date accessed: 21.04.2026).

Ukraine ²²), namely: *they will be*. At what point does such certainty arise?

The answer or part of it is securing of evidence examined in this article. In particular, securing carried out before filing a claim involves such a method as conducting forensic examination (Art. 115) ²³. The application satisfaction for such securing imposes on the person who may be the plaintiff the obligation to file a statement of claim within ten days from the date of the decision to secure evidence (P. 4 of Art. 114) ²⁴; sanctions for failure to comply with this requirement consist in impossibility of using evidence obtained, in particular, the conclusions of experts (Para. 2 of P. 4 of Art. 114) and in the reimbursement of court costs and losses caused by such securing of evidence (P. 5 of Art. 114). Severity of these sanctions seems sufficient to argue that the issues submitted for examination when it is appointed under the court decision to secure evidence before filing claim *will be* the trial issue. Do these sanctions serve as guarantees against abuse of the right to appeal to the court? Only to extent that financial losses can deter them at all. There is a danger that the instrument of securing evidence may be used to obtain difficult-to-reach information, restrict the right to property ownership or dispose of information. There is no unified accounting of such requests for information or requirements for questioning witnesses, prohibitions or obligations regarding certain behavior in relation to evidence, reinforced by judicial

authorities. The initiator of the support does not need to indicate in his application the content of the alleged dispute only the justification for the need for security, its method and circumstances for which they are necessary to prove. At the same time, there are safeguards against abuse: first, the cancellation of the decision to secure evidence in the event of failure to submit a statement of claim within ten days after the issuance of such a decision; secondly, recovery of damages caused in connection with securing evidence (P. 5 of Art. 114; it is noteworthy that such damages are defined separately from court costs therefore, not limited to – cf. Art. 132 ²⁵; they can include, for example, lost profits – a type of damages provided for in P. 2 of Art. 22 of the Civil Code of Ukraine ²⁶). On the other hand, such an explicit guarantee instrument as advance payment of court costs (P. 1 of Art. 136 of Code of Administrative Proceedings of Ukraine of Ukraine), in particular, those related to securing evidence, can be applied by the court only to a participant in the case and not to a person who may only become a plaintiff. At the same time, from the legal structures that regulate securing of evidence, we can come to a different conclusion: court costs may arise before the start of proceedings, before the case itself, since the document on payment of the court fee is attached to the statement of claim (P. 3 of Art. 161) and to the statement on securing evidence (P. 2 of Art. 116) ²⁷. In contrast, it is impossible to call the costs caused by the pre-procedural securing

22 Кодекс адміністративного судочинства ... URL: <https://zakon.rada.gov.ua/laws/show/2747-15#Text> (date accessed: 21.04.2026).

23 Там само.

24 Там само.

25 Там само.

26 Цивільний кодекс України від 16.01.2003 р. № 435-IV (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/435-15#Text> (date accessed: 21.04.2026).

27 Кодекс адміністративного судочинства ... URL: <https://zakon.rada.gov.ua/laws/show/2747-15#Text> (date accessed: 21.04.2026).

of evidence belonging to another type of court costs related to case consideration. Therefore, during the further distribution of court costs in case of satisfaction of the claim (P. 1 of Art. 139), with specific provisions regarding the costs of subject of public authority related to involvement of witnesses and conducting expert examinations (P. 2 of Art. 139), legality of the former belonging to the latter becomes controversial one²⁸.

Hence, another prerequisite for abuse: evidence provision in the way of examination has the consequence of its conduct by a court decision.

It is even more certain that issues which have arisen and are being clarified through appointment and conduct of forensic examination during preparatory proceedings should be considered relevant to the case to be heard in court. Thus, pursuant to Art. 180, during the preparatory hearing, the court, among other things, “*determines whether the parties have submitted evidence <...>; decides on the preservation of evidence, if such issues have not been resolved previously*” (Para. 7, P. 2 of Art. 180)²⁹ and separately “*decides on the appointment of an expert examination, the summoning of experts and witnesses to the court hearing, and the involvement of an interpreter or specialist*” (Para. 8, P. 2 of Art. 180). An objection is possible: here it is correct to say not “will be” but “are” the subject of judicial review. Administrative proceedings, by definition, are activities involving the consideration and resolution of administrative cases (Para. 5, P. 1, Art. 4)³⁰. Therefore, preparatory proceedings, since and if they are conducted in an administrative case, are

already an element of the proceedings; they do not precede the proceedings in the broad sense, but are a component thereof. It precedes only the consideration on the merits but remains within the bounds of, for example, *reasonable timeframe for the court consideration* of the case. Thus, there are two stages of case consideration: preliminary and on the merits. Therefore, forensic examination appointment (in particular, during preparatory proceedings in the court of first instance) is carried out in the context of issues that have *already* become the topic of judicial consideration, since a statement of claim is already in place, the plaintiff has exercised their procedural capacity and has submitted their dispute for judicial consideration.

The need for evidence arises for the parties to a legal dispute as soon as the dispute arises and before it is brought before a court. Ability to formulate a position and defend it in adversarial proceedings depends directly on possibility assessment of proving its validity before the court. Evidence plays a leading role even before a court proceeding is initiated. As a general rule, the initial (Art. 160(5)(8), Art. 161(4)) and counterclaims (Art. 177), the answer to the complaint (Art. 162(2)(6), (4)(1)), a reply to the answer (P. 2 of Art. 163; Para. 6 of P. 2, Para. 1 of P. 4 of Art. 162), a defense (P. 2 of Art. 164; Para. 6 of P. 2, Para. 1 of P. 4 of Art. 162) and a third party's statement regarding the complaint or answer (P. 2 of Art. 165; Subparagraph 6 of P. 2, subparagraph 1 of P. 4 of Art. 162) shall be submitted together with evidence confirming the circumstances on which the claims, objections, etc., are based; the parties may use the instrument of securing evidence as

28 Кодекс адміністративного судочинства ... URL: <https://zakon.rada.gov.ua/laws/show/2747-15#Text> (date accessed: 21.04.2026).

29 Там само.

30 Там само.

a supplement to their own capabilities for its collecting³¹. Thus, the substantiation of a procedural position with specific evidence occurs even before the commencement of the trial on the merits, given the acquisition of party status. All parties to the case may file a motion for preservation of evidence. It can be filed by a person who may become a plaintiff, but not by so-called *other persons who may obtain party status*, as mentioned in P. 3 of Art. 117³².

Specificity of administrative proceedings is combination of principle of adversarial proceedings with the principle of official clarification of all circumstances. The latter consists in the independent clarification of significant circumstances by the court. This principle determines activity of the court, the non-binding of its decisions exclusively on the arguments and evidence of the parties - the administrative court has a more independent role from the parties in resolving the dispute, supplementing the role of the arbitrator with the rights of the investigator. However, this principle is not comprehensive, and the court's tools for collecting evidence differ from those provided by the parties. Thus, court takes the measures necessary to clarify all circumstances in the case, in particular, to identify and request evidence on its own initiative, but not any, namely those specified by law (P. 4 of Art. 9), and also *"may offer the parties to provide evidence and collect evidence on their own initiative, except in cases specified by this Code"* (P. 4 of Art. 77)³³. After all, according to P. 4 of Art. 80, the court may request evidence before filing a claim, but precisely *"in the manner established by Arti-*

cles 114–117 of this Code" that is, upon application, and not independently³⁴. Limitation of "officiality", in particular, is embodied in the norms on the procedure for appointing an expert examination on the initiative of the court. Thus, the court cannot appoint an expert examination on issues already clarified in forensic examinations conducted on the initiative of the parties, in the absence of reasonable doubts about the correctness of such conclusions (Clause 2, P. 1, Art. 102), unlike the parties, at whose request an "extrajudicial" (Art. 104) forensic examination³⁵ can be conducted. In addition, the court, that seems can and should collect evidence, does not have at its disposal such a means of protecting it from possible loss as securing evidence. The court issues a ruling on such securing only if there is an application from one of the parties. Similarly, an offer to the parties to provide evidence, which the court may resort to, can hardly contain an offer for one of them to file an application for securing evidence, since in this case impartiality disappears. In addition, within the framework of securing evidence, it is not the participants in the case who provide evidence, but the court, upon application of one of them, appoints forensic examination, requests and examines it, etc.

The principle of official clarification applies to circumstances of the case itself. Pre-procedural clarification is not available to the court limited, as a general rule, to the statement of claim and requirements (P. 2 of Art. 9)³⁶. When, as noted above, there is no case, but only a well-founded or not, bona fide or abusive, application for

31 Кодекс адміністративного судочинства ... URL: <https://zakon.rada.gov.ua/laws/show/2747-15#Text> (date accessed: 21.04.2026).

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securing evidence, the court must issue one of the decisions: satisfy or refuse to satisfy the application (P. 5 of Art. 117) ³⁷. At the same time (unlike other decisions that are made already in the proceedings) such an application cannot be verified by the court within the framework of officiality principle. Opposite adversarial principle does not work in the same way as in the proceedings: procedure for considering application, although it assumes the participation of the applicant and other persons who may acquire the status of participants in the case, still does not determine the right of them to submit motions, objections, evidence, etc. Provision of P. 7 of Art. 117, Clause 1, P. 1, Art. 294, possibility of appealing a ruling on securing evidence is not accompanied by regulations on the subjects and terms of such an appeal ³⁸. Such a ruling belongs to executive documents (P. 9, Art. 117), however, there are exceptions to such affiliation ³⁹. Thus, ruling on securing evidence is not an executive document in the case of securing evidence, in particular, “*by... conducting forensic examination*” ⁴⁰. Therefore, actions regarding executive documents (correction of errors, suspension of execution, renewal of terms, joint and several obligation (P. 5, P. 7, article 373), recognition as not subject to execution for certain reasons (P. 2, Art. 374) ⁴¹) are impossible here.

Consequently, there are no safeguards typical for administrative proceedings to mislead the court about the actual purpose of applying legal restrictions, prohibitions and obligations for owners and managers of property and information, for subjects of expert activity, etc.

Let us recall that justification for securing is the risk of loss, difficulty in collecting evidence. Thus, in view of Art. 114, the court should secure evidence if there are grounds to assume that “*means of proof can be lost or the collection or presentation of relevant evidence will subsequently become impossible or difficult.*” ⁴² The court adopts the appropriate decision, namely: ruling only upon application by a party to the case or a person who may acquire the status of a plaintiff. Therefore, the court, even in the face of the risk of the further existence of evidence, cannot ensure its preservation, even when it seems necessary for it.

The court decision to secure evidence is not based on a proven fact of a threat, but on a reasonable assumption about. This corresponds to the standard of probability, not reliability. Before filing a claim, court ability to verify validity of such an assumption is extremely limited: principle of official clarification of circumstances does not apply at this stage, nor does the principle of adversarial proceedings. In such a case, initial operational condition of the court decision becomes assumption of the applicant good faith, as well as trust in his statement about the risk. This trust is not blind and works in the same way as a rebuttable presumption: court may refuse to secure evidence if the applicant's arguments appear to be clearly unfounded. However, *Code of Administrative Proceedings* of Ukraine does not provide for a mechanism for substantive verification before filing a claim. Therefore, court decides the issue of restricting the rights of other persons in fact under conditions

37 Кодекс адміністративного судочинства ... URL: <https://zakon.rada.gov.ua/laws/show/2747-15#Text> (date accessed: 21.04.2026).

38 Там само.

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41 Там само.

42 Там само.

of information asymmetry in favor of the applicant. The legal and teleological justification for such a decision is a combination of two factors: the protection of the evidentiary needs of the person before the commencement of proceedings as a condition for the exercise of the constitutional right to judicial protection, and the double assumption of the applicant's good faith and the sufficiency of his statements about the risk. The court in this case bears its own risk. Not only reputational one, but related to the interests of persons whose rights are limited by its binding decisions.

Institution of limitation of actions assumes that occurrence of dispute is somewhat remote in time from the legal statement of its existence in case of missing deadline without good reason too remote for the court to have the right to resolve such a dispute. Therefore, it would seem that a public-law dispute is always a certain event, and not possibility of its occurrence. However, this is not so. The law, judicial practice and doctrine as the main sources of law operate with such categories as *legitimate expectations*, *threat*, *risk*, *term*, etc. All of them are only a hypothesis, assumption about the development of events. In particular, condition for securing evidence is the possible loss of evidence or the difficulty of collecting or presenting it. However, the conditions for collecting evidence of an event, preservation of evidence are secondary: they are not the subject of the disputed legal relationship; only a sign of circumstances that are important in such a dispute. However, is the dispute topic that has arisen not an actual, but only a possible event? This is more likely an exception than a rule. Confirmation of "prospective"

legal relations is contained, for example, in clause 10, part 5, article 160 of the Code of Administrative Proceedings of Ukraine, according to which the statement of claim in cases of challenging regulatory legal acts shall provide information about the application of contested regulatory legal act to the plaintiff or the plaintiff's belonging to the subjects of legal relations in which *this act has been or will be applied* ⁴³. However, here the disputed act already exists.

Administrative proceedings, unlike criminal proceedings, for which the main feature of a public-law dispute is public danger, are much more "real". Accordingly, evidence as a material sign of such reality should be something factual, available regardless of physical form. This approach can be seen in the Law of Ukraine: *On Access to Public Information*; they provide information (in the document form, etc.) that is already available that does not need to be created ⁴⁴. However forensic expert conclusion that is a source of evidence is not yet a real fact in the general sense (we deliberately do not consider the situation of requesting an opinion as an already existing document).

The right to file an application for the provision of evidence before filing a statement of claim is vested only in a person *who can acquire the status of a plaintiff*. What about other potential case participants? After all, they will also need to reinforce their position with evidence.

The procedure for considering application for evidence provision before filing a statement of claim provides for the possibility of the presence of other persons during consideration of such an application by the court, "*who may receive the status of participants in the case*" (P. 3

43 Кодекс адміністративного судочинства ... URL: <https://zakon.rada.gov.ua/laws/show/2747-15#Text> (date accessed: 21.04.2026).

44 Про доступ до публічної інформації : Закон України від 13.01.2011 р. № 2939-VI (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/2939-17#Text> (date accessed: 21.04.2026).

of Art. 117), except for certain exceptions (P. 4 of Art. 117) ⁴⁵.

From the point of view of the Code of Administrative Proceedings of Ukraine, if the dispute affects someone's interests, the relevant person may acquire the status of a *third party*. Code of Administrative Proceedings of Ukraine does not determine the rights of the applicant or other potential participants in the case during the consideration of the statement of claim for evidence provision ⁴⁶.

Third party who asserts independent claims to topic dispute has the rights of a plaintiff but does not have the status of a plaintiff. Before filing a claim, relevant *person* cannot have the rights of a person who *may become a plaintiff* the law, in addition to the right of a participant in the case, grants the third party only the rights of a plaintiff. Defendant (who is not a subject of public authority) has the right to counterclaim. However, even in this case he remains a defendant, although compared to a person who may become a plaintiff, granting a party who is not a subject of public authority the right to a counterclaim makes such a defendant a person who can become a (opposite) plaintiff; however, such a legal effect does not arise. There is logic in this: if there are grounds to file an application for securing evidence, the defendant and the third party can, after acquiring the status of participants in the case. Therefore, in particular, in a dispute with a predictable development of events (for example, when a subject of authority, who commits actions that obviously limit the interests

of a person, and does not intend to change this decision except by court decision), person who can become a defendant need to conduct an examination. But should he really expect to file a lawsuit or does he have the right to act proactively? Even with a logically affirmative answer, such a right does not extend to the right to apply to the court for protection from the risk of loss of evidence or means of proof.

2. Jurisdictional aspects of pre-trial examination appointment

In Ch. 2: *Administrative Jurisdiction* Section I of Code of Administrative Proceedings of Ukraine, three groups of powers of courts are defined: subject (Articles 19-21), instance (Articles 22-24) and territorial (Articles 25-30) jurisdiction ⁴⁷. All of them concern the consideration of cases. Such specific issues as the powers of local courts as administrative (Art. 20), exclusive jurisdiction (Art. 27), powers of appellate administrative courts as courts of first instance (Art. 22), and the jurisdiction of cases at the choice of the plaintiff (Art. 25) are related to dispute topic ⁴⁸. They require clarity in which question, in relation to what, what the claim is related to, what the cases are related to. Certainty is needed in a broader sense, given the provisions on what the jurisdiction of administrative courts does not apply to (P. 2 and 3 of Art. 19) ⁴⁹. The court of first instance (depending on the subject matter of the dispute) can be a local general court, the High Anti-Corruption Court, or the Supreme Court. Therefore, jurisdic-

45 Кодекс адміністративного судочинства ... URL: <https://zakon.rada.gov.ua/laws/show/2747-15#Text> (date accessed: 21.04.2026).

46 Там само.

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49 Там само.

tion is determined by all three coordinates simultaneously. However, with *pre-litigation* provision of evidence, the subject coordinate is eliminated: any administrative court of first instance becomes competent at the location of the means of evidence regardless of which court will be responsible for considering the case on the merits.

By definition, an administrative case is a public law dispute submitted to an administrative court for resolution (Clause 1, P. 1, Art. 4) ⁵⁰. Such a dispute is a real event, as evidenced by the verb “arising” in its definition (Clause 2, P. 1, Art. 4) ⁵¹. The court has the right to determine the validity of the dispute. However, it is the plaintiff who claims its existence. Disputes that are resolved in a pre-trial procedure or left unresolved due to failure to apply to an administrative court within the statute of limitations do not raise the issue of determining jurisdiction. Therefore, its prerequisites are clarity regarding the subject matter, nature of the dispute, status and location of its participants, the plaintiff’s decision to transfer its resolution to the court. This makes possible, first of all, to outline administrative jurisdiction, distinguishing it from constitutional jurisdiction and to determine the competent court within the limits of administrative jurisdiction.

However, at the time of filing application for evidence provision, wording claim topic is not required, unlike another application that can be filed earlier for the claim; statement of security for the claim (Para. 3 of P. 1 of Art. 152) ⁵². Thus, spe-

cific legal relationship, type of dispute in application for the provision of evidence before its submission has not yet been determined. Similarly, there is no strict requirement to indicate a specific defendant in this application that is significant from the point of view of territorial jurisdiction (in particular, Art. 26) ⁵³. Thus, application for securing the claim shall indicate the name or the name of *other party* (parties), *if it is known to the applicant*.

Instead, P. 3 of Art. 114 of Code of Administrative Proceedings of Ukraine states as follows: “*Provision of evidence before filing a statement of claim shall be carried out by the court of first instance at the location of the means of proof or at the place where the relevant procedural action is to be taken*” ⁵⁴.

Of course, such a location may differ from any place that is significant for determining the court that will have jurisdiction over the case: residence or location of the plaintiff or defendant. Obviously, “provisional” jurisdiction has different rules.

Satisfaction of the application obliges the person who filed it within ten days to file a lawsuit in court. If this requirement is not met, “*the court shall revoke the decision to take measures to secure evidence no later than the next day after the expiration of such a period*” (P. 4 of Art. 114) ⁵⁵.

It would seem that since the permission was granted by a certain court and he must exercise control, it is to this that application should be filed. However, this is not the case: “*If, after taking procedural actions to secure evidence, the statement of claim is filed with another court, the protocols*

50 Кодекс адміністративного судочинства ... URL: <https://zakon.rada.gov.ua/laws/show/2747-15#Text> (date accessed: 21.04.2026).

51 Там само.

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and other materials to secure evidence are sent to the court considering the case” (P. 8 of Art. 117)⁵⁶. Therefore, Code of Administrative Proceedings of Ukraine does not link the place of the procedural action under the court decision with the place subject to the jurisdiction of the court to which the statement of claim is filed⁵⁷.

The law does not oblige the plaintiff to notify the court through which the evidence was secured of his filing of a statement of claim, he must only file a statement of claim. This is sufficient for the non-cancellation of ruling on securing evidence. Therefore, the clarification of the negative fact: failure to file a statement of claim within the specified period is entrusted to the court through which the evidence was secured.

Thus, from the point of view of P. 8 of Art. 117, statement of claim may be filed with another court. Does this prevent a person: applicant from completely changing the method of protecting his or her right and exercising such protection under the rules of another type of legal proceedings – civil or criminal (that allows filing a statement of claim in criminal proceedings)? In a literal interpretation – yes. According to the text of the Code of Administrative Proceedings of Ukraine, the word *court* in its glossary is limited to the composition of only an administrative court (Clause 4, P. 1, Art. 4)⁵⁸. It is interesting that Art. 128 of Criminal Procedural Code of Ukraine that provides for filing of a civil (not administrative!) claim in criminal proceedings, takes into account the consequences of decisions in other types of legal proceedings: accor-

ding to its P. 6, “*refusal of a claim in civil, commercial or administrative proceedings deprives the civil plaintiff of the right to file the same claim in criminal proceedings*”⁵⁹. Can another rule be derived from this on the admissibility or inadmissibility for other types of legal proceedings of evidence obtained in the process of preparing a claim within the limits of administrative legal proceedings? To what extent does the prohibition on the use “*in another case*” (Para. 2 of P. 4 of Art. 114 of Code of Administrative Proceedings of Ukraine) of evidence obtained before the administrative court’s ruling on the cancellation of measures to secure evidence as a sanction for failure to file a claim affect other types of legal proceedings? Any answer to these questions is debatable. However, there are no signs that this debate is ongoing. Thereby forensic research is carried out, in particular, with a general understanding of the type of legal proceedings in which the relevant conclusion will be applied. This is important, since procedural codes define the rights and obligations of an expert in a similar, but not identical, way.

A person who can acquire the status of a plaintiff is the only person who can file an application with the court for the provision of evidence before filing a claim. Compared to the later moment (after filing claim statement), the jurisdiction of the court branches out: the provision of evidence at the *pre-litigation* stage is carried out by the court of first instance either at the location of the means of proof, or at the place where the relevant procedural action is to be taken. Such jurisdiction

56 Кодекс адміністративного судочинства ... URL: <https://zakon.rada.gov.ua/laws/show/2747-15#Text> (date accessed: 21.04.2026).

57 Там само.

58 Там само.

59 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: 21.04.2026).

is related to the evidence and not to the rules for determining territorial jurisdiction. This forms an interesting phenomenon of non-jurisdictional jurisdiction.

It should be noted that Code of Administrative Proceedings of Ukraine recognizes the powers of local general courts as administrative (P. 1 of Art. 20) ⁶⁰. Given the mentioned absence of the subject of the claim, they can be application addressees for the provision of evidence before filing a claim.

Conclusions

Providing evidence before filing a statement of claim is worthy of theoretical understanding and a procedural means of administrative proceedings that is significant for practical application. Its peculiarity is functioning in lack of proceedings as such proceedings. The court decision made in this mode is binding despite the fact that the case has not yet been opened and its subject matter has not been determined. This can be viewed from the perspective of managing the risk of scattering evidence-based information.

The purpose of forensic examination as a way of securing evidence differs markedly from other ways of such securing. Since the non-conducted study cannot be “lost” within the meaning of P. 1 of Art. 114 of Code of Administrative Proceedings of Ukraine, tangible basis for forensic examination appointment of an is not the risk of loss of a means of proof, but the risk of loss of research object of characteristics of procedurally accessible carrier of evidence-based information. This is the reason for expediency of this method of ensuring while the object undergoes rapid and irreversible changes.

Prior to the claim, provision of evidence forms a special type of jurisdiction, not directly articulated by *Code of Administrative Proceedings* of Ukraine along with the subject, instance and territorial. The “security” jurisdiction is tied not to the location of the parties or the subject matter of the dispute, but to the location of the means of proof. This gives rise to the phenomenon of non-jurisdictional jurisdiction: case can be tried by one court, and the provision of evidence can be carried out by another. Consequences of non-compliance with such jurisdiction are not defined by applicable law. The issue of “migration” of evidence between proceedings in different types of legal proceedings attracts attention because of being at the crossroads between formal and strict requirements of admissibility of evidence and procedural tolerance for ways to substantiate positions in legal dispute.

Lack of requirement in the application for the provision of evidence to indicate the topic of a future claim (given the limited ability of the court to verify the applicant’s arguments before the commencement of proceedings) creates a risk of abuse by institution of the evidence provision. Existing safeguards: cancellation of the ruling in case of failure to file a claim and compensation for damages are insufficient.

Проведення судової експертизи в межах заходів забезпечення доказів до подання позову в адміністративному судочинстві

**Вікторія Біла,
Станіслав Шептуховський**

Попри високий рівень розроблення міжгалузевого процесуального вчення про докази, доволі вузькі аспекти — призначення

60 Кодекс адміністративного судочинства ... URL: <https://zakon.rada.gov.ua/laws/show/2747-15#Text> (date accessed: 21.04.2026).

експертизи як способу забезпечення доказів до початку провадження в адміністративній справі, відмінність територіальної юрисдикції від повноважень із забезпечення доказів за їх місцезнаходженням — не були предметом уваги дослідників адміністративного судочинства або експертології, принаймні останнім часом. Зокрема, відсутні чіткі коментарі щодо судово-експертного дослідження з питань, які лише будуть предметом судового розгляду. Водночас теоретичний потенціал питання про забезпечення доказів до початку адміністративного провадження видається високим, що й зумовило мету цієї статті — дослідити зазначений процесуальний механізм крізь призму призначення судом експертизи в провадженні, іще не розпочатому жодним судом. Такій меті підпорядковано завдання: виокремити законодавчі підстави такого судового рішення, визначити природу повноважень суду з такого забезпечення, включно з наявністю відповідних прав у загального місцевого суду. За допомогою спеціально-юридичного догматичного методу, системного тлумачення й порівняльного аналізу з'ясовано, що допозовне забезпечення доказів не потребує чітко сформульованого предмета спору, а здобутими завдяки такому забезпеченню доказами, включно з висновками експертизи, можна користуватися і за межами адміністративного провадження (навіть у разі порушення вимоги про подальше подання позову), оскільки власне одержання доказів здійснено відповідно до закону. Сформовано висновки, згідно з якими задоволення судами першої інстанції доказових потреб потенційного позивача не накладається на поняття предметної або територіальної підсудності та є самобутнім явищем, яке лише формально, але не змістовно охоплено інстанційною підсудністю.

Ключові слова: ризик утрати доказових можливостей; судова експертиза; заява про забезпечення доказів; адміні-

стративне судочинство; територіальна юрисдикція; суд першої інстанції; рівність сторін; обов'язок подання позовної заяви; доказ, одержаний відповідно до закону; процесуальні відносини поза провадженням.

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Signs of Errors Made by Forensic Experts: How They Differ From Errors in Other Areas of Human Activity

Iryna Petrova ^{*a}, Tetiana Kipusheva ^{**b}, Daryna Dukhnenko ^{***c}

* Doctor of Legal Sciences, Professor, NSC «Hon. Prof. M. S. Bokarius FSI», Kharkiv, Ukraine, ORCID: <http://orcid.org/0000-0002-1652-6715>, e-mail: ekobezpeka.ira@gmail.com

** NSC «Hon. Prof. M. S. Bokarius FSI», Kharkiv, Ukraine, ORCID: <http://orcid.org/0000-0001-6178-103X>, e-mail: kipushonoktv@gmail.com

*** NSC «Hon. Prof. M. S. Bokarius FSI», Kharkiv, Ukraine, ORCID: <http://orcid.org/0000-0001-7762-6413>, e-mail: droolyndo@gmail.com

^a Writing – original draft, Project administration.

^b Resources, Supervision, Methodology.

^c Formal analysis.

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The authors pinpoint that expert errors can lead to erroneous decisions in criminal proceedings (due to their tendency to become investigative, comprehensive investigative-prosecutorial, or judicial errors). Unfortunately, such errors do become more complex, evolve, and adversely affect the process of ascertaining objective truth. This situation has highlighted the pressing need to identify specific signs of expert errors that are distinct from errors in other areas of human activity, and the urgent necessity for defining these signs. The Article Purpose is to conduct a theory-based analysis of factors underlying the emergence of expert errors, to identify signs characterizing errors made by forensic experts during forensic examinations and distinguishing them from errors made in other areas of human activity, and to develop a sound definition for the concept of “expert error” that could be used in the system of forensic expert activity. Methodological framework of the research comprises general scientific and specialised methods of scientific inquiry. Essentially, error is a distorted reflection of reality in the human mind. It has been observed that errors are associated with erroneous cognitive processing, inadequate reasoning, misinterpretation and

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imprecise actions, and with violation of certain rules. It has been pointed out that error is always unintentional, which distinguishes it from falsehood (lying/misrepresentation) and disinformation (false information disseminated as true in order to mislead). While identifying differences between human error and expert error, we provide the analysis on error interpretation across various scientific disciplines. It has been emphasized that errors in fact-finding may manifest in the form of: a statement of fact in the absence of sufficient grounds for doing so; a denial of a fact where there are grounds for recognising its occurrence. Findings confirm that causes of errors can be either objective (measurement instrument errors, unrecorded environmental influences on objects under study, etc.) or subjective (overconfidence, negligence of a forensic expert, his/her over-reliance on erroneous expert opinions, etc.). The concept of "error" has been addressed. Key signs of errors, particularly expert errors, have been identified.

Keywords: activity; error; cause; forensic expert; sign; truth; opinion; expert research; object; forensic examination.

Research Problem Formulation

Under current circumstances, special attention is devoted to streamlining efficiency of forensic expert activity. This situation reflects the fact that, in the course of judicial proceedings, the need to order forensic examinations or engage a forensic expert is growing steadily, as an expert's opinion constitutes one of evidence sources during the process of establishing specific facts. It bears noting that the evidentiary value of an expert's opinion depends on its validity, internal coherence, accuracy and plausibility of all actions, assessments, and opinions of a forensic expert. It is because during a forensic examination, the forensic expert must comply with the requirements of current legislation and make full use of scientific and technical advances, as this allows them to arrive at the objective truth.

Without a doubt, a careful study of certain patterns in any area of human activity and principles governing this activi-

ty will help you succeed. Such knowledge helps identify to what extent the level and state of a specific field of activity matches its essence and potential, and also helps explore the capacity for further development and improvement. The underlying basis for this is an understanding of the nature of such activity, its specifics, social and economic determinants, and existing needs, etc.

Various approaches to resolving issues and tackling tasks in this field determine complexity and multifaceted nature of processes underpinning forensic expert services. Since conducting forensic examinations is the main activity of a forensic expert, we shall focus on specific issues relating to the occurrence of expert errors, as these irreversibly affect the quality of forensic examination findings and experts' opinions.

It is worth noting that expert errors (owing to their tendency to be transformed into investigative, composite investigative-prosecutorial or judicial errors) lay

the groundwork for erroneous decisions being made during criminal proceedings. Sadly, expert errors tend to become more challenging, thereby evolving and negatively impacting the process of uncovering objective truth. Errors committed by a forensic expert in the course of research or when evaluating its results may result in an expert's opinion being excluded from the body of evidence. Accordingly, the urgent need for research into signs of expert errors has been stressed. Such a study would help to distinguish these errors from those in other areas of human activity and to characterise these signs.

Analysis of Essential Researches and Publications

The range of issues involving expert errors in various areas of human activity, particularly those made by forensic experts, is a subject of interest to many researchers. It has also attracted the attention of criminalists, psychiatrists, psychologists, and representatives of other disciplines, such as: V. Abramova ¹, I. Aliiev ², V. Bakhin ³, V. Honcharenko ⁴, R. Dombrovskiy ⁵, F. Dzhabadov ⁶, N. Klymenko ⁷, V. Lysychenko ⁸, V. Pervomaiskiy ⁹, M. Sehai ¹⁰, M. Shcherbakovskiy ¹¹, et al. Recently, there has been

- 1 Абрамова В. М. Поняття помилки судового експерта. *Вісник Академії правових наук*. 2002. № 3 (30). С. 172—179 ; Її ж. Експертні помилки: сутність, генезис, шляхи подолання : дис. ... канд. юрид. наук. Київ, 2004. 266 с. ; Абрамова В. М., Свобода Є. Ю. Помилки в судово-експертній діяльності: сутність, умови виникнення та види. *Криміналістика и судебная экспертиза*. 2014. Вып. 59. С. 72—80. URL: http://nbuv.gov.ua/UJRN/krise_2014_59_11 (date accessed: 01.04.2026).
- 2 Алиев И. А. и др. Концептуальные основы общей теории судебной экспертизы. Баку, 1992. 235 с.
- 3 Бахін В. П., Садченко О. О., Кузьмічов В. С. Потреби слідчої практики : навч. посіб. Київ, 1993. 56 с.
- 4 Гончаренко В. И. Единство и отличие криминалистики и криминалистической экспертизы. *Теорія та практика судової експертизи і криміналістики*. 2002. Вип. 2. С. 55—59.
- 5 Домбровский Р. Г. Познание и доказывание в расследовании преступлений : автореф. дис. ... д-ра юрид. наук. Киев, 1990. 62 с.
- 6 Джавадов Ф. М. Концептуальные основы развития судебной экспертизы в современных условиях : дис. ... д-ра юрид. наук. Киев, 2000. 373 с.
- 7 Клименко Н. И. Экспертные ошибки и их причины. *Криминалістика и судебная экспертиза*. 1988. Вып. 37. С. 35—38 ; Клименко Н. И., Домбровский Р. Г. Криминалистические знания: природа и содержание. *Там же*. 1995. Вып. 47. С. 3—10.
- 8 Лисиченко В. К. Особенности проверки и оценки заключений экспертизы на предварительном следствии и в суде. *Там же*. 1982. Вып. 24. С. 30—36.
- 9 Пervomaiskiy В. Б. Експертна посилка / Юридична енциклопедія. У 6 т. Т. 2 : Д — Й // редкол.: Ю. С. Шемшученко (голова) та ін. Київ, 1998. С. 346.
- 10 Сегай М. Я. Судова експертологія — наука про судово-експертну діяльність. *Вісник Академії правових наук України*. 2003. № 2 (33) / 3 (34). С. 740—762. URI: <https://dspace.nlu.edu.ua/handle/123456789/694> (date accessed: 01.04.2026).
- 11 Щербаковський М. Стандарт достовірності висновку експерта у кримінальному процесі. *Теорія та практика судової експертизи і криміналістики*. 2021. Вип. 3 (25). С. 21—39. DOI: 10.32353/khrife.3.2021.03 (date accessed: 01.04.2026) ; Його ж. Слідчі та експертні помилки, що обумовлюють недопустимість експертного висновку. *Теоретичні та прикладні проблеми судової експертизи і криміналістики : тези доп. учасн. IX Всеукр. наук.-практ. конф. (Харків, 30.09.2022)*. Харків, 2022. С. 37—40. URL: https://library.pp-ss.pro/index.php/ndippsn_20220930/article/view/shcherbakovskiy/pdf (date accessed: 01.04.2026).

a marked increase in academic interest in the study of expert errors, as evidenced by a number of specialised studies and the renewed focus on this issue in Ukraine. This is due to heightened attention given to the rule of law and fairness surrounding the reforms of national legislation, government branches and civil society required for EU membership.

Nevertheless, opinions vary on how to interpret the definition of expert error or other key aspects of the outlined issue, leading to less-than-effective prevention of such errors, hindering their timely detection, rapid rectification of expert errors and harmful consequences they cause. Therefore, expert errors remain a widespread and insufficiently researched legal phenomenon.

Article Purpose

Analyse factors contributing to expert errors, identify signs that define errors made by forensic experts during forensic examinations and make an attempt to differentiate such errors from the ones committed in other areas of human activity. Propose a sound definition of the *expert error* concept within the system of forensic expert activity.

Research Methods

Methodological framework of the study was built on general scientific and special methods of scientific inquiry (including dogmatic, hermeneutic, comparative ones, extrapolation, and analogy).

Main Content Presentation

Any truth is rooted in objective reality, as it manifests itself in certain concepts or judgments. The truth that a forensic ex-

pert reveals in the course of conducting forensic examinations finds specific expression in reasoning formulated as opinions that are based on identification, study, and evaluation of the totality of features typical of objects under study.

An objective foundation of truth, however, does not constitute a guarantee, once and for all, of attaining valid knowledge. In the process of cognition, a subjective aspect is integral to the performance of specific duties by a forensic expert. This is due to the fact that inherent individual psychological traits of different actors shape the way reality is reflected in their consciousness. That is why a forensic expert draws inaccurate or erroneous opinions when he/she fails to realise that these opinions do not accurately reflect reality. Hence, it can be concluded that expert errors occur for the same reasons as errors in any other human activity.

However, sometimes a subject makes a wrong decision on the basis of information he/she has deliberately distorted, whilst being fully aware that knowledge he/she has applied is questionable. The remaining question is: do such decisions count as erroneous? Clearly, inaccuracy cannot be reduced solely to fallacy or error; it is therefore necessary to clarify whether the inaccurate is always an error. For this purpose, let us examine how error emerges and develops in human activity, and what signs are typical of it.

It is hard to deny that, in order to succeed in any field, a person must rely on a deep understanding of patterns and principles governing certain activities. Doing so makes it possible to assess a specific field's current maturity level and state—namely, its nature and potential—as well as to identify existing opportunities for further development. Understanding nature, specifics, needs, socio-economic

determinants, etc., of a particular area of activity should serve as the basis for enhancing it. With this in mind, we deem it appropriate to dwell on interpretations of the general concept of *activity*. It should be pointed out that scientific papers offer no generally accepted interpretation of this definition. Meanwhile, the *activity* term is commonly understood:

- firstly, as a synonym for active action;
- secondly, as a philosophical concept for defining human activity.

We should emphasize that this concept has acquired the status of a philosophical category today. Accordingly, philosophically speaking, the category of activity is fundamental in both genetic and ontological approaches. T. Pshcholvoskyi focuses on the fact that *“activity, as a subject’s way of being in the world, is inherent only to humans and constitutes their mode of existence”*¹². Therefore, subjects of human activity should be regarded as individuals, groups, and society.

V. Abramova stated: *“Broadly speaking, the concept of activity refers to the multifaceted process by which a specific social subject seeks to establish conditions for its own existence and development, and to transform social reality with a view to meeting societal needs, goals, and objectives. Activity intensification is a defining feature of our times. It manifests itself in an increase in social engagement within society and in improvement of lifestyles. Lifestyle is viewed as a way of living under specific objective and subjective conditions”*¹³.

Note the statement that *“activity is a force that reproduces and transforms the system of objective and subjective conditions, social relations and social institutions, along with the system of corresponding ideas, people’s way of life and thought”*¹⁴. Scholars believe that human activity can be seen as a way of life and a means for society and a human to develop; as a comprehensive process through which humans transform their natural and social environment. Bearing this in mind, human activity is divided into two broad categories: practical and spiritual; and the following *“typical features of activity, such as purposefulness, a transformative and creative nature, objectivity, distribution and coordination of functional duties, as well as communication between people engaged in activity”* are identified¹⁵.

The issue of human activity phenomenon continues to be a subject of keen interest for legal experts, with many offering their own interpretations of this concept and its structure. More specifically, N. Klymenko and R. Dombrovskyi defined *“a specific type of activity—forensic activity—concluding that forensic knowledge is rooted in practical forensic cognitive activity”*¹⁶.

Notably, the activity-based approach to the study of cognition objects is recognised as an exceptionally important methodological principle in psychology; it is entirely applicable to forensic science, which is now becoming a separate branch of science distinct from criminalistics: forensic expertology. Distinguishing between criminalistics and forensic science (in terms of objects, subjects and functions), M. Sehai

12 Pszczółowski T. Zasady sprawnego działania: wstęp do prakseologii. Warszawa, 1967. 222 s.

13 Абрамова В. М. Экспертні помилки ... С. 8.

14 Бергер В. Е., Коваленко Ю. Н. Основные стадии производства комплексных криминалистических и судебно-медицинских экспертиз. Криминалистика и судебная экспертиза. 1981. Вып. 22. С. 30—35.

15 Там же.

16 Клименко Н. И., Домбровский Р. Г. Указ. соч. С. 4, 8.

interprets “forensic expert activity as the object of study of forensic science”¹⁷.

Praxeological approach used in forensic expertology as an applied science contributing to the optimisation of specific activities within the justice system is also supported by F. Dzhabadov¹⁸. He argues that the object of forensic expertology is forensic expert practice. Other scholars have supplemented the object of study with organisational and procedural forms of using forensic examination¹⁹.

M. Sehai believes that “forensic expert activity can be defined as constitutionally grounded activities of government authorities, legal entities, and individuals aimed at ensuring justice through independent, objective, and qualified forensic examination that draws on scientific and technological advances”²⁰.

As previously stated, forensic expert activity is a reflection of professional practice, a type of scientific and practical activity that (like any other activity) is inherently prone to errors. According to this statement, errors are an integral part of forensic expert practice. However, their presence hinders the goal of forensic expert activity, which is to ensure justice through independent, objective, and qualified forensic examinations. It is therefore necessary to address the issue of errors in forensic expert activity.

Since errors are inherent in every area of human activity, error has a distinct purpose in various fields of scientific knowledge: philosophy, mathematics, logic, economics, medicine, law, etc. Meanwhile,

each branch of science deals with its own errors, often leaving aside distinctive signs of errors that come up in other sciences. In medicine and veterinary science, issues pertaining to errors made by doctors, vets and in treatment are studied within the theory of errology; in mathematics, or the “general theory of errors”, there is no distinction between human and computer errors, etc. M. Vanchak notes that “the following forms of erroneousness are identified: scientific and non-scientific, empirical and theoretical, religious, political, economic, moral, etc.”²¹.

Discussing the nature of errors in reasoning, O. Bandurka and O. Tiahlo propose classifying them into material and logical errors, noting that “material errors involve violations of, for example, laws of physics, rules of mathematical calculation, or norms of due legal process <...> The specifics of purely logical errors is that they are universal; that is, they occur in every area of social space: everywhere human thought reaches. They often prove to be the factor that initiates or reinforces material errors. Knowledge of logic then proves to be a necessary condition for successfully overcoming such compound errors”²².

It should be pointed out that legal scientific papers do not provide a unified interpretation of the term *error*, nor is there a single view on how to understand this concept. To grasp its essence, let us turn to the scientific understanding of this concept across various fields of study: philosophy, philology, mathematics, medicine, psychology, law, etc. We will try to explain

17 Сегай М. Я. Зазнач. твір. С. 750.

18 Джавадов Ф. М. Указ. соч.

19 Алиев И. А. и др. Указ. соч.

20 Сегай М. Я. Зазнач. твір. С. 752.

21 Ванчак М. Л. Поняття законотворчих помилок у кримінальному праві. Науковий вісник Львівського державного університету внутрішніх справ. Серія юридична. 2011. № 3. С. 233.

22 Бандурка О. М., Тягло О. В. Юридична логіка : підручник. 2-ге вид., перероб. і допов. Харків, 2017. С. 24. URI: <https://dspace.krok.edu.ua/handle/krok/8130> (date accessed: 01.04.2026).

the nature of an error both in its semantic sense and in terms of cognitive activity. First, let us clarify the semantic basis behind the *error* concept.

Definitions of the term *error* can be found in Ukrainian dictionaries. They are as follows: “An erroneous opinion or action, an inaccuracy, or fallacies”²³; «1. Errors in calculations, spelling, etc. <...> 2. Errors in behaviour, actions, etc.”²⁴. To make a mistake means “1. To make an error in calculations, spelling, etc. <...> To find oneself short of something (usually money); to fail to include or hand over something. <...> 2. To do something the wrong way. <...> To have a misconception, leading to inaccuracy. <...> To shape a false opinion or impression of someone. <...> To make a wrong prediction. <...> 3. To confuse something with something of the same kind or nature”²⁵.

Obviously, an error is the result of a flawed line of reasoning, an inappropriate action, or a wrongful act resulting in failure to achieve the intended goal; it is a pattern of behaviour based on a fallacy. An error is always a breach of norms; it is an action that is always contrary to what is right, committed unintentionally and always involving misconduct. All of the above indicates that errors arising from flawed reasoning, inadequate thoughts, misinterpretations and professional misconduct constitute violations of certain rules. Flawed thinking and the resulting actions undermine the integrity of thought and professional practice, thereby creating conditions for various errors to occur.

By its very nature, erroneousness is a distorted reflection of reality in the human mind. Note that erroneousness is always unintentional, unlike falsehood (lying) and disinformation (deliberately false information disseminated as true in order to mislead).

In modern scientific papers philosophers primarily focus on the relationship between truth and error (mistake, fallacy) within scientific and practical knowledge: “Error serves a vital cognitive function, one that is even more significant and more cognitively valuable than truth itself. It turns out that errors, too, can contribute to science and play a part in productive search”²⁶. Philosophers also single out logical errors (also known as fallacies) associated with violations of logical principles and sound reasoning. Such errors are also tied to inappropriate mental operations and logical techniques.

Logically speaking, judgements and opinions (or conclusions) contain errors, since an opinion is regarded as erroneous if it does not relate to the object of cognition. In logic, an error is a distorted perception of objective reality, which is shaped by a subject's personal traits and can lead to unpredictable outcomes. Logic explores various types of errors occurring when defining and distinguishing concepts, when drawing up opinions, handling evidence, etc. Accordingly, V. Bernaz defines logical errors as a sub-category of epistemological errors and classifies them as follows: errors in concepts; errors in

23 Новий тлумачний словник української мови. У 4 т. : для студент. вищ. та серед. навч. закл. Т. 3 : Обє — Роб / укладачі: В. Яременко, О. Сліпущко. Київ, 1998. С. 556.

24 Помилка / Словник української мови online. Т. 1—16 (А — Ряхтливий). URL: <https://surl.li/newuuu> (date accessed: 29.03.2026).

25 Помилятися, помилитися / Там само. URL: <https://surl.li/lpxaiq> (date accessed: 29.03.2026).

26 Антологія лібералізму: політико-правничі вчення та верховенство права / упорядники: С. Головатий, М. Козюбра, О. Сироїд. Київ, 2008. С. 792.

judgements; errors in reasoning; errors in evidence²⁷.

In jurisprudence, error is one of the complex phenomena that have not yet been subject to systematic study. Regarding this, L. Kalienichenko notes: *“Given that in legal practice error generally entails certain legal implications, the task of clarifying the general legal and scientific importance of an error and developing its universal concept is one of the pressing challenges facing contemporary jurisprudence”*²⁸. According to Ye. Yevhrafova, error *“is the result of a miscalculation, or an inadequate, imprecise or incorrect approach <...> to the nature and character of regulated social relations, and to the choice <...> of legal methods and means”*²⁹.

Having analysed developments by legal experts, it is clear that there is no single, unambiguous definition of an expert error. This is largely influenced by various academic approaches to understanding the general concept of error in human activity. Given that forensic expert activity constitutes a distinct kind of human activity, it can be argued that such activity rooted in common principles underlying all human activity. Consequently, any discussion of expert errors must be grounded in common principles pertaining to the likelihood of errors occurring in any human activity.

In legal awareness, in the legal conduct or acts of subjects, or in legal documents, a legal error is one that fails to meet certain requirements, rules, standards, mod-

els, principles, values, etc. By their very nature, such requirements are idealised phenomena defining positive characteristics. Characteristics of a real-world phenomenon must correspond to these idealised characteristics. The subject of a legal error is always a person as the bearer of knowledge. It should be pointed out that legal regulations do not contain an explicit definition of a legal error; therefore, it is not regarded as an unlawful act. However, an error is, in essence, an objectively unlawful phenomenon, as it does not correspond to the objectives of social development and hinders the achievement of socially significant goals.

Notably, when making a decision after reviewing results of their activities, a subject (individual) is convinced of its validity, hoping that it will deliver a favourable outcome. If the actual outcome matches the expected one, this is regarded as natural. If, however, a result does not match the favourable outcome, it is deemed inaccurate, and this can lead to anxiety and disruption of one's activities. A negative outcome is equated with an error. To understand “right” and “wrong”, people often rely on the philosophical proposition regarding the knowability of objects and phenomena in the material world, and the possibility of attaining reliable knowledge and seeking truth.

Right decision, being the result of human activity, stems from reliable knowledge of facts, phenomena, and events. Defining reliability as an accurate reflection

27 Берназ В. Д. К вопросу о логических ошибках при решении криминалистических задач. *Актуальные проблемы уголовного процесса и криминалистики на современном этапе* : сб. науч. тр. Одесса, 1993. С. 230—231.

28 Каленіченко Л. І. Помилка як категорія правознавства. *Вісник Харківського національного університету імені В. Н. Каразіна. Серія «Право»*. 2014. Вип. 17. С. 31. URL: <https://periodicals.karazin.ua/law/article/view/1180/956> (date accessed: 29.03.2026).

29 Євграфова Є. П. Практика виправлення законотворчих помилок. *Часопис цивільного і кримінального судочинства*. 2016. № 2 (29). С. 116. URL: http://nbuv.gov.ua/UJRN/Chcks_2016_2_8 (date accessed: 29.03.2026).

of reality can be seen as aligning truth with objective reality. Hence, reliability of a decision made by an actor is equivalent to the truthfulness of that decision, that is, its accuracy and conformity with reality. With this in mind, cl. 1 of Pt. 5 of Art. 69 of the Criminal Procedure Code of Ukraine stipulates the following: *“A forensic expert shall conduct full-fledged examination in person and prepare well-grounded and impartial written opinion in respect of questions asked, and where necessary, provide explanations thereon”*³⁰.

In the view of V. Abramova, *“Two approaches have emerged in academia regarding the relationship and equivalence of the concepts of truth and reliability. The first is that “true” and “reliable” mean adequate, consistent knowledge has been attained about the object of study, and that reliability implies truth. However, although the approach to the equivalence of the concepts of truth and reliability (still widely recognised by the academic community today) does not entail any fundamental error, in the opinion of other scholars, the second approach is more sound; its essence lies not in equating “truth” and “reliability”, but rather in establishing qualitative determinacy and specific nature of each of these concepts, something that is of significant methodological importance for cognition of crime scene traces”*³¹.

Obviously, when it comes to discovering the truth in the course of a forensic examination, one must understand the importance of obtaining reliable knowledge and ensuring that opinions and de-

cisions of a forensic expert are sound and well-reasoned. We note that unreliability of an expert's opinion may adversely affect activities of the investigator during investigation and judicial proceedings. In their quest for the truth, investigators may also make errors. In the course of a forensic examination, a forensic expert is responsible for both providing formally accurate opinions and ensuring that these opinions align with reality.

V. Abramova also stated that *“accurate representation of various facts of the surrounding world in human consciousness is a prerequisite for human existence. Therefore, in a commonly understood narrow sense, it can be argued that truth, unlike falsehood, constitutes accuracy; it is alignment of our conceptions of the object with the object itself”*. However, objective truth is incomparably greater than mere accuracy. It embodies the process of cognition, the transition from likelihood to certainty. Accuracy alone attests only to the existence of our reasoning, to the very fact that it functions properly, that is, to the very capacity of human beings to perceive objective reality”³².

With the aim of distinguishing between human errors and expert errors, we analysed the concept of error across various disciplines. Thus, the philosophical approach asserts that logical errors³³ occur when rules are violated during proving (proof procedure), and also classifies error as false knowledge (equally characteristic of memory, doubt, and hypothetical reasoning)³⁴. However, from the standpoint

30 Кримінальний процесуальний кодекс України 13.04.2012 р. № 4651-VI (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/4651-17#Text> (date accessed: 25.03.2026).

31 Абрамова В. М. Експертні помилки ... С. 11.

32 Там само. С. 13.

33 Свириденко В. Доведення, доказ / Філософський енциклопедичний словник / В. І. Шинкарук (гол. редкол.) та ін.; Л. В. Озадовська, Н. П. Поліщук (наук. ред.) Київ, 2002. С. 165. URL: https://archive.org/details/filosofskiyi_entsyklop/page/496/mode/2up (date accessed: 25.03.2026).

34 Завгородній Ю. Ньяя / Філософський енциклопедичний словник ... С. 437. URL: https://archive.org/details/filosofskiyi_entsyklop/page/496/mode/2up (date accessed: 25.03.2026).

of logic, “a human error is a faulty inference or line of reasoning resulting from a violation of laws of thought (post hoc ergo propter hoc fallacy [or false sequence error], affirming the consequent [converse error], arbitrary inference error, non causa pro causa fallacy [or false cause error], etc.)”³⁵. Furthermore, clinical medicine distinguishes between cognitive errors (in diagnosing) and errors in the choice of methods to achieve a specific goal (patient treatment procedures)³⁶. In addition, similar to medical errors, in epistemology errors can be divided into those arising from an inaccurate assessment of factual circumstances and those arising from an erroneous evaluation of established facts.

Looking at expert errors under these criteria, it should be mentioned that errors in fact-finding can take the following forms:

- stating a fact without sufficient grounds therefor;
- denying a fact when there are grounds for ascertaining its existence.

Additionally, psychology identifies the role of errors within the structure of human activity. These errors can be localised:

- in perception (visual, auditory, etc.);
- in memory (memorisation, retention, recall);
- in decision-making (in logical operations, calculations);
- in creative thinking;
- in executive actions (in movement, verbal responses).

Erroneous actions include “slips of the tongue, typos, lapses of memory, memory errors, and fallacious errors”³⁷. Errors occur both in representations and in actions because of their non-conformity with ideal patterns: the ones where information is represented.

It should be observed that each error is externally manifested in an action or inaction with a negative outcome. What is more, error can be regarded as a system comprising several interconnected elements, including the object, the subject, objective and subjective aspects in their interrelatedness. Each of these elements is capable of adversely affecting the development of the others; this is reflected, either explicitly or implicitly, in a certain cluster of signs. For example, the likelihood of failing to achieve a desired outcome increases when a crisis situation develops.

Challenging situations arising in a forensic expert's work while conducting forensic examinations may be exacerbated by organizationally disordered situations:

- incomplete understanding of one's own goals and needs;
- inaccurate assessment of one's own capabilities, resources, and performance criteria;
- severe time constraints and pressure to complete a substantial amount of work within an extremely tight deadline;
- lack of adequate professional training;
- labour-intensive nature of certain methods;

35 Цалін С. Д. Логічний словник-довідник. 4-те вид., випр. і допов. Харків, 2006. С. 113, 226, 227.

36 Сенюта І. Я. Цивільно-правове регулювання відносин у сфері надання медичної допомоги: питання теорії і практики : монографія. Львів, 2018. 640 с. URL: <https://library.megu.edu.ua:9443/jspui/handle/123456789/2915> (date accessed: 25.03.2026).

37 Шапар В. Б. Сучасний тлумачний психологічний словник. Харків, 2007. С. 101. URL: <https://archive.org/details/psycholoh2007/page/100/mode/2up> (date accessed: 25.03.2026).

- a considerable number of research objects to be examined;
- inadequate or outdated infrastructure.

Whether these factors will interfere with obtaining reliable expert examination findings, however, depends solely on the individual. It is a forensic expert, with all his/her abilities and habits, personality traits and willpower, knowledge, emotions and experience, who ultimately makes decisions and ensures they are implemented. Wrong decisions are a reflection of one's personal perspective on any phenomenon. This is precisely why error is a subjective category; it always originates from the subject (or individual): their actions or inaction. Other elements act as factors that may (or may not) lead to misrepresentation of reality in the conscious mind of the subject. Accordingly, the first sign of an error in human activity is **the presence of a subject** (testifying to the subjective nature of activity).

Unlike errors made by technical devices and in the natural world, human errors arise during the deliberate transformation of the environment. In such conditions, however, the result of this transformation does not always correspond to the set goal. Errors are likely to arise as a result of a particular individual's incorrect choice of goals and needs, or of an inaccurate assessment of one's capabilities, resources, criteria, methods, means and forms of activity.

Bearing in mind that errors can be made both deliberately or inadvertently, the concept of error requires further in-depth analysis. Following the above, our analysis reveals that what is accurate can be defined as adequate, whilst what is inaccurate can be classified as inadequate. This implies that inaccuracy is the opposite of accuracy, a form of inadequa-

cy — that is, a failure to accurately reflect reality. However, equating an error with any inaccuracy is also wrong. It is important to distinguish between deliberate and unintentional inaccuracies; to tell the difference between unintentional errors and deliberately inaccurate results, the latter of which are not errors.

It should be noted that error is a manifestation of the inaccurate, yet error is only one part of this broader concept. To equate an error with any inaccuracy is also wrong. What is meant here is an involuntary, unintentional error, as opposed to a deliberate inaccuracy. Accordingly, the second sign of human error is defined as **unintentional inaccuracy**. The statement “deliberate error” (or “conscious error”) implies that errors are made deliberately, consciously. Nevertheless, asserting this entails accepting a fallacy, a logical contradiction.

It is crucial to highlight that an erroneous result may arise not only as a result of actively transforming actions, but conversely, due to the failure to take actions required to achieve an accurate and favourable outcome. This is precisely why an error can result from both actions and inaction on the part of the individual. In terms of actions, an error may occur during the perception, processing, evaluation of information, decision-making, or the motor implementation of such a decision, etc.

Inaction can manifest as an error when an individual ignores the required course of action or what was necessary to be executed in a particular context. This may involve professional oversights or failure to comply with regulatory documentation. Oversights alone do not constitute errors. This raises the question: at what point can misjudgements, wrongful actions, or inaction be considered errors? An error should

be considered as such only when it has affected the outcome (erroneous judgment, error in decision-making, miscalculation, clerical error, slip of the pen/ or linguistic slip, etc.). Therefore, the third sign of an error is that only such ***judgments, actions or inaction that have led to an erroneous outcome*** should be regarded as errors.

Summarizing the above, we can conclude that an error in human activity has its own “face”: an outwardly manifested action or inaction with a negative result that is distinguished by certain signs. Where one of these signs is lacking, the phenomenon cannot be referred to as an error.

It is worth noting that human activity is inherently prone to error in situations characterised by:

- a high level of informational uncertainty regarding initial data of a situation at hand;
- a lack of a guaranteed positive outcome (coupled with the influence on an individual of objective and subjective factors contributing to the occurrence of errors);
- the possibility of negative consequences resulting from errors.

The likelihood of an error occurring in certain circumstances depends on an individual and their psychological, social, and biological traits. This explains why, in the course of their activities, each person perceives and evaluates facts prompting them to act in their unique way. These perceptions are shaped by their psychological, social, and biological traits. Ultimately, minds of two different subjects perceive and represent the same object in different ways. It is these conditions that prevent the individual from making an accurate decision.

V. Abramova has analysed various approaches to defining error in human activity, determining that all types of human activity inherently contain the potential for error, and has proposed the following broad definition: ***“Errors in human activity are inadvertently inaccurate judgments, actions, or inaction arising from a distorted sensory perception or mental interpretation of objects, phenomena, or processes in a person’s consciousness, conditioned by psychophysiological and social traits of the individual and manifested in inaccurate decisions or conclusions”***³⁸.

Given that forensic examination of objects involves certain challenges and does not always lead to an accurate opinion, it can be assumed that errors made by forensic experts during forensic examinations exhibit certain distinctive signs.

Today’s Ukrainian justice system is known for actively utilising specific expertise. Specific expertise manifests itself as having a legal basis for conducting forensic examinations, with an expert’s opinion subsequently serving as a procedural source of evidence when proving facts and circumstances of substantive legal significance in court. Art. 1 of the Law of Ukraine: *On Forensic Examination* defines the term *forensic examination* as “a research-based study conducted by an expert using specific expertise in science, technology, art, or crafts. It aims to analyse material objects, phenomena, or processes to provide expert opinions on case-related facts”³⁹.

Justice authorities expect a forensic expert, who is independent of parties to proceedings and courts, to provide complete and objectively reliable answers to questions posed to him/her on the basis of his/her expertise in a specific field of

38 Абрамова В. М. Експертні помилки С. 18.

39 Про судову експертизу : Закон України від 25.02.1994 р. № 4038-XII (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/4038-12#Text> (date accessed: 01.04.2026).

science, technology, art or crafts. Often-times, fairness of the final court decision as an act of justice, as well as the fate, rights and interests of parties involved in proceedings (defendants, victims, plaintiff, respondents, etc.), depends entirely on the accuracy and exhaustiveness of responses provided to these complex and crucial questions by a forensic expert. It is precisely this specific uniqueness of an expert's opinion as a distinct source of judicial evidence that makes an expert error inadmissible. That is because an error made by a forensic expert can logically lead to a judicial error.

Unfortunately, investigative and judicial practice has seen instances of expert errors resulting in innocent people being convicted, whilst some real criminals have escaped punishment. The most high-profile of these errors concern actions of medical examiners in cases that have come to the attention of the European Court of Human Rights (hereinafter the *ECHR*) due to the ineffectiveness of investigations in Ukraine into the unlawful deprivation of a person's right to life under the Convention (*Gongadze v. Ukraine*⁴⁰, *Serdyuk v. Ukraine*⁴¹, *Matushevsky and Matushevskya vs. Ukraine*⁴², *Basyuk v. Ukraine*⁴³, *Khaylo v. Ukraine* cases⁴⁴). These cases were subject to tight supervision by the Committee of Ministers of the Council of Europe (with a view to streamlining the process of obtaining

evidence from forensic medical examinations, etc.).

Predominately, specific nature of expert errors is attributed not only to the level of development and understanding of errors within the scientific discipline underlying a particular expert field (chemistry, physics, biology, etc.), but also to existing errors in related specific expertise, objects, and subjects utilised during the conduct of forensic examinations (criminalistics, forensic science theory, theory of forensic evidence, etc.). This is because humans are not the only ones prone to error; errors also occur in technical devices (technical errors), in the natural world (in the plant and animal kingdoms, where metabolic disorders and deviations from normal functioning, behaviour and development take place), etc.

With this in mind, it should be pointed out that causes of errors can be *objective* (measurement instrument errors, unrecorded environmental influences on the objects of study, etc.) and *subjective* (overconfidence, carelessness, being misled by a false expert opinion, etc.). And although an expert's erroneous actions or opinions are shaped by a variety of factors, there is a big personal element in the whole expert error thing. It is because a forensic expert, "*while independent from parties and courts, is nevertheless swayed to some degree by interests and emotional states of various individuals*

40 Справа «Гонгадзе проти України»: рішення ЄСПЛ від 08.11.2005 р. (заява № 34056/02). URL: https://zakon.rada.gov.ua/laws/show/980_420#Text (date accessed: 01.04.2026).

41 Справа «Сердюк проти України»: рішення ЄСПЛ від 12.03.2015 р. (заява № 61876/08). URL: https://zakon.rada.gov.ua/laws/show/974_a49#Text (date accessed: 01.04.2026).

42 Справа «Матушевський і Матушевська проти України»: стисл. виклад остаточ. рішення ЄСПЛ від 23.06.2011 р. (заява № 59461/08). URL: https://court.gov.ua/userfiles/file/court_gov_ua_sud5010/Konvenciya_z_prav/st_2/MATUSHEVSKYY%20AND%20MATUSHEVSKA.pdf (date accessed: 01.04.2026).

43 Справа «Басюк проти України»: рішення ЄСПЛ від 05.02.2016 р. (заява № 51151/10). URL: https://zakon.rada.gov.ua/laws/show/974_b15#Text (date accessed: 01.04.2026).

44 Справа «Хайло проти України»: рішення ЄСПЛ від 13.11.2008 р. (заява № 39964/02). URL: https://zakon.rada.gov.ua/laws/show/974_439#Text (date accessed: 01.04.2026).

with whom they must interact and communicate in the course of conducting forensic examinations in criminal proceedings” (initiators and clients; heads and colleagues, in case they work in a forensic institution, etc.)⁴⁵. It is not uncommon for “the power of reason to yield to the power of emotion, leading to what is known as emotion fallacy”⁴⁶.

Expert errors stem from a complex motivation behind a forensic expert’s professional conduct and opinions, acting as a manifestation of their personal worldview. Such an error is most often ambiguous and contradictory, and may be linked simultaneously to a lack of knowledge or forgetfulness, insufficient experience or unwarranted confidence in one’s expertise, an objectively complex expert situation, as well as to a deliberate disregard for regulatory requirements and scientific and methodological guidelines, and to ordinary carelessness.

In such situations, an expert error represents a hybrid form of expert culpability: intentional action combined with carelessness regarding a resulting outcome leading to the formulation of an erroneous opinion. It is not always possible to clearly distinguish between these different motivations, separating a good-faith error from a deliberately wrongful action or opinion. Researchers do not even rule out the possible occurrence of an expert error committed “deliberately, not accidentally”⁴⁷, where a forensic expert, driven by certain motives and objectives, acted deliberately in the wrong manner in order to pass off

their deliberate actions and reasoning as erroneous and unintentional, concealing their own wilful and deliberate intent, by disguising it as an error, so as not to incur negative consequences for themselves, such as those resulting from a deliberate wrongful or unlawful act.

Legal liability and public condemnation are considerably less severe for a person who has made an error than for a person who has acted with intent. Deliberate errors on the part of forensic experts are more likely to remain undetected, as the presumption of innocence means that it is difficult to prove that a forensic expert acted with intent to commit such errors. However, not all oversights by a forensic expert should be regarded as an expert error; only those that have distorted forensic analysis findings, led to inaccurate expert opinions, and are included in an expert’s opinion as evidence.

Rectification of *minor* and *insignificant* errors made by forensic experts may be introduced in court during interrogation of a forensic expert, who shall testify as to the cause of an error and explain how it affects forensic examination findings. On rare occasions, the court may, either on its own initiative or upon the motion of a party to proceedings, order a new or repeated forensic examination for this purpose. If a court finds a substantial error in an expert’s opinion, the opinion cannot serve as the basis for a court decision.

Therefore, **expert error** refers to *erroneous judgments, actions, or opinions reached*

45 Баулін О. В. Поняття, види, причини й наслідки помилок експерта в кримінальному судочинстві України. *Європейський правовий часопис*. 2025. Вип. 6, 7. С. 190. DOI: 10.36919/3041-1149(Print).6-7.2025.188-195 (date accessed: 01.04.2026).

46 Там само ; Мельник Я. Г. Помилки у системі традиційної логіки: філософсько-діалектичний та комунікативно-девіатологічний аспекти / за ред. доц. Г. Д. Єрушевича. Івано-Франківськ, 2019. С. 16. URL: <https://kc.cnu.edu.ua/wp-content/uploads/sites/156/2020/09/%D0%9F%D0%BE%D0%BC%D0%B8%D0%BB%D0%BA%D0%B8.-doc-1.pdf> (date accessed: 01.04.2026).

47 Абрамова В. М. Поняття помилки С. 176.

by a forensic expert which objectively reflect a breach of logic laws and regulatory provisions; it also involves improper application of expert methodology and scientific and methodological guidelines during a forensic examination, preventing the completion of a forensic examination's objectives; or a forensic expert's failure to act, provided an expert error is unintentional. It is precisely this sign that distinguishes an expert's error from a criminal offence against justice. Under such a scenario, a forensic expert believes (or is inwardly convinced) that their actions, conclusions, or inaction are valid. At the same time, consequences of the forensic expert's actions discussed above (whether resulting from an honest oversight or a deliberate act) become grave in the event that they lead to a miscarriage of justice.

When analysing common types of expert errors with a view to identifying causes and conditions of their occurrence, we suggest focusing on the *epistemological*, *logical*, and *psychological* aspects of their evolution.

Notably, in a broad sense, expert errors are interpreted as errors of thought (perception, judgement, understanding), whilst in a narrow sense they are errors of action (actions, decision-making, influence). Errors of thought are associated with the cognition of objective reality and constitute the *epistemological aspect* of error analysis. Errors of action, shaped during the cognitive process aimed at achieving a set goal, constitute the *teleological aspect*. The teleological approach focuses on the purpose behind a particular process and the appropriateness of a specific action.

A common factor linking both of the above approaches to understanding causes and conditions of expert errors is the expert's inner conviction, directly related to patterns of volitional processes that motivate their cognitive activity. M. Dementiev noted that forensic researchers have been exploring the issue of a forensic expert's internal conviction since the 1950s: "V. P. Kolmakov, a distinguished Ukrainian criminalist, was the first to elaborate on the issue of a forensic expert's inner conviction"⁴⁸, and individual aspects of conviction "have been meticulously studied at various times by... L. Yu. Arotsker, <...> N. I. Klymenko, V. P. Kolmakov, <...> M. V. Saltevs'kyi, M. Ya. Sehai, E. B. Simakova-Yefremian, <...> V. D. Yurchyshyn <...>, and others"⁴⁹.

Trustfulness and reliability of cognitive activity are inextricably linked to a forensic expert's internal conviction, which serves as a key motivator in getting to the bottom of objective truth during forensic research. Regardless of how exactly the forensic expert processes initial data provided to them by a forensic research initiator—manually (heuristically) or using automated tools—their intellectual capabilities play a decisive role in this information-processing, determining the level of a forensic expert's competence and, consequently, the likelihood of making errors.

Note that an essential component of a forensic expert's competence is the ability to select appropriate cognitive techniques: tried-and-tested, highly effective methods and tools for gathering and heuristically analysing initial data. The level of the forensic expert's prudence, as a subjective component in the process of

48 Демент'єв М. Внутрішнє переконання та форми висновків експерта. *Теорія та практика судової експертизи і криміналістики*. 2022. Вип. 4 (29). С. 152. DOI: 10.32353/khrife.4.2022.08 (date accessed: 01.04.2026).

49 Там само. С. 150.

obtaining new evidentiary information, depends entirely on their internal convictions about the appropriateness of their own actions, operations and research procedures they perform. Moreover, a forensic expert's interpretation of evidentiary information obtained in the course of investigations involves not only establishing facts and circumstances, but also adapting that information to investigatory needs. A step-by-step process of accumulating information during expert research on evidence contributes both to the compilation of interim and final opinions and to the strengthening of the forensic expert's internal conviction, thereby increasing their confidence in their actions.

Both the epistemological and logical aspects of a forensic expert's internal conviction are inseparable from the psychological aspect of their mental activity and reflect their inner volitional capacity to formulate a categorical, unambiguous conclusion that leaves no room for doubt. Such absolute certainty should be regarded as a moral and psychological guarantee of infallible (or error-free) cognition, proper evaluation of initial data, and flawless logic in decision-making. This means that a forensic expert's personal conviction is a subjective reflection of objective truth. This is precisely what one must rely on when analysing the expert's actions at every stage of a forensic analysis.

It has been noted above that unintentionality remains the defining sign of expert error, since the loss of this component fundamentally alters the approach to determining both the nature of expert error and its structure, shifting focus from the psychological to the legal realm. From our perspective, expert errors stem primarily from a forensic expert's heuristic mental activity. With this in mind, it is advisable to review the procedural, organi-

sational, and methodological aspects of expert errors in light of their underlying causes.

Conclusions

Error has been proven to be a fairly common phenomenon, characteristic of all areas of human activity. Therefore, various approaches to its understanding have been developed. For example, the praxeological approach defines successful activity as one that corresponds to reality, which is achieved when the subject (individual) adequately mirrors objects, phenomena or processes in their mind and makes sound decisions based on these representations. If, however, a result does not match reality, one can speak of an error having occurred.

Given that activities of a forensic expert are a type of human activity grounded in common principles determining fundamental nature and mechanism of errors that occur in any field of activity (taking into account its specific nature), we assume that a forensic expert cannot avoid all errors (which will inevitably possess distinctive signs) whilst conducting forensic examinations and formulating expert opinions. Accordingly, the issue of expert errors should be approached based on the likelihood of errors occurring in any area of human activity.

The concept of error is interpreted as follows: ***“Errors are inadvertently inaccurate judgments, actions, or inaction arising from a distorted sensory perception or mental interpretation of objects, phenomena, or processes in a person’s consciousness, conditioned by psychophysiological and social traits of the individual and manifested in inaccurate decisions or opinions (conclusions).*** Principle signs of errors have been identified as follows:

- Error is an unintentional (accidental) inaccuracy (where a forensic expert's error is caused not by intent but merely by carelessness or unintentional actions); it is important to distinguish between erroneous results that have been made unintentionally and those that have been made deliberately and cannot be regarded as errors;
- Error is a subjective category; it can only be committed by a subject (a forensic expert).
- Any error is manifested in an action or omission with a negative outcome (manifested in forensic expert activity).
- Only such actions or inaction that are embodied in a result constitute an error (manifested as inaccurate expert opinions made by a forensic expert).

**Ознаки помилок
судового експерта:
відмінність від помилок
в інших сферах
людської діяльності**

**Ірина Петрова,
Тетяна Кінушева,
Дарина Духненко**

Зауважено, що експертні помилки (через тенденцію їх можливого перетворення на слідчі, комплексні слідчо-прокурорські або судові) створюють підґрунтя для ухвалення помилкових рішень у процесі кримінального провадження. На жаль, експертні помилки ускладнюються, розвиваються та негативно впливають на процес з'ясування об'єктивної істини. Окреслена ситуація висвітлила нагальну потребу у виявленні тих ознак експертних помилок, які відрізняють їх від помилок в інших сферах людської діяльності, і схарактеризувати ці ознаки. Метою статті є теоретичне аналізування передумов виникнення експертних помилок, визначення ознак, що характеризують помилку судового експерта під час проведення експертиз і відрізняють їх від помилок в інших сферах людської діяльності, та розроблення обґрунтованого визначення поняття «експертна помилка» в системі судово-експертної діяльності. Методологічне підґрунтя дослідження склали загальнонаукові та спеціальні методи наукового пізнання. За своєю сутністю помилковість є викривленим відображенням дійсності у свідомості людини. Зауважено, що помилки пов'язані з неправильним перебігом думки, неадекватністю мислення, неправильним тлумаченням і неточністю дій, порушують певні правила. Наголошено, що помилковість завжди ненавмисна, що відрізняє її від неправди (брехні) і дезінформації (свідомо неправдива, що поширюється як правдива для введення в оману). Під час виявлення відмінностей помилок людини від експертних помилок проаналізовано тлумачення помилки в різних науках. Акцентовано, що помилки у встановленні факту можливі у вигляді констатації факту за відсутності для того достатніх підстав і заперечення факту за наявності підстав для визнання його наявним. Визначено, що причини помилок можуть бути об'єктивними (похибки вимірювальних приладів, незафіксований вплив на об'єкти дослідження навколишнього середовища тощо) і суб'єктивними (самовпевненість та неуважність експерта, його захоплення помилковою експертною версією тощо). Наведено тлумачення поняття «помилка» і виокремлено основні ознаки помилок, зокрема експертних.

рактеризувати ці ознаки. Метою статті є теоретичне аналізування передумов виникнення експертних помилок, визначення ознак, що характеризують помилку судового експерта під час проведення експертиз і відрізняють їх від помилок в інших сферах людської діяльності, та розроблення обґрунтованого визначення поняття «експертна помилка» в системі судово-експертної діяльності. Методологічне підґрунтя дослідження склали загальнонаукові та спеціальні методи наукового пізнання. За своєю сутністю помилковість є викривленим відображенням дійсності у свідомості людини. Зауважено, що помилки пов'язані з неправильним перебігом думки, неадекватністю мислення, неправильним тлумаченням і неточністю дій, порушують певні правила. Наголошено, що помилковість завжди ненавмисна, що відрізняє її від неправди (брехні) і дезінформації (свідомо неправдива, що поширюється як правдива для введення в оману). Під час виявлення відмінностей помилок людини від експертних помилок проаналізовано тлумачення помилки в різних науках. Акцентовано, що помилки у встановленні факту можливі у вигляді констатації факту за відсутності для того достатніх підстав і заперечення факту за наявності підстав для визнання його наявним. Визначено, що причини помилок можуть бути об'єктивними (похибки вимірювальних приладів, незафіксований вплив на об'єкти дослідження навколишнього середовища тощо) і суб'єктивними (самовпевненість та неуважність експерта, його захоплення помилковою експертною версією тощо). Наведено тлумачення поняття «помилка» і виокремлено основні ознаки помилок, зокрема експертних.

Ключові слова: діяльність; помилка; причина; експерт; ознака; істина; висновок; експертне дослідження; об'єкт; судова експертиза.

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Declaration of Competing Interest

The authors declare no conflict of interest.

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Forensic Classification of Criminal Offenses against Justice Administration

Tetiana Bobko *

* Candidate of Legal Sciences, Kharkiv District Court of Kharkiv Region, Kharkiv, Ukraine,
ORCID: <https://orcid.org/0009-0009-2911-9690>,
e-mail: tetiana.justice.ua@gmail.com

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Theoretical and applied aspects of forensic classification of criminal offenses against justice are disclosed. This research paper is to develop a forensic classification of criminal offenses against justice based on a comprehensive consideration of criminal law and forensically significant criteria. Research methodological basis is general scientific methods of analysis, synthesis and generalization, as well as dialectical, logical-semantic, formal-legal, systemic-structural, comparative-legal and hermeneutic methods. Current state of scientific research in the field of forensic classification of criminal offenses and scientific approaches to systematization of criminal offenses against justice is analyzed. Scientific positions are generalized and critical analysis of the proposed approaches is carried out. It is substantiated that use of exclusively criminal law criteria does not ensure full consideration of regularities of the mechanism of criminal and illegal activity, formation specifics trace picture and sources of evidentiary information. It was found that while constructing a forensic classification of criminal offenses against justice, mechanism of committing criminal offense, nature of the interaction of participants, methods of implementing illegal behavior and the mechanism of trace formation are of paramount importance. An author's forensic classification of criminal offenses against justice is proposed

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that includes seven independent groups of criminal offenses formed on the basis of forensically significant criteria. It is concluded that proposed classification model has important theoretical and applied significance, since it creates a basis for the formation of separate forensic methods of investigation and trial of the corresponding category of criminal offenses. Prospects for further research related to development of forensic recommendations and methods for individual types of criminal offenses against justice are outlined.

Keywords: criminal proceedings; criminal offense; court proceedings; forensic support; justice; crime counteraction.

Research Problem Formulation

Recently, focus of forensic research is aimed at improving scientific approaches to systematization of criminal offenses. This is due to intention to implement the goal associated with increasing efficiency of their detection, investigation and trial. One of the basic methodological tools in this direction is the forensic classification of criminal offenses, which is aimed at their distribution into separate groups according to common criminal-legal and forensically significant signs ¹. This approach makes possible to determine the mechanism regularities of criminal activity, typical methods of committing and concealing criminal offenses, trace pattern peculiarities, specifics of offender's personality, and to form the basis for building individual forensic methods.

These issues take on particular relevance in the context of criminal offenses against administration of justice, as this category of acts directly undermines the normal functioning of pre-trial investigation bodies, prosecutor's office, courts, and penal institutions, as well as fulfill-

ment of the objectives of criminal proceedings and the principle of the rule of law. The specific nature of such criminal offenses is determined by their heterogeneity, commission mechanism complexity, high level of concealment, use of procedural and organizational opportunities to obstruct discovery of the truth, as well as the particular composition of the persons involved in their commission.

Despite significant number of research papers devoted to the issues of forensic classification of criminal offenses, issues of systematization of criminal offenses against justice remain insufficiently developed. We believe that the task of scientifically rethinking approaches to the forensic classification of criminal offenses against justice is relevant and of great importance for further formation of individual forensic methods, improvement of organization of the investigation and increasing efficiency of the practical activities of law enforcement agencies and the court.

Article Purpose

Develop forensic classification of criminal offenses against justice.

1 Гусева В. О. Криміналістична класифікація злочинів: наукове та практичне значення. *Правові горизонти*. 2019. Вип. 16. С. 70. DOI: 10.21272/legalhorizons.2019.i16.p:69 (date accessed: 14.04.2026).

Research Methods

This goal was achieved using a complex of general scientific and special legal methods of scientific cognition. In particular, dialectical method was used to study development of scientific approaches to forensic classification of criminal offenses, analyze evolution of views on the criteria for their systematization and determine the relationship between development of forensic science and improvement of methods for investigating individual categories of criminal offenses.

Logical-semantic method was useful for analyzing categorical apparatus of the study (in particular, the concepts of *forensic classification of criminal offenses*, *forensically significant specifics*, *mechanism of criminal activity*, *forensic characteristic of criminal offense*), that made possible to clarify their content, determine the correlation and specify the specifics of their application within the research subject.

Formal-legal (dogmatic) method helped in analyzing provisions of the criminal legislation of Ukraine, primarily the norms of Chapter XVIII of the Criminal Code of Ukraine ², as well as in studying the criminal-legal specifics of criminal offenses against justice and determining possibilities of using them as a basis for constructing forensic classification.

Using the system-structural method, the role of forensic classification in the structure of forensic knowledge was investigated, relationships between individual

groups of criminal offenses against justice were determined and an author's classification model was created taking into account forensically significant criteria.

Comparative legal method contributed to the comparison of scientific approaches to classification of criminal offenses proposed in criminalistics, criminal law and related fields of knowledge, as well as the analysis of author's models of systematization of criminal offenses against justice.

Hermeneutic method was applied to interpret doctrinal provisions and scientific concepts from the forensic classification of criminal offenses that made possible to outline their substantive peculiarities, identify common approaches and determine discursive aspects of the researched issues.

Methods of generalization and scientific analysis helped to systematize scientific approaches, formulate author's conclusions, and develop forensic classification of criminal offenses against justice, focused on the needs of further formation of individual forensic investigation methods.

Analysis of Essential Researches and Publications

The issues of forensic classification of criminal offenses against justice have already been the subject of research by scholars. Significant contribution to the development of doctrinal approaches was made by V. Husieva ³, V. Zhuravel ⁴,

2 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: 14.04.2026).

3 Гусева В. О. Криміналістична класифікація злочинів: сучасний стан наукового забезпечення та перспективи подальших досліджень. *Jurnalul juridic national: teorie și practică*. 2019. № 3 (37). Ч. 1. С. 151–156. URI: <http://dspace.univd.edu.ua/xmlui/handle/123456789/6079> (date accessed: 14.04.2026).

4 Журавель В. А. Криміналістичні методики: сучасні наукові концепції : монографія. Харків, 2012. 302 с.

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In scientific literature, attention is focused on importance of classification as a universal tool of scientific knowledge allowing not only to organize knowledge about certain phenomena, but to reveal their internal nature, patterns of development and relationships with other research objects. For example, L. Kryvchenko emphasizes that classification (due to identification of the most general and typical characteristics of the phenomena under research, their comparison with similar ones and distinction from others) allows for a deeper understanding of the essence of corresponding phenomenon, to determine its impact on related processes and to predict the directions of further development. At the same time, the researcher emphasizes that any classification can perform such a cognitive function only if it is scientifically sound, internally meaningfully true and logically correct in its construction. Thereby its formation should be carried out in compliance with

the laws of both dialectical and formal logic ⁸.

Regarding forensic classification of criminal offenses against justice, S. Knyzhenko substantiated that criminal law classification is not enough to form separate forensic methods of investigation, since it does not take into account the method of committing the crime, identity of the offender, trace pattern peculiarities, etc. ⁹

V. Hrytsenko ¹⁰ made an attempt to develop a forensic classification of criminal offenses against justice. He critically assessed existing approaches, based mainly on characteristics of the subject or methods of committing offense and proposed an approach based on the axiological criterion, namely: public goods and legitimate interests that have been harmed, taking into account the characteristics of the victims and perpetrators of such criminal acts.

The author's classifications of certain groups of criminal offenses against justice were proposed by K. Romanauskas ¹¹ and Ye. Sup ¹².

- 5 Пчеліна О. В. Криміналістична класифікація злочинів. *Право і суспільство*. 2014. № 6-1. Ч. 2. С. 304—309. URI: <https://dspace.univd.edu.ua/handle/123456789/19904> (date accessed: 14.04.2026).
- 6 Тищенко В. В. Теоретичні і практичні основи методики розслідування злочинів : монографія. Одеса, 2007. 260 с.
- 7 Щур Б. В. Криміналістична класифікація злочинів: співвідношення із суміжними поняттями. *Науковий вісник Львівського державного університету внутрішніх справ*. 2010. № 2. С. 337—344.
- 8 Кривоченко Л. М. Класифікація злочинів за ступенем тяжкості у Кримінальному кодексі України : монографія. Київ, 2010. С. 15.
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Despite existence of some academic best practices, performed analysis indicates that forensic classification issue of criminal offenses against the justice is presented in the authors' interpretations and either concerns specific types of such offenses or is based on outdated provisions of criminal law. The proposed approaches focusing primarily on specific classification criteria or specific groups of criminal offenses, do not form a comprehensive system that would take into account the full range of forensically significant characteristics. Moreover, development of criminal legislation, emergence of new forms of unlawful activity and the practical needs of pre-trial investigation highlights necessity for further scholarly analysis of this issue. In this regard, there is a need to develop a forensic classification of criminal offenses against justice that would not only reflect their systemic characteristics but could also serve as a foundation for the development of effective forensic investigative methods.

Main Content Presentation

Forensic classification of criminal offenses is an important tool of scientific cognition and one of the means of systematizing knowledge about the patterns of criminal and illegal activities. Its importance lies not only in the ordering of relevant categories of criminal offenses according to certain criteria, but in creating the basis for formation of forensic characteristics and development of separate methods for their investigation¹³. Thanks to the classification approach, it is possible to gain deeper understanding of phenome-

na essence under research, determine the connections between their individual elements and the patterns that are important for the practice of criminal proceedings¹⁴.

Generalization of scientific approaches proves that forensic classification should not be considered as a mechanical division of criminal offenses into separate groups. Its construction should be based on a systematic approach, according to which any forensically significant object should be considered as a complex system of interrelated elements. This approach makes possible to take into account not only certain external signs of criminal activity, but also the internal patterns of its formation and functioning.

The analysis also suggests that (despite importance of forensic criteria for the construction of appropriate classification models) limiting them alone does not always ensure integrity and consistency of classification constructions. The method of committing criminal offense, peculiarities of the trace pattern, characteristics of the offender or the victim are essential for forensic science, but their use without taking into account the criminal legal basis can lead to excessive fragmentation of classification structures.

Thereby, while developing a forensic classification of criminal offenses, we consider it appropriate to be guided by the following principle: criminal law classification should become the basic and system-forming basis for the forensic classification of criminal offenses and forensic criteria should be used as an additional tool that allows to detail the relevant groups of criminal offenses, taking into account peculiarities of their commission

13 Гусева В. О. Криміналістична класифікація злочинів: сучасний стан URI: <http://dspace.univd.edu.ua/xmlui/handle/123456789/6079> (date accessed: 14.04.2026).

14 Пчеліна О. В. Зазнач. твір. URI: <https://dspace.univd.edu.ua/handle/123456789/19904> (date accessed: 14.04.2026).

mechanism, formation regularities of evidentiary information and the need to build separate methods of investigation. Such an integrated approach provides a combination of regulatory and forensic components and creates a more effective basis for further scientific developments and practical recommendations.

This approach is supported by best practices of researchers who, while drawing on framework of criminal law, have sought to take into account forensically significant characteristics of relevant categories of criminal offenses. One attempt to construct such a classification model is the approach of S. Knyzhenko, who proposed an original system for grouping crimes against justice. In her proposed classification, groups of crimes are identified that infringe upon: 1) constitutional foundations of the activities of pre-trial investigation bodies, the investigation, the prosecution, and the court; 2) life, health, personal safety, and property of judges and other participants in judicial proceedings; 3) relationships that ensure the collection of reliable evidence and the reaching of truthful conclusions in a case; 4) relationships regarding the timely detection of crimes and the identification of guilty parties; 5) relationships regarding the timely prevention and suppression of crimes; 6) relationships regarding the proper enforcement of court decisions and serving of sentences¹⁵.

V. Hrytsenko bases his classification on public goods and legitimate interests that have been harmed, the characteristics of victims and persons who commit criminally punishable acts. Based on this approach, the researcher identified four groups of criminal offenses against justice: 1) encroachment on the lawful activities of

persons who administer or ensure justice, as well as on their life, health and property; 2) related to non-execution of court decisions by persons in respect of whom such decisions have been made or who are obliged to execute them; 3) committed by officials who administer or ensure justice or facilitate its implementation; 4) which commission is associated with manifestations of legal nihilism and implementation of behavior aimed at creating obstacles to the administration of justice. The proposed classification, in the author's opinion, allows for a more complete consideration of forensically significant characteristics of the relevant category of offenses and can be used as a basis for further development of individual methods of their investigation¹⁶.

Ye. Sup, while studying individual criminal offenses against justice, came to the conclusion that forensic classification construction should take into account not only criminal-legal evidence, but forensically significant characteristics, among which mechanism peculiarities of criminal-illegal activity should occupy a central place. On this basis, the researcher proposed to carry out a classification depending on significance of illegal actions in the structure of criminal activity and distinguished basic, related, concomitant and other criminal offenses.

The author substantiates that basic criminal offenses constitute the core of the mechanism of illegal activity, since they are the most common and determine the main direction of criminal behavior. Related offenses play an auxiliary role in achieving the criminal goal and contribute to obstruction of justice. Associated criminal offenses, although they have a number of differences are characterized by

15 Книженко С. О. Зазнач. твір. URL: <https://surl.li/mblrhk> (date accessed: 14.04.2026).

16 Гриценко В. В. Зазнач. твір. DOI: 10.32631/vca.2024.3.22 (date accessed: 19.04.2026).

common criminal law and forensic characteristics. A separate group, according to the researcher conclusions is criminal offenses committed by professional participants in the proceedings that differ significantly in the subject specifics, method of commission and the peculiarities of the investigation¹⁷.

Ye. Sup emphasizes that proposed classification has not only theoretical but applied significance, since it allows structuring criminal offenses with similar features, determining their forensic characteristics and creating the basis for developing methodological recommendations for investigation¹⁸.

In our opinion, the approach proposed by Ye. Sup deserves support primarily in terms of defining the conceptual basis of forensic classification. We consider the proposition that construction of a forensic classification should take into account not only criminal-legal characteristics, but forensically significant features, among which a special place should be occupied by the regularities of the mechanism of criminal-illegal activity, to be quite justified. Such an approach is methodologically correct, since it is the mechanism of committing criminal offense that makes possible to determine internal connections between the method of action, subject, situation, consequences and peculiarities of trace pattern formation that is of direct importance for the development of forensic recommendations and investigation methods. However, the further implementation of this idea in the author's classification, in our opinion, does not fully correspond to the declared methodological approach. Despite the fact that researcher defines the mechanism

of criminal and illegal activity as the basis of systematization, proposed division of criminal offenses into basic, related, associated and other groups is actually carried out according to criteria that do not always have a forensic character. The basis of such differentiation is mainly the role and significance of individual acts in the structure of criminal activity, the level of their prevalence or functional load in the mechanism of illegal behavior. At the same time, specified criteria reflect to a greater extent the general theoretical or forensic aspects of systematization, rather than characteristics that are actually forensically significant.

In this regard, there are doubts about possibility of using proposed model as a direct basis for development of certain forensic investigation methods, since the forensic classification should be based primarily on those signs that make possible to determine evidence patterns, trace pattern peculiarities of the trace picture, typical ways of committing and concealing criminal offenses, as well as other circumstances that are important for the organization and conduct of pre-trial investigation.

K. Romanauskas investigates criminal offenses committed in the field of professional legal assistance, focusing on offenses related to both unlawful influence on advocacy and abuse of legal mechanisms. The author emphasizes that existing approaches to forensic classification of crimes against justice do not fully cover the specifics of this group of offenses, which necessitated development of an independent system for their classification. The researcher considers the object of the criminal offense and the specifics of the offense topic, subject of criminal

17 Суп Є. Ю. Зазнач. твір. DOI: [10.32353/acfs.10.2024.11](https://doi.org/10.32353/acfs.10.2024.11) (date accessed: 14.04.2026).

18 Там само.

offense, method and commission circumstances, the consequences, as well as the tools and means used as the main criteria. Based on this approach, the scientist distinguishes: criminal offenses against the life and health of lawyers or representatives of the person; encroachment on the freedom and safety of professional activity; property encroachment; violation of the guarantees of attorney-client privilege and confidentiality; as well as a separate group of encroachments on the institutional guarantees of the independence of the legal profession that can be implemented in the simulation of legal activity, representation without proper authority or collusion with other participants in the process. The author emphasizes that such a classification has not only theoretical, but also applied significance, since it creates the basis for formation of separate methods of investigation of the relevant criminal offenses¹⁹.

Consequently, for the purposes of forensic investigation of criminal offenses against justice, use of only traditional criminal law approaches to their systematization seems insufficient. The construction of a classification solely on the basis of the generic or direct object of criminal law protection is important for combining these criminal offenses into one group, their qualification, but does not allow to fully identify the patterns of criminal illegal activity mechanism, peculiarities of the formation of traces, typical sources of evidentiary information and specifics of its research. Thereby such a classification has limited potential for fulfilling the tasks of forensic science and building separate methods of investigation and trial.

We believe that in forensic aspect, the leading importance is not so much

the legal construction of the composition of a criminal offense, but peculiarities of the mechanism of its commission. The latter reflects the natural process of interaction of the subject of criminal and illegal activity with the environment, other participants, material objects, information systems and documents that results in formation of trace pattern characteristic. In the case of forensic systematization of criminal offenses against justice, it is advisable to take into account not formal and legal specifics, but forensically significant criteria, among which the method of implementing illegal behavior, typical subject, nature of interaction between participants, the mechanism of trace formation, the main sources of evidentiary information and the specifics of their detection, fixation and research are of particular importance.

The need to apply this approach is due to the heterogeneity of criminal offenses provided for in Sec. XVIII of the Criminal Code of Ukraine. Despite their unification by a common generic object of encroachment, individual acts differ significantly in the mechanism of commission, interaction nature of participants, concealment method, peculiarities of the trace picture and the nature of the evidence that can be used as the basis for the accusation. Thus, some criminal offenses are predominantly documentary in nature, they are committed through the use of official authority, others are associated with informational influence and distortion of evidentiary information, others are characterized by violent mechanisms of influence or interference in functioning of information systems, and individual acts are committed in the field of execution of court decisions or functioning of penitentiary institutions.

19 Романаускас К. А. Зазнач. твір. DOI: 10.32353/khrife.3.2025.05_(date accessed: 14.04.2026).

We believe that forensic classification of criminal offenses against justice can be presented as follows.

1. Criminal offenses committed by officials with abuse of professional (official) position

Forensic peculiarity is nature of the traces, recorded primarily in documents, the use of official powers, formal legality of individual actions, and availability of digital traces.

It is advisable to consider the following criminal acts as belonging to this group: 1) knowingly unlawful detention, pretext, house arrest or detention (Art. 371); 2) bringing a deliberately innocent person to justice (Art. 372); 3) coercion to testify (Art. 373); 4) violation of the right to defense (Art. 374); 5) failure to take security measures in relation to a protected person (Art. 380); 6) non-compliance with a court decision (Parts 2 and 3 of Art. 382); 7) disclosure of pre-trial investigation data, operational investigative activities (Part 2 of Art. 387)²⁰.

2. Criminal offenses committed by means of unlawful interference with evidence

Unifying criterion of this group is unlawful influence on the process of formation, perception, preservation of evidentiary information or its use, embodied in its distortion, concealment, distortion or creation of obstacles to obtaining reliable information in criminal proceedings. It is appropriate to consider the following criminally punishable acts as belonging to this group: 1) deliberately false notification of the criminal offense commission (Art. 383); 2) misleading the court or other

authorized body (Art. 384); 3) refusal of a witness to give testimony or refusal of an expert or translator to perform the duties assigned to them (Art. 385); 4) obstruction of the appearance of a witness, victim, expert, specialist or forcing them to refuse to give testimony or provide a conclusion (Art. 386); 5) concealment of a criminal offense (Art. 396); 6) representation in court without proper authority (Art. 400-1)²¹.

They are characterized by: ideal traces; communication through electronic means of communication. The main element is the mechanism analysis of information transfer.

3. Criminal offenses involving use of physical force against persons subject to the administration of justice

Defining characteristics of this group are the specific peculiarities of the mechanism of coercive influence aimed at obstructing the administration of justice, or exertion of influence on individuals in connection with the performance of their professional duties in the judicial system. The following criminal offenses should be considered part of this group: 1) threats or violence against a judge, lay judge, or juror (Art. 377); 2) intentional destruction or damage to the property of a judge, lay judge, or juror (Art. 378); 3) an attempt on judge life, lay judge, or juror in connection with their activities related to the administration of justice (Art. 379); 4) threats or violence against a defense attorney or a person's representative (Art. 398); 5) intentional destruction or damage to the property of a defense counsel or a person's representative (Art. 399); 6) attempt on the life of a defense attorney or a per-

20 The following articles refer exclusively to the Criminal Code of Ukraine: Кримінальний кодекс ... URL: <https://zakon.rada.gov.ua/laws/show/2341-14#Text> (date accessed: 14.04.2026).

21 Там само.

son's representative in connection with the provision of legal assistance (Art. 400); 7) certain forms of unlawful influence on a witness, victim, expert, specialist, or other participants in legal proceedings involving the use of threats or violence (Art. 386)²².

Common forensically significant specifics of this group are the peculiarities of the event localization, availability of material and biological traces, use of certain tools for committing a criminal offense, significant role of video recording and telecommunication data, as well as the need to clarify the relationship between professional activity of the victim and the motive for criminal wrongdoing. At the same time, this category of criminal offenses is characterized by situations of concealing the true motives of encroachment by staging or disguising it as a domestic conflict or other non-criminal circumstances.

4. Criminal offenses involving financial influence and material pressure on justice system

Unifying criterion for this group is the use of property as a means of influencing participants in criminal proceedings or as a way of obstructing the administration of justice. The following criminal offenses should be considered part of this group: 1) intentional destruction or damage of the property of a judge, lay judge, or juror (Art. 378); 2) intentional destruction or damage of the property of a defense attorney or a person's representative (Art. 399); 3) unlawful actions regarding property that has been seized, property that has been described, or property subject to confiscation (Art. 388)²³.

Common forensically significant peculiarities of this group are the predominance of the material trace picture, the presence of documents characterizing the legal status, ownership or mode of use of property, the significant role of information about financial and digital transactions, technical traces of damage or destruction of objects, as well as information from state registers and other information systems. Of particular importance in investigation is the determination of the method of influence on the property, damage nature, mechanism of their formation and the connection of the relevant actions with obstruction of justice or illegal influence on the participants in the proceedings.

5. Criminal offenses involving interference with functioning of the institutional and information infrastructure of justice system

Unifying criterion for this group is unlawful influence on technical, informational, or organizational mechanisms that ensure functioning of the justice system. The following criminal offenses should be considered part of this group: 1) interference in the activities of judicial bodies (Art. 376); 2) unlawful interference in the operation of automated systems in the justice sector (Art. 376-1); 3) interference in the activities of a defense attorney or a person's representative (Art. 397)²⁴.

Common forensically significant features of this group are the presence of a digital trace picture, the value of access logs to information systems, telecommunication data, metadata, as well as traces of interference in automated systems and

²² Кримінальний кодекс URL: <https://zakon.rada.gov.ua/laws/show/2341-14#Text> (date accessed: 14.04.2026).

²³ Там само.

²⁴ Там само.

electronic information resources. This category of criminal offenses is characterized by the use of digital environment as an instrument of influence necessitating the analysis of electronic media, network activity, access parameters and technical characteristics of the relevant systems.

Involvement of specific expertise in the fields of information technology, telecommunications and digital forensics is of particular importance during an investigation, and computer forensic, telecommunications and other types of analysis aimed at determining intrusion mechanism, method used to carry it out, and the sources of the digital information are of paramount importance.

6. Criminal offenses related to evasion of court orders and sentences

Unifying criterion for this group is the mechanism of evading the enforcement of a court decision or avoiding compliance with restrictions, obligations, and legal measures imposed by a court or by law. The following criminal offenses should be considered part of this group: 1) evasion of punishment not involving imprisonment (Art. 389); 2) evasion of serving a sentence in the form of restriction or deprivation of liberty (Art. 390); 3) willful disobedience of the requirements of the administration of a penal institution (Art. 391); 4) actions that disrupt the operation of penal institutions (Art. 392); 5) escape from a place of imprisonment or from custody (Art. 393); 6) escape from a specialized medical facility (Art. 394); 7) violation of the rules of administrative supervision (Art. 395); 8) intentional failure to comply with a reconciliation

agreement or a plea agreement (Art. 389-1); 9) evasion of community service (Art. 389-2) ²⁵.

Common criminally significant evidence of this group is the long-term nature of criminal and illegal activities, persistent behavioral stereotypes, lifestyle features and characteristic patterns of offender's behavior. For such criminal offenses, route data, information about the person's social connections, as well as digital and geolocation traces that allow reconstructing the movements, contacts and actual behavior of the subject are essential.

Typical sources of evidentiary information in such criminal proceedings are materials of probation bodies, penitentiary institutions and control bodies, records of video surveillance systems, information of mobile operators, results of analysis of digital activity, as well as characteristics of a person and other documents reflecting his behavior, lifestyle and performance of duties assigned to.

7. Criminal offenses aimed at disrupting the operations of correctional facilities

Independence of this group is due to the specific environment of committing criminal offenses related to the functioning of penitentiary institutions, places of detention or specialized medical institutions where a special legal regime, control system and specific living conditions operate. It is advisable to consider the following criminal acts as belonging to this group: 1) malicious disobedience to the requirements of the administration of the penitentiary institution (Art. 391); 2) actions that disorganize the work

²⁵ Кримінальний кодекс URL: <https://zakon.rada.gov.ua/laws/show/2341-14#Text> (дата звернення: 14.04.2026).

of penitentiary institutions (Art. 392); 3) escape from a place of deprivation of liberty or from custody (Art. 393); 4) escape from a specialized medical institution (Art. 394) ²⁶.

Common forensic characteristics of this group include localized setting in which criminal offenses are committed, the operation under security restrictions and the specific group of individuals involved in their commission (convicts; persons in custody; institutional staff; and other participants in security-related legal relationships). Data from internal video surveillance cameras in the premises of penal authorities and institutions, materials from official and security documentation, logbooks, information on the movement of individuals and technical monitoring devices play a significant role in supporting procedure.

Peculiarity of such criminal offenses is the specific mechanism of trace formation, due to regime environment, spatial limitations, constant control over the behavior of persons and a high level of regulation of their activities. This makes necessary to take into account peculiarities of functioning of the relevant institutions and the mechanism for formation of evidence information when developing recommendations for their investigation.

Such a system (unlike a purely criminal law-based one) is based not on the formal object of the offense, but on forensically significant patterns of the mechanism of criminal activity, the method of its execution, typical forensic evidence, and sources of evidentiary information providing foundation for developing specific forensic investigation and trial procedures.

Conclusions

Traditional criminal law approaches to classification of criminal offenses against administration of justice do not fully fulfill objectives of criminalistics, as they do not allow for the identification of patterns in the mechanisms of criminal activity, the characteristics of the formation of a forensic picture, the typical sources of evidentiary information and the specifics of their application in proving a case. It is argued that forensic classification should be viewed not as a formal categorization of criminal offenses based on specific characteristics, but as a tool for systematizing knowledge about the patterns of their commission and investigation.

Generalization of scientific approaches made possible to conclude that the criminal-legal classification should become the basic basis for forensic systematization, however, it should be supplemented with forensically significant criteria. Of leading importance for forensic classification construction are features of the mechanism of committing a criminal offense, interaction nature of participants, typical methods of implementing illegal behavior, mechanism of trace formation, as well as the main sources of evidentiary information.

Based on performed research, the author's forensic classification of criminal offenses against justice is proposed including: criminal offenses committed by officials with abuse of professional (official) position; criminal offenses, which method is associated with unlawful influence on evidence; criminal offenses associated with implementation of physical influence on subjects of justice; criminal

26 Кримінальний кодекс URL: <https://zakon.rada.gov.ua/laws/show/2341-14#Text> (дата звернення: 14.04.2026).

offenses of property influence and material pressure on the justice system; criminal offenses of interference with functioning of institutional and information infrastructure of justice; criminal offenses associated with evasion of execution of court decisions and punishments; criminal offenses aimed at disorganizing activities of institutions for the execution of punishments. The basis of such a division is not the formal object of criminal legal protection, but forensically significant regularities of the mechanism of criminal activity.

It is proven that proposed classification model has not only theoretical, but applied significance, as it allows to determine typical mechanisms of trace formation, main sources of evidentiary information, predict investigative situations and creates a methodological basis for the further development of individual forensic investigation methods and trial of criminal offenses against justice. A promising direction of further research is the construction of individual forensic investigation methods for each of the proposed groups of criminal offenses.

Криміналістична класифікація кримінальних правопорушень проти правосуддя

Тетяна Бобко

Розкрито теоретичні та прикладні аспекти криміналістичної класифікації кримінальних правопорушень проти правосуддя. Метою роботи є розроблення криміналістичної класифікації кримінальних правопорушень проти правосуддя на основі комплексного врахування кримінально-правових і криміналістично значущих критеріїв. Методологічне підґрунтя дослідження становлять загальнонаукові методи аналізу, синтезу

й узагальнення, а також діалектичний, логіко-семантичний, формально-юридичний, системно-структурний, порівняльно-правовий і герменевтичний методи. Проаналізовано сучасний стан наукових досліджень у сфері криміналістичної класифікації кримінальних правопорушень і наукові підходи до систематизації кримінальних правопорушень проти правосуддя. Узагальнено наукові позиції, а також здійснено критичний аналіз запропонованих підходів. Обґрунтовано, що застосування винятково кримінально-правових критеріїв не забезпечує повного врахування закономірностей механізму кримінально-протиправної діяльності, особливостей формування слідової картини та джерел доказової інформації. З'ясовано, що під час побудови криміналістичної класифікації кримінальних правопорушень проти правосуддя провідне значення мають механізм учинення кримінального правопорушення, характер взаємодії учасників, способи реалізації протиправної поведінки, механізм слідотворення. Запропоновано авторську криміналістичну класифікацію кримінальних правопорушень проти правосуддя, що охоплює сім самостійних груп кримінальних правопорушень, сформованих на підставі криміналістично значущих критеріїв. Зроблено висновок, що запропонована класифікаційна модель має важливе теоретичне та прикладне значення, оскільки створює підґрунтя для формування окремих криміналістичних методик розслідування та судового розгляду відповідної категорії кримінальних правопорушень. Окреслено перспективи подальших досліджень, пов'язані з розробленням криміналістичних рекомендацій і методик для окремих видів кримінальних правопорушень проти правосуддя.

Ключові слова: кримінальне провадження; кримінальне правопорушення; судове провадження; криміналістичне забезпечення; правосуддя; протидія злочинності.

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Declaration of Competing Interest

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Use of Special Knowledge in Investigations Into Criminal Offences Involving Provision of Professional Legal Aid

Kristina Romanauskas *

* Doctor of Philosophy in Law, Doctoral Candidate at NSC «Hon. Prof. M. S. Bokarius FSI», Kharkiv, Ukraine, ORCID: <https://orcid.org/0009-0006-9545-9755>, e-mail: kristina.r7@ukr.net

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The research paper explores theoretical and practical aspects of utilising special knowledge during investigations into criminal offences involving professional legal aid. The Article Purpose is to clarify specific features of the use of special knowledge during investigations into this category of crime, to identify the most common forms of its application, and to develop specific forensic guidelines for enhancing efficiency of pre-trial investigations. The methodological basis of the research includes general scientific methods of analysis, synthesis, induction, deduction and generalisation, as well as dialectical, formal-legal, systemic-structural, comparative-legal and formal-logical methods. The study analyses and summarises academic views on the use of special knowledge in investigations into criminal offences against justice and determines the specifics of how such expertise is used in professional legal practice. It is substantiated that common procedural forms of the application of special knowledge in such criminal proceedings are the participation of specialists during investigative (search) actions, the conduct of forensic examinations, and the interrogation of forensic experts in court. It has been demonstrated that the most relevant one is the use of special medical knowledge, since attacks on the life and health

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of lawyers are quite common these days. Typical issues of utilising special knowledge have been singled out. A system of forensic guidelines intended for improving the ordering/conduct of forensic examinations and enhancing the use of special knowledge during the investigation of criminal offenses involving professional legal aid has been proposed. The authors concluded that the application of special knowledge serves as a foundational component of the proof procedure and is an essential element of forensic support for investigations into this category of criminal offenses.

Keywords: criminal offense; pre-trial investigation; special knowledge; forensic examination; specialist; forensic expert; specialist's opinion; expert's opinion.

Research Problem Formulation

Today's state of social relations development, more sophisticated criminal schemes, and the growing role of professional legal aid in safeguarding constitutional human rights and freedoms call for a proper criminal law and forensic response when it comes to criminal offences committed in the field of professional legal aid. A distinctive feature of this crime category is the specific nature of subject composition and complexity of unlawful conduct, both of which hinder investigative activities.

Against this backdrop, traditional investigative (search) activities for evidence collection and examination may not always yield exhaustive and objective information about the nature of a criminal offence. There is therefore a need to actively utilise special knowledge in various forms (by engaging specialists, ordering forensic analyses, seeking expert advice, and utilising cutting-edge forensic tools).

This issue becomes even more relevant given that criminal offences involving provision of professional legal aid

may combine elements of misconduct in public office, corruption and other unlawful conduct. Moreover, investigations into such offences are often met with active attempts to obstruct the truth-finding process in criminal proceedings. At the same time, the issue of utilising special knowledge in investigations into these criminal offences remains understudied in the academic literature, and existing academic approaches predominately address common aspects, overlooking the forensic specifics inherent to this field.

This underscores the need for a comprehensive study of specific ways to use special knowledge during investigations into criminal offences involving provision of professional legal aid, for identification of the most efficient forms of using special knowledge, and for development of relevant forensic guidelines aimed at enhancing efficiency of pre-trial investigations.

Article Purpose

Clarify specific aspects of applying special knowledge in investigations into criminal offences involving provision of professional legal aid.

Research Methods

To fulfil this goal, numerous general and special scientific inquiry methods were employed. Dialectical method helped to reveal the essence and patterns of special knowledge use in investigations into criminal offences involving provision of professional legal aid, and to trace the relationship between distinctive features of crime patterns, specifics of the subject matter of proof, and needs for special knowledge to be applied in various procedural and extra-procedural forms. This has also contributed to research into the evolving nature of digital crimes, and helped to trace the shifting role of special knowledge in the criminal justice system.

System-structural method proved valuable in defining the place of special knowledge within the framework of forensic support for investigations into criminal offences involving these crimes, as well as in systematising procedural and extra-procedural forms of expertise application. This method helped to streamline individual types of criminal offences pertaining to professional legal aid, single out their criminalistics-relevant features, and trace the link between a crime's nature and any involvement of specialists, forensic experts and technical equipment.

Formal legal method facilitated the analysis of provisions of criminal and criminal procedure legislation governing the application of special knowledge in criminal proceedings, including provisions of the Criminal Code of Ukraine, the Criminal Procedure Code of Ukraine, and legal regulations providing legal grounds for the conduct of forensic examinations, for the participation of forensic experts in investigative (search) activities, and for the use of expert opinions in the proof procedure. This enabled the identification

of distinctive features in the regulatory framework for the use of special knowledge during investigations into criminal offences involving provision of professional legal aid.

Formal-logical methods were employed to delineate common and distinguishing features in the use of special knowledge and to determine their forensic significance. Analysis made it possible to examine the nature of a specialist's involvement and special aspects pertaining to the conduct of forensic examinations, advisory work, and interrogation of the expert in court; synthesis allowed us to incorporate all these elements into a consolidated system of forensic support for investigation; induction — to draw up general conclusions by analysing specific examples from law application practice; deduction — to scrutinise obtained insights by comparing them with normative provisions and criminalistics patterns.

Comparative legal method aided in comparing academic approaches to defining the nature of special knowledge, forms of its application, and significance thereof in criminal proceedings, as well as in analysing up-to-date approaches to the use of special knowledge in investigations into criminal offences against administration of justice and legal practice. This facilitated the identification of distinctive features in the use of special knowledge, specifically in the field of professional legal aid, and the delineation of viable avenues for the development of relevant forensic recommendations.

Generalisation method proved effective in formulating conclusions on the significance of special knowledge in investigations into criminal offences involving provision of professional legal aid, in singling out common challenges in its application, and in developing practical

guidelines aimed at enhancing efficiency of pre-trial investigations and streamlining forensic support in this category of criminal proceedings.

Analysis of Essential Researches and Publications

Researchers who explored the issue of forensic classification in criminal offences

and viewed it as a cornerstone of investigative methodologies heavily influenced the development of theoretical fundamentals for investigating crimes against justice. The following researchers elaborated on this issue: V. Husieva¹, V. Drozd², M. Yefimov and I. Pyrih³, V. Zhuravel⁴, O. Kolesnichenko⁵, V. Konovalova⁶, O. Pchelina and V. Pchelin⁷, E. Simakova-Yefremian⁸, R. Stepaniuk⁹, V. Tishchenko¹⁰, K. Chaplynskyi¹¹,

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- 2 Дрозд В. Ю. Аспекти побудови криміналістичної методики розслідування корупційних кримінальних правопорушень, вчинених працівниками правоохоронних органів. *Актуальні питання криміналістики та судової експертизи* : мат-ли міжвідом. наук.-практ. кругл. столу. До 60-річ. каф. криміналіст. та суд. мед. (Київ, 21.11.2024). Київ, 2024. С. 151–155. URL: <https://elar.navs.edu.ua/server/api/core/bitstreams/391cf240-7521-483f-a4cf-2dae18d8f49d/content#page=152> (date accessed: 11.04.2026).
- 3 Єфімов М. М., Пиріг І. В. Методика розслідування окремих видів кримінальних правопорушень : підручник. Дніпро, 2022. 272 с. URL: <https://surl.li/rtwadj> (date accessed: 11.04.2026).
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- 9 Степанюк Р. Л. Криміналістична класифікація злочинів, що вчиняються в бюджетній сфері України. *Вісник Харківського національного університету внутрішніх справ*. 2010. № 4 (51). Ч. 1. С. 175–180. URL: http://nbuv.gov.ua/UJRN/VKhnusv_2010_4%281%29__24 (date accessed: 11.04.2026).
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- 11 Чаплинський К. О. Наукові підходи до визначення і побудови криміналістичної характеристики кримінальних правопорушень проти громадського порядку та громадської безпеки. *Пропілеї права та безпеки*. 2022. № 1 (1). С. 52–58. DOI: [10.32620/pls.2022.1.07](https://doi.org/10.32620/pls.2022.1.07) (date accessed: 11.04.2026).

Yu. Chornous¹², V. Shevchuk¹³, V. Shepitko¹⁴, B. Shchur¹⁵, M. Shcherbakovskiy¹⁶, et al. They have shaped conceptual approaches to the development of individual forensic methodologies.

Recently, issues pertaining to the development of forensic methodologies

have become the focus of research by A. Antoshchuk¹⁷, O. Vashchuk¹⁸, M. Yefimov¹⁹, O. Zhovtiuk²⁰, V. Zhuravel et al.²¹, V. Popov²², V. Filashkin²³, Yu. Chornous and I. Chechotka²⁴, and others.

Subsequent development of this issue is associated with research contri-

- 12 Чорноус Ю. Криміналістичне забезпечення розслідування злочинів : монографія. Вінниця, 2017. 492 с.
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- 17 Антошук А. О. Структура криміналістичної методики розслідування умисного знищення або пошкодження чужого майна, вчиненого шляхом підпалу. *Науковий вісник Ужгородського Національного Університету. Серія: Право*. 2025. Вип. 87. Ч. 4. С. 11—16. DOI: [10.24144/2307-3322.2025.87.4.1](https://doi.org/10.24144/2307-3322.2025.87.4.1) (date accessed: 11.04.2026).
- 18 Вашук О. Структура окремих методик розслідування кримінальних правопорушень. *Юридичний вісник*. 2024. № 3 (33). С. 30—36. DOI: [10.32782/yuvv3.2024.4](https://doi.org/10.32782/yuvv3.2024.4) (date accessed: 11.04.2026).
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- 23 Філашкін В. С. Концептуальні основи формування криміналістичної методики розслідування кримінальних правопорушень проти волі, честі та гідності особи. *Успіхи і досягнення у науці*. 2025. № 12. С. 572—581. DOI: [10.52058/3041-1254-2025-12\(22\)-572-581](https://doi.org/10.52058/3041-1254-2025-12(22)-572-581) (date accessed: 11.04.2026).
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butions of V. Hrytsenko. The scholar focused on the challenges surrounding the use of special knowledge in criminal proceedings. He argued that application of special knowledge cannot be regarded merely as a matter of forensic science, as it is complex and multifaceted in nature and encompasses both procedural and extra-procedural forms. The outcome of this research was the classification of special knowledge forms developed by the author, which had been refined according to several criteria: procedural regulation, target group (subjects affected by the practical implementation of research findings), stages of criminal proceedings, relevance of research findings, their role in the proof procedure, type of procedural measure, and procedural status of a person utilising special knowledge. V. Hrytsenko's approach was instrumental in systematising various ways of engaging forensic experts and in paving the way for the development of algorithms enabling the use of special knowledge in activities of investigators ²⁵.

The researcher places special emphasis on extra-procedural forms of applying special knowledge; a topic that has traditionally been less well-researched in the academic literature. V. Hrytsenko points out that these include conducting checks against forensic databases, making use of information and analytical systems, carrying out preliminary criminalistics examinations, and rationally applying

polygraph testing. He has concluded that the most frequently observed practice in criminal offences against administration of justice is the involvement of a specialist during interrogations, inspections and sample collection for the purposes of forensic analysis. The scientist notes that engagement of a specialist not only provides technical assistance but also enables the performance of tactical tasks, such as identification, documentation and interpretation of forensically relevant information. The researcher believes that this category of offences is commonly associated with handwriting analysis, forensic psychiatric, psychological and technical examinations of documents, examinations of video and sound recordings, as well as semantic and textual analyses. He also emphasises how forensic analyses in these cases are predominantly retrospective and focus not on identifying an unidentified offender, but on executing criminal intent, uncovering evidence of interference with administration of justice, or on substantiating circumstances to be proved ²⁶.

Having analysed contemporary research, it can be concluded that numerous scientific papers are devoted to the classification and general forensic characterisation of crimes against justice ²⁷, whilst the issues pertaining to investigations into such crimes (specifics of the initial stage, typical investigative situations, algorithms for procedural actions, tactical opera-

25 Гриценко В. В. Використання спеціальних знань під час розслідування кримінальних правопорушень проти правосуддя : дис. ... д-ра філос. в галузі права. Харків, 2025. 250 с. URL: https://uacademic.info/ua/document/0825U000642#google_vignette (date accessed: 11.04.2026).

26 Там само.

27 Книженко С. О. Криміналістична класифікація злочинів проти правосуддя. *Право і Безпека*. 2013. № 1 (48). С. 113—118. URL: <https://surl.li/mb1rhk> (date accessed: 11.04.2026) ; Суп Є. Підходи до криміналістичної класифікації кримінальних правопорушень проти правосуддя. *Архів кримінології та судових наук*. 2024. № 2 (10). С. 138—145. DOI: [10.32353/acfs.10.2024.11](https://doi.org/10.32353/acfs.10.2024.11) (date accessed: 11.04.2026).

tions, application of special knowledge, and forensic technical support) remain underexplored. This points to a need for ongoing development and refinement of specific forensic methodologies for investigating crimes against administration of justice, with an emphasis on the application of special knowledge.

Main Content Presentation

Professional legal aid is a special category of activity involving the protection of a person's right to defence, representation of interests, provision of legal advice and other legal services. Yet, the specific nature of this field sets the stage for criminal offences to be committed by and against professional legal aid providers. Accordingly, these offences are inextricably linked to their professional duties.

The first category comprises criminal offences committed by persons offering professional legal aid by exploiting their professional status, official standing, or special knowledge. These are: fraudulent acts involving misappropriation of clients' funds; forgery or misuse of forged documents; legalisation (laundering) of criminal proceeds; disclosure of information constituting legal professional privilege; obstruction of justice and abuse of office. Such individuals may also be accused of certain corruption-related and official criminal offences, and of actions aimed at obstructing criminal proceedings via obscuring evidence and tampering with persons to give false testimony or fabricate evidence.

The second group covers offences related to the use of certain mechanisms for providing professional legal aid in complex criminal schemes. In these cases, legal instruments may be used to conceal

unlawful activities, launder assets, introduce fictitious legal constructions, illegally divert assets, or tamper with parties to criminal proceedings. Similar criminal offences tend to be highly complex in terms of how they are executed and are often cross-sectoral in nature.

The third group encompasses criminal offences committed against persons engaged in professional legal practice. Accordingly, these offences are inextricably linked to professional duties of such individuals. Such acts shall include threats, violence, attempts on life and health, damage to property, interference with lawful activities of a defence counsel or a person's representative, unlawful interference in professional activities, as well as other instances of unlawful influence obstructing the provision of legal aid. It is through this category of criminal offences that we will explore challenges of utilising special knowledge within the scope of our research.

The specific nature of these crimes exerts a direct influence on the proof procedure and calls for the use of special knowledge. Much of the information that is the subject of proof in these proceedings is recorded in digital traces or stored as physical objects, and therefore requires the involvement of experts from various backgrounds: experts in computer and information technology, forensic experts, trace evidence experts, and specialists in psychology, polygraphology, etc. Furthermore, special knowledge acquires special relevance in the analysis of documents (e.g., detection of signs of forgery), examination of financial transactions, email correspondence, mobile devices, cloud services and other data sources associated with a criminal offence.

On such occasions, it is worth observing that traditional procedural

methods of evidence collection are not always adequate for a thorough investigation of circumstances of a crime. This underscores the need for both procedural and extra-procedural forms of special knowledge to be integrated. Here we are referring not only to the conduct of forensic examinations but also to the involvement of specialists during specific investigative (search) activities, advisory activities. Also, use of information and analytical technologies along with technical and forensic tools is crucial in this aspect.

One of the prevailing approaches to applying special knowledge is by bringing in an expert during investigative (search) activities. When it comes to criminal proceedings of this category, their engagement is especially important during the examination of computer equipment, mobile phones, electronic media, email and cloud storage. Considering the specific nature of digital evidence, importance is attached to both the collection of information and the assurance of its integrity and consistency. Errors during the seizure or copying of digital data may result in the relevant information losing its evidentiary value.

Use of special forensics knowledge is pivotal. Depending on circumstances surrounding criminal proceedings, handwriting analysis, technical document examinations, forensic computer examinations, audio and video recording analyses, psychological examinations and others may be ordered. Whether such forensic analyses are required depends entirely on the manner in which a criminal offence has been committed, on the nature of evidence and the mechanism of unlawful conduct.

Analysis of law application practice for investigating criminal offences involving professional legal practice reveals that the most prevalent offenses are attempts on the life and health of lawyers, manifested as threats, bodily injuries of varying degrees of severity, acts of violence, attempted murder or murder. Driven by this trend, there is an urgent need to properly document consequences of unlawful intent, identify the mechanism of injury, its severity, cause-and-effect relationships and other circumstances of evidentiary value. In this regard, application of special medical knowledge in criminal proceedings is becoming increasingly relevant. This applies, primarily, to special knowledge of medical examiners and specialists in medicine. Results of their work provide objective information necessary for a complete, comprehensive and unbiased investigation of these criminal offences. Furthermore, the need for these forensic examinations stems not only from practical considerations but also from regulatory requirements. As set forth in Art. 242 of the Criminal Procedure Code of Ukraine, ordering of a forensic examination is mandatory in cases where the cause of death or nature/ severity of bodily injuries is to be established. This further underscores the significance of special medical knowledge during investigations into such offenses²⁸.

For instance, to demonstrate the practical value of using special knowledge in investigations into criminal offences committed against professional legal aid providers, it is expedient to cite a case from judicial practice in which a lawyer was deliberately injured whilst carrying out his professional duties, an offence classi-

28 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: 11.04.2026).

fied under Pt. 2 of Art. 398 of the Criminal Code of Ukraine ²⁹.

Pursuant to Case File No. 357/8569/19, during a dispute, a group of persons used physical violence against a lawyer who represented the interests of a legal person and attempted to record the unlawful conduct on his mobile phone ³⁰. Offenders were fully aware of the victim's professional standing, as earlier he had stated that he was acting as a lawyer and was representing a client. Offenders' actions interfered with the lawyer's lawful professional practice, which, consequently, served as grounds for classifying their actions under Pt. 2 of Art. 398 of the Criminal Code of Ukraine ³¹.

Having analysed this scenario, it follows that use of special knowledge in various forms is of paramount importance when investigating criminal offences of this category. The ordering of a forensic medical examination was instrumental in the case in question; its findings determined the nature, location, mechanism of formation and severity of the victim's bodily injuries. The expert's opinion enabled the establishment of cause-and-effect relationships between actions of each participant in the assault and their consequences, in addition to distinguishing between minor and moderate bodily harm. The forensic analysis results also helped to accurately qualify the offence under criminal law.

In addition, technical recording equipment was used in the proceedings, including CCTV footage. All this evidence was at-

tached to the opinion as physical evidence. Use of such digital information sources requires special knowledge in computer technology and digital forensics, given the need to test authenticity of video recordings, establish timeline of events, identify persons and analyse the course of their actions.

Application of special knowledge through forensic examination, in addition to its procedural role, is of value in the conduct of certain investigative (search) procedures. In particular, a forensic professional was called in to provide technical assistance to the investigator in documenting the sequence of events and the actions of each participant in the investigative experiment ³².

Situations in which the defence counsel challenges the findings of a forensic examination or questions admissibility or research, relevance or reliability holds significant theoretical and practical value in the context of special knowledge use. Similar cases clearly reflect the principle of adversarial proceedings and the right to defence; they also provide an opportunity to evaluate the soundness of applying special knowledge in criminal proceedings. An expert's opinion may be challenged on the grounds of breaching the procedure for ordering or conducting a forensic analysis, insufficient initial materials, reasonable doubts about an expert's qualifications, inadequate research, or discrepancies between the expert's opinion and other pieces of evidence. These factors

29 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: 11.04.2026).

30 Вирок Білоцерків. міськрайсуду Київ. обл. від 25.03.2020 р. Справа № 357/8569/19. Провадж. № 1-кп/357/568/20/ЄДРСР: вебсайт. URL: <https://reyestr.court.gov.ua/Review/88408633> (date accessed: 11.04.2026).

31 Там само ; Кримінальний кодекс України URL: <https://zakon.rada.gov.ua/laws/show/2341-14#Text> (date accessed: 11.04.2026).

32 Вирок Білоцерків. міськрайсуду URL: <https://reyestr.court.gov.ua/Review/88408633> (дата звернення: 11.04.2026)

show that special knowledge becomes not just a means of proof but also a separate matter of procedural scrutiny and evaluation.

To illustrate this point, it is worth referring to case files documenting criminal proceedings in which a lawyer was deliberately injured whilst carrying out his professional duties, qualified under Pt. 2 of Art. 398 of the Criminal Code of Ukraine³³. In this case, the defence counsel attempted to cast doubt on certain pieces of evidence, specifically on medical examination findings and circumstances surrounding the victim's injuries. The defendant partly disputed the mechanism of an event, claiming that the victim was the first to resort to physical violence and that he could have sustained some injuries as a result of other circumstances.

The court scrutinized the lawfulness of obtaining a medical examiner's opinion and its use. Specifically, it determined that the forensic medical examination had been carried out by an authorized institution, that an expert had been appointed in accordance with due process of law, that he had been well aware of his rights and duties, and that he had been warned of the criminal liability for providing a knowingly false opinion. Furthermore, the court separately emphasised that there had been no procedural irregularities in the ordering and conduct of the forensic examination that might have led to this evidence being deemed inadmissible or invalid.

In addition, the expert's opinion had not been evaluated independently of other evidence. Its content had been compared

with victims' and witnesses' testimonies, with results of investigative experiments, with the recording of a telephone conversation, and with other case materials. The expert concluded that the victim had bruises and abrasions caused by blunt objects, which could have occurred at a time specified by the victim. These conclusions aligned with the rest of the evidence, confirming their reliability³⁴.

The above example clearly shows that challenging forensic examination findings does not mean that they will be either inadmissible or unreliable. A meticulous scrutiny of all pieces of evidence, along with verifying compliance with procedural rules for the use of special knowledge, is crucial. Therefore, it is obvious that application of special knowledge in criminal proceedings is an inherently fast-paced process: expert research findings may function both as a source of valuable evidentiary information, and a topic for a vigorous procedural debate between parties. For this reason, proper organisation of forensic activities, which largely depends on the investigator and on adherence to procedural safeguards at the stages of approving the ordering of a forensic analysis and preparing for its ordering, takes on extra importance in investigations into criminal offences involving provision of professional legal aid.

A significantly higher number of forensic examinations are ordered in separate criminal proceedings. As part of the pre-trial investigation into a criminal offence under Pt. 2 of Art. 389 of the Criminal Code of Ukraine, a forensic medical

33 Кримінальний кодекс України ... URL: <https://zakon.rada.gov.ua/laws/show/2341-14#Text> (date accessed: 11.04.2026).

34 Вирок Залізнич. райсуду м. Львова від 03.12.2021 р. Справа № 462/1594/21. Провадж. № 1-кп/462/395/21 / ЄДРСП : вебсайт. URL: <https://reyestr.court.gov.ua/Review/101614653> (date accessed: 11.04.2026).

examination of a victim is initially conducted³⁵. The expert's opinion reveals that the injured lawyer sustained bruising injuries on his left forearm and left thigh, which resulted from traumatic contact with a blunt object and fall under the category of minor bodily injury. The forensic expert further determined that the injuries might have been sustained around a time corresponding to circumstances outlined in the criminal case file.

Ordering of an additional forensic examination is of interest from both a scientific and practical perspective. Such research is aimed at both establishing the presence of bodily injuries and analysing the mechanism of their occurrence. Investigative experiment materials concerning a victim and a witness have served as valuable resources during the research. Following the findings of the research, the expert concluded that the discovered injuries could have been sustained specifically under the circumstances revealed during the investigative experiments³⁶.

The given example showcases an essential forensic aspect of special knowledge: currently expert examinations frequently serve the purpose not only of identification, but also of scenario modelling and scrutiny of investigative hypotheses. Special knowledge is, in fact, used to reconstruct the mechanism of a criminal wrongdoing by comparing trace evidence with testimonies of those involved in criminal proceedings.

Also, the findings of the forensic examinations proved to be pivotal due to the defence's position, which denied that the

bodily harm had been inflicted intentionally and claimed that the defendant had acted in self-defence. The findings of the forensic medical examinations (along with the victim's and witnesses' testimonies and the results of investigative experiments), however, allowed the court to scrutinize the defendant's account and dismiss it as groundless. The court explicitly stated that the defendant's testimony had refuted a body of evidence (expert opinion)³⁷.

This case serves as proof that forensic examination is not just a procedural means of utilising special knowledge in investigations into criminal offences involving provision of professional legal aid. It is a valuable resource for verifying evidence, reconstructing the mechanism of events, and evaluating credibility of testimonies of those involved in criminal proceedings. Research results help elucidate cause-and-effect relationships between a person's actions/inaction and resulting consequences, and also provide a sound evidentiary basis.

Analysis of some criminal case files reveals a number of challenges that take place in the ordering and conduct of forensic examinations in cases of subjecting lawyers to unlawful pressure in the course of their professional duties. A distinctive feature in the provided case is that forensic examinations were conducted against the backdrop of an adversarial investigative situation: the parties put forward mutually exclusive scenarios of how the incident unfolded, and some of the witnesses gave conflicting testimonies.

35 Вирок Кіров. райсуду м. Кіровограда від 29.04.2022 р. Справа № 404/6273/20. Провадж. № 1-кп/404/407/20 / ЄДПСУ : вебсайт. URL: <https://reyestr.court.gov.ua/Review/104143084> (date accessed: 11.04.2026) ; Кримінальний кодекс України ... URL: <https://zakon.rada.gov.ua/laws/show/2341-14#Text> (date accessed: 11.04.2026).

36 Вирок Кіров. райсуду ... URL: <https://reyestr.court.gov.ua/Review/104143084> (date accessed: 11.04.2026).

37 Там само.

First, an expert is provided with insufficient initial data. An analysis of the case file shows that certain circumstances relating to the mechanism behind the injuries were not included in the victim's initial statements; the description of the incident was not expanded and amended until the investigative experiment itself. As a result, the expert was forced to independently assess the possibility of injury in accordance with various scenarios of the incident. Some of the injuries reported by the victim found no objective confirmation in the medical records. The expert further specified that some of the injuries reported by the victim were not identified during the forensic examination.

An additional concern (second one) comes to light in this context: discrepancies between the subjective testimonies of those involved and the objective (unbiased) findings of the forensic medical examination. The victim reported a vast number of blows and injuries, whereas some of these were not backed up by the research findings. Such cases always carry an inherent risk of drawing hasty expert opinions based solely on the parties' statements, without proper expert verification of such opinions.

Another acute issue (third one) lies in the limited use of situational and multidisciplinary forensic analyses. In this case, the investigative experiment was performed with the participation of the victim alone, whilst the defendant explicitly stated that he had not been involved in this procedural action and had not been offered the opportunity to present his own narrative of events. This heightens the risk that the expert's establishment of an incomplete database could interfere with integrity of an opinion.

The time element poses a distinct challenge. Some medical records, X-ray exam-

inations and other materials were submitted at a later date, and certain forensic examinations were carried out some time after the incident. The loss of trace evidence, changes in the clinical picture, and complications in establishing the mechanism of injury are deeply correlated with delays in forensic examinations in bodily injury cases.

This case further illustrates that experts fail to utilise digital media in forensic analyses. Despite the availability of CCTV footage and recordings from the victim's mobile phone, such sources were in fact used primarily as stand-alone evidence. At the same time, their potential for conducting multidisciplinary forensic analyses, video analysis, and carrying out scenario-based tasks was not exploited to the full extent.

In view of the foregoing, we deem it expedient to provide the following forensic recommendations when investigating such criminal proceedings:

- 1) Ensure that forensic medical examinations are scheduled at the earliest possible stage, immediately following the discovery of bodily injuries, and that a full set of medical records is attached;
- 2) Prepare an exhaustive list of initial materials to be provided to the expert (interrogation records, results of investigative experiments, video recordings, photographic evidence, medical records, results of scene inspection);
- 3) Conduct investigative experiments involving not only victims, but also suspects, witnesses and other parties to proceedings, in order to evaluate alternative scenarios of an incident;
- 4) Make extensive use of multidisciplinary forensic medical and video

analyses to establish whether the mechanism of bodily injury corresponds to the actual sequence of events, provided video footage is available;

- 5) Avoid posing legal questions to the forensic expert, one must formulate questions strictly within the expert's area of expertise, such as the mechanism behind injuries, their age, manner in which they were caused, and their relevance to specific circumstances;
- 6) Order additional or repeated forensic examinations where there are significant discrepancies between testimonies of those involved and expert opinions;
- 7) Take steps to ensure that proceedings are recorded to the fullest extent possible using technical means, as it is these that often make it possible to ensure the objectivity of the expert's opinion in proceedings involving disputes where the parties have a long-standing hostile relationship.

Therefore, efficiency and expediency of the use of special knowledge depend both on the quality of forensic examinations and the proper organisation of the entire system for collecting initial data. These factors constitute the basis for forensic analyses. From a forensic perspective, it is precisely the proper integration of forensic examinations and evidence-gathering that enables a complete and unbiased reconstruction of an event.

A distinct procedural mechanism for incorporating special knowledge into criminal proceedings is interrogation of an expert during proceedings. Contrary

to a forensic examination, which is aimed at obtaining a new source of evidence through an expert's opinion, interrogation of experts serves a different purpose and unfolds at the stage of judicial proceedings. Its procedural relevance stems from clarifying and substantiating the expert's opinion, detailing the research methods employed, defining the degree of certainty in opinions drawn, and resolving any ambiguities or contradictions that may arise in evaluation of evidence. At this point, the expert does not introduce new evidence, but rather relies on his/her special knowledge to provide explanations on research carried out and results obtained, thereby contributing to a full, comprehensive and objective judicial proceedings.

To illustrate the significance of expert testimony in court for examination of evidence in criminal proceedings involving criminal offences against legal professionals, it would be appropriate to cite case law from a case involving the infliction of bodily harm on a lawyer in the course of his/her professional duties relating to provision of legal aid, classified under Part 2 of Art. 398 of the Criminal Code of Ukraine³⁸.

The forensic medical examiner was interrogated during the trial; he provided details about how the forensic examination was conducted and clarified the research findings. While being interrogated, the expert stated that there were no visible bodily injuries at the time of the victim's initial examination. He also stressed the forensic examination had been carried out on the basis of medical records provided. Forensic experts also noted that, as of the time of the forensic examination, more than fifteen days had passed since

38 Кримінальний кодекс України ... URL: <https://zakon.rada.gov.ua/laws/show/2341-14#Text> (date accessed: 11.04.2026).

the injuries had been sustained, and that they had been caused by a blunt-force object (it could have been a chair); however, he did not rule out the possible use of other objects.

The above-mentioned case points to the fact that interrogation of an expert at the court hearing is not limited to the official confirmation of a previously drawn-up opinion. Its purpose is to elaborate on the mechanism by which bodily injuries were inflicted, to clarify the degree of confidence in the expert's opinion, to shed light on the research methodology, and to address any inconsistencies pertaining to other pieces of evidence in criminal proceedings.

Interrogation of a forensic expert is of heightened significance where forensic analysis is conducted not as a direct examination of a person or object, but as the research which is grounded in secondary sources (medical records, photographic and video material, extracts and other case-file materials). It is precisely in such circumstances that interrogation can serve to establish limits of an expert opinion's reliability, sufficiency of evidence examined, and plausibility of alternative hypotheses on how injuries were sustained.

A review of the example given above demonstrates that, in criminal proceedings involving attacks on lawyers and other providers of professional legal aid, interrogation of a forensic expert carries significant evidential weight. Such interrogation serves as a basis for guaranteeing that special knowledge is duly evaluated and facilitates the scrutiny of evidence in court. Interrogating an expert makes it possible not only to validate the accuracy

of opinions reached in the course of a forensic examination, but also to disclose additional circumstances that are relevant to reconstructing the mechanism of a criminal offence and to properly classifying the act under criminal law. These findings once again prove that special knowledge, provided through conscientious and diligent work of an expert and subsequent interrogation of the expert in court, is a vital element of proof in criminal proceedings of this category³⁹.

Special psychological knowledge assumes a pivotal role in the present-day context. In criminal proceedings of this nature, forms of active obstruction of investigation are widespread and frequently observed: giving misleading testimony, withholding information, manipulative behaviour on the part of those involved in proceedings, and tampering with witnesses/victims. Where this is the case, special psychological knowledge will prove useful when preparing for and conducting interrogations, analysing behaviour of those involved in criminal proceedings, defining a person's psychological features, and determining factors that affect his/her behaviour.

Therefore, use of special knowledge during investigations into criminal offences involving professional legal aid is not complementary, but rather a system-forming element in the organisation of the proof procedure. The value of this expertise is attributable not only to special methods of examining evidence. Such knowledge provides grounds for accurately interpreting information obtained, determining the mechanism of a criminal offence and developing a proper evidentiary basis in criminal proceedings.

39 Вирок Тячів. райсуду Закарпат. обл. від 21.09.2021 р. Справа № 307/2348/19. Провадж. № 1-кп/307/343/20 / ЄДРСР : вебсайт. URL: <https://reyestr.court.gov.ua/Review/99768717> (date accessed: 11.04.2026).

Conclusions

Applying special knowledge in investigations into criminal offences involving provision of professional legal aid is a complex and multifaceted process and constitutes one of the key elements in the organisation of the proof procedure. The specific nature of this category of crimes is due to specific features of the composition of subjects involved in criminal proceedings, the complicated nature of unlawful conduct, and the active obstruction of investigation; this objectively necessitates the engagement of cross-disciplinary experts and the use of various forms of special knowledge.

Among criminal offences committed against legal actors, the most widespread ones are those that involve an attack on life and health, requiring the use of special medical knowledge. As set out in Art. 242 of the Code of Criminal Procedure of Ukraine, it is highly important to perform relevant forensic examinations in order to determine the cause of death and the nature and severity of bodily harm. Hence, use of specialist knowledge gains relevance not only for practical reasons but also as a matter of normatively regulated nature.

Commonly recognized procedural forms for the use of special knowledge in criminal proceedings of the category in question include participation of a forensic expert in investigative (search) activities, conduct of forensic examinations, and interrogation of an expert in court as a separate procedural form. The significance of these procedural forms lies not only in obtaining new evidentiary information, but also in verifying evidence, reconstructing the mechanism of an event, identifying cause-and-effect relationships, and assessing reliability of specific details.

Analysis of case law has revealed a number of challenging aspects associated with the use of special knowledge, such as: insufficient initial data provided to a forensic expert; inconsistencies between testimonies of those involved and research findings; inadequate use of multidisciplinary and situational forensic examinations; delays in ordering forensic examinations; and failure to fully utilise the potential of digital media. In this regard, a system of forensic recommendations has been proposed aimed at improving the organisation of expert activities and enhancing the effectiveness of pre-trial investigations.

Efficient use of special knowledge depends on the quality of individual forensic examinations as well as on the proper organisation of the whole system for collecting, documenting and analysing evidentiary information. It is exactly the incorporation of special knowledge into the broader structure of proving a case that ensures the sufficiency of evidence and enhances the effectiveness of investigations into criminal offences involving provision of professional legal aid.

Застосування спеціальних знань під час розслідування кримінальних правопорушень у сфері надання професійної правничої допомоги

Крістіна Романюскас

Розкрито теоретичні та прикладні аспекти застосування спеціальних знань під час розслідування кримінальних правопорушень у сфері надання професійної правничої допомоги. Метою роботи є з'ясування особливостей використання спеціальних знань під час розслідування зазначеної категорії кримінальних правопорушень, визначення найпоширеніших форм їх застосування, а також розроблення

окремих криміналістичних рекомендацій з підвищення ефективності досудового розслідування. Методологічне підґрунтя дослідження становлять загальнонаукові методи аналізу, синтезу, індукції, дедукції й узагальнення, а також діалектичний, формально-юридичний, системно-структурний, порівняльно-правовий і формально-логічний методи. Проаналізовано й узагальнено наукові позиції щодо застосування спеціальних знань під час розслідування кримінальних правопорушень проти правосуддя та визначено особливості їх реалізації у сфері професійної правничої діяльності. Обґрунтовано, що поширеними процесуальними формами застосування спеціальних знань у таких кримінальних провадженнях є участь спеціаліста під час проведення слідчих (розшукових) дій, проведення судових експертиз і допит експерта в суді. З'ясовано, що найбільш актуальним є застосування спеціальних медичних знань, оскільки посягання на життя та здоров'я правників доволі поширені. Виявлено типові проблеми застосування спеціальних знань. Запропоновано систему криміналістичних рекомендацій, спрямованих на вдосконалення практики призначення та проведення судових експертиз і підвищення ефективності застосування спеціальних знань під час розслідування кримінальних правопорушень у сфері надання професійної правничої допомоги. Зроблено висновок, що застосування спеціальних знань має системоутворювальне значення для процесу доказування та є важливим елементом криміналістичного забезпечення розслідування цієї категорії кримінальних правопорушень.

Ключові слова: кримінальне правопорушення; досудове розслідування; спеціальні знання; судова експертиза; спеціаліст; експерт; висновок спеціаліста; висновок експерта.

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The author declares no conflict of interest.

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Restrictions on Application of Causal Modeling Methods in Forensic Mining and Technical Examination and Ways to their Overcoming

Ivan Puhach ^{*a}, Yurii Cheberiachko ^{**b},
Vadym Kharchenko ^{***c}, Inna Puhach ^{****d}

* Candidate of Technical Sciences, Docent, Dnipropetrovsk scientific research forensic center of Ukraine, Dnipro, Ukraine, ORCID: <http://orcid.org/0000-0002-9836-7753>, e-mail: pugachivan@ukr.net

** Doctor of Technical Sciences, Professor, Dnipro University of technology, Dnipro, Ukraine, ORCID: <http://orcid.org/0000-0001-7307-1553>, e-mail: cheberiachko.yu.i@nmu.one

*** Forensic expert, not an employee of a state specialized institution, Kamianske, Ukraine, ORCID: <http://orcid.org/0009-0003-0345-9116>, e-mail: vadimexpert36@gmail.com

**** Forensic expert, not an employee of a state specialized institution, Dnipro, Ukraine, ORCID: <http://orcid.org/0009-0008-0302-9198>, e-mail: innagalaxy1970@gmail.com

^a Writing – original draft, project administration.

^b Writing – original draft, methodology.

^c Writing – original draft, conceptualization.

^d Writing – original draft, formal analysis.

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Scientific issue of methodological gap between modern causal models of analysis of complex accidents and the procedural requirements of forensic mining and technical examination, within the limits of which forensic expert is obliged to rely only on the materials provided, his competence and substantiation procedures that are subject to verification is outlined. The research purpose is to substantiate the limits of application of modern foreign models of causal analysis in national forensic mining and technical examination and to develop phase-modular decomposition as a compensatory procedural and methodological mechanism for the reconstruction of complex

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accidents. The research methods include theoretical analysis of Ukrainian and foreign sources, normative and procedural interpretation of the role and boundaries of the competence of a forensic expert, logical and structural modeling of causal relationships, phase-modular decomposition of an accident and practical testing of the approach on two impersonal cases from real expert practice. It is shown that STAMP/CAST, SCM, causal graphs, counterfactual and other system models have significant heuristic value, however, their direct transfer to the field of forensic research is limited by the retrospective nature of forensic mining expertise, the scarcity of criminal proceedings materials, the requirements for the reproducibility of the conclusion and the prohibition to compensate for evidentiary gaps with probable assumptions. It is proven that phase-modular decomposition makes it possible to localize causality in technically homogeneous fragments of the event, establish an evidentiary basis for each module, procedurally correctly respond to the lack of initial data and form a logical, transparent expert conclusion. The suitability of the approach for analyzing events in open-pit and underground mining operations is confirmed by practical testing.

Keywords: forensic mining and technical examination; causal relationship; causal analysis; phase-module decomposition; mining accident; expert conclusion; criminal proceedings.

Research Problem Formulation

Forensic mining and technical examination (hereinafter referred to as *FMTE*) occupies a special place in the system of engineering and technical forensic examinations, since it combines a high level of industry specialization with increased requirements for the evidentiary strength of forensic expert conclusion. Its subject area encompasses events occurring in complex mining and underground environments where technical, organizational and natural factors form a multilevel causal chain. In such cases, the court and the pre-trial investigation body do not need

a general description of the dangerous situation, but a clear written expert opinion on the technical causal relationship between specific actions or omissions and their consequences. This determines complexity and practical significance of expert research.

Theoretical aspect of this problem lies in the lack of a properly adapted model for explaining complex accident events for the needs of FMTE. In recent years, systemic and causal approaches to incident analysis have been actively developing in world science, in particular *Systems-Theoretic Accident Model and Processes (STAMP)* ¹, *Causal Analysis based on STAMP (CAST)*,

- 1 Zhang Y., Dong Ch., Guo W., et al. Systems theoretic accident model and process (STAMP): A literature review. *Safety Science*. 2022. Vol. 152. DOI: 10.1016/j.ssci.2021.105596 (date accessed: 20.03.2026) ; Hulme A., Stanton N. A., Walker G. H., et al. Are accident analysis methods fit for purpose? Testing the criterion-referenced concurrent validity of AcciMap, STAMP-CAST and AcciNet. *Ibid*. 2021. Vol. 144. DOI: 10.1016/j.ssci.2021.105454 (date accessed: 20.03.2026).

causal graphs, counterfactual models and structural causal models (SCM) ². These approaches have demonstrated high heuristic value in the study of complex socio-technical systems and process safety analysis, civil and marine engineering and assessment of system and accident stability. However, their direct borrowing for the needs of FMTE is problematic, since they were created mainly for safety engineering, risk management and preventive analysis, while forensic examination is retrospective in nature, carried out in accordance with requirements of criminal procedural law and ends with a written conclusion with a clearly defined subject of evidence. Therefore, there is a theoretical discrepancy between modern models of causal analysis of complex events and the real working conditions of a forensic mining expert.

Practical aspect of the issue is even more acute, since forensic expert does not carry out free research modeling, but a procedurally regulated expert study. He does not have the right to independently construct missing factual data, compensate for evidentiary gaps with probabilistic assumptions, or rely on opaque analytical procedures that cannot be properly verified within the limits of the trial. The expert's tools should correspond to the materials of the criminal proceedings, competence limits and requirements for conclusion content. In case of insufficiency of initial data, forensic expert submits a request for the provision of additional materials and in their lack, limits the conclusion to the actually established circumstances or formalizes the impossibility

of resolving the relevant issue. That is why the direct borrowing of models that involve the use of probabilistic reconstructions, latent variables, or complex computing equipment to fill the deficit of evidentiary information is unacceptable for the FMTE. This is one of the main scientific and practical contradictions: the need for modern causal thinking is obvious, but the form of its implementation must remain procedurally compatible and methodologically suitable for practical application in real expert practice.

Connection of outlined issue with scientific and practical interests lies in the need to create such a model of expert analysis that would ensure adequate research of complex multifactorial mining accidents without taking forensic expert beyond the limits of his procedural role and approved methodological tools. Therefore, it is not a question of replacing national expert methods with foreign systemic models, but of developing an approach that would allow applying cognitive potential of the modern theory of causality in a form compatible with the practice of forensic examination. Such a statement of the question has scientific and applied significance, since it involves rethinking the limits of adapting modern causal concepts to forensic expert knowledge and creates a basis for increasing the accuracy, consistency and evidentiary value of conclusions in cases of accidents in the mining industry.

Scientific and practical task to which this study is directly related is to form the theoretical basis of a new FMTE methods capable of providing a structured ana-

2 Bongers S., Forré P., Peters J., Mooij J. M. Foundations of structural causal models with cycles and latent variables. *The Annals of Statistics*. 2021. Vol. 49. Is. 5. Pp. 2885–2915. DOI: [10.1214/21-AOS2064](https://doi.org/10.1214/21-AOS2064) (date accessed: 20.03.2026) ; Naser M. Z. Causality and causal inference for engineers: Beyond correlation, regression, prediction and artificial intelligence. *WIREs Data Mining and Knowledge Discovery*. 2024. Vol. 14. Is. 4. DOI: [10.1002/widm.1533](https://doi.org/10.1002/widm.1533) (date accessed: 20.03.2026).

lysis of causal relationships in complex emergency situations. Such a methodology should combine theoretical principles of research, algorithms of expert actions, tools for analyzing causal relationships, and practical approaches to solving expert tasks. Its main purpose is to increase the objectivity and reliability of expert conclusions and unify algorithms for investigating complex emergency events in mining. The article is aimed at developing a conceptual approach that can become the basis of the future official FMTE methods.

Research relevance is due to growing complexity of emergency events in the mining industry and the lack of a holistic model that would combine modern causal thinking with requirements of the criminal procedure, expert methods and the limits of competence of forensic expert. Under such conditions, judicial practice requires a logically transparent expert opinion suitable for proper procedural evaluation. It is this methodological gap that is a scientific problem consisting in inconsistency of modern approaches to the cause-and-effect analysis of complex man-made events with the capabilities of current methodological toolkit for the research of multiple accidents within criminal proceedings.

Analysis of Essential Researches and Publications

The issues to which this article is devoted are at the intersection of three research areas: the general theory of forensic examination, the criminal law and crimi-

nal procedure doctrine of causality, and modern interdisciplinary approaches to the analysis of complex accidents in socio-technical systems. That is why it is advisable to build a review of sources as a consistent identification of what has already been done in each of these areas and which link is missing for the needs of the FMTE. The national literature has sufficiently thoroughly developed general theoretical aspects of the subject of forensic examination, the status of the expert's conclusion and its evaluation in judicial proceedings. In particular, M. Shcherbakovskyi and A. Protsenko highlight the problems of conducting examinations in legal proceedings ³ and A. Muzyka and S. Bahirov: theoretical difficulties of determining causality in criminal law ⁴. At the same time, the analysis of national publications indicates that they are focused mainly on general theoretical issues of forensic examination, criminal law aspects of causality or procedural issues of the evidentiary status of forensic expert conclusion. To date, no specialized methodological approach has been formed that would combine the theory of causality with the practice of the State Committee for the Protection of Natural Resources and Energy in cases of multi-factorial accidents. Thus, Ukrainian scientific thought has already developed appropriate provisions on the essence of causality, the place of an expert's conclusion in evidence, and general requirements for expert research, but has not yet proposed a full-fledged algorithm for establishing a technical causal relationship in complex mining incidents

3 Щербаківський М. Г., Проценко А. М. Експертизи в судовому провадженні : монографія. Харків, 2024. 280 с. URI: <https://dspace.univd.edu.ua/handle/123456789/24257> (date accessed: 20.03.2026).

4 Музика А. А., Багіров С. Р. Каузальність і кримінальний закон в аспекті правового прагматизму : монографія. Київ, 2023. 143 с. URI: <https://ekmair.ukma.edu.ua/handle/123456789/25290> (date accessed: 20.03.2026).

under procedural restrictions, incomplete materials, and complex interaction of causally significant factors. This aspect is a problematic field of research.

Foreign scientific literature is dominated by the intensive development of systems models of accident analysis and modern causal thinking in engineering. Separate works are devoted to empirical verification of the validity and reliability of such approaches. In particular, A. Hulme and co-authors showed that *AcciMap*, *STAMP-CAST* and *AcciNet* demonstrate only moderate validity indicators, and their ability to adequately reproduce the causal structure of accident events remains a subject of discussion ⁵. In further work by these same authors, focused on assessing reliability, it was determined that all three approaches are characterized by weak or moderate positive consistency, and *STAMP-CAST* is distinguished by higher inter-expert reliability ⁶. The study of O. F. Hamim and co-authors demonstrated the advantages of the combined use of systems methods for revealing multi-level causality ⁷. Therefore, the significance of these works lies not only in the develop-

ment of new analysis schemes, but also in empirical testing of their effectiveness and limits of application.

Second strong layer of literature is related to the development of the *STAMP* paradigm itself and its industry-specific modifications. In a literature review by A. Zhang et al., the evolution of *STAMP*, *STPA*, and *CAST* is systematized and it is shown that this group of approaches is increasingly integrated with the analysis of human and organizational factors, as well as with quantitative assessment procedures ⁸. B. O. Ceylan et al. demonstrate which development of the *STAMP* approach in the direction of quantitative analysis of complex engineering systems, reflects the general trend towards formalization of causal interactions in modern accident research ⁹. A similar trend is represented by H. Ebrahimi and co-authors, who combine *STAMP* with the fuzzy *DEMATEL* method to construct a quantitative map of causal influences, and H. Sun, H. Wang, M. Yang and G. Reniers a develop a *STAMP*-oriented approach to quantitatively assessing the stability of chemical process systems ¹⁰. Together, these works

- 5 Hulme A., Stanton N. A., Walker G. H., et al. Are accident analysis methods fit for purpose? DOI: [10.1016/j.ssci.2021.105454](https://doi.org/10.1016/j.ssci.2021.105454) (date accessed: 20.03.2026).
- 6 Ibidem. Testing the reliability of accident analysis methods: A comparison of *AcciMap*, *STAMP-CAST* and *AcciNet*. *Ergonomics*. 2024. Vol. 67. Is. 5. Pp. 695–715. DOI: [10.1080/00140139.2023.2240048](https://doi.org/10.1080/00140139.2023.2240048) (date accessed: 20.03.2026).
- 7 Hamim O. F., Hasanat-E-Rabbi Sh., Debnath M., et al. Taking a mixed-methods approach to collision investigation: *AcciMap*, *STAMP-CAST* and *PCM*. *Applied Ergonomics*. 2022. Apr: 100:103650. DOI: [10.1016/j.apergo.2021.103650](https://doi.org/10.1016/j.apergo.2021.103650) (date accessed: 20.03.2026).
- 8 Zhang Y., Dong C., Guo W., et al. Op. cit. DOI: [10.1016/j.ssci.2021.105596](https://doi.org/10.1016/j.ssci.2021.105596) (date accessed: 20.03.2026).
- 9 Ceylan B. O., Karatuğ Ç., Akyuz E., et al. A system theory (*STAMP*) based quantitative accident analysis model for complex engineering systems. *Safety Science*. 2023. Vol. 166. DOI: [10.1016/j.ssci.2023.106232](https://doi.org/10.1016/j.ssci.2023.106232) (date accessed: 20.03.2026).
- 10 Ebrahimi H., Zarei E., Ansari M., et al. A system theory based accident analysis model: *STAMP*-fuzzy *DEMATEL*. *Safety Science*. 2024. Vol. 173. DOI: [10.1016/j.ssci.2024.106445](https://doi.org/10.1016/j.ssci.2024.106445) (date accessed: 20.03.2026) ; Sun H., Wang H., Yang M., Reniers G. A *STAMP*-based approach to quantitative resilience assessment of chemical process systems. *Reliability Engineering & System Safety*. 2022. Vol. 222. DOI: [10.1016/j.ress.2022.108397](https://doi.org/10.1016/j.ress.2022.108397) (date accessed: 20.03.2026).

indicate that the international school of systems accident analysis is consistently moving in the direction of increasingly deeper formalization of causal interactions. For safety engineering, this is a natural direction of development, but it is here that forensic expertise faces a fundamental question about the limits of adapting such models to the procedural form of an expert's conclusion.

Third block of foreign works forms the theoretical basis of modern causal thinking in engineering. In the fundamental work of S. Bongers and co-authors, it is shown that in the case of cyclic dependencies and latent variables, many characteristics of classical acyclic causal models are not preserved automatically and require special solution conditions¹¹. J. P. Long and co-authors investigate the assessment of causal effects under conditions of latent confounding using instrumental variables and environment invariance¹². M. Z. Naser in the article *Causality and causal inference for engineers: Beyond correlation, regression, prediction and artificial intelligence* justifies the need for engineering thinking to go beyond correlation, regression, prediction and artificial intelligence towards more rigorous cau-

sal analysis; co-authored with A. Teymori Gharah Tapeh, he demonstrates the applicability of causal discovery, counterfactual analysis, and causal machine learning to civil engineering cases¹³. A concise but important overview of current trends in causal analysis is provided by N. Mitra and co-authors, while M. Soohoo and O. A. Arah show how time-varying uncontrolled confounding distorts the assessment of causal effects¹⁴. All of these works are of fundamental importance for the formation of the modern language of causal analysis, but at the same time they reveal the limits of their direct borrowing by forensics: most of them are designed to use statistical, computational, experimental, or quasi-experimental procedures that are not typical tools of a mining expert.

A separate group consists of research papers where system and causal approaches are adapted to specific industries and types of incidents. For example, J. M. Fagundes and co-authors combine CAST with TRACer to analyze human errors in an industrial accident; Sh. Zhong, J. Du and X. Jiang apply STAMP/STPA to analyze a safety system in an energy laboratory; A. J. Nakhal Akel and co-authors

- 11 Bongers S., Forré P., Peters J., Mooij J. M. Op. cit. DOI: [10.1214/21-AOS2064](https://doi.org/10.1214/21-AOS2064) (date accessed: 20.03.2026).
- 12 Long J. P., Zhu H., Do K.-A., Ha M. J. Estimating causal effects with hidden confounding using instrumental variables and environments. *Electronic Journal of Statistics*. 2023. Vol. 17. Is. 2. Pp. 2849–2879. DOI: [10.1214/23-EJS2160](https://doi.org/10.1214/23-EJS2160) (date accessed: 20.03.2026).
- 13 Naser M. Z. Causality and causal inference for engineers ... DOI: [10.1002/widm.1533](https://doi.org/10.1002/widm.1533) (date accessed: 20.03.2026) ; Naser M. Z., Teymori Gharah Tapeh A. Causality, causal discovery, causal inference and counterfactuals in Civil Engineering: Causal machine learning and case studies for knowledge discovery. *Computers and Concrete*. 2023. Vol. 31. No. 4. Pp. 277–292. DOI: [10.12989/cac.2023.31.4.277](https://doi.org/10.12989/cac.2023.31.4.277) (date accessed: 20.03.2026).
- 14 Mitra N., Roy J., Small D. The Future of Causal Inference. *American Journal of Epidemiology*. 2022. Art. 191(10):1671–1676. DOI: [10.1093/aje/kwac108](https://doi.org/10.1093/aje/kwac108) (date accessed: 20.03.2026) ; Soohoo M., Arah O. A. Investigation of the structure and magnitude of time-varying uncontrolled confounding in simulated cohort data analyzed using g-computation. *International Journal of Epidemiology*. 2023. Art. 52(6):1907–1913. DOI: [10.1093/ije/dyad150](https://doi.org/10.1093/ije/dyad150) (date accessed: 20.03.2026).

build a STAMP-oriented model for safety analysis in industrial facilities ¹⁵. At the same time, F. Zhang and colleagues integrate STPA with multi-level flow modeling to detect cyber-physical hazards in the process industry, and J. Ge and co-authors develop a systems-theoretical concept of accident causality and the SAAMWS method for complex production systems ¹⁶. Of particular importance for the topic of this article is the work of J. Dong and co-authors, in which STAMP is directly applied to the analysis of the mechanism of accidents in coal mines ¹⁷. This industry layer is organically supplemented by a review study by L. Cruz-Ausejo and co-authors, who summarize the results of research on occupational injuries among mining workers over the past thirteen years and outline typical organizational, production and individual factors that are also relevant for expert reconstruction of mining events ¹⁸. The above works allow us to draw two conclusions: first, systemic causal thinking has long gone beyond

the boundaries of abstract theory and is actively used in applied sectors; second, even in industries closest to the topic of this article, it is mainly focused on safety management, preventive diagnostics or system improvement, and not on the formation of a written expert opinion that is procedurally suitable for a court.

Thus, analysis of recent research and publications allows us to identify several stable trends. Ukrainian science has convincingly developed the general issues of the subject of forensic examination, evidentiary value of forensic expert conclusion and criminal-legal nature of the causal relationship, but has not proposed a full-fledged industry model for the study of multifactorial mining accidents. Foreign science, on the contrary, has formed a developed arsenal of systemic and causal models of complex incident analysis, but these models were created mainly for safety engineering, systemic risk analysis, system stability assessment and post-accident organizational train-

- 15 Fagundes J. M., Gaya de Figueiredo M. A., Alberton A. L., et al. Analysis of accidents through combination of CAST and TRACER techniques: A case study. *Journal of Loss Prevention in the Process Industries*. 2022. Vol. 74. Art. 104639. DOI: [10.1016/j.jlp.2021.104639](https://doi.org/10.1016/j.jlp.2021.104639) (date accessed: 20.03.2026) ; Zhong Sh., Du J., Jiang X. Analysis of Energy Laboratory Safety Management in China Based on the System-Theoretic Accident Model and Processes/System Theoretic Process Analysis STAMP/STPA Model. *Sustainability*. 2023. Vol. 15. No. 15. DOI: [10.3390/su151511505](https://doi.org/10.3390/su151511505) (date accessed: 20.03.2026) ; Nakhal Akel A. J., Patriarca R., Tronci M., et al. A STAMP Model for Safety Analysis in Industrial Plants. *Chemical Engineering Transactions*. 2022. Vol. 91. Pp. 403–408. DOI: [10.3303/CET2291068](https://doi.org/10.3303/CET2291068) (date accessed: 20.03.2026).
- 16 Zhang F., Chen L., Zhang B., et al. An integrated system theoretic process analysis with multilevel flow modeling for the identification of cyber-physical hazards in a process industry. *Process Safety Progress*. 2024. Vol. 43. Is. 3. Pp. 587–596. DOI: [10.1002/prs.12604](https://doi.org/10.1002/prs.12604) (date accessed: 20.03.2026) ; Ge J., Zhang Yu., Xu K., et al. A new accident causation theory based on systems thinking and its systemic accident analysis method of work systems. *Process Safety and Environmental Protection*. 2022. Vol. 158. Pp. 644–660. DOI: [10.1016/j.psep.2021.12.036](https://doi.org/10.1016/j.psep.2021.12.036) (date accessed: 20.03.2026).
- 17 Dong J., Gao Z., Liu T., et al. Analysis of the Causative Mechanism of Coal Mine Safety Accidents Based on STAMP Model. *Journal of Mining Engineering and Safety Technology*. 2022. Vol. 1. Is. 1. DOI: [10.23977/jmest.2022.020101](https://doi.org/10.23977/jmest.2022.020101) (date accessed: 20.03.2026).
- 18 Cruz-Ausejo L., Cama-Ttito N. A., Solano P. F., et al. Occupational accidents in mining workers: Scoping review of studies published in the last 13 years. *BMJ Open*. 2024. Vol. 14. Is. 10. DOI: [10.1136/bmjopen-2023-080572](https://doi.org/10.1136/bmjopen-2023-080572) (date accessed: 20.03.2026).

ing, and not for procedurally regulated forensic research. Thus, there is a methodological discrepancy between the Ukrainian procedural-expert tradition and the international systemic-causal school. Its overcoming does not consist in mechanically transferring *STAMP/CAST*, *SCM* or *DAG* into the practice of FMTE, but in developing an approach that would allow applying their logical potential in a procedurally compatible form. This is precisely where the need for phase-modular decomposition arises as the theoretical basis of the new FMTE methods.

Article Purpose

Theoretically substantiate the limits of application of modern foreign models of causal analysis in the national FMTE and develop a compensatory procedural and methodological mechanism: phase-modular decomposition of a complex emergency event.

Systematic and causal approaches formed within the framework of security engineering can be applied in FMTE only after their logical adaptation to the retrospective nature of forensic research, requirements of criminal procedural legislation of Ukraine, limits of the competence of a forensic expert and mandatory reliance on case files of criminal proceedings and current methods. Unlike previous researches, the article focuses not on general characteristics of the causal relationship or the description of system models as such, but on the formation of a specialized forensic approach, within which the concepts of procedurally compatible causal analysis, phase-modular decomposition and event module as the basic elements of the FMTE methods are defined.

Research Methods

For achieving this goal and solve the outlined scientific and practical problems, a set of general scientific and special methods corresponding to the research topic was applied. The system-structural approach contributed to critical analysis of modern causality models and identification of limits of their cognitive and practical applicability in forensic mining expertise. The method of normative and procedural analysis helped to determine the limits of competence of forensic expert and the requirements for the evidentiary basis and the form of forensic expert conclusion in accordance with the current criminal procedural legislation of Ukraine. The basis for development of the phase-modular decomposition algorithm were the methods of logical modeling and deductive reasoning that made possible to structure multifactorial accidents. For verify practical applicability and procedural compatibility of the proposed approach, method of approbation was applied on the materials of two impersonal expert proceedings from real practice: regarding a production event in open-pit mining and a group incident in underground conditions. These methods provided a comprehensive justification for the proposed theoretical and methodological tools.

Main Content Presentation

The approach proposed in the article is not limited to either criticism of modern causal models or their review comparison. Its content is to solve a specific scientific and practical task: how to preserve the cognitive value of modern causal thinking, without going beyond forensic expert competence, case files of criminal proceedings and procedural requirements for the form

and content of the conclusion. At the center of the research is not mathematical or programmatic aspect of modern causality models, but possibility of transforming their logical core into a tool for retrospective reconstruction of the event, suitable for forensic practice.

Within the framework of the proposed approach, several basic concepts need to be clarified. *Procedurally compatible causal analysis* in this article is a way of reconstructing an event that is based only on the materials of criminal proceedings, does not replace evidence gaps with probabilistic constructs and ends with a written expert opinion suitable for procedural evaluation. *Phase-modular decomposition* is a way of dividing a complex emergency event into fragments that are relatively isolated in time, space and mechanism of the event development. *Event module*: a causally completed node of the emergency process, within which a local technical causal relationship can be determined without loss of procedural certainty.

Practical suitability of the outlined provisions depends on their compatibility with the real conditions of forensic research. Thereby, further it is necessary to determine the procedural and methodological limitations of the direct transfer of modern causal models to the FMTE field.

Causal modeling in modern scientific discourse forms a language for describing causality through causal schemes, counterfactual constructs, and rules for distinguishing causality from ordinary association. However, FMTE belongs to a different class of tasks than engineering investigations of safety profile: it is carried out within the framework of a procedurally regulated research, limited to the case

files of criminal proceedings and directed to retrospective establishment of a technical cause and technical causal relationship between actions or inaction and their consequences.

Procedural form of an expert opinion is one of the primary barriers to the direct adoption of modern causal models in Criminal Procedural Code of Ukraine, forensic expert conclusion should include, in particular, description of the obtained content, detailed description of performed research, applied methods, obtained results and their expert assessment, as well as substantiated answers to each asked question¹⁹. Under such conditions, the method should be not only scientifically sound but procedurally reproducible: it should be possible to trace which materials were used, what investigative actions were performed, what results were obtained, and how the expert evaluated them. This raises the bar for argumentation and limits the inclusion in the conclusion of constructions not transparently linked to the materials of the criminal proceedings.

Second barrier is associated with the strict binding of forensic research to the case files of criminal proceedings and the procedural algorithm of actions in case of their insufficiency. According to Part 3 of Article 69 of the Criminal Procedure Code of Ukraine, the expert has the right to file a petition for the provision of additional materials and samples, as well as for the performance of other actions related to the conduct of the examination²⁰. In the event of a lack of critically important information, appropriate response is not to compensate for evidentiary gaps with assumptions, but to apply the procedural mechanism of requiring additional materials. If they are not

19 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: 20.03.2026).

20 Там само.

provided, forensic expert limits the conclusion to the actually established circumstances or notes impossibility of resolving the relevant issue within the limits of provided evidentiary base.

Third barrier is related to functional purpose incompatibility of some foreign system approaches with FMTE tasks. In foreign scientific literature, *STAMP/CAST*, *AcciMap*, *AcciNet* and their modifications are positioned as system methods for analyzing accidents in complex socio-technical systems; a significant part of their applied purpose is related to the development of safety measures, the detection of control failures at different levels of the system and, in a broader context, support of safety management²¹. For forensic examination, such a formulation is methodologically useful only partially: it contributes to structuring of multi-level causes and interactions, but goes beyond the subject of judicial review where the retrospective determination of the technical cause is replaced by the logic of system improvement or the construction of a causal picture focused on management practices beyond proof limits. As a result, direct borrowing of system models without special adaptation creates discrepancies between the subject of expert research and the analytical horizon of the model itself: instead of an answer to the question of the initiator of forensic examination, multi-level description of factors arises that can be meaningful, but proce-

durally redundant or insufficiently correlated with asked questions.

Fourth barrier is related to the requirement of reliability and reproducibility of the description of causal factors in an environment where forensic expert conclusion has procedural meaning. Even in the field of safety sciences, the need for empirical verification of the characteristics of accident analysis methods is emphasized. In particular, it is determined that systemic methods of accident analysis require special verification of validity and reliability; in some comparative researches, results have been obtained that indicate limited validity of such methods compared to the reference expert analysis, as well as the need for further studies of their reliability²². For forensic science, this circumstance is of particular importance, since reproducibility and internal consistency of the conclusion are prerequisites for trust in it and its resistance to professional criticism.

Fifth barrier relates to the methodological complexity of modern framework of causality that is not a flaw in itself but requires careful consideration during application. Theory of structural causal models is evolving to account for cyclical interactions and latent variables, which makes causal structures more realistic for complex technical systems, but at the same time increases the demands on conditions of correctness, initial assumptions, and interpretation of results²³. For

21 Zhang Y., Dong C., Guo W., et al. Op. cit. DOI: [10.1016/j.ssci.2021.105596](https://doi.org/10.1016/j.ssci.2021.105596) (date accessed: 20.03.2026) ; Hamim O. F., Hasanat-E-Rabbi Sh., Debnath M., et al. Op. cit. DOI: [10.1016/j.apergo.2021.10365](https://doi.org/10.1016/j.apergo.2021.10365) (date accessed: 20.03.2026).

22 Hulme A., Stanton N. A., Walker G. H., et al. Are accident analysis methods fit for purpose? ... DOI: [10.1016/j.ssci.2021.105454](https://doi.org/10.1016/j.ssci.2021.105454) (date accessed: 20.03.2026) ; Ibidem. Testing the reliability of accident analysis methods ... DOI: [10.1080/00140139.2023.2240048](https://doi.org/10.1080/00140139.2023.2240048) (date accessed: 20.03.2026).

23 Bongers S., Forré P., Peters J., Mooij J. M. Op. cit. DOI: [10.1214/21-AOS2064](https://doi.org/10.1214/21-AOS2064) (date accessed: 20.03.2026).

FMTE, this means that directly transferring the entire theoretical framework into expert practice is not only impractical but also potentially risky, since, given insufficient source materials, it can create the illusion of analytical depth or replace evidential logic with procedurally unsound constructs.

Sixth barrier relates to the scope of a forensic expert's competence and the permissible limits of expert testimony. The expert operates within the scope of their specialized knowledge and the materials provided, which determines the permissible level of generalization. Pursuant to Article 102 of the Criminal Procedural Code of Ukraine, forensic expert conclusion must contain substantiated answers to the questions posed, and Article 69 of Criminal Procedural Code of Ukraine provides for the right to file a motion requesting additional materials²⁴. Thereby in the event of a shortage of materials, it is procedurally correct to file a motion for additional materials, to limit the opinion to the facts actually established, or to report the impossibility of providing an opinion. This approach ensures compliance with the limits of forensic expert's competence and preserves the evidentiary value of the substantiated parts of the conclusion.

Thus, procedural barriers do not deny the value of modern theories of causality. They only determine that FMTE requires a compensatory mechanism that, firstly, does not go beyond the special knowledge and materials of criminal proceedings; secondly, ensures the reproducibility and transparency of expert logic; thirdly, turns a complex multivariate event into a sequence of technical causal fragments

available for procedural verification; and, finally, makes possible to form reasonable answers or motivated limits of the conclusion in the event of a data shortage. It is the combination of these requirements that necessitates a procedurally compatible approach to causal analysis.

Outlined procedural and methodological limitations do not deny cognitive value of modern causal models, but indicate the need for their special adaptation to FMTE needs. Thereby the next step is to substantiate such procedurally compatible tools that would make it possible to apply the logic of multilevel causal analysis without going beyond the limits of special knowledge, materials of criminal proceedings and the subject of evidence. Within the framework of this article, such a toolkit is the phase-modular decomposition of a complex emergency event.

Phase-modular decomposition is proposed as an applied procedural and methodological toolkit that makes it possible to adapt the logical framework of systems-based approaches to the requirements of judicial proof without exceeding the scope of competence and without substituting a retrospective determination of the technical cause with a description of risk profiles or organizational improvements. Underlying idea is that a multifactorial incident in the mining industry should be viewed not as a single event, but as a set of technically diverse episodes, each of which has its own causal mechanism, temporal boundaries, spatial localization, and documentary record. Systematic methods of accident analysis in global practice emphasize the advantages of a multi-level examination of causes and the combination of analytical

24 Кримінальний процесуальний кодекс України ... URL: <https://zakon.rada.gov.ua/laws/show/4651-17#Text> (date accessed: 20.03.2026).

boundaries²⁵; however, in FMTE such a multi-level approach should be adapted to a form suitable for providing substantiated answers to the questions posed in accordance with Article 102 of Criminal Procedural Code of Ukraine²⁶.

In procedural terms, a phase is a time interval in development of an event during which technical mechanism remains relatively consistent (specifically, the transition from normal operation to an emergency state, the formation of a hazardous condition, its escalation, and the occurrence of the consequence). A module is likewise a minimally sufficient technical fragment of an event that can be isolated in time and space, has a defined factual basis in the materials of criminal proceeding and allows for the application of current and established expert approaches to identify technical cause and causal relationship within the scope of a specific issue. This structure does not contradict systems thinking; on the contrary, it creates a disciplined method of controlled simplification that reduces the risk of mixing causes at different levels: technical, organizational, and human one into a single unclear causal chain.

Phase-modular decomposition performs at least three interrelated functions in FMTE. The first of them is the procedurally correct localization of causality. In complex incidents, causal relationships often become networked. At the same time, questions posed to forensic expert require a specific answer regarding the technical cause and the causal relation-

ship between actions (inaction) and consequences. Phase-modular decomposition makes possible to transform such a network configuration into a sequence of modules, each of which can be investigated as a linear causal fragment while maintaining the integration logic of the event.

Second function is to respond to a lack of materials in a procedurally correct manner. If critically necessary documents or information are missing within a particular module, the forensic expert has the right to file a motion requesting additional materials in accordance with Article 69 of the Criminal Procedural Code of Ukraine²⁷. If such a motion is denied or the necessary materials are missing, decomposition algorithm allows the conclusion to be limited to the scope of the relevant module with a reasoned explanation of the grounds, without undermining the evidentiary value of other modules where the factual basis is sufficient. This strategy is consistent with the requirements for the content of an expert opinion, particularly regarding the reflection of the materials used, the methods applied, obtained results and their evaluation and upholds the principle of the reasonableness of responses, as enshrined in Article 102 of Criminal Procedural Code of Ukraine²⁸.

Third function is to unify and ensure reproducibility of forensic research. Phase-modular decomposition creates a standardized analytical framework that can be described as a sequence of operations relatively independent of the expert's individual style. The issue of reproducibility

25 Zhang Y., Dong C., Guo W., et al. Op. cit. DOI: [10.1016/j.ssci.2021.105596](https://doi.org/10.1016/j.ssci.2021.105596) (date accessed: 20.03.2026) ; Hamim O. F., Hasanat-E-Rabbi Sh., Debnath M., et al. Op. cit. DOI: [10.1016/j.apergo.2021.103650](https://doi.org/10.1016/j.apergo.2021.103650) (date accessed: 20.03.2026).

26 Кримінальний процесуальний кодекс України URL: <https://zakon.rada.gov.ua/laws/show/4651-17#Text> (date accessed: 20.03.2026).

27 Там само.

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is of fundamental importance, given that even in security sciences, the validity and reliability of systematic methods for analyzing accidents require separate empirical verification²⁹. For FMTE, unification does not imply mechanical rigidity; it implies availability of procedure that ensures a repeatable and logically transparent path from the materials of the criminal proceedings, through forensic expert's investigative actions, to the result obtained and its evaluation by forensic expert.

Procedurally, phase-modular decomposition can be presented as algorithm for retrospective reconstruction of an emergency event, covering several consecutive stages.

At the first stage, formal procedural boundary of the research is formed: the questions asked by the initiator of the examination are recorded, their technical content is established without expanding research topic and the range of provided objects and materials is determined that can be used as the initial basis.

At the second stage, initial reconstruction of the event chronology is carried out: sequence of events and states is structured with reference to the relevant sources (information available in the case files of criminal proceedings is arranged); no new data is created.

At the third stage, according to the chronology, development phases of the event are created, namely: time intervals within which comparable constancy of technical mechanism is maintained (for example, normal mode, formation of a dangerous state, escalation and im-

plementation of the consequence). Boundaries of the phases need to be argued by references to the materials of the proceedings and technical signs of a change in the event development mechanism.

In the fourth stage, modules are formed as technically homogeneous fragments of the event within each phase. Such modules can be, for example, fragments related to the state of attachment, the mode of work or control and supervision in a specific time interval. Each module should be described by its temporal and spatial boundaries, list of necessary materials of criminal proceedings, as well as the expected result of the research; definition of a technical cause, causal relationship or technical feasibility or impossibility of certain actions in a particular situation within the framework of the asked question.

At the fifth stage, sufficiency of materials for the research on each module is checked. If the available factual basis is not sufficient for a reasoned response, the examiner shall submit a request for additional materials.

In the sixth stage, within each module, established and certified expert methodologies suitable for performing the relevant task are applied. The investigation result should remain procedurally admissible, that is, it must contain a description of the materials used, the actions taken, and the methods applied, as well as the results obtained, their evaluation, and a reasoned answer to the question posed, in accordance with Article 102 of Criminal Procedural Code of Ukraine³⁰. Within the

29 Hulme A., Stanton N. A., Walker G. H., et al. Are accident analysis methods fit for purpose? DOI: [10.1016/j.ssci.2021.105454](https://doi.org/10.1016/j.ssci.2021.105454) (date accessed: 20.03.2026) ; Ibidem. Testing the reliability of accident analysis methods DOI: [10.1080/00140139.2023.2240048](https://doi.org/10.1080/00140139.2023.2240048) (date accessed: 20.03.2026).

30 Кримінальний процесуальний кодекс України URL: <https://zakon.rada.gov.ua/laws/show/4651-17#Text> (date accessed: 20.03.2026).

module, only analytical tools based on the case materials, forensic expert specific expertise and certified methods can be used.

In the seventh stage, module-specific results are integrated into a single causal conclusion by logically combining the established findings. If a particular module cannot be established due to insufficient data, this is indicated as a conclusion limitation.

Thus, phase-modular decomposition is a compensatory mechanism that makes possible to apply the heuristic potential of modern systemic and causal concepts, in particular, the structured delimitation of multilevel causes, identification of critical nodes and the prevention of mixing of causes of different levels without going beyond the procedural requirements and without replacing retrospective task of forensic examination with the goals of a security investigation. In practice, the described approach forms theoretical and methodological basis for future official FMTE methods, since it sets a reproducible, documented and procedurally suitable algorithm for forensic expert's actions during the research of complex multiple emergency events.

It is advisable to test the practical applicability of the proposed approach using materials from actual forensic practice. To this end, we utilized two anonymized case studies from previously performed forensic examinations that differ as in the type of object under investigation as in nature of causal configuration. The first case concerns industrial incident at an open-pit mine involving a conveyor system and a rotary complex. Second case relates to a group incident in underground conditions, characterized by a multi-chain mechanism of event development. It is precisely comparison of these two situations that demonstrates that a proce-

durally compatible causal analysis using phase-modular decomposition is suitable for both relatively localized industrial incidents and complex accident scenarios with a branched structure of causal relationship.

Applied part of the research is presented in a form compatible with professional thinking and real tools of forensic mining expert: initial basis is only case files of criminal proceedings and the documents provided, and if there is a lack of critical information, procedurally correct limit of the response is fixed by filing a petition for the provision of additional materials or indicating inability to resolve the issue in the relevant part.

The first case concerns an incident at an open-pit mining site involving operation of conveyor systems and rotary complex equipment. The incident occurred during production operations within operational area of this equipment, resulting in fatal injury of a worker while performing his duties. Forensic examination content included a set of documentary sources typical for mining practice, covering organization of work, occupational safety, equipment operation and a special investigation of the incident. At the same time, some of the raised questions could not be resolved due to the lack of certain design-technical and technical materials, that clearly highlighted one of fundamental limitations of forensic examination: procedurally correct documentation of the incompleteness of the initial factual basis.

Under this approach, an event is broken down into phases and modules, each of which has its own temporal and spatial boundaries is based on materials from criminal proceedings, addresses a technical issue and concludes with a definitive conclusion or a clearly defined limit to its formulation.

The first phase can be defined as the phase of preconditions for a hazardous situation *id est*, organizational and technical context of the event when the employee has not yet come into direct contact with hazardous factor, but conditions for the incident subsequent development have already been established. Within this phase, at least two distinct modules are identified. The first module covers the organization of work and authorization to perform the relevant operations. In this module, the status of the work being performed as high-risk work is examined, along with the existence and content of the written work order, compliance with authorization procedures, conduct of briefings and the exercise of control by engineering and technical staff. It is the results of analysis of this module that provide the factual basis for answering the question of whether organization of work and the procedure for authorizing employees complied with requirements of regulatory and technical documents and local regulations in effect in production setting.

Second module in this phase focuses on the technical condition of the equipment and availability of engineering safety barriers, including guardrails and interlocks. Here, they verify whether physical restrictions on access to hazardous zones of moving existed parts, whether guardrails were properly secured, whether signs of malfunction or incompleteness of protective structures were identified and whether responsible personnel monitored their condition as part of their job duties. In this module, it is fundamentally important to demonstrate that improper condition or lack of a guardrail should be viewed not as an abstract systemic deficiency, but as a specific technical condition that created possibility of employee entering a hazardous

area and, accordingly, became one of causally significant factors in subsequent incident development.

Second phase is formation of danger, that is, transition of the event to a critical state. Within the boundaries of this phase, module is distinguished, associated with the dangerous approach of the worker to the moving equipment parts. From the materials of forensic examination, it is known that dangerous situation arose as a result of the person being in the zone of action of the moving parts of the conveyor. It is this module that has an important causal significance, since within its boundaries organizational and technical prerequisites are transformed into a specific mechanism of traumatic action of a dangerous production factor.

Next phase is associated with implementation of the consequence, *id est*, with the direct mechanism of injury. Within the limits of this phase, the module in which the injury mechanism is considered as a sequential technical chain becomes crucial. The content of forensic expert conclusion indicates that actions or inaction of event participants and responsible officials related to the admission or non-admission of the employee to the dangerous zone of the moving parts of the conveyor, the failure to provide proper fences and technical barriers, improper control of workplaces and technical equipment condition, as well as the failure to stop operation of equipment or its corresponding section until the danger is eliminated are causally significant in this part. In this context, specified circumstances are important not as a basis for formulating preventive recommendations, but as elements of a retrospective technical analysis, that make possible to establish which actions or inactions created conditions for injury mechanism implementation.

Practical result of applying proposed approach in the first case is primarily to streamline the causal structure of the event by isolating modules available for technical verification related to organization and admission to work, existence of engineering barriers, presence of the employee in the danger zone, injury mechanism, as well as control and supervision. Such decomposition makes possible to avoid a mixed explanation, in which the technical mechanism, organizational background and job responsibilities merge into a single, undivided explanatory structure. At the same time, it makes possible to isolate direct technical node of causality, within the limits of which the presence of the employee in the danger zone of moving parts of the conveyor and the absence or improper condition of barrier elements are considered as a specific causally significant link that connects technical prerequisites with the consequence.

An important result is the procedural correctness of determining the limits of the conclusion. Those event components that cannot be established due to the lack of necessary technical materials are not compensated by assumptions, but are recorded as a reasonably delineated response limit. This approach preserves the evidentiary value of the established fragments of the causal chain without going beyond the provided factual basis and expert's specific expertise.

Second case concerns a group incident that occurred underground during work in a mine. The incident resulted in injuries to a group of workers due to development of an explosive process. Forensic expert conclusion indicates that causality in this case is reconstructed not as a single linear chain, but as a combination of several parallel and sequential causal chains, within which each link is simultaneously

consequence of the previous one and the cause of the next. Within the structure of this analysis, modules are identified related to the gas factor, condition of collective protection and control equipment, workflow management in the hazardous zone, as well as compliance or non-compliance with specific safety requirements for the relevant type of work. At the same time, conclusion notes that lack or failure to provide some of the materials requested by forensic experts limits the ability to detail individual causal components, which once again confirms a fundamental limitation of forensic analysis: analysis of causes cannot go beyond the factual basis provided for the investigation.

It is precisely the existence of multiple causal chains in this incident that allows us to clearly demonstrate the advantages of phase-modular decomposition in situations where the causal structure of an event cannot be adequately reconstructed using a single linear explanation.

Within the phase-modular decomposition of this incident, the first phase should be defined as the phase of accumulation of hazardous conditions. Within its structure, the module associated with the gas factor and ventilation *id est*, with the formation of an explosive atmosphere is identified first. Within this module, it is established that the emergence of the hazard is linked to gas accumulation processes, specifically the accumulation of gas in the face or backfill area, as well as to the technological and organizational conditions of ventilation. This module is of decisive importance, as it creates the physical conditions for the development of an explosive event. The second module within this same phase concerns the condition and use of collective protection and control measures. Forensic expert conclusion indicates availability of disconnected or malfunctioning

components of such measures, particularly automatic functions related to ensuring safe operation when maximum permissible concentrations are exceeded. In terms of causation, this creates a sequence in which the hazardous condition was not stopped, limited, or localized in a timely manner, thereby creating conditions for a further increase in concentration.

A separate stage in the event development is associated with the launch of its mechanism. Within its framework, a module related to the source of initiation and further development of the event as a sequential chain of interactions becomes important. In this case, causality is described using several interconnected chains with multiple links that makes possible to decompose a multivariate event into logically ordered components and determine not the overall *cause of the explosion*, but the sequence of technical conditions, actions or inaction that led to the consequence.

Final phase is associated with human casualties and reflects the immediate injury mechanism. Within this phase, the factor related to the presence of employees in the restricted area takes on decisive importance, and is considered a separate technical link in the chain of causality. Forensic expert conclusion indicates that the injury was caused not only by the development of an explosive process but by the presence of people within a zone where their presence was impermissible under the specific production conditions. Furthermore, the reason for such presence was identified as non-compliance with special safety rules for the relevant type of work, specifically lack, inconsistency, or failure to implement properly executed documents regulating the boundaries of the hazardous zone, procedure for informing employees and restrictions on access

to. From a methodological standpoint, this framework allows for a clear distinction between the physical possibility of the incident, determined by gas factors and ventilation conditions; technical realization of the incident through its initiation and progression; and the actual injury linked to the area where people were present and the lack of access barriers.

Practical application of the proposed approach in the second case study lies primarily in addressing the problem of an event's multi-link causal structure. Rather than searching for a single *root cause*, phase-modular decomposition allows for the formal and structured identification of causality modules, while maintaining certainty of conclusions regarding each technically defined link. An equally important result is the translation of a systemic event into a process-driven format: even with a significant volume of input materials and a large number of asked questions, conclusion can be constructed as a sequence of interrelated modular answers, rather than as a general description of the event. At the same time, the case materials demonstrate a fundamentally important result: formalization of the limits of detail. Limitation on detail recorded in the conclusion, resulting from the non-disclosure of some materials at the experts' request, confirms that a correct method does not compensate for missing data with assumptions but rather establishes the limits of a possible conclusion.

Summarizing the results of practical approbation gives grounds to assert that the proposed approach is not a declarative theoretical construct, it can be reproducibly applied to real materials of forensic examinations by isolating phases and modules, localizing the technical node of causality and procedurally correct response to incompleteness of materials.

Such an applied model does not require tools that go beyond competence of a forensic mining expert: the research is carried out by analyzing documents, retrospective reconstruction of the event and comparing actual situation with the statutory requirements with the formation of a written answer to the questions posed and a clear delineation of the limits of the conclusion in case of data deficiency.

Conclusions

Currently, the main scientific challenge facing modern FMTE lies in the mismatch between the increasing complexity of multifactorial accident scenarios and the limited capabilities of traditional linear analysis frameworks for determining technical causes and causal relationships in the context of criminal proceedings. Modern systemic and causal models developed in foreign engineering science have significant heuristic potential; however, they cannot be directly transferred to national forensic practice without special methodological adaptation. The obstacle lies not in the scientific value of these models, but in the fact that a significant portion of their applied tools is oriented toward preventive analysis, systemic improvement, probabilistic reconstructions and analytical procedures that are incompatible with the procedurally defined order of forensic research.

Academic novelty of the research lies in the substantiation of the fact that procedurally compatible causal analysis in FMTE should be built not on the direct borrowing of *SCM*, *DAG*, *STAMP/CAST* and related models in their original form, but on the transformation of their logical core into a tool for retrospective reconstruction of the event. The idea of using modern causal thinking not as a mathematical-computational or software apparatus, but as a way

of organizing forensic research in accordance with the requirements of criminal procedural legislation, has been further developed. In this context, phase-modular decomposition is justified as a compensatory procedural-methodological mechanism that allows combining analytical advantages of modern theories of causality with reproducibility requirements, documentation and procedural suitability of forensic expert conclusion.

Theoretical significance of the results obtained lies in the clarification of conceptual apparatus and logic of constructing an expert investigation in cases of complex accidents in the mining industry. The content of procedurally compatible causal analysis is specified as a method of reconstructing an event, in which the expert acts only within the limits of the provided content, does not compensate for deficiency of the factual basis with assumptions, and, if necessary, uses the procedural mechanisms provided for by law for requesting additional materials or formalizes the limits of a possible answer. At the same time, phase-modular decomposition is revealed not as a descriptive metaphor, but as a research algorithm that includes event localization, separation of phases of its development, the formation of modules, checking sufficiency of materials, application of current certified methods within the limits of each module, and integration of module results into a single causal conclusion. It is this logic that creates the theoretical and methodological basis for the new FMTE methodology.

Practical significance of the research was confirmed by testing proposed approach on depersonalized cases from real expert practice. The analysis of a production event in open-pit mining operations associated with conveyor transport and a rotor complex demonstrated that phase-modular

decomposition allows us to clearly delimit the block of work organization and admission to their execution, the block of the technical condition of protective barriers, dangerous situation formation phase and the injury mechanism without mixing different causal levels in one generalized explanation. The analysis of a group incident in underground conditions indicated that the same approach allows us to decompose the multi-chain mechanism of the event into separate causal modules and maintain the certainty of local conclusions even with the incompleteness of individual materials. Thus, it is proven that phase-modular decomposition is not only a theoretical construct, but applied tool for a forensic expert to work with case files of criminal proceedings.

In general, the research result give grounds to believe that the promising direction of the FMTE development is not the mechanical borrowing of ready-made foreign models, but the construction of its own methodology based on procedurally adapted causal analysis. The approach proposed in the article creates a proper basis for this, since it combines scientific validity, procedural compatibility and applied suitability. Thereby, phase-modular decomposition can be considered as the basic design of the future official FMTE methods, focused on increasing objectivity, reproducibility and evidentiary value of forensic expert conclusions.

**Обмеження застосування методів
каузального моделювання в судовій
гірничотехнічній експертизі
та шляхи їх подолання**

**Іван Пугач, Юрій Чеберячко,
Вадим Харченко, Інна Пугач**

Окреслено наукову проблему методичного розриву між сучасними каузальними моделями аналізу складних аварійних

подій і процесуальними вимогами судової гірничотехнічної експертизи, у межах якої експерт зобов'язаний спиратися лише на надані матеріали, свою компетенцію та процедури обґрунтування, що піддаються перевірці. Мета дослідження — обґрунтувати межі застосування сучасних іноземних моделей каузального аналізу в національній судовій гірничотехнічній експертизі й розробити фазово-модульну декомпозицію як компенсаторний процесуально-методичний механізм реконструкції складних аварій. Методи дослідження охоплюють теоретичний аналіз українських та іноземних джерел, нормативно-процесуальне тлумачення ролі та меж компетенції судового експерта, логіко-структурне моделювання причинних зв'язків, фазово-модульну декомпозицію аварійної події та практичну апробацію підходу на двох знеособлених кейсах із реальної експертної практики. Показано, що STAMP/CAST, SCM, каузальні графи, контрфактуальні й інші системні моделі мають значну евристичну цінність, проте їх пряме перенесення у сферу судово-експертного дослідження обмежено ретроспективним характером судової гірничотехнічної експертизи, дефіцитом матеріалів кримінального провадження, вимогами до відтворюваності висновку та заборонаю компенсувати доказові прогалини ймовірними припущеннями. Доведено, що фазово-модульна декомпозиція дає змогу локалізувати причинність у технічно однорідних фрагментах події, установлювати доказову основу для кожного модуля, процесуально коректно реагувати на нестачу вихідних даних і формувати логічний, прозорий висновок експерта. Підтверджено придатність підходу для аналізу подій на відкритих і підземних гірничих роботах за допомогою практичної апробації.

Ключові слова: судова гірничотехнічна експертиза; причинно-наслідковий зв'язок; каузальний аналіз; фазово-модульна

декомпозиція; гірничі аварії; висновок експерта; кримінальне провадження.

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Declaration of Competing Interest

Author declares no conflict of interest.

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Prioritisation as a Tool for Enhancing the Effectiveness of Forensic Support in Criminal Investigations: Global Experience

Galina Avdeeva *

* Candidate of Legal Sciences, Senior Researcher, Academician V. V. Stashis Scientific Research for the Study of Crime Problems, Kharkiv, Ukraine,

ORCID: <https://orcid.org/0000-0003-4712-728X>, e-mail: gkavdeeva@gmail.com

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The Article Purpose is to acquaint readers with the global practice of prioritisation in forensic activities using general scientific research methods, as well as systematic, functional, formal-logical and other approaches, and to define prioritisation essence, outline prioritisation focus areas in investigative and forensic expert activities, and to determine ways of implementing tech-driven prioritisation in practical activities of law enforcement agencies for enhancing the efficiency of criminal investigations in the prevailing circumstances. Prioritisation is viewed as an innovative tool for enhancing the effectiveness of forensic support in criminal investigations amid digital transformation and for addressing the burgeoning scale of evidentiary material. It is demonstrated that traditional methods of analysis are becoming increasingly inefficient, whilst the implementation of prioritisation enables procedural resources to be optimised, investigation timelines to be shortened, and the accuracy of expert conclusions to be enhanced. It has been proven that in modern criminalistics, prioritisation is gradually evolving from a supporting management tool into a fundamental methodological approach. Drawing on international experience, we have identified key approaches to prioritisation (general theoretical, tactical-strategic, technical-forensic, and innovative). The significance of prioritisation as a fundamental methodological tool of modern forensic science has been underscored. In forensic practice, prioritization is

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fundamentally defined as a dynamic process of assessing, sorting and ranking objects (information, physical evidence, investigative actions) according to their degree of relevance, evidentiary value and risk of loss, carried out with the aim of optimising procedural resources, overcoming delays in crime investigations, and ensuring the rapid attainment of results that are crucial for ascertaining the truth in a case. Promising areas for further research into the application of prioritisation in forensic activity have been singled out.

Keywords: *prioritisation; forensic support; forensic activity; forensic examination; global experience.*

Research Problem Formulation

Rising digitalisation of social relations and integration of cutting-edge technologies into criminal activities have fundamentally restructured the pre-trial investigation process. Today's criminalistics is facing an unprecedented surge in information, where the volume of digital data seized by investigators and analysed by forensic experts is growing exponentially, placing a strain on existing technical and human resources. Traditional approach to evidence analysis, involving linear (sequential) and exhaustive study of all seized forensic objects, items, and data, may prove not only inefficient but often impossible. This leads to delays in pre-trial investigations, wasted time, and to loss of crucial evidence. In view of this, existing traditional methods and tools for forensic support of criminal investigations require improvement: innovative approaches to the allocation of procedural resources should be adopted in order to optimise investigative and forensic activities. One such avenue is prioritisation: a systematic process for identifying key evidentiary

information, for determining the order of investigative actions and most effective tactics for performing them, for selecting the ideal sequencing for ordering forensic examinations and implementing methods of expert research, etc.

Many countries worldwide consider prioritisation to be an integral part of forensic practice, as evidenced by numerous academic publications and police reports. Recent research validates that prioritisation in activities of investigators and forensic experts considerably reduces the time taken to investigate crimes, enhances the objectivity and accuracy of expert opinions, enables the development of an accurate investigative plan, and guarantees a better utilisation of procedural resources¹. The practice of prioritization, however, is complicated by several adverse factors, such as the risk of subjective rationality and ethical-legal issues, requiring a comprehensive academic analysis.

The issue of prioritisation in the field of combating crime in Ukraine takes on particular significance against the backdrop of the implementation of the Comprehensive Strategic Plan for Reforming

1 Cook R., Evett I. W., Jackson Gr., Jones Ph. J., Lambert J. A. A model for case assessment and interpretation. *Science & Justice*. 1998. Vol. 38. Is. 3. Pp. 151–156. DOI: [10.1016/S1355-0306\(98\)72099-4](https://doi.org/10.1016/S1355-0306(98)72099-4) (date accessed: 10.02.2026) ; Jackson Gr., Jones Ph. J. Case Assessment and Interpretation. *Wiley Encyclopedia of Forensic Science*. 2009. 15 Sept. DOI: [10.1002/9780470061589.fsa124](https://doi.org/10.1002/9780470061589.fsa124) (date accessed: 12.01.2026).

Law Enforcement Agencies as part of Ukraine's security and defence sector for 2023–2027², whereby responsiveness and effectiveness are recognised as the key indicators of the operational efficiency of law enforcement. In Ukraine, contemporary criminalistics is also undergoing a transformation due to numerous unprecedented security challenges caused by the Russian Federation's armed aggression. These circumstances have created an urgent academic and practical need to develop mechanisms that would help law enforcement agencies strengthen their operational and strategic capacities.

The relevance of this research is due to the urgent need to examine international experience in applying highly effective solutions that have already proven their worth in criminal investigations, and to adapt best practices to forensic support for criminal investigations in Ukraine

amid global digitalisation and increased workload, particularly as a result of military operations. Studying international prioritisation best practices within the field of crime fighting will enable us to define its essence and formulate scientifically sound recommendations for enhancing the forensic support of criminal investigations in Ukraine; it will also help to avoid common pitfalls and accelerate the implementation of much-needed reforms.

Analysis of Essential Researches and Publications

The issues of improving the efficiency of forensic support for criminal investigations have been the subject of significant attention from the following Ukrainian researchers: V. Konovalova³, V. Tishchenko⁴, V. Zhuravel⁵, V. Shepitko⁶, M. Kapustina⁷, A. Kovalenko⁸, V. Nehrebetskyi⁹,

- 2 Комплексний стратегічний план реформування органів правопорядку як частини сектору безпеки і оборони України на 2023–2027 роки : схвал. Указ. Президента України від 11.05.2023 р. № 273/2023. URL: <https://zakon.rada.gov.ua/laws/show/273/2023#Text> (date accessed: 16.02.2026).
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- 5 Журавель В. А. Програмування як засіб підвищення якості розслідування. *Теоретичні основи забезпечення якості кримінального законодавства та правозастосовної діяльності у сфері боротьби зі злочинністю в Україні* : мат-ли наук.-практ. конф. (Харків, 15.05.2009). Харків, 2009. С. 175–178.
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- 7 Капустіна М. В. Автоматизовані засоби криміналістичного забезпечення. *Юридичний науковий електронний журнал*. 2021. № 11. С. 691–693. DOI: [10.32782/2524-0374/2021-11/174](https://doi.org/10.32782/2524-0374/2021-11/174) (date accessed: 15.02.2026).
- 8 Коваленко А. В. Криміналістичні засоби кримінального процесуального доказування. *Вісник Національної академії правових наук України*. 2023. Т. 30. № 4. С. 293–303. DOI: [10.31359/1993-0909-2023-30-4-293](https://doi.org/10.31359/1993-0909-2023-30-4-293) (date accessed: 15.02.2026).
- 9 Негребетський В. В. Використання систем штучного інтелекту у боротьбі зі злочинністю: огляд та перспективи. *Українська поліцейстика: теорія, законодавство, практика*. 2024. № 1 (9). С. 66–70. DOI: [10.32782/2709-9261-2024-1-9-13](https://doi.org/10.32782/2709-9261-2024-1-9-13) (date accessed: 15.02.2026).

H. Avdieieva¹⁰, V. Shevchuk¹¹, et al. Prioritisation in criminal proceedings has been extensively discussed by M. Pashkovskiy¹², N. Hlynska¹³, D. Klepka¹⁴, and others. V. Shevchuk has explored the issues concerning the role and importance of prioritisation in criminalistics and criminal proceedings¹⁵. Scholars from the US, EU countries, the UK, India, China, South Korea, Pakistan and other countries contributed significantly to the development of recommendations on introducing prioritization in specific areas of forensic activity, for example: R. Cook et al.¹⁶, N. Al-Jaloud et al.¹⁷, M. Sh. Bashir and M. N. Ah. Khan¹⁸, M. Beck¹⁹, A. Shiralkar et al.²⁰, M. Giangreco²¹, G. Horsman²², J. I. James²³,

- 10 Авдеева Г. К. Технологізація криміналістики і судової експертизи: сутність і роль у судочинстві. *Питання боротьби зі злочинністю*. 2025. Т. 1. Вип. 49. С. 108–119. DOI: [10.31359/2079-6242-2025-49-108](https://doi.org/10.31359/2079-6242-2025-49-108) (date accessed: 05.02.2026).
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- 13 Глинська Н. В. Пріоритезація у кримінальному провадженні: поняття, ознаки, ключові аспекти та виміри. *Питання боротьби зі злочинністю*. 2025. Т. 1. Вип. 49. С. 86–100. DOI: [10.31359/2079-6242-2025-49-87](https://doi.org/10.31359/2079-6242-2025-49-87) (date accessed: 05.02.2026).
- 14 Клепка Д. І. Права людини в системі механізму пріоритезації у кримінальному провадженні. *Там само*. С. 101–107. DOI: [10.31359/2079-6242-2025-49-101](https://doi.org/10.31359/2079-6242-2025-49-101) (date accessed: 05.02.2026).
- 15 Шевчук В. М. Зазнач. твір. DOI: [10.32782/2524-0374/2025-9/83](https://doi.org/10.32782/2524-0374/2025-9/83) (date accessed: 05.02.2026).
- 16 Cook R., Evett I. W., Jackson Gr., Jones Ph. J., Lambert J. A. Op. cit. DOI: [10.1016/S1355-0306\(98\)72099-4](https://doi.org/10.1016/S1355-0306(98)72099-4) (date accessed: 19.02.2026).
- 17 Al-Jaloud N., Al-Abdulahman M., Ajlouni L. Aw, Ajlouni A.-W. The Role of Artificial Intelligence in Transforming Forensic Science: Applications, Challenges, and Future Directions. *The 4th Saudi Conference of Forensic Medical Sciences (SCFMS 25)* (27–30 Oct, 2025). DOI: [10.13140/RG.2.2.35168.75524](https://doi.org/10.13140/RG.2.2.35168.75524) (date accessed: 03.02.2026).
- 18 Bashir M. Sh., Khan M. N. Ah. A triage framework for digital forensics. *Computer Fraud & Security*. 2015. Vol. 2015. Is. 3. Pp. 8–18. DOI: [10.1016/S1361-3723\(15\)30018-X](https://doi.org/10.1016/S1361-3723(15)30018-X) (date accessed: 05.02.2026).
- 19 Beck M. Cloud Forensics Triage Framework (CFTF). 2021. 24 p. URL: <https://www.sans.org/white-papers/40415> (date accessed: 03.02.2026).
- 20 Shiralkar A., Bhabad S., Ghoderao A., Pawar I., Borisa A. Cyber Triage Tool for Digital Forensic Analysis. *International Journal of Progressive Research in Engineering Management and Science*. 2025. Vol. 05. Is. 05. Pp. 2633–2637. URL: https://www.ijprems.com/uploadedfiles/paper/issue_5_may_2025/41245/final/fin_ijprems1752918559.pdf (date accessed: 05.02.2026).
- 21 Giangreco M. Leveraging Metadata and Big Data for Criminal Investigations: Comparative Perspectives from Europe, USA and China. Milano, 2022. 15 p. URL: https://www.sistemapenale.it/pdf_contenuti/1740132961_rv-giangreco-leveraging.pdf (date accessed: 05.02.2026).
- 22 Horsman G. The importance of digital evidence strategies. *WIREs Forensic Science*. 2023. Vol. 6. Is. 1. 10 p. DOI: [10.1002/wfs2.1507](https://doi.org/10.1002/wfs2.1507) (date accessed: 05.02.2026).
- 23 James J. I. Multi-Stakeholder Case Prioritization in Digital Investigations. *The Journal of Digital Forensics, Security and Law*. 2014. Vol. 9. No. 2. Art. 6. Pp. 59–72. DOI: [10.15394/jdfsl.2014.1171](https://doi.org/10.15394/jdfsl.2014.1171) (date accessed: 10.02.2026).

V. Jusas et al.²⁴, D. A. Keatley²⁵, E. Zürcher et al.²⁶, M. K. Rogers et al.²⁷, and others. Notwithstanding the keen interest shown by forensic scientists in defining the concept and specific areas of prioritisation in criminalistics and forensic science, the concept of prioritisation as a comprehensive tool for enhancing the efficiency of forensic support for criminal investigations amid the digital transformation—based on global experience—requires a more in-depth theoretical justification.

Article Purpose

Introduce the global experience of implementing prioritisation in forensic activities and provide a theoretical definition of prioritisation essence; identify avenues for prioritization implementation in investigative and forensic activities; outline ways of introducing technology-driven prioritisation into the practical work of law enforcement agencies to enhance the effectiveness of criminal investigations in the present-day environment.

Research Methods

To fulfil the set goal, the following general research methods have been em-

ployed: empirical (observation, description), theoretical (analysis, synthesis, abstraction, generalisation, induction, deduction, explanation, classification, etc.), as well as systemic, functional, formal-logical, etc.

Formal-logical method has served to typify approaches to defining the role and essence of prioritisation in criminal proceedings, criminalistics and forensic science; functional method has been employed to analyse the impact of prioritisation on investigative and forensic activities; analysis and synthesis have been used to generalise individual academic positions and formulate our own conclusions. The study is based on an analysis of scientific papers exploring prioritisation in activities of investigators and forensic experts, specifically on works by Ukrainian and international scholars published in scientometric databases and resources such as *Web of Science*, *Scopus*, *Google Scholar*, *PubMed*, *Directory of Open Access Journals (DOAJ)*, *Open Ukrainian Citation Index (OUCI)*, etc.

Main Content Presentation

Academic literature views the *prioritisation* term (commonly used as a synonym

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- 24 Jusas V., Birvinskas D., Gahramanov E. Methods and Tools of Digital Triage in Forensic Context: Survey and Future Directions. *Symmetry*. 2017. Vol. 9. Is. 4. Art. 49. DOI: 10.3390/sym9040049 (date accessed: 10.02.2026).
- 25 Keatley D. A. Prioritizing patterns in evidence: Applying the analysis of competing hypotheses framework to criminal investigations and cold cases. *Science & Justice*. 2025. Vol. 65. Is. 5. Art. 101308. DOI: 10.1016/j.scijus.2025.101308 (date accessed: 11.02.2026).
- 26 Zürcher E., Eekelschot L., Wolcke A., Strang L. International approaches to police performance measurement. Santa Monica, Calif., USA, and Cambridge, UK : RAND EUROPE, 2023. 182 p. URL: https://www.rand.org/pubs/research_reports/RRA2790-1.html (date accessed: 10.02.2026).
- 27 Rogers M. K., Goldman J., Mislan R., Wedge T., Debrotta S. Computer Forensics Field Triage Process Model. *The Journal of Digital Forensics, Security and Law*. 2006. Vol. 1. No. 2. Pp. 19–37. DOI: 10.15394/jdfsl.2006.1004 (date accessed: 10.02.2026).

for triage²⁸, ranking, or categorisation) as a multifaceted concept that incorporates technical, tactical, and managerial aspects.

The triage term is most widely used in medicine. It refers to situations in which, due to scarce resources, the order of priority for providing treatment to injured persons is determined. This Patient Ranking System ensures that harm to patients is kept to a minimum when resources are limited²⁹.

Etymologically, the prioritisation term (from Lat. *prior* — meaning “first”) has traditionally been linked to the urgency of investigative actions, particularly in the context of criminalistics. However, in publications from recent years, the scope of this concept has become considerably broader.

Researchers from various countries give considerable attention to studying the mechanism and significance of prioritisation in activities of law enforcement agencies. Specifically, R. Cook et al. emphasize the importance of setting priorities in order to conserve procedural resources³⁰.

M. Pashkovskiy justly notes that “an extremely large number of criminal proceedings, both those registered in Ukraine and

those assigned to a specific investigator or prosecutor (due to excessive workloads), prevent (or render ineffective) manual prioritisation of each case”³¹. The scholar proposes to automate and digitise such procedural activities and to introduce a modern mechanism for prioritising criminal proceedings.

N. Hlynska highlights that prioritisation “is a key organisational factor in criminal proceedings, as the success and expected efficiency of legal action depend on the correct prioritisation of legal measures”³². She defines prioritisation as a process determined by socio-legal factors and aimed at enhancing the effectiveness of proceedings³³.

V. Shevchuk notes that “prioritisation is an integral part of criminal justice policy, setting priorities and defining the strategy for reforming the criminal justice system”. It helps maintain national security and protect public order³⁴.

Modern criminalistics is seeing prioritisation gradually evolve from a supporting management tool into a fundamental methodological approach. There is a need to develop a theoretical understanding of this term, given the massive increase in the volume of digital information and the

28 Triage. In France, a custom and right whereby a seigneur was entitled to request the appropriation of part of communal lands / Великий тлумачний словник сучасної української мови (з дод. і допов.) // уклад. та голов. ред. В. Т. Бусел. Київ ; Ірпінь, 2005. С. 1478. URL: <https://archive.org/details/velykyislovnyk/page/1478/mode/2up> (date accessed: 16.02.2026). Our context: the act of singling out/categorising.

29 Moser A., Cohen M. I. Hunting in the enterprise: Forensic triage and incident response. *Digital Investigation: The International Journal of Digital Forensics & Incident Response*. 2013. Vol. 10. Is. 2. Pp. 89–98. DOI: [10.1016/j.diin.2013.03.003](https://doi.org/10.1016/j.diin.2013.03.003) (date accessed: 01.02.2026).

30 Cook R., Evett I. W., Jackson Gr., Jones Ph. J., Lambert J. A. Op. cit. DOI: [10.1016/S1355-0306\(98\)72099-4](https://doi.org/10.1016/S1355-0306(98)72099-4) (date accessed: 19.02.2026).

31 Пашковський М. І. Зазнач. твір. С. 89. URL: <https://surl.li/frwkzf> (date accessed: 05.02.2026).

32 Глинська Н. В. Зазнач. твір. С. 96: DOI: [10.31359/2079-6242-2025-49-87](https://doi.org/10.31359/2079-6242-2025-49-87) (date accessed: 05.02.2026).

33 Там само. С. 97.

34 Шевчук В. М. Зазнач. твір. С. 393, 394. DOI: [10.32782/2524-0374/2025-9/83](https://doi.org/10.32782/2524-0374/2025-9/83) (date accessed: 05.02.2026).

limited resources available to law enforcement agencies. Accordingly, we need to move away from a linear (sequential) approach to analysing evidentiary information in favour of a selective and strategically focused one.

Researchers recommend the following approaches to defining the role and essence of prioritisation and implementation thereof in criminal proceedings, criminalistics and forensic science:

- general theoretical and managerial;
- tactical and strategic;
- technical and forensic;
- innovative.

V. Jusas et al. believe that the diversity of prioritisation (categorisation) definitions mirrors the diversity of views and points to the immaturity of this field ³⁵.

Proponents of general theoretical and managerial approaches regard prioritisation as a strategic component of criminal law policy and criminal proceedings organisation (in particular, pre-trial investigations).

N. Hlynska defines prioritisation in criminal proceedings as *“a process of ranking criminal procedural resources, conditioned by a set of socio-legal factors and carried out on the basis of a specific set of criteria meeting the requirements of current legal reality, with the aim of enhancing the effective resolution of ranking objectives”* ³⁶.

J. I. James defines prioritization as the process by which the order of case handling is determined on the basis of a range

of factors, including the severity of an offence, the presence of a suspect, and the likelihood of obtaining evidentiary information ³⁷.

Researchers at the European office of the international organisation RAND have analysed the work of police officers in many countries and identified risk prioritisation in policing as the process of categorizing and assessing risks when incidents are reported, the aim being to determine response times for the police, taking into account available resources, and to decide which incidents or evidence require immediate attention, and which can be temporarily postponed ³⁸.

Tactical and strategic approach enables us to define the role and essence of prioritization in forensic activities as an intellectual component of investigative planning.

V. Zhuravel makes a valid point that the investigative situation is a dynamic information system that is constantly changing and directly determines the course of investigation. As a result, investigators face certain obstacles in making tactical decisions ³⁹. D. A. Keatley emphasises the need to systemically rank evidence in terms of its ability to confirm or refute certain investigative hypotheses, depending on the investigative context. He employs the method of competing hypotheses. The researcher believes that this approach is particularly important when investigating unsolved crimes ⁴⁰.

35 Jusas V., Birvinskas D., Gahramanov E. Op. cit. DOI: 10.3390/sym9040049 (date accessed: 20.02.2026).

36 Глинська Н. В. Знач. твір. С. 99. DOI: 10.31359/2079-6242-2025-49-87 (date accessed: 05.02.2026).

37 James J. I. Op. cit. DOI: 10.15394/jdfsl.2014.1171 (date accessed: 10.02.2026).

38 Zürcher E., Eekelschot L., Wolcke A., Strang L. Op. cit. P. 156. URL: https://www.rand.org/pubs/research_reports/RRA2790-1.html (date accessed: 12.02.2026).

39 Журавель В. А. Загальна теорія криміналістики: генеза та сучасний стан: монографія. Харків, 2021. С. 283—306. URL: <https://lnk.ua/PeR0M3dNY> (date accessed: 12.02.2026).

40 Keatley D. A. Op. cit. P. 2, 4. DOI: 10.1016/j.scijus.2025.101308 (date accessed: 11.02.2026).

V. Shevchuk observes that “*prioritisation in forensic science is the process of organising and ranking forensic tasks, research, technical, tactical and methodological forensic tools, technologies and systems aimed at completing specific forensic (tactical) and other tasks with a view to improve the efficiency and optimisation of criminal proceedings*”⁴¹.

G. Horsman defines prioritisation as determining which objects and data should be examined first, based on their likely evidentiary value and the risk of data loss⁴². He emphasises that prioritisation is not merely a technical choice, but an intellectual component of the overall strategy for handling digital evidence.

J. I. James views prioritisation as a joint decision-making process between investigators and forensic experts regarding the priority of processing a body of evidence, thereby maximising the effectiveness of investigation within a limited timeframe⁴³. The researcher notes that this approach enables the creation of an optimal plan (strategy) for crime investigation.

The US Prosecutors’ Guide states that prioritisation (triage) of physical evidence involves determining which objects should be examined first in order to obtain information pertinent to a case⁴⁴. The second section of this guide sets out recommendations on how to effectively categorize (triage) evidence through communication with a forensic expert, thereby enabling the optimisation of procedural decision-making.

Proponents of a forensic technical approach to defining the role and essence of prioritisation in forensic expert activity focus on finding ways to process physical (and, in particular, digital) evidence in a timely manner.

Scholars in the US and China⁴⁵ define prioritisation as the process of ranking objects by importance or priority. In the context of a crime scene inspection, they believe that this is a process by which electronic devices and data are analysed at the scene or in a laboratory setting to rapidly identify evidence relevant to investigation and determine the priority of subsequent forensic analyses. Researchers emphasise that in many investigations into crimes against life and personal safety (in particular, cases involving kidnapping, torture, sexual assault, etc.), time is a crucial factor, therefore, the traditional sequential approach to evidence collection, consisting of a series of stages (seizure of electronic media, transporting them to a laboratory, and the search for and evaluation of digital evidence), is no longer appropriate. M. K. Rogers et al. suggest using the CFFTPM (*Computer Forensics Field Triage Process Model*) to speed up the process of identifying victims and perpetrators; this model allows for the verification, analysis, and interpretation of digital evidence in a short period of time under “field” conditions⁴⁶. J. I. James assessed both the benefits and risks of using modern prioritisation methods in forensic analysis and concluded that prioritisation of cases is,

41 Шевчук В. М. Знач. твір. С. 395. DOI: [10.32782/2524-0374/2025-9/83](https://doi.org/10.32782/2524-0374/2025-9/83) (date accessed: 05.02.2026).

42 Horsman G. Op. cit. P. 4. DOI: [10.1002/wfs2.1507](https://doi.org/10.1002/wfs2.1507) (date accessed: 05.02.2026).

43 James J. I. Op. cit. P. 74. DOI: [10.15394/jdfsl.2014.1171](https://doi.org/10.15394/jdfsl.2014.1171) (date accessed: 10.02.2026).

44 Triage of Forensic Evidence Testing: A Guide for Prosecutors. NCJTC, 2019. P. 2. URL: <https://lnk.ua/k4xRWXxVy> (date accessed: 03.02.2026).

45 James J. I. Op. cit. DOI: [10.15394/jdfsl.2014.1171](https://doi.org/10.15394/jdfsl.2014.1171) (date accessed: 10.02.2026).

46 Rogers M. K., Goldman J., Mislán R., Wedge T., Debrotá S. Op. cit. DOI: [10.15394/jdfsl.2006.1004](https://doi.org/10.15394/jdfsl.2006.1004) (date accessed: 10.02.2026).

by its very nature, inherently subjective. To prevent subjectivity, the researcher proposed formalising prioritisation according to several priority criteria ⁴⁷.

E. Casey et al. view prioritisation (categorisation) in forensic activity as the initial stage of a forensic examination ⁴⁸. E. Casey, however, emphasises that evidence categorization is a technical process that can be conducted outside a forensic laboratory by specialists with appropriate background training, which may call into question the accuracy of obtained results and the legitimacy of such categorisation ⁴⁹.

M. Beck considers prioritization (digital triage) as a method for identifying and collecting most relevant pieces of evidence in the shortest possible time, particularly in the context of major cyber incidents, when forensic experts are overwhelmed by a vast amount of potentially relevant evidentiary information ⁵⁰. The researcher explored capabilities of traditional (linear) methods for collecting and analysing digital evidence and modern cloud technologies, and identified their advantages and disadvantages. Drawing upon these findings, the author proposed the *CFTF (Cloud Forensics Triage Framework)* algorithm for use in forensic activities, designed to triage data in a cloud environment.

M. Sh. Bashir and M. N. Ah. Khan define prioritisation (triage) as a process of categorizing and ranking electronic evidence according to its relevance to a case, enabling investigators and forensic experts to locate relevant information quickly without waiting for a full forensic analysis to be completed. The scholars introduce a new system for categorising digital data using several tools and techniques for examining disk images, registry contents, log analysis, and deleted file history ⁵¹.

US researchers note that “evidence falls into three categories of utility: irrelevant, interesting, and probative”. Only through cooperation with a forensic expert, can prioritisation of these pieces of evidence be ensured ⁵².

Most foreign publications on prioritisation in forensic activities are devoted to a cutting-edge approach that involves artificial intelligence (hereinafter referred to as AI) systems to rank digital data. Notably, in the Tech Trends Report for 2025, researchers from Future Today Strategy Group defined prioritisation as a shift from the analysis of static data chains to dynamic systems, in which AI continuously and automatically analyses incoming data and ranks it according to specified criteria ⁵³.

47 James J. I. Op. cit. P. 71. DOI: [10.15394/jdfsl.2014.1171](https://doi.org/10.15394/jdfsl.2014.1171) (date accessed: 10.02.2026).

48 Casey E., Ferraro M., Nguyen L. Investigation Delayed Is Justice Denied: Proposals for Expediting Forensic Examinations of Digital Evidence. *Journal of Forensic Sciences*. 2009. Vol. 54. Is. 6. Pp. 1353–1364. DOI: [10.1111/j.1556-4029.2009.01150.x](https://doi.org/10.1111/j.1556-4029.2009.01150.x) (date accessed: 25.02.2026).

49 Casey E. Differentiating the phases of digital investigations. *Digital Investigation: The International Journal of Digital Forensics & Incident Response*. 2016. Vol. 19. Is. C. Pp. A1–A3. DOI: [10.1016/j.diin.2016.11.001](https://doi.org/10.1016/j.diin.2016.11.001) (date accessed: 01.02.2026).

50 Beck M. Op. cit. P. 1. URL: <https://www.sans.org/white-papers/40415> (date accessed: 03.02.2026).

51 Bashir M. Sh., Khan M. N. Ah. Op. cit. P. 16. DOI: [10.1016/S1361-3723\(15\)30018-X](https://doi.org/10.1016/S1361-3723(15)30018-X) (date accessed: 05.02.2026).

52 Triage of Forensic Evidence Testing P. 13. URL: <https://lnk.ua/k4xRWXxVy> (date accessed: 05.02.2026).

53 2025 Tech Trends Report : 18th Edition / FTSG : web. 2025. P. 42. URL: <https://ftsg.com/trends/> (date accessed: 05.02.2026).

N. Al-Jaloud et al. propose using AI technologies for automated categorization (triage) and analysis of evidence, facial recognition, identifying patterns in large datasets, modelling the course of a crime, and for effective investigation planning⁵⁴.

European researchers argue that AI-based prioritisation should be used at every stage of a criminal investigation: right from the moment a crime is reported⁵⁵ and a crime scene⁵⁶ is examined, and right through to the ordering of multidisciplinary forensic examinations⁵⁷. It is believed that this ensures the investigation proceeds at a brisk pace and enables swift adjustment and optimisation of investigative tactics.

By combining the ideas set out in the aforementioned reports and works by leading scholars from various countries, the following author's definition can be proposed: ***“Prioritisation in forensic activity is a dynamic process of analysing, categorising, and triaging forensic objects (information, physical evidence, procedural actions) in terms of their relevance, evidentiary value, and risk of loss, conducted with the aim of conserving procedural resources, optimising work, and eliminating bias in the criminal investigation process”***.

The overall goal of prioritisation in forensic activity is to maintain an optimal balance between the limited resources of the law enforcement system and the need to obtain highly relevant evidence in the shortest possible time in order to ascertain the truth of a case. However, mo-

dern prioritisation tools are evolving from relatively simple ways of automated data collection to comprehensive intelligent platforms that combine automated analysis, cloud computing, and AI techniques, thereby greatly accelerating the “Detection-Analysis-Decision” cycle in forensic activity.

Conclusions

Analysing publications on the use of prioritization tools in forensic activity by scholars from Ukraine, EU countries, the USA, the UK, South Korea, China, Pakistan, Saudi Arabia, Australia and other countries, we can conclude that prioritization (triage) has shifted from a linear (sequential) method of data categorization to a core principle of forensic support for criminal investigations.

Researchers propose the following approaches to defining the role, essence, and avenues of prioritisation implementation in criminal proceedings and criminalistics:

- general theoretical and managerial approach (as a strategic component of criminal law policy and organisation of criminal proceedings);
- tactical and strategic (as the intellectual component of investigative planning;
- technical and forensic (as a method for rapid analysis of physical [in particular, digital] evidence);

54 Al-Jaloud N., Al-Abdulrahman M., Ajlouni L. Aw, Ajlouni A.-W. Op. cit. DOI: [10.13140/RG.2.2.35168.75524](https://doi.org/10.13140/RG.2.2.35168.75524) (date accessed: 03.02.2026).

55 Policing in an online world: Relevance in the 21st century / Europol : web. 18 Jul 2025. 21 p. URL: <https://lnk.ua/aVpona2eD> (date accessed: 05.02.2026).

56 Best Practice Manual for Scene of Crime Examination (ENFSI-BPM-SOC-01) / ENFSI : web. Vers. 02. Febr. 2022. 39 p. URL: https://enfsi.eu/wp-content/uploads/2022/02/BPM-SOC-01-v.20220214_final_v2.pdf (date accessed: 05.02.2026).

57 Best Practice Manual for Digital Image Authentication (ENFSI-BPM-DI-003) / ENFSI : web. 2021. 43 p. URL: https://enfsi.eu/wp-content/uploads/2021/10/BPM_Image-Authentication_ENFSI-BPM-DI-003-1.pdf (date accessed: 05.02.2026).

- innovative approach involving the use of AI systems to analyse digital data at every stage of criminal investigations.

The variety of approaches adopted by scientists from different countries to prioritisation (triage) in forensic activity testifies to the incompleteness and dynamic development of this field.

An overview of numerous publications by foreign and Ukrainian scholars has demonstrated that prioritisation in forensic activity can be defined as a dynamic process of assessing, categorizing, and triaging forensic objects (information, physical evidence, investigative actions) and methods of forensic examination in terms of their relevance, evidentiary value, and the risk of lost evidence, conducted with the aim of streamlining procedural resources, overcoming delays in investigations, and ensuring the rapid delivery of results that are crucial for ascertaining the truth of a case.

Introduction of the prioritisation (triage) principle into national practice of forensic support for criminal investigations shall contribute not only to reducing the workload of investigators and forensic experts, but also to enhancing the overall level of respect for human rights by minimising undue interference in private life during the seizure and examination of data.

A promising research avenue is further development of prioritisation in forensic activity using AI, enabling intelligent ranking of incoming reports of suspected crimes and the automated sorting of large datasets (Big Data), prioritisation of objects for seizure based on their fragility and potential evidentiary value during crime scene inspections, carrying out 3D reconstructions of crime scenes and automatic object recognition.

This will also help formulate a general investigation strategy and establish the sequence of investigative actions, rank questions during interrogations and conditions for conducting investigative experiments, etc.

**Пріоритезація як інструмент
підвищення результативності
криміналістичного забезпечення
розслідування злочинів:
світовий досвід**

Галина Авдєєва

Мета статті — ознайомити (за допомогою загальнонаукових методів дослідження, а також системного, функціонального, формально-логічного та ін.) зі світовим досвідом застосування пріоритезації в криміналістичній діяльності й визначити її сутність, виокремити напрями застосування пріоритезації в слідчій і судово-експертній діяльності, окреслити шляхи впровадження технологічно керованої пріоритезації в практичну діяльність правозастосовних органів для підвищення ефективності розслідування злочинів у сучасних умовах. Пріоритезацію розглянуто як інноваційний інструмент підвищення результативності криміналістичного забезпечення розслідування злочинів в умовах цифрової трансформації та зростання обсягів доказової інформації. Показано, що традиційні методи аналізу стають неефективними, а застосування пріоритезації дає змогу оптимізувати використання процесуальних ресурсів, скоротити строки розслідування і підвищити точність висновків експертів. Доведено, що в сучасній криміналістичній науці пріоритезація поступово трансформується з допоміжного управлінського елемента у фундаментальний методологічний підхід. На основі світового

досвіду виокремлено основні підходи до пріоритезації (загальнотеоретичний, тактико-стратегічний, техніко-криміналістичний, інноваційний) і доведено її значення як фундаментального методологічного інструмента сучасної криміналістики. Визначено сутність пріоритезації в криміналістичній діяльності як динамічного процесу оцінювання, сортування та ранжування об'єктів (інформації, речових доказів, слідчих дій) за ступенем їхньої актуальності, доказової значущості й ризику втрати, який здійснюють з метою оптимізації процесуальних ресурсів, подолання затримок у розслідуванні злочинів і забезпечення швидкого отримання результатів, які мають вирішальне значення для з'ясування істини у справі. Виокремлено перспективні напрями подальших наукових досліджень щодо застосування пріоритезації в криміналістичній діяльності.

Ключові слова: пріоритезація; криміналістичне забезпечення; криміналістична діяльність; судова експертиза; світовий досвід.

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Declaration of Competing Interest

The author declares no conflict of interest.

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Right of the State Audit Service of Ukraine to Administrative Mutual Assistance

Viktor Kvashyn *

* Candidate of Legal Sciences, Kvashyn and Partners Attorneys' Association, Kharkiv, Ukraine, ORCID: <https://orcid.org/0000-0001-9558-5272>, e-mail: advokat.kvashyn@gmail.com

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The purpose of this article is to conduct a comprehensive analysis of the right of the State Audit Service of Ukraine to engage qualified specialists to carry out public financial control measures in systemic connection with the institution of administrative mutual assistance provided for by the Law of Ukraine "On Administrative Procedure." In order to achieve this purpose, general scientific and special scientific methods were applied. The article outlines problems related to the implementation of Art. 10 of the Law of Ukraine "On the Basic Principles of Public Financial Control in Ukraine" under martial law, staff shortages and declining motivation among state auditors. The article analyzes current legislation and the practice of engaging qualified specialists by the State Audit Service on a contractual basis and upon written requests. It has been found that, in its activities, the State Audit Service applies the practice of a simplified understanding of the contractual basis, which is based on non-recognition of the requirements of public procurement legislation and the principles of administrative procedure. Based on an analysis of the relevant governmental procedures, departmental acts of the Ministry of Finance of Ukraine and case law, the internal inconsistency of the specialized legislation on the engagement of specialists, in particular with regard to their status and powers, has been demonstrated. The article examines the statutory construction of the right of an administrative body to administrative assistance, identifies the conditions for exercising this right and the possibilities

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of its application in the activities of public financial control bodies. The article substantiates the need for a legislative distinction between the mechanisms by which the State Audit Service, under conditions limiting its staffing capacity, engages qualified specialists from executive authorities and state funds, by exercising the right to administrative mutual assistance in compliance with the principle of efficiency of administrative procedure, and qualified specialists from enterprises, institutions and organizations, exclusively on a contractual basis in accordance with public procurement legislation. The article emphasizes the need to introduce safeguards against abuse by the State Audit Service of the right to administrative mutual assistance, in order to preserve its institutional capacity to perform the tasks and functions assigned to.

Keywords: public financial control; State Audit Service; engagement of qualified specialists; forensic examination; forensic science institution; contractual basis; public procurement; administrative mutual assistance.

Research Problem Formulation

At the current stage of development of financial control, the Cabinet of Ministers of Ukraine (hereinafter referred to as the *CabMin*), in the Concept for the Implementation of State Policy in the Field of Reforming the Public Financial Control System until 2020 (hereinafter referred to as the *Concept*), recognized the State Audit Service of Ukraine as an effective tool “that has the basis for ensuring high-quality control over the legality and efficiency (effectiveness, efficiency and economy) of the management and use of state (local) resources and the activities of the relevant governmental authorities, local self-government bodies and business entities”¹. According to this Concept, strengthening the staffing capacity of the State Audit Ser-

vice through the implementation of a new model for the development and training of highly qualified personnel was identified as one of the tasks for solving the problem of reforming the public financial control system (hereinafter referred to as PFC) and strengthening the institutional capacity of State Audit Service bodies (Task 5)². Within this task, in order to form and retain highly professional staffing capacity, emphasis was placed on the need for the State Audit Service to prepare proposals “on ensuring such a level of funding as will enable State Audit Service bodies to perform their functions in full and ensure an appropriate level of remuneration.”³

At the same time, the Government of Ukraine, while addressing certain issues of remuneration of employees of state bodies and local self-government bodies

1 Концепція реалізації державної політики у сфері реформування системи державного фінансового контролю до 2020 року : схвал. розпорядж. КМУ від 10.05.2018 р. № 310-р. URL: <https://zakon.rada.gov.ua/laws/show/310-2018-%D1%80#n10> (date accessed: 07.05.2026).

2 Там само.

3 Там само.

during martial law ⁴ did not extend to employees of the State Audit Service and its territorial bodies the coefficients for increasing official salaries provided for the period of martial law, as determined in accordance with legislation in the schemes (amounts) of official salaries (tariff rates), through separate legal regulation of their remuneration by a special law, namely Art. 6-1 of the Law of Ukraine: *On the Basic Principles of Public Financial Control in Ukraine* ⁵ (hereinafter referred to as the *Law on Public Financial Control*), which reduced motivation of state auditors and, in fact, complicated the ability of the State Audit Service to independently perform the functions assigned to it under martial law.

At the same time, the right of public financial control bodies, provided for by Art. 10 of the Law on Public Financial Control, to engage, on a contractual basis, qualified specialists from executive authorities, state funds, enterprises, institutions and organizations to conduct various inspections remains unchanged, and the exercise of this right can, to some extent, compensate for the reduction in the staffing capacity of the State Audit Service and its territorial bodies ⁶.

As case law indicates, the State Audit Service, by simplifying its understanding of the *contractual basis* category ignores the requirements of public procurement legislation and engages officials of executive authorities and scholars to carry out public financial control measures under a simplified procedure: through business correspondence, without organizing procurement procedures and without entering into contracts with them as such ⁷. There is a widespread practice whereby the State Audit Service engages specialists to carry out public financial control measures by issuing them the same referrals as those issued to state auditors ⁸.

Under such conditions, the right of the State Audit Service to engage qualified professionals (specialists) to carry out control measures is subject to analysis in systemic connection with the right of a public financial control body, as an administrative body, to administrative mutual assistance provided for by the Law of Ukraine: *On Administrative Procedure*, which came into force on December 15, 2023 ⁹. Therefore, research on harmonizing the above-mentioned rights of the State Audit Service becomes particularly relevant for ensuring its ability to properly perform the functions

4 Деякі питання оплати праці працівників державних органів та органів місцевого самоврядування під час воєнного стану : постанова КМУ від 25.04.2023 р. № 391 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/391-2023-%D0%BF#Text> (date accessed: 07.05.2026).

5 Про основні засади здійснення державного фінансового контролю в Україні : Закон України від 26.01.1993 р. № 2939-XII (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/2939-12#Text> (date accessed: 07.05.2026).

6 Там само.

7 Рішення Харків. окруж. адмінсуду від 03.03.2025 р. Справа № 520/7216/24. Провадж. № П/520/8074/24 / ЄДПСУ : вебсайт. URL: <https://reyestr.court.gov.ua/Review/125819700> (date accessed: 07.05.2026).

8 Рішення Київ. окруж. адмінсуду від 03.07.2024 р. Справа № 320/14027/24. Провадж. № П/320/14028/24 / ЄДПСУ : вебсайт. URL: <https://reyestr.court.gov.ua/Review/121413724> (date accessed: 07.05.2026).

9 Про адміністративну процедуру : Закон України від 17.02.2022 р. № 2073-IX (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/2073-20#Text> (date accessed: 07.05.2026).

assigned to it. Audit results may be verified, confirmed or refuted, by ordering and conducting a forensic examination, which is a source of evidence in a case of any jurisdiction. "Forensic activities are carried out by state specialized institutions, their territorial branches, forensic science institutions of communal ownership, as well as forensic experts who are not employees of the above-mentioned institutions, and other specialists (experts) in the relevant fields of knowledge in accordance with the procedure and under the conditions" determined by the Law of Ukraine: *On Judicial Examination* (Part 1 of Art. 7 of this Law) ¹⁰.

Article Purpose

Analyze the right of the State Audit Service to administrative mutual assistance provided for by the Law of Ukraine: *On Administrative Procedure* in the context of harmonizing this right with the right to engage qualified specialists in carrying out public financial control measures.

Research Methods

In order to achieve the stated purpose, both general scientific and special scientific methods were applied.

Historical legal and contextual methods were useful for analyzing the Concept, the impact of changes in legal regulation during martial law on the remuneration of state auditors and the consequences of the impact of legal acts on the staffing capacity of the State Audit Service, in order to explain the relevance of the problem of ex-

ercising its right to administrative mutual assistance.

The method of systemic analysis helped identify internal contradictions in current legislation by clarifying the consistency of the right of a public financial control body to engage qualified specialists, as provided for by specialized legislation, in systemic connection with the right of an administrative body to administrative mutual assistance.

The comparative legal method facilitated comparison and determination of the relationship between the procedures for exercising the right to engage qualified specialists on a "contractual basis" and "upon written request."

The method of generalization made it possible to formulate proposals for improving current legislation.

Analysis of Essential Researches and Publications

A significant contribution to research on the institutional and functional aspects of the system of public financial control bodies was made by N. Vyhovska, N. Havkalova, N. Dobizha, A. Karpych, I. Liutyi, Yu. Rusina, I. Sysoieva, H. Skrypnyk and et al.

Thus, I. Sysoieva and N. Dobizha demonstrated that the control system in Ukraine continues to develop intensively, while various characteristics of the organization of public financial control prove the need to improve the existing system ¹¹. I. Liutyi et al. identified the legal and regulatory prerequisites for implementing public financial control in Ukraine. Using the State Audit Service of Ukraine as an example,

10 Про судову експертизу : Закон України від 25.02.1994 р. № 4038-XII (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/4038-12#Text> (date accessed: 07.05.2026).

11 Сисоева І. М., Добіжа Н. В. Особливості здійснення державного фінансового контролю в Україні. *Інвестиції: практика та досвід*. 2021. № 18. С. 11–18. DOI: [10.32702/2306-6814.2021.18.11](https://doi.org/10.32702/2306-6814.2021.18.11) (date accessed: 07.05.2026).

the authors showed the importance of improving the public financial control system and proposed possible vectors for increasing its efficiency at the local level¹². H. Skrypnyk and V. Chernenko examined the results of the activities of State Audit Service bodies under martial law and identified significant volumes of audits, procurement inspections and financial violations¹³. N. Havkalova and M. Tabatskyi identified factors that hinder the public financial control system and substantiated ways to improve the functioning of this system¹⁴. Yu. Rusina highlighted the main problems of public financial control under martial law, in particular staffing and employee motivation¹⁵. N. Vyhovska et al. clarified the concept of “public financial audit” based on an analysis of scholarly approaches and legal regulation, focusing on its distinction from other forms of control¹⁶.

The research papers of Ukrainian administrative law scholars I. Boiko¹⁷, K. Nesterenko and O. Bulhakova¹⁸ and V. Tymoshchuk¹⁹ on issues related to implementation of administrative procedure legislation are undoubtedly important for the chosen area of research.

Thus, I. Boiko establishes the significance of administrative procedure in public administration and demonstrates that it is a standard for the activities of public administration in resolving cases concerning a private person by adopting acts that grant rights to such a person or impose obligations on them; administrative procedure contains the best principles and practices of public administration, which make it possible to introduce the concept of good administration into practical activity²⁰. K. Nesterenko and O. Bulhakova demonstrate that the introduction of a general administrative procedure

- 12 Лютий І., Карпич А., Зубченко В. Державний фінансовий контроль як чинник ефективного використання коштів місцевих бюджетів. *Світ фінансів*. 2021. № 4 (69). С. 53—62. DOI: 10.35774/sf2021.04.053 (date accessed: 07.05.2026).
- 13 Скрипник Г., Черненко В. Державний фінансовий контроль України в умовах воєнного стану. *Економіка та суспільство*. 2024. Вип. 70. 7 с. DOI: 10.32782/2524-0072/2024-70-139 (date accessed: 07.05.2026).
- 14 Гавкалова Н. Л., Табацький М. Г. Роль державного фінансового контролю у забезпеченні економічної безпеки держави. *Вісник Національного університету цивільного захисту України. Серія: Державне управління*. 2023. Вип. 2 (19). С. 13—23. DOI: 10.52363/2414-5866-2023-2-2 (date accessed: 07.05.2026).
- 15 Русіна Ю. О. Державний фінансовий контроль: основні проблеми в умовах воєнного стану. *Актуальні проблеми економіки*. 2025. № 2 (284). С. 148—160. DOI: 10.32752/1993-6788-2025-1-284-148-160 (date accessed: 07.05.2026).
- 16 Виговська Н. Г., Литвинчук І. В., Шінаков А. В. Державний фінансовий аудит: сутність, наукові підходи до визначення. *Економіка, управління та адміністрування*. 2025. № 1(111). С. 109—117. DOI: 10.26642/ema-2025-1(111)-109-117 (date accessed: 07.05.2026).
- 17 Бойко І. Роль і значення адміністративної процедури у публічному адмініструванні. *Науковий вісник Ужгородського національного університету. Серія: Право*. 2022. Вип. 69. С. 229—236. DOI: 10.24144/2307-3322.2021.69.39 (date accessed: 07.05.2026).
- 18 Нестеренко К. О., Булгакова О. В. Адміністративна процедура як новий етап взаємодії органів державної влади і суспільства. *Аналітично-порівняльне правознавство*. 2023. № 6. С. 482—486. DOI: 10.24144/2788-6018.2023.06.83 (date accessed: 07.05.2026).
- 19 Тимошук В. П. Розвиток законодавства про загальну адміністративну процедуру в Україні. *Альманах права*. 2023. Вип. 14. С. 383—388. DOI: 10.33663/2524-017X-2023-14-383-388 (date accessed: 07.05.2026).
- 20 Бойко І. Зазнач. твір. DOI: 10.24144/2307-3322.2021.69.39 (date accessed: 07.05.2026).

will bring Ukraine closer to European Union standards, since similar laws are in force in all EU Member States as an integral component of the right to good administration²¹. V. Tymoshchuk predicts that, in the medium and long term, the Law of Ukraine: *On Administrative Procedure* will perform the role of the main procedural regulator in public administration, and concludes that the principles which not only form the basis of this Law, but also serve as a criterion for resolving conflicts and filling gaps in all administrative procedure legislation, are exceptionally valuable²².

Main Content Presentation

As noted above, pursuant to Art. 10 of the Law of Ukraine: *On the Basic Principles of Public Financial Control in Ukraine*, a public financial control body “has the right to engage, on a contractual basis, qualified specialists from “the relevant executive authorities, state funds, enterprises, institutions and organizations to conduct control measurements of construction, installation, repair and other works, control launches of raw materials and materials into production, control analyses of raw materials, materials and finished products, and other inspections”²³.

Although the right of a public financial control body to engage qualified specialists to conduct inspections is reproduced in a number of governmental and departmental acts regulating the procedures for carrying out public financial control measures including public financial audit, inspection, procurement inspection and others; it is regulated differently in those acts.

Thus, for example, the right of the State Audit Service and its interregional territorial bodies to engage qualified specialists specifically on a contractual basis is provided for financial audits of: the execution of budget programs (para. 15 of the *Procedure for conducting by the State Audit Service and its interregional territorial bodies of public financial audit of the execution of budget programs* [Here and below, italics in the titles of legal acts are mine.—Author])²⁴, State (regional) target programs (para. 17 of the *Procedure for conducting by the State Audit Service and its interregional territorial bodies of public financial audit of state (regional) target programs*)²⁵, activities of business entities (para. 17 of the *Procedure for conducting by the State Audit Service and its interregional territorial bodies of public financial audit of the activities of business en-*

21 Нестеренко К. О., Булгакова О. В. Зазнач. твір. DOI: 10.24144/2788-6018.2023.06.83 (date accessed: 07.05.2026).

22 Тимошук В. П. Зазнач. твір. DOI: 10.33663/2524-017X-2023-14-383-388 (date accessed: 07.05.2026).

23 Про основні засади URL: <https://zakon.rada.gov.ua/laws/show/2939-12#Text> (date accessed: 07.05.2026).

24 Порядок проведення Державною аудиторською службою, її міжрегіональними територіальними органами державного фінансового аудиту виконання бюджетних програм : затв. постанов. КМУ від 10.08.2004 р. № 1017 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/1017-2004-%D0%BF#Text> (date accessed: 07.05.2026).

25 Порядок проведення Державною аудиторською службою, її міжрегіональними територіальними органами державного фінансового аудиту державних (регіональних) цільових програм : затв. постанов. КМУ від 29.08.2018 р. № 692 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/692-2018-%D0%BF#Text> (date accessed: 07.05.2026).

tities)²⁶, funds (para. 17 of the *Procedure for conducting by the State Audit Service and its interregional territorial bodies of public financial audit of the Pension Fund of Ukraine and compulsory state social insurance funds*)²⁷, as well as for operational audits (para. 7 of the *Procedure for conducting by the State Audit Service and its interregional territorial bodies of public financial audit of certain business operations carried out by business entities of the state sector of the economy*)²⁸ and procurement inspections (para. 9 of the *Procedure for conducting procurement inspections by the State Audit Service and its interregional territorial bodies*)²⁹.

As case law indicates, the State Audit Service interprets the concept of *contractual basis* as the basis for reaching agreement between subjects of legal relations in order to perform public-law functions when the State Audit Service conducts public financial audit, inspection, procurement inspection and procurement monitoring, including based

on the results of control measurements of construction, installation, repair and other works, control launches of raw materials and materials into production, control analyses of raw materials, materials and finished products, and other inspections conducted by qualified specialists of the relevant executive authorities, state funds, enterprises, institutions and organizations, and believes that these regulatory provisions are not imperative as regards the obligation to enter into a contract when engaging a specialist to participate in conducting a public financial audit. The public financial control body, referring, in particular, to Arts. 205, 207 and 639 of the Civil Code of Ukraine³⁰, substantiates *possibility of entering into contracts under a simplified procedure through business correspondence*³¹. In our opinion, this position is erroneous, since, according to Art. 2 of this Code, civil legislation does not apply to budgetary relations, of which relations concerning public financial control are a part³².

26 Порядок проведення Державною аудиторською службою, її міжрегіональними територіальними органами державного фінансового аудиту діяльності суб'єктів господарювання : затв. постанов. КМУ від 27.03.2019 р. № 252 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/252-2019-%D0%BF#Text> (date accessed: 07.05.2026).

27 Порядок проведення Державною аудиторською службою, її міжрегіональними територіальними органами державного фінансового аудиту Пенсійного фонду України, фондів загальнообов'язкового державного соціального страхування : затв. постанов. КМУ від 27.12.2018 р. № 1147 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/1147-2018-%D0%BF> (date accessed: 07.05.2026).

28 Порядок проведення Державною аудиторською службою, її міжрегіональними територіальними органами державного фінансового аудиту окремих господарських операцій, що здійснюються суб'єктами господарювання державного сектору економіки : затв. постанов. КМУ від 27.09.2022 р. № 1119 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/1119-2022-%D0%BF#n2> (date accessed: 07.05.2026).

29 Порядок проведення перевірок закупівель Державною аудиторською службою, її міжрегіональними територіальними органами : затв. постанов. КМУ від 01.08.2013 р. № 631. URL: <https://zakon.rada.gov.ua/laws/show/631-2013-%D0%BF#n9> (date accessed: 07.05.2026).

30 Цивільний кодекс України від 16.01.2003 р. № 435-IV (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/435-15#Text> (date accessed: 07.05.2026).

31 Рішення Харків. окруж. адмінсуду від 03.03.2025 р. Справа № 520/7216/24. Провадж. № П/520/8074/24 / ЄДРСР : вебсайт. URL: <https://reyestr.court.gov.ua/Review/125819700> (date accessed: 07.05.2026).

32 Цивільний кодекс ... URL: <https://zakon.rada.gov.ua/laws/show/435-15#Text> (date accessed: 07.05.2026).

Formally, there is no requirement concerning the qualification of specialists of “ministries, other central executive authorities, their territorial bodies and legal entities, regardless of their organizational and legal form,” who may be engaged “to conduct an administrative verification” and “express an expert opinion” pursuant to para. 10 of the Procedure for the functioning of the management system and control over the implementation of Interreg and Interreg NEXT cross-border, transnational and interregional cooperation programs³³.

Instead, engagement of qualified specialists or other experts for the State Audit Service to conduct public procurement monitoring is not provided for at all either by the Law of Ukraine: *On Public Procurement* or by the Procedure for conducting by the State Audit Service and its interregional territorial bodies of public financial audit of local budgets³⁴.

The engagement by the State Audit Service of third parties to conduct inspections is currently regulated differently. Under Art. 4 of the Law on Public Financial Control, inspection is carried out by

a public financial control body in the form of an audit and consists of “a documentary and factual verification of a certain set of issues or individual issues of the financial and economic activities of a controlled institution, which must ensure the detection of existing facts of violations of legislation and the identification of officials and materially responsible persons guilty of their commission”³⁵. The difference in the legal regulation of engagement of specialists of ministries, other central executive authorities, their territorial bodies, enterprises, institutions and organizations is that it is carried out not on a contractual basis, that is, not on the basis of a contract concluded in accordance with the established procedure, but upon written request of the head of the public financial control body (para. 10 of the Procedure for conducting inspections by the State Audit Service and its interregional territorial bodies)³⁶. At the same time, unlike the legal regulation of the engagement of qualified specialists to conduct public financial audit, para. 11 of the above-mentioned Procedure expressly provides for issuing a referral for conducting an audit in the form established by the

33 Порядок функціонування системи управління та здійснення контролю за виконанням програм транскордонного, транснаціонального та міжрегіонального співробітництва Interreg та Interreg NEXT : затв. постанов. КМУ від 05.11.2024 р. № 1268 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/1268-2024-%D0%BF#Text> (date accessed: 07.05.2026).

34 Про публічні закупівлі : Закон України від 25.12.2015 р. № 922-VIII (зі змін. та допов.). URL: https://zakon.rada.gov.ua/laws/show/922-19?find=1&text=%D0%BC%D0%BE%D0%B-D%D1%96%D1%82%D0%BE%D1%80%D0%B8%D0%BD%D0%B3#w1_2 (date accessed: 07.05.2026) ; Порядок проведення Державною аудиторською службою, її міжрегіональними територіальними органами державного фінансового аудиту місцевих бюджетів : затв. постанов. КМУ від 12.05.2007 р. № 698 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/698-2007-%D0%BF#Text> (date accessed: 07.05.2026).

35 Про основні засади URL: <https://zakon.rada.gov.ua/laws/show/2939-12#Text> (date accessed: 07.05.2026).

36 Порядок проведення інспектування Державною аудиторською службою, її міжрегіональними територіальними органами : затв. постанов. КМУ від 20.04.2006 р. № 55 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/550-2006-%D0%BF#Text> (date accessed: 07.05.2026).

Ministry of Finance of Ukraine ³⁷. Moreover, the form of such referral is approved by the State Audit Service itself, and not by the Ministry of Finance of Ukraine, as provided for the forms of referrals for conducting public financial audit.

It should be noted that engagement of qualified specialists on a contractual basis or of specialists upon written request of the head cannot be equated with the transfer or delegation to such persons of the State Audit Service's authoritative powers to carry out public financial control measures. Specialized legislation, in particular the Law on Public Financial Control, also does not contain conditions under which the State Audit Service could grant the legal status of state auditor to those qualified specialists and specialists whom it engages in carrying out public financial control measures, but who are not officials of the State Audit Service or its interregional territorial bodies ³⁸. In this regard, we note that the existence of civil servant status for a qualified specialist or specialist does not change the body in which they perform civil service if such qualified specialist or specialist is engaged in control measures either on the basis of the relevant procurement contract concluded between the State Audit Service and the relevant body in which

they perform civil service, or on the basis of an organizational and administrative act of the head of the body in which they perform civil service, adopted in response to a written request from the head of the public financial control body.

The above conclusions are based on the fact that only officials of the State Audit Service and its interregional territorial bodies are state auditors; therefore, only these officials have the statutory rights of a public financial control body: to perform actions within audit procedures, to be included in the relevant groups of state auditors, to perform duties and to bear responsibility. For this reason, only state auditors, who are officials of State Audit Service bodies, are authorized by law to carry out public financial control measures. This conclusion is the direct result of the provisions of the above-mentioned procedures for conducting public financial audit measures ³⁹. In this context, the already mentioned Procedure for conducting inspections by the State Audit Service and its interregional territorial bodies is no exception, since para. 3, subpara. 14, recognizes as officials of a public financial control body only employees or a group "consisting of two or more employees of the public financial control body who, within the competence of the public

37 Порядок проведення інспектування ... URL: <https://zakon.rada.gov.ua/laws/show/550-2006-%D0%BF#Text> (date accessed: 07.05.2026).

38 Про основні засади ... URL: <https://zakon.rada.gov.ua/laws/show/2939-12#Text> (date accessed: 07.05.2026).

39 Порядок проведення ... виконання бюджетних програм ... URL: <https://zakon.rada.gov.ua/laws/show/1017-2004-%D0%BF#Text> (date accessed: 07.05.2026) ; Порядок проведення ... цільових програм ... URL: <https://zakon.rada.gov.ua/laws/show/692-2018-%D0%BF#Text> (date accessed: 07.05.2026) ; Порядок проведення ... діяльності суб'єктів господарювання ... URL: <https://zakon.rada.gov.ua/laws/show/252-2019-%D0%BF#Text> (date accessed: 07.05.2026) ; Порядок проведення ... Пенсійного фонду України ... URL: <https://zakon.rada.gov.ua/laws/show/1147-2018-%D0%BF> (date accessed: 07.05.2026) ; Порядок проведення ... державного сектору економіки ... URL: <https://zakon.rada.gov.ua/laws/show/1119-2022-%D0%BF#n2> (date accessed: 07.05.2026).

financial control body, are assigned to conduct an audit or a cross-check”⁴⁰.

At the same time, by its order the Ministry of Finance of Ukraine provided for the issuance by the State Audit Service to a qualified specialist who is not an official of a State Audit Service body of a referral, similar to that received by state auditors, for conducting a public financial control measure and for collecting information and conducting a cross-check⁴¹. In our opinion, since a qualified specialist engaged by the State Audit Service to conduct a public financial control measure is not an official of a State Audit Service body and is not a state auditor, such specialist cannot directly conduct or carry out public financial control measures, and the State Audit Service has no legal grounds or powers to issue such specialist a referral in the form provided for state auditors.

In our view, the above-mentioned order of the Ministry of Finance of Ukraine contradicts the provisions of the Law on Public Financial Control⁴², since it effectively grants the State Audit Service discretionary authority to transfer or delegate to third parties the powers of state auditors to carry out public financial control measures that is impermissible.

We believe that qualitatively new approaches to the exercise by the State Audit Service of the right to engage qualified specialists in carrying out public financial control measures need to be introduced in order to ensure compliance in its activities

with the principles provided for by the Law on Administrative Procedure⁴³.

As we see from the analyzed procedures regulating engagement of qualified specialists in carrying out public financial control measures, the current procedure for engaging specialists to conduct audits is most closely aligned with the procedure for exercising the right to administrative mutual assistance. This very right of the State Audit Service as an administrative body is provided for by Art. 26 of the Law on Administrative Procedure and is aimed at implementing the principle of efficiency as one of the principles of administrative procedure by which all administrative bodies should be guided⁴⁴.

In our opinion, the named article provides that conditions for exercising such right are the performance of actions necessary to complete already initiated administrative proceedings, either where the administrative body is unable to perform the actions independently for justified reasons, or where performance of such actions by the administrative body itself, that is, the body requesting administrative mutual assistance, would be ineffective or more costly than their performance by another administrative body, that is, the body whose administrative mutual assistance is requested.

At the same time, it is the principle of efficiency, which, under Art. 14 of the Law on Administrative Procedure, consists in organizing the consideration and resolu-

40 Порядок проведення інспектування URL: <https://zakon.rada.gov.ua/laws/show/550-2006-%D0%BF#Text> (date accessed: 07.05.2026).

41 Про затвердження зразків направлень для посадових осіб органів державного фінансового контролю : наказ Мінфіну України від 30.12.2020 р. № 821 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/z0160-21#Text> (date accessed: 07.05.2026).

42 Про основні засади URL: <https://zakon.rada.gov.ua/laws/show/2939-12#Text> (date accessed: 07.05.2026).

43 Про адміністративну процедуру URL: <https://zakon.rada.gov.ua/laws/show/2073-20#Text> (date accessed: 07.05.2026).

44 Там само.

tion of a case with the least expenditure of funds and other resources, in a simple and effective manner, that requires the body which has requested administrative mutual assistance to choose one administrative body from among several where they have the same competence ⁴⁵. In this context, for example, account should be taken of the costs of remuneration of officials and employees who, on behalf of the administrative body whose administrative mutual assistance is requested, will actually perform the necessary procedural actions required to complete the relevant administrative proceedings.

Conclusions

Engagement of qualified specialists on a contractual basis or of specialists upon written request of the head cannot be equated with the transfer or delegation by the State Audit Service to such persons of its authoritative powers to carry out public financial control measures. Audit results may be verified in various ways, including through forensic examination within the scope of the research subject. In this context, the order of the Ministry of Finance of Ukraine approving identical forms of referrals to be issued before public financial control measures are conducted to both state auditors and engaged qualified specialists does not comply with specialized legislation on public financial control.

The current state of legal regulation governing the exercise of the State Audit Service's right to engage qualified specialists when applying to the relevant executive authorities does not fully comply with the principle of efficiency as one of the principles of administrative procedure. This right needs to be aligned with the

legislative structure of the administrative body's right to administrative mutual assistance.

The procedure for exercising this right where the State Audit Service applies to the relevant executive authorities and state funds needs to be legally distinguished from the procedure for exercising it where the State Audit Service applies to enterprises, institutions and organizations of any form of ownership: contracts concluded in accordance with public procurement legislation, rather than civil legislation, should remain the legal basis for engaging qualified specialists from enterprises, institutions and organizations, whereas qualified specialists of executive authorities and state funds should be engaged by the State Audit Service in compliance with the principle of efficiency under the procedure for exercising its right to administrative mutual assistance.

In the context of engaging specialists of executive authorities to carry out public financial control measures, this right should provide for safeguards against its abuse. We believe that, in the absence of such safeguards and if requests by the State Audit Service to other bodies become systemic, the exercise of this right may cause this public financial control body to lose its institutional capacity to perform the tasks and functions assigned to this body.

Право Державної аудиторської служби України на адміністративну взаємодопомогу

Віктор Квашин

Мета статті — здійснити комплексний аналіз права Державної аудиторської служби України на залучення кваліфікованих фахівців для проведення

⁴⁵ Про адміністративну процедуру URL: <https://zakon.rada.gov.ua/laws/show/2073-20#Text> (date accessed: 07.05.2026).

заходів з державного фінансового контролю в системному зв'язку з інститутом адміністративної взаємодопомоги, передбаченим Законом України «Про адміністративну процедуру». Для досягнення поставленої мети застосовано загальнонаукові та спеціальні наукові методи. Окреслено проблеми реалізації ст. 10 Закону України «Про основні засади здійснення державного фінансового контролю в Україні» в умовах воєнного стану, кадрового дефіциту та зниження мотивації державних аудиторів. Проаналізовано акти чинного законодавства та практику залучення кваліфікованих фахівців Держаудитслужбою на договірних засадах і за письмовими зверненнями. Виявлено, що Держаудитслужба у своїй діяльності застосовує практику спрощеного розуміння договірних засад, засновану на невизнанні вимог законодавства про публічні закупівлі та принципів адміністративної процедури. На підставі аналізу відповідних урядових порядків, відомчих актів Міністерства фінансів України й судової практики доведено внутрішню суперечливість профільного законодавства в питаннях залучення фахівців (зокрема, щодо їх статусу та повноважень). Досліджено нормативну конструкцію права адміністративного органа на адміністративну допомогу, виокремлено умови реалізації цього права й можливості його застосування в діяльності органів держфінконтролю. Обґрунтовано необхідність законодавчого розмежування механізмів залучення Держаудитслужбою (в умовах обмеження її кадрового потенціалу) кваліфікованих фахівців від органів виконавчої влади й державних фондів — за допомогою реалізації права на адміністративну взаємодопомогу з дотриманням принципу ефективності адміністративної процедури, а кваліфікованих фахівців підприємств, установ і організацій — виятково на договірних засадах відповідно

до законодавства про публічні закупівлі. Наголошено на необхідності запровадити запобіжники від зловживання Держаудитслужбою правом на адміністративну взаємодопомогу (з метою збереження інституційної спроможності виконувати покладені на неї завдання та функції).

Ключові слова: державний фінансовий контроль; Державна аудиторська служба; залучення кваліфікованих фахівців; судово експертиза; судово-експертна установа; договірні засади; публічні закупівлі; адміністративна взаємодопомога.

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Declaration of Competing Interest

Author declares no conflict of interest.

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Forensic Characteristics of Criminal Offenses Related to Illegal Circulation of Virtual Assets

Dmytro Nesterov*

* Crypto Analytics Consultant (NDA), Kharkiv, Ukraine,
ORCID: <https://orcid.org/0009-0008-3252-4649>, e-mail: nesterov.dmitriy85@ukr.net

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This article purpose is to reveal peculiarities of forensic characteristics of crimes related to illegal circulation of virtual assets, as well as to determine the main elements of their commission mechanism. For achieving this goal, complex of general scientific and special legal methods of cognition was applied, in particular dialectical, system-structural, formal-legal, comparative-legal, logical-semantic one, analysis and synthesis, modeling and generalization. The article is devoted to research on forensic characteristics of criminal offenses related to illegal circulation of virtual assets, which in conditions of global digitalization and rapid information development of technologies are becoming increasingly dangerous to society. Topic relevance is due to active use of cryptocurrencies, decentralized financial services, anonymous payment instruments and artificial intelligence technologies in mechanisms of committing fraud, cybercrime and legalization of proceeds from crime. Growth of transnational cybercrime, spread of phishing schemes, use of mixers, toggle switches, offshore jurisdictions and platforms with end-to-end encryption create significant difficulties for law enforcement agencies in detecting, documenting and investigating such offenses. Particular attention is paid to the problems of forming an evidentiary base associated with virtual nature of digital traces and difficulty of identifying persons involved in illegal transactions with virtual assets. The research results determined that virtual assets as a subject of criminal encroachment form specific mechanism of criminal

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activity that is characterized by a high level of latency, cross-border nature, use of modern information technologies and complexity of localizing the place of commission of a criminal offense. It was substantiated that digital traces contained in blockchain, electronic wallets, user accounts, PC memory, messengers, social networks, databases of communication operators and Internet providers are of crucial importance for the investigation. The most common methods of committing crimes related to the illegal circulation of virtual assets are analyzed, including phishing attacks, hacking of cryptocurrency exchanges and electronic wallets, use of fake platforms, manipulation of tokens, fraudulent investment projects, DeFi-exploits, NFT fraud and legalization of income using cryptocurrency services and online casinos. It is proven that significant part of such offenses is committed by transnational organized criminal groups with a clear division of roles between participants. It is argued that offender in this category of crimes is characterized by a high level of digital competence, specific expertise in the field of information technology, programming or finance and an orientation towards obtaining material benefits. It is proposed to classify the subjects of such criminal offenses as technically trained specialists, professional cybercriminals and persons with legal professional status who apply their knowledge to implement criminal schemes. It is concluded that criminal offenses related to illegal circulation of virtual assets are a complex multi-level phenomenon that combines cybercrime peculiarities, economic crime and transnational organized activity. The need for further development of forensic investigation methods, improvement of legislative regulation of circulation of virtual assets and increasing level of technical training of law enforcement agencies in the field of work with digital evidence and blockchain technologies is emphasized.

Keywords: virtual asset; blockchain; cross-border crimes; legalization (laundering) of money obtained by criminal means; fraud; theft; forensic characteristics; illicit trafficking.

Research Problem Formulation

Technological innovation has driven economic and social progress, but the same innovation has brought to market the factors that facilitate cyberfraud, lowering barriers, expanding reach and enabling fraudsters to scale operations. Many financial and non-financial services have rapid-

ly proliferated online during the COVID-19 pandemic. As highlighted in joint publication of the FATF (International Group on Combating Money Laundering, *Financial Action Task Force*), Egmont Group of Financial Intelligence Units and Interpol on Illicit Financial Flows from cyberfraud and related crimes are experiencing explosive growth driven by emerging technologies,

artificial intelligence (AI) and deepfakes based on ¹.

State Financial Monitoring Service emphasizes that development of financial infrastructure increases difficulties in combating fraud. Growing use of virtual assets (hereinafter referred to as VA), as well as instant and cross-border payment channels with insufficient targeted mitigation measures, allow the transfer of proceeds before their detection or intervention. Often, large-scale cyberfraud schemes are carried out or facilitated by transnational organized criminal groups: such schemes are managed with the help of specialized fraud centers ². A similar situation with the masking of illegal transactions through their implementation using VA has developed in most black markets (sale of weapons, drugs, provision of illegal services, etc.) and in the sphere of legalization (laundering) of criminal proceeds.

State Financial Monitoring Service of Ukraine records following cases of laundering proceeds from fraudulent actions and cybercrimes: use of AI technologies for the purpose of illegally passing remote identification and gaining access to a client's account; intentional forgery of deposit documents for fraudulent appropriation of funds of banking institution; fraudulent sale by an individual of commercial real estate objects, which construction had no legal relationship, for cash; fraudulent appropriation of cash and non-cash

funds of citizens under the guise of raising funds for the needs of the Armed Forces of Ukraine; appropriation of funds of individuals by deception or abuse of trust (selling non-existent goods through social networks) with subsequent withdrawal of funds to a cryptocurrency exchange; use of fake website of a State body to access personal data and bank accounts for the purpose of illegally debiting funds; use of phishing emails to gain access to the victim's bank account and make illegal transfers ³.

There are frequent cases of laundering criminal proceeds using VA: conducting transactions with crypto assets; using a third-party exchange service using regular current accounts not intended for such activities, involving minors and foreign citizens; using VA as ransom to unlock the work of non-resident companies that have suffered from cyberattacks; using fake crypto trading projects that are actually an element of a financial pyramid, with the aim of fraudulently seizing the funds of citizens of Ukraine and foreigners ⁴.

Interpol has observed similar trends in its jurisdictions. According to Interpol, widespread use of end-to-end encryption (E2EE) platforms, combined with complex jurisdictional and technical barriers, leaves investigators with "blind spots". In addition, work is often hampered by restrictive or inadequate data retention policies (for example, on crypto exchanges). By the time investigators request access

- 1 Cyber-Enabled Fraud. Digitalisation and Money Laundering, Terrorist Financing and Proliferation Financing Risks. February 2026 / FATF : web. 9 p. URL: <https://www.fatf-gafi.org/content/dam/fatf-gafi/reports/Cyber-Enabled-Fraud%E2%80%9393Digitalisation-and-ML-TF-PF-Risks.pdf.coredownload.inline.pdf> (date accessed: 11.04.2026).
- 2 Типологічне дослідження на тему: «Ризики та загрози легалізації (відмивання) доходів, одержаних злочинним шляхом, фінансування тероризму в умовах військової агресії російської федерації — 2025»: затв. наказ. Держфінмоніторингу України від 22.12.2025 р. № 116. URL: <https://surl.li/spkxkl> (date accessed: 11.04.2026).
- 3 Там само.
- 4 Там само.

to relevant data, it is often no longer available.

Cybercrime is fueled by persistence of darknet marketplaces and forums. These platforms are increasingly intertwined with *E2EE* platforms in a hybrid anonymity ecosystem. Cryptocurrencies remain a preferred payment method for cybercriminals, especially during ransomware attacks.

Online fraud by criminal groups targets as individuals as organizations to profit from schemes such as investment fraud, Business Email Compromise (BEC) and online payment fraud. With introduction of generative AI, fraudsters can personalize social engineering techniques and make them more convincing.

Ransomware remains the main threat in the EU, with over 120 active brands (according to Europol 2025). Extortion model continues to shift from data encryption to pressure victims to pay for non-disclosure of their data.

New technologies and monetization. Criminals are rapidly adapting to new technologies, making more difficult for law enforcement to track. Trafficking of child sexual abuse material for financial gain is on the rise, as are multi-level extortion models. Rise in AI-generated CSAM (*Child Sexual Abuse Material*) poses additional challenges.

Use of cryptocurrencies in cybercrime is growing rapidly. Criminals often prefer to use exchanges located in jurisdictions with weak Anti-Money Laundering (AML) protocols or in offshore financial centers ⁵.

In current conditions, the issue of neutralizing offenses related to the illegal VA circulation that currently is the most progressive and architecturally complex layer of cybercrime, is becoming particularly acute. Evolution of this area of illegal activity is taking place synchronously with the expansion of the digital economy and the introduction of the latest blockchain solutions. Such instruments as Bitcoin, Ethereum, Stablecoin, as well as *DeFi* services and NFT (non-fungible token), are increasingly becoming not only objects of investment, but also the main elements in schemes for the legalization of shadow capital, circumvention of financial monitoring mechanisms and material support for crime ⁶ (in particular, from international sanctions ⁷).

Article Purpose

Reveal peculiarities of forensic characteristics of crimes related to illegal VA trafficking, as well as to identify the main elements of the mechanism of their commission.

Research Methods

Achievement of article purpose is ensured by comprehensive application of general scientific and special legal cognition methods. Dialectical method was useful for clarifying patterns that are revealed in the elements of the forensic characteristics of crimes related to illegal VA circulation.

5 IOCTA 2026 – The evolving threat landscape: how encryption, proxies and AI are expanding cybercrime. Internet Organised Crime Threat Assessment (IOCTA) 2026 / EUROPOL : web. 28 Apr 2026. DOI: 10.2813/5737847 (date accessed: 11.04.2026).

6 Щорічний звіт Департаменту кіберполіції Національної поліції України за 2025 рік / Кіберполіція України : офіц. вебсайт. 16.02.2026. URL: <https://cyberpolice.gov.ua/news/shhorichnyj-zvit-7096/> (date accessed: 11.04.2026).

7 Crypto Crime in 2025 Was Primarily Driven by 694% Surge in State-Driven Sanctions Evasion Volume / Chainalysis : web. March 5, 2026. URL: <https://live-chainalysis.pantheonsite.io/blog/crypto-sanctions-2026/> (date accessed: 11.04.2026).

Method of analysis and synthesis helped in processing scientific sources and practice-oriented approaches to international and national experience in investigation of transnational economic and cybercrimes, in particular, those related to the illegal VA circulation, as well as in identification of the main elements of forensic characteristics of crimes related to illegal circulation of virtual assets (subject of the crime, circumstances, time, place, methods of preparation, commission and concealment of crimes, criminal identity, etc.).

System-structural method made possible to form integral elements of the forensic characterization of crimes related to illegal VA circulation from transnational economic crimes, cybercrimes and legalization (laundering) of proceeds of crime using virtual currencies.

Formal legal method contributed to the analysis of national and international regulations on VA circulation, legalization (laundering) of proceeds from crime and fight against cybercrime.

Logical-dogmatic (logical-semantic) method was used to clarify content of categories: *method of preparation for crime, method of committing crime, method of concealing crime, crime traces* in the context of the forensic characterization of crimes related to illegal VA circulation, as well as to formulate conclusions.

Comparative legal method was useful for comparing scientific approaches to tactically ensuring interaction with vic-

tims in proceedings concerning serious and international crimes, as well as for taking into account international standards in the field of treating victims and protecting their rights in the context of potential mechanisms of international criminal justice. Modeling method helped to outline typical methods of preparing, committing and concealing crimes related to illicit VA trafficking.

Modeling method helped to outline typical methods of preparing, committing and concealing crimes related to the illegal VA trafficking.

Generalization method contributed to the systematization of results of processing of doctrinal sources and practical data and formulation of the author's conclusions regarding elements of the forensic characteristics of crimes related to the illegal VA circulation.

Analysis of Essential Researches and Publications

Researches on theoretical aspects of committing crimes related to illegal VA circulation have recently become increasingly interesting to scientists, as their number is constantly growing, as is the number of people whose lives have been affected by digital assets. Elements of forensic characteristics of crimes related to illegal VA circulation are fragmentarily disclosed in research papers by V. Bozhyk⁸, A. Dolhov⁹,

8 Божик В. І. Криміналістична характеристика легалізації майна, одержаного внаслідок ухилення від сплати податків: елементи та механізм злочинної діяльності. *Науковий вісник Ужгородського Національного Університету. Серія: Право*. 2026. Вип. 93. Ч. 5. С. 28—34. DOI: [10.24144/2307-3322.2026.93.5.3](https://doi.org/10.24144/2307-3322.2026.93.5.3) (date accessed: 08.04.2026).

9 Долгов А. Відповідальність за злочини, пов'язані з незаконним обігом крипто валют. *Ольвійський форум — 2025: стратегії країн Причорноморського регіону в геополітичному просторі*: мат-ли XXII Міжнар. наук. конф. (Миколаїв, 16—22.06.2025) / *Матеріали науково-практичних конференцій Чорноморського національного університету імені Петра Могили. Серія: Право*. 2025. № 1 (1). С. 40—43. DOI: [10.34132/mspc2025.01.11.08](https://doi.org/10.34132/mspc2025.01.11.08) (date accessed: 08.04.2026).

B. Derevianko¹⁰, I. Zavydniak¹¹, M. Karchevskiy and co-authors¹², E. Maliutin¹³, Ya. Nedilko¹⁴, O. Kreminskyi¹⁵, A. Movchan and V. Kozii¹⁶, V. Sysoliatin¹⁷ et al. The issue of international legal regulation of information security and formation of national criminal law policy in this regard is disclosed in the research paper by M. Karchevskiy and co-authors. In particular, the issue of information security in the field of information technology application in the context of VA use was considered. The scientists proposed a scientific and theoretical definition of information security, outlined the types

of social relations that ensure it, and highlighted the issue of implementing international standards for combating criminal offenses in the field of information technology application and VA circulation¹⁸.

In current conditions of global digitalization, cryptocurrencies are turning into a significant financial instrument, which, due to anonymity and cross-border nature, poses new challenges to economic security, including money laundering, terrorist financing and specific cybercrimes. Despite existence of international countermeasures and the adoption in Ukraine of

- 10 Деревянко Б. В. Ризики здійснення операцій з криптовалютою (біткойнами) громадян і суб'єктів господарювання України. *Форум права*. 2017. № 3. С. 33—39. URL: https://repository.ndipp.gov.ua/bitstream/handle/765432198/269/Derevyanko__FP_2017_3_8.pdf?sequence=1&isAllowed=y (date accessed: 07.05.2026).
- 11 Завидняк І. О. Особливості криміналістичної характеристики економічних транснаціональних злочинів, вчинених із використанням сучасних комп'ютерних технологій. *Аналітичне-порівняльне правознавство*. 2021. № 3. С. 178—183. DOI: 10.24144/2788-6018.2021.03.33 (date accessed: 08.04.2026).
- 12 Карчевський М. В., Шульженко Н. В., Куковинець Д. О. та ін. Міжнародні стандарти та національна кримінально-правова політика у сфері охорони інформаційної безпеки : монографія / за заг. ред. В. І. Борисова, М. В. Карчевського, М. В. Шепітька. Харків, 2023. 152 с. DOI: 10.31359/9789669986818 (date accessed: 11.04.2026).
- 13 Малиютін Е. В. Основи методики розслідування кримінальних правопорушень, пов'язаних із використанням е-банкінгу : автореф. дис. ... канд. юрид. наук. Дніпро, 2024. 26 с. URL: <https://dduvs.edu.ua/naukova-diyalnist/spetsializovani-vcheni-radi/ogoloshennya-pro-zahist-disertatsij/malyutin/> (date accessed: 08.04.2026).
- 14 Неділько Я. В. Розслідування кримінальних правопорушень, що вчиняються з використанням інформаційних комп'ютерних технологій : дис. ... д-ра філос. в галузі права. Київ, 2023. 257 с. URL: <https://ir.library.knu.ua/server/api/core/bitstreams/902a977f-032e-4c47-84df-703ae2b1f64e/content> (date accessed: 08.04.2026).
- 15 Кременський О. В. Розслідування легалізації (відмивання) доходів, отриманих злочинним шляхом, в умовах використання віртуальних валют : дис. ... д-ра філос. в галузі права. Ірпінь, 2022. 229 с. URL: https://drive.google.com/file/d/1hRfh1Vp-mnRti_ftfs5eSfOS-vhTI9rln/view (date accessed: 08.04.2026).
- 16 Мовчан А. В., Козій В. В. Основи розслідування злочинів щодо незаконного заволодіння криптовалютою. *Наука і правоохорона*. 2022. № 4 (58). С. 178—189. DOI: 10.36486/np.2022.4(58).17 (date accessed: 08.05.2026).
- 17 Сисолятин В. В. Розслідування кримінальних правопорушень, пов'язаних із використанням інтернет-банкінгу : дис. ... канд. юрид. наук. Київ, 2024. 230 с. URL: <https://uacademic.info/ua/document/0423U100236> (date accessed: 08.04.2026).
- 18 Карчевський М. В., Шульженко Н. В., Куковинець Д. О. та ін. Зазнач твір. DOI: 10.31359/9789669986818 (date accessed: 11.04.2026).

the Law: *On Virtual Assets* ¹⁹ (hereinafter referred to as Law on VA), legal regulation remains fragmented, and the procedure of bringing to justice is complicated by anonymity of transactions, the use of mixers, jurisdictional conflicts and the lack of technical expertise in law enforcement agencies. A. Dolhov determined that overcoming these obstacles requires adapting national legislation to international standards, systematically improving digital competence of investigators and judges, and introducing specialized blockchain monitoring tools, which will allow for effective VA integration into official financial system while minimizing criminal risks ²⁰.

In recent years, Ukrainian forensic science has significantly intensified research into the problems of investigating crimes related to VA. An example is O. Kreminskyi, who formed elements of a forensic characteristic of the legalization (laundering) of proceeds from crime in the use context of virtual currencies. The researcher determined that forensic characteristic of legalization of criminal proceeds with VA use of is based on complex, pre-planned schemes that include the stages of preparation, commission and active concealment of traces of the crime using crypto casinos (where up to three quarters of the funds are laundered), anonymous prepaid cards, crypto ATMs and game currencies in MMORPG games.

Characteristic features of such crimes are anonymity of transactions, lack of linking of accounts to specific individuals, and the use of mixer services to obfuscate blockchain chains that allows entities with a high level of knowledge in IT fields and finance to effectively mask the sources of origin of funds (drug trafficking, fraud, corruption). Investigation procedure is significantly complicated by cross-border nature of operations, where the crime scene is both the location of the computer and the territory of a country with computing power and evidence base is often formed not only from digital traces, but also from paper drafts. Typical portrait of law enforcement officer-criminal is a lone initiator who acts as part of organized groups, guided by selfish motives and using gaps in the legislation and the anonymity of the crypto field to avoid responsibility ²¹.

Separate category is made up of crimes committed using information and computer technologies ²² and criminal offenses related to the use of e-banking ²³. Scientists have identified the main elements of the forensic characteristics and mechanisms of committing these offenses that are derivatives of many crimes related to illegal VA circulation.

In a separate research paper, I. Zavydniak formulated peculiarities of forensic characteristics of economic transnational crimes committed with use of modern

19 Про віртуальні активи : Закон України від 17.02.2022 р. № 2074-IX (зі змін. та допов.; не набрав чин.). URL: <https://zakon.rada.gov.ua/laws/show/2074-20#Text> (date accessed: 08.04.2026).

20 Долгов А. Зазнач твір. DOI: 10.34132/mspc2025.01.11.08 (date accessed: 08.04.2026).

21 Крeмiнськiй О. В. Зазнач твір. URL: https://drive.google.com/file/d/1hRfh1Vp-mnRti_ftf-s5eSfOSvhTI9rln/view (date accessed: 08.04.2026).

22 Недiлькo Я. В. Зазнач. твір. URL: <https://ir.library.knu.ua/server/api/core/bitstreams/902a977f-032e-4c47-84df-703ae2b1f64e/content> (date accessed: 08.04.2026).

23 Малютiн Е. В. Зазнач твір. URL: <https://dduvs.edu.ua/naukova-diyalnist/spetsializovani-vcheni-radi/ogoloshennya-pro-zahist-disertatsij/malyutin/> (date accessed: 08.04.2026) ; Сисолятин В. В. Зазнач. твір. URL: <https://uacademic.info/ua/document/0423U100236> (date accessed: 08.04.2026).

computer technologies that can be defined as a separate category of crimes related to illegal VA circulation. Most of these crimes are usually fraud and by VA nature they are precisely of a cross-border nature ²⁴.

Important for formation of scientific opinion on formation of methods and techniques for combating crimes related to the illegal circulation of VA are reports, recommendations and other analytical information from Ukrainian and international bodies that combat cybercrime, organized crime and corruption, as well as those engaged in financial monitoring with the aim of identifying signs of legalization (laundering) of funds obtained through criminal means.

At the same time, national scientific community lacks fundamental and multidisciplinary researches to determine elements of the forensic characteristics of criminal offenses related to illegal VA circulation. This necessitates the research on this issue and elucidation of its individual components.

Main Content Presentation

The main goal of forensic characterization is to optimize the procedure of crime detection and investigation. It can be imagined as an ideal model of typical connections and sources of evidentiary information that allows predicting optimal path and the most effective means of investigating individual categories of crimes ²⁵.

First important element of forensic characteristic, I. Zavydniak calls the topic

of criminal acts, since it has a direct impact on other elements and is a condition for certain methods of committing and concealing a crime, signs of identity of criminal (crimes) ²⁶. In our opinion, this statement is quite correct, since in our case a special topic, namely: VA that creates unique correlations. It is worth agreeing with the fact that only cryptocurrency can leave such traces as public keys of wallets, number of transferred VA, unique transaction hash, exact time of the transfer and commission amount.

Since VA are inherently specific data sets, nature analysis of computer information as their substantive basis is of particular importance. Despite the fact that criminal procedural legislation of Ukraine currently does not single out digital data as an individual category of evidence base, during investigation of relevant crimes, the main role is played by information traces, that after proper legal registration are transformed into full-fledged evidence. It should be emphasized that virtual nature of computer information is devoid of traditional material embodiment and becomes available for analysis only through the use of software and hardware tools that convert digital codes into a form understandable to human perception. In a broad sense, such information can be defined as a set of information that exists on electronic storage devices or is transmitted via network channels is subject to processing, modification and reproduction using computer systems and telecommunication networks ²⁷.

24 Завидняк І. О. Зазнач. твір. DOI: 10.24144/2788-6018.2021.03.33 (date accessed: 08.04.2026).

25 Батюк О. В., Благути Р. І., Гумін О. М. та ін. Методика розслідування окремих видів злочинів, підслідних органам внутрішніх справ : навч. посіб. / за заг. ред. Є. В. Пряхіна. Львів, 2011. 324 с.

26 Завидняк І. О. Зазнач. твір. DOI: 10.24144/2788-6018.2021.03.33 (date accessed: 08.04.2026).

27 Мазуренко О., Розенфельд Н. Комп'ютерна інформація як предмет правопорушень, передбачених Розділом XVI КК України. *Право України*. 2004. Т. 6. С. 80–83.

Legal VA nature in Ukraine, even without entry into force of the Law on VA is in the realm of legal relations, since according to Article 177 of Civil Code of Ukraine:

"1. Objects of civil rights are things, money, securities, digital things, property rights, works and services, results of intellectual and creative activity, information, as well as other tangible and intangible benefits.

*2. Objects of civil rights can exist in material world and/or digital environment determining the form of objects, acquisition peculiarities, exercise and termination of civil rights and obligations in relation to"*²⁸.

In addition, according to Article 179-1 of Civil Code of Ukraine²⁹, VA is a digital thing and the courts do not have any issues with protecting the rights of victims in the event of seizure of their property in VA form.

If we consider the most common VAs as the topic of crime: cryptocurrencies then among them the most prominent place is occupied by convertible currencies that have an equivalent value in fiat currency and can be exchanged for regular money. In modern classification of digital assets, they include *Bitcoin and E-Gold*. Non-convertible currencies are usually limited to the ecosystem of specific software. By their nature, they are similar to virtual money in video games; in lack of objective market price, they rarely become an object of interest for offenders. However, there are mechanisms for converting such closed systems into open ones using

unofficial exchange channels that de facto makes them convertible despite the developers' rules³⁰.

One of the objective conditions for committing criminal offenses related to illicit VA trafficking usually committed by transnational organized criminal groups is the clear determination of this type of crime by the objective situation in the world and in legislation of many countries³¹.

As noted by Ya. Nedilko, in the situation structure of such criminal offenses, based on their peculiarities, one should distinguish: cyberspace, characterized by place, time, virtual interaction of participants in a criminal offense; material environment, namely: section of territory, set of various objects, behavior of event participants, psychological relationships³².

Crime scene as a complex of material elements at the scene of the crime allows to reconstruct the criminal act algorithm and the specifics of the behavior of its subjects. Crimes in the area under research are characterized by an exceptional level of intellectual preparation and the use of multi-level methods of indirect influence on digital systems that significantly complicates recording of facts of unauthorized access. Characteristic sign of such acts is territorial disunity: location where the criminal plan (active actions) is directly implemented usually does not geographically coincide with the place of occurrence of socially dangerous consequences.

28 Цивільний кодекс України від 16.01.2003 р. № 435-IV (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/435-15#Text> (date accessed: 08.04.2026).

29 Там само.

30 Громок М. Розшифровка криптозлочинів : посіб. для правоохорон. орган. / OSCE : web. 2024. 64 с. URL: <https://ocea.osce.org/sites/default/files/f/documents/b/c/601719.pdf> (date accessed: 08.04.2026).

31 Цивільний кодекс України URL: <https://zakon.rada.gov.ua/laws/show/435-15#Text> (date accessed: 08.04.2026).

32 Неділько Я. В. Зазнач. твір. URL: <https://ir.library.knu.ua/server/api/core/bitstreams/902a977f-032e-4c47-84df-703ae2b1f64e/content> (date accessed: 08.04.2026).

Given cross-border nature of cybercrimes and difficulties (and sometimes impossibility) of identifying the physical point from which the intervention was carried out, in forensic and judicial practice it is advisable to consider commission place of the crime to be the territory where harmful results of the illegal activity actually occurred³³.

E. Maliutin identified and characterized the places where criminal acts related to the use of e-banking were committed, which are correlated with cybercrimes of illegal VA appropriation: places where devices were located that were used to commit illegal acts (smartphone, computer, laptop, tablet) – 74%; places where ATMs, banks and other financial institutions were located – 16%; place of residence of the victim, who was targeted by illegal acts, – 9%³⁴.

Temporal circumstances are certain peculiarities crime commission at a certain daytime, on certain days, months and years. Commission of crimes we are considering usually begins with illegal access to information. The latter is carried out while computer is working, it is not limited to a certain time period, since automated information systems can operate around the clock³⁵. However, each method of committing such crimes, associated with the use of modern computer technologies has certain temporal features, since there is usually a difference in time and in the case of committing such criminal offenses at night, it can be assumed that the

perpetrators are acting in a different time zone, where it is daytime at that time.

As for the methods of preparation for committing crimes of the type under research, the following can be distinguished: production of spy hardware or software for illegal use during operations to steal personal information; sale or distribution without necessary permission on Internet of information that is important during operations with VA creation of sites with appropriate topics for fraudulent schemes (pseudo-exchanges, pseudo-exchange services, dating sites, etc.)³⁶.

There are a large number of ways to commit crimes related to illegal VA trafficking, consequently within the framework of this research paper we will consider several positions of scientists on this topic and the most common methods used by criminals around the world.

According to A. Dolhov, the methods of committing fraud using VA include the following phenomena: *rug pull* (sudden disappearance of liquidity, i.e. artificially inflating the price of a crypto asset with its subsequent collapse due to the sale of its bulk), *NFT* fraud (forgery, plagiarism of unique VAs) and *DeFi* exploits (use of protocol vulnerabilities to hack digital services and VA steal)³⁷.

B. Derevianko considers the following two ways of committing VA fraud: stealing information about the *ID*-wallet and password from it; illegal transfer of information about the *ID*-wallet and password of the bitcoin owner to third parties by the

33 Завидняк І. О. Зазнач. твір. DOI: 10.24144/2788-6018.2021.03.33 (date accessed: 08.04.2026).

34 Малиутін Е. В. Зазнач. твір. URL: <https://dduvs.edu.ua/naukova-diyalnist/spetsializovani-vcheni-radi/ogoloshennya-pro-zahist-disertatsij/malyutin/> (date accessed: 08.04.2026).

35 Панов М. І., Шепітько В. Ю., Коновалова В. О. та ін. Настільна книга слідчого : наук.-практ. вид. для слідч. і дізнавач. 2-ге вид., перероб. і допов. Київ, 2007. 728 с.

36 Малиутін Е. В. Зазнач. твір. URL: <https://dduvs.edu.ua/naukova-diyalnist/spetsializovani-vcheni-radi/ogoloshennya-pro-zahist-disertatsij/malyutin/> (date accessed: 08.04.2026).

37 Долгов А. Зазнач твір. DOI: 10.34132/mspc2025.01.11.08 (date accessed: 08.04.2026).

wallet hosting service provider itself. Although such services state on their websites and in the contract that they are not interested in the password of the cryptocurrency owner, there are still serious doubts about this. And undeniable legal risk is the risk of unilaterally changing the terms of the contract and/or introducing paid services by the electronic wallet hosting service provider ³⁸.

A. Movchan and V. Kozii distinguish the following ways of committing criminal offenses related to the illegal circulation of crypto assets:

- 1) hacking cryptocurrency exchanges and electronic wallets of individuals and withdrawing cryptocurrency from exchanges, exchange resources or other electronic wallets;
- 2) staging cryptocurrency theft by exchanges themselves;
- 3) fraudulent actions:
 - voluntary transfer of assets by victims to fictitious services controlled by attackers. The result is a complete loss of access to resources: either due to software manipulations that display a zero balance in the user's account, or due to the sudden termination of the service (exit scam), when operators disappear along with entrusted assets;
 - theft of confidential information through phishing attacks. This is an online fraud method aimed at gaining unauthorized access to cryptocurrency exchange accounts or private keys of electronic wallets by inducing victims to

go to a fake page and enter their login and password that allows to instantly empty their balance;

- manipulative schemes such as Scam (fraud). Essence is to release a new token to the market, the value of which the organizers artificially increase. By investing significant resources in marketing hype on social networks and simulating a rapid increase in price, swindlers attract a mass of small investors. When asset value reaches peak values, organizers massively sell off their own stocks, receiving excess profits. As a result, the price instantly collapses and investors are left with illiquid digital units that have no real value;
- issuance of imitation tokens (clones). Offenders create digital coin whose name completely copies or is as similar as possible to the name of a promising project that has not yet been listed on major exchanges. Actively advertising such an "analogue" in messengers and social groups, fraudsters provide links to their own smart contracts: investors mistakenly buy a counterfeit that has no relation to the real project and cannot be implemented on the market ³⁹.

According to *Chainalysis (2026 Crypto Crime Report)*, the most popular methods of criminal offenses related to illegal VA circulation are fraud, such as:

- 1) Phishing clones of exchangers. Fraudsters create copies of websites of well-known exchangers. Exter-

38 Дерев'янюк Б. В. Зазнач. твір. URL: https://repository.ndippp.gov.ua/bitstream/handle/765432198/269/Derevyanko__FP_2017_3_8.pdf?sequence=1&isAllowed=y (date accessed: 07.05.2026).

39 Мовчан А. В., Козій В. В. Зазнач. твір. DOI: 10.36486/np.2022.4(58).17 (date accessed: 08.05.2026).

nally, pages look almost identical due to the same design, application form and rate (the domain differs by one character; there are no official contacts or exchange rules; the offer “the best rate only today”);

- 2) Changing details in correspondence. The exchange is agreed upon in a chat or messenger, after that other party suddenly informs that details have changed (details are changed at the last moment; the other party asks to switch to another chat or contact; the data is sent as an image, not as text). This may look mundane, for example, “sorry, the previous wallet is temporarily unavailable,” “use another account,” etc. If the user does not check the details, cryptocurrency is sent to the scammer’s address;
- 3) Fake payment confirmation. After agreeing on the exchange, the swindler sends a screenshot of supposedly made payment. Then pressure begins, saying that money has already been sent, so you need to transfer the cryptocurrency immediately and not wait for it to arrive.
- 4) QR code or wallet address spoofing. QR code or address for transferring cryptocurrency is sent to the user. In fact, they lead to the scammer’s wallet. This happens when addresses are copied through third-party services or received in chats without verification (they ask to install a “special” extension or software; they offer to connect via remote access; address looks unfamiliar or differs from the previously agreed upon);
- 5) Manipulation of the rate after application. Initially, a rate is offered that looks slightly more favorable than market rate. When the user has already sent cryptocurrency, additional conditions appear. Often this is an additional verification fee, acceleration fee, a new rate. In the end, amount received is much less than expected;
- 6) Fake support service. Fraudsters pretend to be service employees or platform moderators. They write to the user and report a supposed problem with the transaction. Then they try to gain access to the wallet, asking for a seed phrase, 2FA codes, access to the device or wallet.
- 7) Fake guarantor. In *Telegram* or another messenger, they offer to perform an exchange with the help of a guarantor who will supposedly control the transaction and hold the funds until the transaction is completed. In fact, guarantor can be part of a fraudulent scheme. He insists on a quick transaction and has no proven reputation outside of this dialog;
- 8) Network or token swapping. The user is asked to send cryptocurrency via a different network or to a different token. For example, instead of *USDT TRC20*, *USDT ERC20* is offered or details for *USDT* are sent on a network that the user’s wallet does not support. As a result, funds can “hang” or be difficult to return. Network changes simply during transaction and the explanation seems rushed or unclear;
- 9) risks of cash exchange. The exchange is carried out during a personal meeting. Problems arise at the moment of money transfer, where there are possible underpayments, substitution of banknotes, or other manipulations (meeting is arranged

in a random place; attempts are made to speed up the transfer of money; it is prevented from calmly counting and checking banknotes);

- 10) Fake AML verification. After receiving cryptocurrency, the user is informed that funds have allegedly been subject to AML verification and an additional payment is demanded, justified by a mandatory deposit, tax or verification fee and the promise that transaction will be unblocked after that. The main sign is the requirement for additional payment and the lack of a pre-known verification procedure ⁴⁰.

We propose to combine the methods of committing such criminal offenses into groups: “digitized” crimes related to the illegal VA circulation (committed exclusively using cybernetic methods) and classic crimes (for example, kidnapping with subsequent ransom in VA form, intentional murder with the aim of taking possession of the victim’s VA, etc.).

As for the methods of money laundering, almost all cross-border organized criminal groups launder money using VA and offshore jurisdictions that are the most common methods in the final phase related to tax evasion and concealment of traces. As V. Bozhyk notes, in 87% of criminal proceedings everything happens according to the following scheme: offshore, fictitious entrepreneurship (“conversion

centers”), formation of scheme tax credit, violation of customs rules and smuggling, counterfeiting, withdrawal of profits through pseudo-entrepreneurship of individuals, an individual, understatement of turnover ⁴¹.

A new and popular way to legalize criminal proceeds is to launder them using gambling sites. It is through these services that almost three quarters of all dirty virtual money is laundered. According to *Trend Micro*, criminals are increasingly turning to game currency as a way to store the value of cryptocurrency. For this purpose, they buy currency of the most popular virtual games for cryptocurrency and then exchange it for fiat currency on special conversion services ⁴².

Another way to conceal criminal offenses related to the illegal VA circulation is the use of decentralized exchanges, over-the-counter (OTC) exchanges, mixers and tumblers. This technology was developed to hide traces of users’ transactions. Many OSCE participating States are taking measures to restrict the use of such tools. Mixers and tumblers are services designed to increase the confidentiality and anonymity of cryptocurrency transactions. Their main function is to mix funds from different users, which masks the source of the funds ⁴³.

Individuals of criminals in the type of crimes under research can be conditionally divided into three groups. The first group consists of individuals who combine

40 10 схем шахрайства при обміні криптовалюти у 2026 році: як розпізнати та захиститися / Finance.ua : вебсайт. 25.03.2026. URL: <https://finance.ua/ua/goodtoknow/10-skhem-shakhraystva-pry-obmini-kryptovaliuty-u-2026-rotsi-yak-rozpiznaty-ta-zakhystytysia> (date accessed: 08.04.2026).

41 Божик В. І. Зазнач твір. DOI: 10.24144/2307-3322.2026.93.5.3 (date accessed: 08.04.2026).

42 Virtual Assets Red Flag Indicators of Money Laundering and Terrorist Financing : FATF Report / FATF : web. Sept. 2020. 24 p. URL: <https://www.fatf-gafi.org/content/dam/fatf-gafi/reports/Virtual-Assets-Red-Flag-Indicators.pdf.coredownload.pdf> (date accessed: 07.05.2026).

43 Громок М. Зазнач. твір. URL: <https://ocea.osce.org/sites/default/files/f/documents/b/c/601719.pdf> (date accessed: 08.04.2026).

a high level of professional training in the field of information technology and programming with unconventional thinking, technical ingenuity and a certain tendency to professional excitement. For them, computer systems are not only a tool for work, but environment for realization of their own intellectual capabilities. This group can include employees of cryptocurrency exchanges, VA issuing companies, as well as specialists from technical companies that provide relevant structures with cloud, artificial intelligence and other digital services.

The second group includes professional cybercriminals, whose activities are clearly of a self-interested nature. It is this category that poses one of the greatest threats both to individual business entities and to international economic security in general. Representatives of this group often form the core of transnational criminal groups that use modern information technologies to commit economic crimes on a significant scale.

The third group is the so-called respectable offenders: individuals who have legal professional status and specialized knowledge in the field of finance, accounting or programming. They can include accountants, economists and programmers who use their professional skills to prepare and implement criminal schemes aimed primarily at obtaining material benefit⁴⁴.

It should be emphasized that economic transnational crimes with use of modern computer technologies are usually committed by organized criminal groups. Thereby it is proposed to investigate the persons who committed them “according

to the scheme: 1) *general offender peculiarities who committed an economic transnational crime, using computer technologies, and 2) peculiarities of persons who committed certain types of such crimes, taking into account the distribution of roles in an organized criminal group*”⁴⁵.

The most common motive for committing crimes in this category is selfish considerations, very rarely revenge. Persons capable of doing so pose a serious threat to the economy of any State and the international community as a whole⁴⁶.

The most important primary traces of crimes related to illegal VA circulation are contained in blockchain. Open information includes: sender and recipient addresses (public keys of wallets), transfer amount (number of tokens or cryptocurrency), transaction hash (unique identifier by which the record can be found), timestamp (exact time of transaction confirmation), commission. These traces will be present in case of using regular cryptocurrency, however, there are anonymous coins (*monero, zcash, dash, xeonbit*) that are difficult to track, since they use a specific modification of the blockchain aimed at ensuring anonymity and confidentiality of transactions.

Summarizing the above, it should be emphasized that for such criminal offenses, typical sign is availability of digital or electronic traces that arise while applying information technologies. Such information can include user accounts, memory of computer equipment and other electronic devices, profiles on social networks, resources for communicating or exchanging information on cryptocurrencies, databases of telecommunications operators

44 Завидняк І. О. Зазнач. твір. DOI: 10.24144/2788-6018.2021.03.33 (date accessed: 08.04.2026).

45 Там само.

46 Там само.

and Internet providers, as well as removable media, including USB-drives⁴⁷.

If the victim has had contact with the offender in person or via video link, he or she can be able to provide information about the offender's physical appearance and other characteristics⁴⁸. Unfortunately, most often the victim does not have visual contact with the offender⁴⁹.

Conclusions

Performed research made possible to reveal the main elements of the forensic characteristics of criminal offenses related to illegal VA circulation and to determine their specific peculiarities in the conditions of modern digitalization of society. It was found that VA as a subject of criminal encroachment form a special mechanism of criminal activity, which is characterized by the use of information technologies, cross-border operations, a high level of latency and the complexity of identifying and documenting evidentiary information.

It has been determined that the main source of evidentiary information in such criminal offenses is digital traces that can be contained in blockchain, electronic wallets, user accounts, computer memory, messengers, social networks, databases of telecommunications operators and Internet providers. At the same time, peculiarities of functioning of anonymous cryptocurrencies, mixers, toggle switches and decentralized platforms significantly complicate establishing source of origin of assets and the route of their movement.

As an analysis result of the methods of committing criminal offenses under investigation, it was found that the most common are various forms of fraud, phishing attacks, hacking of cryptocurrency exchanges and electronic wallets, manipulation of tokens, use of fictitious platforms and services, as well as legalization of income through cryptocurrency services, online casinos and offshore jurisdictions. It was determined that criminal activity in this area is often carried out by organized transnational groups with a clear division of roles between participants.

The research on offender's personality made possible to identify several typical categories of subjects of such crimes: technically trained specialists in the field of IT, professional cybercriminals and individuals with legal professional status who apply specific expertise in financial or technical fields to implement criminal schemes. Common sign of most offenders is a high level of digital competence and orientation towards obtaining tangible benefits.

Thus, criminal offenses related to the illegal VA circulation are a complex multi-level phenomenon that combines elements of cybercrime, economic crime and transnational organized activity. This necessitates further development of forensic methods for their detection and investigation, improvement of legislative regulation in the sphere of VA circulation and improvement of the level of technical training of law enforcement agencies in working with digital evidence and blockchain technologies.

47 Сисолятин В. В. Зазнач. твір. URL: <https://uacademic.info/ua/document/0423U100236> (date accessed: 08.04.2026).

48 Малютін Е. В. Зазнач. твір. URL: <https://dduvs.edu.ua/naukova-diyalnist/spetsializovani-vcheni-radi/ogoloshennya-pro-zahist-disertatsij/malyutin/> (date accessed: 08.04.2026).

49 Сисолятин В. В. Зазнач. твір. URL: <https://uacademic.info/ua/document/0423U100236> (date accessed: 08.04.2026).

Криміналістична характеристика кримінальних правопорушень, пов'язаних з незаконним обігом віртуальних активів

Дмитро Нестеров

Мета статті — розкрити особливості криміналістичної характеристики злочинів, пов'язаних з незаконним обігом віртуальних активів, а також визначити основні елементи механізму їх скоєння. Для досягнення поставленої мети застосовано комплекс загальнонаукових і спеціально-юридичних методів пізнання, зокрема діалектичний, системно-структурний, формально-юридичний, порівняльно-правовий, логіко-семантичний, аналізу й синтезу, моделювання й узагальнення. Статтю присвячено дослідженню криміналістичної характеристики кримінальних правопорушень, пов'язаних з незаконним обігом віртуальних активів, що в умовах глобальної цифровізації та стрімкого розвитку інформаційних технологій набувають дедалі більшої суспільної небезпеки. Актуальність теми обумовлена активним використанням криптовалют, децентралізованих фінансових сервісів, анонімних платіжних інструментів і технологій штучного інтелекту в механізмах учинення шахрайств, кіберзлочинів і легалізації доходів, одержаних злочинним шляхом. Зростання рівня транснаціональної кіберзлочинності, поширення фішингових схем, користування міксерями, тумблерами, офшорними юрисдикціями та платформами із наскрізним шифруванням створюють істотні труднощі для правоохоронних органів під час виявлення, документування й розслідування таких правопорушень. Особливу увагу приділено проблемам формування доказової бази, пов'язаним з віртуальною природою цифрових слідів і складністю ідентифікації осіб, причетних до незаконних опера-

цій з віртуальними активами. У результаті проведеного дослідження визначено, що віртуальні активи як предмет злочинного посягання формують специфічний механізм злочинної діяльності, для якого характерними є високий рівень латентності, транскордонність, застосування сучасних інформаційних технологій і складність локалізації місця вчинення кримінального правопорушення. Обґрунтовано, що вирішальне значення для розслідування мають цифрові сліди, що їх містять блокчейн, електронні гаманці, акаунти користувачів, пам'ять комп'ютерної техніки, месенджери, соціальні мережі, бази даних операторів зв'язку й інтернет-провайдерів. Проаналізовано найбільш поширені способи скоєння злочинів, пов'язаних з незаконним обігом віртуальних активів, поміж яких фішингові атаки, злам криптовалютних бірж і електронних гаманців, користування фейковими платформами, маніпуляції з токенами, шахрайські інвестиційні проекти, DeFi-експлойти, NFT-шахрайство й легалізація доходів за допомогою криптовалютних сервісів і онлайн-казино. Доведено, що значну частину таких правопорушень здійснюють транснаціональні організовані злочинні угруповання із чітким розподілом ролей між учасниками. Аргументовано, що особа правопорушника в цій категорії злочинів характеризується високим рівнем цифрової компетентності, спеціальними знаннями у сфері інформаційних технологій, програмування або фінансів і орієнтуванням на отримання матеріальної вигоди. Запропоновано класифікувати суб'єктів таких кримінальних правопорушень як технічно підготовлених спеціалістів, професійних кіберзлочинців і осіб з легальним професійним статусом, які застосовують свої знання для реалізації злочинних схем. Зроблено висновок, що кримінальні правопорушення, пов'язані з незаконним обігом віртуальних активів,

є складним багаторівневим явищем, яке поєднує ознаки кіберзлочинності, економічної злочинності та транснаціональної організованої діяльності. Наголошено на необхідності подальшого розвитку криміналістичних методик розслідування, удосконалення законодавчого регулювання обігу віртуальних активів і підвищення рівня технічної підготовки правоохоронних органів у сфері роботи із цифровими доказами й технологіями блокчейну.

Ключові слова: віртуальний актив; блокчейн; транскордонні злочини; легалізація (відмивання) грошей, здобутих злочинним шляхом; шахрайство; крадіжка; криміналістична характеристика; незаконний обіг.

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Declaration of Competing Interest

Author declares no conflict of interest.

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Forensic DNA Registries Worldwide and in Ukraine: History of Formation and Development Prospects

Oleksii Lozovyi*

* Postgraduate Student, Yaroslav Mudryi National Law University of Ministry of Education and Science of Ukraine, Kharkiv, Ukraine, ORCID: <https://orcid.org/0009-0009-5355-7842>, e-mail: lozovoy2805@gmail.com

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This article purpose is to analyze emergence history, formation and content peculiarities of existing forensic DNA registries in the world and in Ukraine, outline possible development prospects. For achieving this goal, general scientific and special methods of scientific cognition (comparative law, formal law, forecasting, modeling, analysis and synthesis) were used. It was found that history of emergence, formation and specifics of content of forensic DNA registries have their own characteristics in each country and depend on many factors, including power regimes (authoritarianism as, for example, in China), historical past (cultural imprint of dictatorship and distrust of police, as in Portugal), state of human rights protection, etc. Genetic trait databases can be grouped according to various principles, the main ones being: completeness (number of available profiles), inclusion criteria (restrictive or expansive), efficiency coefficient. Formation analysis of Ukrainian DNA identification system indicates gradual transition from separate forensic examinations to centralized system creation, that in its structure and principles is close to European models of average completeness.

Keywords: forensic DNA registries; history of formation; development prospects; number of DNA profiles; inclusion criteria; efficiency coefficient.

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Research Problem Formulation

Forensic DNA registries play leading role in modern justice system, transforming biological traces into objective evidence with the highest degree of reliability (up to 99.99%). However, this was not always the case. Forensic DNA testing is a fairly new type of expert research, but it quickly became the gold standard of evidence. Its scientific foundation was laid only in 1984, when the British geneticist Alec Jeffreys discovered the method of DNA profiling. History of emergence, formation and specifics of the content of forensic DNA registries have their own characteristics in each country and depend on many factors, including regimes of power (authoritarianism, as, for example, in China), historical past (cultural imprint of dictatorship and distrust of police, as in Portugal), state of human rights protection, etc. These factors, as collectively as individually, influence development and content of forensic DNA registries. Analysis of these factors and understanding specifics of the content of DNA registries in the world will

help to form in Ukraine the most effective model of maintaining relevant records, taking into account the experience and mistakes of foreign countries during their formation.

Analysis of Essential Researches and Publications

Ukrainian scientific literature considers modern means and methods of forensic DNA analysis (R. Stepaniuk and V. Husieva ¹), legal regulation of the registration of human genomic information (O. Lehka ²), issues of regulatory regulation of State registration of human genomic information (N. Martynenko ³), issue of using DNA registries to identify persons killed during Russian armed aggression against Ukraine (I. Kostikov with co-authors ⁴ et al.) and prospects for legislative support for genetic identification of military personnel (L. Kotliarenko and A. Kofanov ⁵). Foreign sources cover the functioning forensic DNA records both in individual countries and in the world as a whole: formation history of DNA databases in Eu-

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- 5 Котляренко Л. Т., Кофанов А. В. Перспективи законодавчого забезпечення генетичної ідентифікації військовослужбовців. *Використання досягнень сучасної науки й техніки в розкритті злочинів : мат-ли міжвідом. наук.-практ. кругл. столу* (Київ, 25.02.2021). Київ, 2021. С. 73—77. URL: <https://elar.navs.edu.ua/server/api/core/bitstreams/77ecfb89-3122-474f-8571-299f0fbfbf29/content> (date accessed: 01.03.2026).

rope (P. D. Martin with co-authors ⁶), DNA technologies in criminal investigation and courts (H. Machado with co-authors ⁷), future directions of development of forensic DNA databases (J. Ge with co-authors ⁸), influence of different national legal systems on the formation of DNA databases (F. Corte-Real ⁹), analysis of admissibility of such databases by the European Court of Human Rights ¹⁰ (hereinafter referred to as ECtHR). At the same time, scientists have not conducted detailed comparative analysis of forensic DNA registries in worldwide and in Ukraine.

Article Purpose

Analyze history of emergence, formation and peculiarities of the content of existing forensic DNA registries in the world and in Ukraine and to outline possible development prospects.

Research Methods

For achieving this goal, general scientific and special methods of scientific cognition (comparative legal, formal legal ones, forecasting, modeling, analysis and synthesis) were applied. The comparative legal method contributed to the study approaches to formation of DNA databases in different countries. This made it possible to identify common and distinctive features of the

formation of DNA databases in Ukraine and other countries. Using formal legal method, legal analysis of the provisions of regulatory legal acts (laws, instructions, orders) regulating activity of DNA registries was carried out. Forecasting method was useful for reasonably predicting possibilities of implementing individual provisions of foreign legislation regulating the activity of DNA registries into the legislation and practice of Ukraine. Combination of logical methods of analysis and synthesis contributed to the analysis of approaches to the formation of databases (inclusion of certain types of profiles in databases) based on various criteria and influence of various factors on the specifics of their content (government regimes, historical past, state of human rights protection).

Main Content Presentation

Discovery of DNA structure in the 1950s ushered in a new era in biology and paved the way for the search for ways to identify a particular living organism by its genetic characteristics. The first person to study a person's individual characteristics using DNA was British geneticist Alec Jeffreys in 1984, who discovered in the structure of nuclear DNA sections that were individual for each person and varied in length and could be isolated and compared. This

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 - 7 Machado H., Granja R. Forensic Genetics in the Governance of Crime. Singapore : Palgrave Pivot, 2020. Ch. 4. Pp. 45–56. DOI: 10.1007/978-981-15-2429-5_4 (date accessed: 30.03.2026).
 - 8 Ge J., Sun H., Li H., et al. Future directions of forensic DNA databases. *Croatian medical journal*. 2014. Vol. 55. No. 2. Pp. 163–166. DOI: 10.3325/cmj.2014.55.163 (date accessed: 07.04.2026).
 - 9 Corte-Real F. Forensic DNA databases. *Forensic Science International*. 2004. Vol. 146. Suppl: S143–4. DOI: 10.1016/j.forsciint.2004.09.043 (date accessed: 21.03.2026).
 - 10 Tuazon O. M. Universal forensic DNA databases: acceptable or illegal under the European Court of Human Rights regime? *Journal of Law and the Biosciences*. 2021. Vol. 8. Is. 1. 24 p. DOI: 10.1093/jlb/lsab022 (date accessed: 01.03.2026).

gave rise to development of a technique for studying human DNA for the purpose of its identification that was called: *DNA fingerprinting*¹¹.

Creation of database with DNA profiles began in the mid-1990s. The first forensic genetic database was established in England and Wales in 1995; this example was followed by the Netherlands (1997), Austria (1997) and Germany (1998)¹².

One of the most effective DNA profiling databases for solving crimes is the UK National Criminal Intelligence DNA Database (NDNAD). It was the first national DNA database in the world, created through legislation passed in the UK in 1995¹³. In 2016, it contained 5,862,642 DNA profiles of individuals and 519,678 profiles recovered from crime scenes, i.e. profiles of over 9% of country population¹⁴. The UK database can be used not only for crime prevention and investigation, but for the identification of the deceased. It provides successful verification results for over 32,000 crimes per year. For example, according to scientists, in 2014-2015, probability that DNA profile from a crime

scene will match a profile in the database was 63.2%¹⁵. This database contains information about any person detained by the police, even if their guilt is not confirmed. In addition, Scotland has a procedure for voluntary submission of DNA samples by citizens for the purpose of possible identification in future civil cases. Latest data indicate that as of March 2020, the number of profiles is more than 6 million, and the database contains 600 thousand from crime scenes that is equivalent to approximately 10% of the permanent population of Great Britain¹⁶. Thus, this country has collected the largest collection of genetic information of the population in Europe. In April 2004, UK legalized the storage of DNA information from all those arrested on suspicion of committing any crime. However, in December 2008, ECtHR concluded that such a practice of storing DNA information was a violation of human rights and recommended changes to the system of storing personal data¹⁷.

It should be noted that the UK NDNAD is the largest in Europe: it contains DNA from over 10% of the population that en-

- 11 Степанюк Р. Л., Перлін С. І., Кікінчук В. В. та ін. Криміналістичне дослідження ДНК: технології та можливості : навч. посіб. Вид. 2-ге, перероб. та допов. Харків, 2022. 120 с. URL: <https://dspace.univd.edu.ua/server/api/core/bitstreams/4a11e370-44d1-45ed-9838-dc0918c7c429/content> (date accessed: 24.03.2026).
- 12 Machado H., Granja R. Op. cit. DOI: 10.1007/978-981-15-2429-5_4 (date accessed: 05.03.2026).
- 13 Martin P. D., Schmitter H., Schneider P. M. Op. cit. DOI: 10.1016/s0379-0738(00)00436-9 (date accessed: 01.03.2026).
- 14 Степанюк Р. Л., Перлін С. І., Кікінчук В. В. та ін. Зазнач. твір. URL: <https://dspace.univd.edu.ua/server/api/core/bitstreams/4a11e370-44d1-45ed-9838-dc0918c7c429/content> (date accessed: 04.04.2026).
- 15 Brown T., Geddes L., Gill P., et al. Making sense of forensic genetics. What can DNA tell you about a ? London : Sense About Science, 2017. 21 p. URL: <https://senseaboutscience.org/wp-content/uploads/2017/01/making-sense-of-forensic-genetics.pdf> (date accessed: 09.03.2026).
- 16 Amelung N., Granja R., Machado H. Modes of Bio-Bordering. The Hidden (Dis)integration of Europe. Singapore : Palgrave Pivot, 2021. Ch. 4 : Germany. Pp. 55–71. DOI: 10.1007/978-981-15-8183-0_4 (date accessed: 09.03.2026).
- 17 Case of S. and Marper v. The United Kingdom (Applications nos. 30562/04 and 30566/04). 4 Dec. 2008 / HUDOC. European Court of Human Rights : web. URL: [https://hudoc.echr.coe.int/fre#{%22itemid%22:\[%22001-90051%22\]}](https://hudoc.echr.coe.int/fre#{%22itemid%22:[%22001-90051%22]}) (date accessed: 17.03.2026).

tures high efficiency in solving crimes with a probability of coincidence of 63.2% (2014-2015). However, despite positive results in the field of justice, the practice of indefinitely storing DNA profiles of detainees whose guilt has not been proven has been recognized by the ECtHR as a violation of human rights. In our opinion, the British model confirms that the maximum filling of the DNA database dramatically increases the number of solved crimes, but requires constant legal adjustment so as not to turn into an instrument of unlimited State interference in private lives of citizens.

The French National Database of Genetic Profiles (*Fichier National Automatisé des Empreintes Génétiques*, FNAEG) was created in 1998. It initially contained information only on persons convicted of crimes of sexual nature. In November 2001, the law on the collection of genetic data was extended to other crimes, including acts of terrorism and barbarity. This law provides for a penalty of 2 years in prison and a fine of 20,000 Euros for refusing to take the testes¹⁸. The FNAEG can contain DNA profiles of minors aged 13 and over. In this database, profiles of suspects but not convicted persons account for almost 75%. At the same time, sanctions have been legalized in France for refusal to provide a DNA sample by convicted persons (2001) and suspects (2003). This explains why, by spring 2018, the database contained 3.8 million individual DNA profiles and 0.5 million unidentified profiles from traces left at crime scenes or from unidentified

corpses. It is worth noting that the first of these figures does not take into account any duplicates, since individual profiles could have been registered under different names. After removing duplicates (2018), the FNAEG contained approximately 2.9 million individual genetic profiles and 480,000 unidentified traces. The FNAEG stores DNA profiles of suspects for 25 years and of convicted persons for 40 years. This period applies to all individuals, regardless of age (juvenile or adult) and the severity of committed crime¹⁹.

It should be noted that FNAEG has transformed from a highly specialized registry into a large-scale control system, where 75% of profiles belong to suspects rather than convicts and it contains many duplicates. As noted above, the system is characterized by strict enforcement of samples and long retention periods (25-40 years) for both adults and minors.

In United States, experimental DNA databases were introduced in 6 states and forensic laboratories in 1990, and in 1994, a law was passed to forcibly collect DNA samples from people convicted of violent crimes. In this way, the FBI received formal permission to use the Combined DNA Index System (CODIS). Currently, all 50 states provide for mandatory DNA collection from persons who have committed a crime of sexual violence or murder, and 47 states collect DNA from all convicted criminals. In 1990, a registry of DNA data of all US military personnel was created. This data is stored for the entire period of service, and after the end of the contract it

18 Петряев С. Ю., Трофименко М. В. Щодо питання формування національної бази ДНК-даних в Україні. *Вісник Національного технічного університету України «Київський політехнічний інститут»*. Політологія. Соціологія. Право. 2010. № 3 (7). С. 164–166. URI: <https://ela.kpi.ua/handle/123456789/5569> (date accessed: 17.03.2026).

19 Vailly J., Bouagga Ya. Opposition to the Forensic Use of DNA in France: The Jurisdiction and Veridiction Effects. *BioSocieties*. 2019. Vol. 15. No. 3. Pp. 394–419. DOI: [10.1057/s41292-019-00150-y](https://doi.org/10.1057/s41292-019-00150-y) (date accessed: 17.03.2026).

is removed and destroyed. As of 2015, US database contains almost 14 million DNA profiles²⁰. According to FBI, 21.7 million DNA profiles were collected in 2023, equivalent to approximately 7% of the U.S. population²¹.

In our opinion, US-built biometric surveillance system is one of the most powerful in the world. It provides high efficiency in solving crimes, but at the same time creates serious privacy challenges, as an individual's genetic profile ceases to be their personal secret.

In 2008, Greek government passed a law establishing National DNA Database of Greece which would only register DNA profiles of convicted criminals convicted of serious violent crimes. A year later, amendments to the law allowed the DNA of arrested or accused persons to be registered in the database, even if they were later acquitted. The list of crimes for which DNA profiling is carried out in Greece now includes not only serious crimes, but minor offenses, which commission is punishable by imprisonment for a term of 3 months or more²².

The analysis of the Greek model demonstrates one of the fastest transformations in Europe from a strictly limited to a maximally expanded biometric data collection system. In just one year (2008–2009), Greece moved from a conservative model (only those convicted of serious violent crimes) to an expansive model that allows for DNA collection even from minor offenders. We consider Greece an example

of a country that has chosen the path of rapid biometrics and has sacrificed strict privacy criteria (as in Portugal or Germany) in order to create a large-scale tool for police surveillance.

Rapid development of DNA databases in China is interesting. According to governing body of the National DNA Database, the China Institute of Forensic Medicine of the Ministry of Public Security, their *NDNAD* contained 68 million profiles as of 2018, although it was only created in 2005 and less than a year before that (2017) it contained 55 million. Such rapid growth means that in terms of the number of profiles, the Chinese *NDNAD* is the largest in the world. United States of America is in second place in terms of the number of DNA data in the national database (17,530,781; as of 2018) and United Kingdom is in third place (6,024,032 as of 2017). In China, there are three different DNA databases in operation: the aforementioned *NDNAD*, the National Missing Children's DNA Database (hereinafter referred to as the *NMCDD*) and the Y-STR database, which is a component of the *NDNAD*. In terms of the number of profiles, both the Chinese *NDNAD* and Y-STR are the largest databases of their kind in the world. They are all managed by the Ministry of Public Security of the People's Republic of China. As of September 2017, there were 598 forensic DNA laboratories with 1,050 DNA analysis devices and 3,344 technical staff. The Chinese databases contain 3.1% of the population's profiles, while different prov-

20 Butler J. M. The future of forensic DNA analysis. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*. 2015. Art. 370(1674):20140252. DOI: [10.1098/rstb.2014.0252](https://doi.org/10.1098/rstb.2014.0252) (date accessed: 10.03.2026).

21 Klippenstein K. FBI hoovering up DNA at a pace that rivals China, holds 21 million samples and counting / *The Intercept* : web. Aug 29 2023. URL: <https://theintercept.com/2023/08/29/fbi-dna-collection-surveillance/> (date accessed: 16.03.2026).

22 Voultsos P., Njau S., Tairis N., et al. Launching the Greek forensic DNA database. The legal framework and arising ethical issues. *Forensic Science International. Genetics*. 2011. Vol. 5. Is. 5. Pp. 407–410. DOI: [10.1016/j.fsigen.2010.08.013](https://doi.org/10.1016/j.fsigen.2010.08.013) (date accessed: 17.03.2026).

inces have different levels of coverage, as each region is managed separately. It is worth noting again that the Chinese ND-NAD contains very few profiles of actual offenders (although increasing percentage of the population covered by the DNA database is a priority). Most of the 95% of profiles are reference samples collected from target populations. The definition of target populations varies from province to province²³.

Analysis of the Chinese model of DNA database formation indicates the creation of a biometric control system unprecedented in scale, which in terms of quantitative indicators is significantly ahead of its Western counterparts (USA and Great Britain). As noted above, China ND-NAD has demonstrated an abnormal fill rate of 13 million profiles in less than a year (2017-2018) indicating a strong administrative resource and technological base (nearly 600 laboratories). In our opinion, an important difference from the US and the UK, where the databases are populated mainly by criminals, in China, 95% of the profiles belong to people who have not committed a crime. The system focuses on “target populations,” which transforms the database from a forensics tool to a mass state surveillance tool.

Unlike China, German DNA databases are average in size. Because of this public perception of genetics in Germany is influenced by memories of its Nazi past and how science was used for racial genetics. This contributes to a strong sense of pri-

vacy regarding genetics among Germans and a general suspicion of state and law enforcement agencies that have access to the confidential genetic information of their citizens. The German DNA database was launched in 1998 by the Ministry of the Interior at the Federal Criminal Police Office. Today, it is average in size compared to other databases in Europe²⁴: it contains 871,506 DNA profiles (according to a report by *The European Network of Forensic Science Institutes*, hereinafter referred to as *ENFSI*)²⁵. In addition to Federal Criminal Police Office, prosecutors can access data from the German DNA database for criminal justice purposes. Later legislation further defined conditions for the collection and storage of DNA profiles. The first specifications provided that DNA profiles could be created and stored for serious crimes. The second specification appeared in 1999: it listed crimes that were considered serious, justifying creation of DNA profile of convicted persons. In addition to serious crimes, repeated commission of other criminal offenses, including burglary, defamation and heavy drinking could lead to collection of DNA profile. In 2005, third specification expanded the list of crimes that give rise to the right to collect and store DNA profiles of suspects, adding minor offenses if they are considered repeated acts. Another significant change was that the permission of a judge is no longer mandatory, and people can voluntarily agree to provide samples for DNA profiling. This amendment contributed to

23 Bernotaite A. Building of the World's Largest DNA Database: The China Case / In: Shrivastava P., Dash H. R., Lorente J. A., Imam J. (eds) *Forensic DNA Typing: Principles, Applications and Advancements*. Singapore : Springer, 2020. Pp. 639–658. DOI: 10.1007/978-981-15-6655-4_33 (date accessed: 24.03.2026).

24 Amelung N., Granja R., Machado H. Op. cit. DOI: 10.1007/978-981-15-8183-0_4 (date accessed: 15.02.2026).

25 ENFSI Survey on DNA Databases in Europe 2020 / ENFSI : web. 2021. URL: <https://enfsi.eu/wp-content/uploads/2021/09/ENFSI-survey-DNA-database-Europe-2020.pdf> (date accessed: 26.02.2026).

a significant increase in the number of collected DNA profiles ²⁶.

Analysis of the German model, in our opinion, indicates unique balance between historical memory and the needs of modern criminalistics, where ethics and confidentiality are of paramount importance. Unlike China or Britain, filling of the database in Germany is hampered by the “trauma of the past” (Nazi racial genetics). It has created a high level of public distrust of the collection of biometrics by the state, which explains the rather small size of the database (approximately 871 thousand profiles).

Dutch DNA database was legally established in 1994 and became operational in 1997. It is one of the medium-sized databases in the European Union (EU). According to ENFSI, in June 2016 it contained 237,254 profiles of individuals, which represented 1.4% of the country's population. In April 2020, the Dutch DNA database contained 328,542 profiles of individuals, which represented 1.9% of the population (out of 17,134,178 individuals). Netherlands has a strong track record of innovation in the regulation and practical application of genetic technologies for forensic purposes. In 1994, they became the first country to introduce specific legislation for the use of forensic DNA to compare DNA profiles from a suspect and from a crime scene. In 2003, Netherlands pioneered regulation of the use of genetically determined physical characteristics in criminal investigations and DNA data (e.g. forensic DNA phenotyping, family searching and mass screening) have since become important in criminal investigations in that country ²⁷.

Analysis of the Dutch model indicates that this State is a global technological pioneer that relies not on the quantity of profiles, but on the depth and innovativeness of analysis methods. Despite having a database with a relatively small number of profiles (only 1.9% of the population), Netherlands demonstrates high efficiency through the implementation of advanced techniques, such as DNA phenotyping and familial searching. In our view, the use of “controversial” technologies (mass screenings, searching for relatives) is somewhat debatable, demonstrating the country readiness to expand the boundaries of privacy intrusion for the sake of solving particularly serious or high-profile crimes.

Poland established a DNA database in 2007. According to ENFSI, in June 2016, the Polish DNA database contained 45,679 profiles of individuals. This is 0.12% of the country resident population (38,200,000 individuals). Compared to other EU countries, the Polish DNA database is not as large as the Portuguese one that contains profiles of 0.09% of the resident population. From the very beginning, exchange of forensic DNA data was considered fundamental to Polish project of technological modernization, European integration and the fight against international crime. Polish National DNA Database stores and processes DNA profiles according to the following criteria: accused, defendant, suspect and other persons for whom there are no grounds for removing from the case file and destroying the evidence collected from them; unknown persons or persons trying to hide their identity; unknown corpses; unknown traces collected at a crime scene, which origin

26 Amelung N., Granja R., Machado H. Op. cit. DOI: [10.1007/978-981-15-8183-0_4](https://doi.org/10.1007/978-981-15-8183-0_4) (date accessed: 15.02.2026).

27 Ibid. Ch. 5 : The Netherlands. Pp. 73–87. DOI: [10.1007/978-981-15-8183-0_5](https://doi.org/10.1007/978-981-15-8183-0_5) (date accessed: 15.02.2026).

cannot be linked to a specific person. The technical infrastructure of the national DNA database is managed by the Biology Department of Central Forensic Laboratory of the Police (*CFLP*) that is the custodian of the DNA database, as well as other biometric databases. As one of the main providers of forensic services in Poland, the *CFLP* is responsible for case management, providing technical and forensic resources and participating in forensic examinations. Poland uses the *CODIS* IT system. The support provided by the FBI for *CODIS* includes, among other things, provision of reference services and is one of the reasons why 22 EU Member States use it to collect and search DNA profiles. Therefore, software has contributed to some standardization of national systems²⁸.

Analysis of the Polish model indicates construction of a system focused not on mass, but on international integration and technological standardization within the EU and NATO. Having one of the lowest coverage rates in the EU (only 0.12% of population), Poland compensates for this by using American *CODIS* system that makes its database fully compatible with databases of 22 EU countries and the USA that is critically important for combating cross-border crime. The categories of persons whose data are added to the database (accused, suspected, unidentified corpses) indicate strictly forensic nature of the system. Poland avoids the practice of mass data collection “for the future”, typical for Britain or China.

Portuguese DNA database was created in 2008 and is one of the smallest in the EU, as the country has limited criteria for adding and deleting DNA profiles. According to *ENFSI*, in June 2016, this database con-

tained 5,339 profiles of individuals (0.05% of country resident population) and as of 31 December 2019, it contained 10,270 profiles of individuals convicted of a crime (0.1% of 10,257,342 individuals). Portuguese integration into the *Prüm* system in 2015 helped the country quickly establish links for the exchange of DNA data with 19 countries. However, Portugal has strictly limited the number of data categories available for exchange: it only exchanges data on convicted persons and samples from crime scenes, making it one of the countries that exchanges the fewest data categories of all (compared to Greece). Portuguese history is largely marked by the long period of dictatorship in the 20th century (1926–1974), characterized by political and police repression and censorship, which left an indelible mark on society and, in particular, on the legal and criminal justice culture of the country. For example, in collective imagination, police were until a certain point perceived as closely linked to the authoritarianism of the dictatorship. The cultural imprint of dictatorship and distrust of police have significantly influenced development of the national DNA database in Portugal: for example, the DNA database is managed by the National Institute of Legal Medicine and Forensic Sciences, not the police. Despite initial desire to create an extensive DNA database, the legislative framework in Portugal has ultimately proven to be one of the most restrictive in Europe: it can be considered a derivative of the special regime of protection of personal data and genetic confidentiality. The Portuguese DNA database uses the *CODIS* system²⁹.

In our opinion, the analysis of Portuguese model demonstrates an example of a highly cautious approach to biometric

28 Amelung N., Granja R., Machado H. Op. cit. Ch. 6 : Poland. Pp. 89–103. DOI: 10.1007/978-981-15-8183-0_6 (date accessed: 24.02.2026).

29 Ibid. Ch. 7 : Portugal. Pp. 105–117. DOI: 10.1007/978-981-15-8183-0_7 (date accessed: 24.02.2026).

control, where the historical experience of dictatorship has shaped the architecture of modern justice system. This has led to unique institutional solution: the database is subordinated not to the Ministry of Internal Affairs, but to the National Institute of Legal Medicine and Forensic Sciences, which distances DNA collection from police apparatus. Strictness of the criteria for data entry and deletion makes Portugal's DNA database a model of *minimal necessity*, where privacy prevails over the expansion of police tools. Although Portugal has joined the Prüm system and established connections with 19 countries, it has deliberately limited the categories of data for exchange strictly to convicted individuals. This contrasts with other countries that exchange suspects' data.

It is worth noting that history of establishing DNA databases in Europe varies across different countries; therefore, based on the time of their creation, we propose dividing them into 'old' and 'new.' The 'old' databases include those of the United Kingdom (1995), the Netherlands (operational since 1997, although legally established in 1994), Austria (1997), Germany (1998), and France (1998). (Incidentally, United States DNA database also belongs to the 'old' category: experimental versions were introduced in 1990, and in 1994, law was passed on the compulsory collection of DNA samples from individuals convicted of violent crimes.) We propose classifying DNA databases established after 2000 as 'new,' such as those in Poland (2007), Portugal (2008), Greece (2008), and Romania (2008).

It is clear that all aforementioned countries utilize these databases for criminal investigation purposes. While exam-

ining the criteria for the inclusion and deletion of DNA profiles from forensic databases as set forth in the legislation of EU countries, as well as the US, Canada, China and several others, two main groups can be distinguished: countries with expansive legislation (Austria, Denmark, Estonia, Finland, Latvia, Lithuania, Scotland, Slovakia, the United Kingdom (England and Wales), the US, and China) and countries with restrictive legislation (Belgium, France, Germany, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Poland, Portugal, Romania, Spain, and Sweden).

In the group of countries whose legislation has restrictive effects, a common condition for including profiles in databases is that a person is either suspected of a crime or convicted of an offense (particularly a serious one) that carries a potential or actual prison sentence. In the group of countries with expansive effects in their legislation, the thresholds for inclusion are lower, and the retention periods for profiles are longer. Within the expansive group, inclusion criteria in most countries apply to suspects (with Denmark and Finland being exceptions, where inclusion is tied to the maximum prison term). The legislative configurations of countries expanding their databases reflect a focus on increasing the number of DNA profiles to maximize matches between individuals and crime scene stains. The argument in favor of this is that individuals who have committed minor offenses or are merely suspects may be involved in more serious crimes in the future. Furthermore, creating legal conditions for expanding the DNA database will not only increase the efficiency of criminal investigations but is also likely to act as a crime deterrent³⁰.

30 Santos F., Machado H., Silva S. Forensic DNA databases in European countries: is size linked to performance? *Life Sciences, Society and Policy*. 2013. Vol. 9. Art. 12. 13 p. URL: <https://link.springer.com/article/10.1186/2195-7819-9-12> (date accessed: 09.03.2026).

While analyzing DNA databases of various countries, they can be conditionally grouped into large, medium and small based on their size and capacity. Examples of large ones include the DNA databases of the United Kingdom, France and the United States. The medium category includes the databases of the Netherlands, Germany and others, while the small category comprises those of Portugal, Poland and others.

It should be noted that number of matches between samples is not linked to the number of profiles contained in the database. Countries with a larger number of profiles in their DNA database (as a population percentage) do not necessarily achieve an efficiency rate significantly higher than countries with a comparatively smaller share. In other words, a high efficiency rate of trace-to-person matches indicates that the 'right' people are being included in the database, meaning that the profiles of these individuals have a high probability of matching DNA traces from the crime scene³¹.

In Ukraine, first forensic examination using DNA analysis with a radioactive label in a homicide case was performed in 1992 and in "1993, the leadership of the Ministry of Internal Affairs of Ukraine made a decision and initiated work to establish a molecular genetic laboratory with the aim of introducing DNA analysis

methods for the detection and investigation of crimes.

Conducting forensic examinations and research using the molecular genetic method of DNA analysis (DNA profiling) in the department of medico-biological examination began in 1994"³².

In Ukraine, activities related to maintaining forensic records of human genetic characteristics were regulated only in 2009 with the adoption of the Instruction on Organizing the Functioning of Forensic Records of the Ministry of Internal Affairs Expert Service, which regulates, among other things, general issues of creating and maintaining such records³³.

During the period of 2007–2013, institutions of the Ministry of Internal Affairs Expert Service of Ukraine conducted over 8,000 forensic DNA tests and obtained more than 14,000 DNA profiles. For storing and processing these profiles (specifically, to search for matches), the Central Record of Human Genetic Characteristics (hereinafter referred to as the *CRHGC*) was introduced. According to *CRHGC* records, during the specified period, over 130 unidentified bodies were identified based on DNA profiles.³⁴

In Ukraine, automated forensic records of human genetic characteristics have been functioning since 2009 at both central and regional levels. These records include operational and investigative

31 Asplen Ch. ENFSI Survey on the DNA Profile Inclusion, Removal and Retention of Member States' Forensic DNA Database / ENFSI : web. 2009. 11 p. URL: http://enfsi.eu/wp-content/uploads/2016/09/enfsi_report_on_dna_legislation_in_europe_0.pdf (date accessed: 03.03.2026).

32 Дяченко Н. М. Основні етапи розвитку молекулярно-генетичної експертизи в Державному науково-дослідному експертно-криміналістичному центрі МВС України. *Криміналістичний вісник*. 2011. № 1 (15). С. 167. URL: <https://visnyk.dndekc.mvs.gov.ua/arxiv/tom-15-1-2011-kriminalisticnii-visnik> (date accessed: 05.02.2026).

33 Інструкція з організації функціонування криміналістичних обліків експертної служби МВС : затв. наказ. МВС України від 10.09.2009 р. № 390. URL: <https://zakon.rada.gov.ua/laws/show/z0963-09#Text> (date accessed: 05.02.2026).

34 Костіков І. Ю., Марійко В. В., Щербаківа Ю. В. та ін. Зазнач. твір. DOI: 10.37025/1992-4437/2023-39-1-10 (date accessed: 01.03.2026).

collections maintained by the State Scientific Research Forensic Center (hereinafter referred to as the SSRFC) and regional scientific research forensic centers (hereinafter referred to as the SRFCs). These collections are compiled from the DNA profiles of individuals suspected or accused of committing a crime, placed in custody or convicted (subject to their voluntary consent); biological traces seized during crime scene examinations, particularly in cases of missing persons, as well as during other investigative actions and operational-search activities; and unidentified bodies. DNA profiles are obtained during forensic DNA analyses conducted at the SSRFC, the SRFCs, the State Institution Main Bureau of Forensic Medical Examination of the Ministry of Health, Crimean Republican Institution 'Bureau of Forensic Medical Examination' and the bureaus of forensic medical examination (hereinafter referred to as the BFMEs) of the Kyiv, Sevastopol city and regional state administrations.

Regional operational and investigative collections are compiled at SRFCs on the same grounds as at the SSRFC and DNA profiles are obtained during forensic DNA analyses conducted at SRFCs and BFMEs. DNA profiles obtained using genetic analyzers and determined by a set of standard marker systems (STR loci) which are uniform for forensic laboratories in accordance with *ENFSI* recommendations are subject to registration.³⁵

In July 2022, the Verkhovna Rada of Ukraine adopted the Law *On State Registration of Human Genomic Information*³⁶, providing a legal framework for processing human genomic information for the purpose of its state registration in Ukraine, which is extremely important for the law enforcement system and the field of forensic activities. This Law distinguishes two forms of state registration of genomic information: compulsory and voluntary. It regulates the rules for collecting biological material for the state registration of genomic information regarding specific categories of individuals, conducting forensic DNA analyses, the rules for storing and destroying biological material as well as many other issues.

In 2023, the Electronic Register of Human Genomic Information (hereinafter referred to as the *ERHGI*) became operational in Ukraine, serving as a functional subsystem of the unified information system of the Ministry of Internal Affairs of Ukraine. The structure, operating procedure, main tasks, purpose and functions of the *ERHGI* are defined in the Regulation on the Electronic Register of Human Genomic Information³⁷. The *ERHGI* is effective for identifying individuals who have committed criminal offenses, searching for missing persons, identifying unidentified bodies, human remains and body parts, as well as identifying individuals unable to provide information about themselves due to health status, age or

35 Інструкція з організації функціонування ... URL: <https://zakon.rada.gov.ua/laws/show/z0963-09#Text> (date accessed: 05.02.2026).

36 Про державну реєстрацію геномної інформації людини : Закон України від 09.07.2022 р. № 2391-IX. URL: <https://zakon.rada.gov.ua/laws/show/2391-20#Text> (date accessed: 05.02.2026).

37 Положення про Електронний реєстр геномної інформації людини : затв. наказ. МВС України від 04.08.2023 р. № 639. URL: <https://zakon.rada.gov.ua/laws/show/z1657-23#Text> (date accessed: 05.02.2026).

other circumstances³⁸. This is particularly important in the context of the war with Russia. Along with the *ERHGI*, the *CRHGC* and the local record of human genetic characteristics (hereinafter referred to as the *LRHGC*) function concurrently.

Conclusions

In general, 69 countries worldwide currently have national databases of genetic characteristics, and another 34 countries are in the process of establishing them. Recently, such databases have been actively expanded in Asia, particularly in China, India and South Korea.

In our opinion, databases of genetic characteristics can be classified into groups based on the following main criteria: size and capacity (number of profiles contained in the database), the principle of profile inclusion (restrictive or expansive effects) and the efficiency rate. The Ukrainian DNA database is fairly new (2009) compared to that of the United Kingdom (1995) and certain EU countries (the Netherlands (1997) and France (1998)), yet it is sufficiently developed compared to Poland (2007) and Portugal (2008).

Based on the analysis of the experience of the United Kingdom, the United States, China, Germany, the Netherlands, Poland, Portugal and Greece, a comprehensive conclusion can be drawn regarding contemporary global strategies for creating and using DNA databases.

Firstly, a correlation exists between national history and the DNA database regime. For instance, democratic countries with a history of dictatorship (Germany, Portugal) maintain databases with the

smallest number of profiles (0.05–1%). In these nations, high distrust of the police prevails; therefore, control over DNA is frequently transferred to civilian medical institutions, and data collection is strictly limited to convicted individuals. It is worth noting that countries with an authoritarian lean or a priority on state security (China, for example) create mammoth databases (68 million+), where 95% of profiles belong to law-abiding citizens (target groups).

Secondly, a certain conflict exists between the efficiency and privacy of DNA databases. The United Kingdom demonstrates through its example that covering 10% of the population yields a colossal number of solved crimes (63%) but leads to legal sanctions from the ECtHR due to violations of the rights of innocent individuals. Greece is following the same path. The Netherlands chose a different direction: technological advancement instead of quantity. Even with a small coverage (1.9% of the population), they successfully solve crimes using methods such as DNA phenotyping and familial searching.

Thirdly, a technological standardization effect exists. Most countries (USA, Poland and another 22 EU members) utilize the American CODIS system. This creates a unified digital space for combating international terrorism and cross-border crime. Even small-scale databases (such as that of Poland) become effective due to compatibility with international registries.

Compared to the analyzed countries, the establishment of the Ukrainian DNA identification system indicates a gradual transition from isolated tests to the

38 Дубонос К. В. Актуальні питання впровадження електронного реєстру геномної інформації людини. Судова експертиза в контексті відновлення України : мат-ли III всеукр. наук.-практ. конф. (Львів, 09.06.2023). Київ, 2023. С. 67–74. URL: <https://intelekt.org.ua/wp-content/uploads/2023/08/sudova-ekspertyza-2023-druk.pdf> (date accessed: 05.02.2026).

creation of the centralized CRHGC system, which in its structure and principles is close to European medium-capacity models. Despite the fact that the first such test was performed in 1992, regulatory framework implementation and the creation of a unified CRHGC database occurred only in 2009. This indicates slow institutionalization compared to pioneer countries (United Kingdom, USA). The adoption of the specialized Law 'On State Registration of Human Genomic Information' transferred DNA operations from the level of departmental instructions of the Ministry of Internal Affairs to the nationwide level. This created a legitimate foundation for mass registration, similar to the system of the United States and the United Kingdom. The introduction of the ERHGI in Ukraine in 2023 ensures the digitalization of processes, while compliance with ENFSI standards guarantees the compatibility of Ukrainian data with European databases, which is important for identifying citizens abroad.

Parallel functioning of the state-of-the-art ERHGI and the time-tested CRHGC and LRHGC indicates a transitional period in Ukrainian DNA profiling. This makes it possible to preserve data arrays from past years, gradually integrating them into a modern digital platform. The division into compulsory registration (for criminals and under special categories in war conditions) and voluntary registration helps Ukraine maintain a balance between state security and human rights, avoiding accusations of mass surveillance (such as in the case of China).

Ukraine is a state with democratic values, which is reflected in its DNA databases. Legislation of Ukraine guarantees the right of citizens to personal inviolability and the presumption of innocence, making it impossible to introduce mass and

indiscriminate storage of DNA samples and profiles of unconvinced individuals in our state for the purpose of expanding such databases as a justification for strengthening public safety.

**Криміналістичні ДНК-обліки
у світі та в Україні:
історія становлення
та перспективи розвитку
Олексій Лозовий**

Мета статті — аналіз історії виникнення, становлення та особливостей наповнення наявних криміналістичних ДНК-обліків у світі й в Україні, окреслення можливих перспектив розвитку. Для досягнення поставленої мети застосовано загальнонаукові та спеціальні методи наукового пізнання (порівняльно-правовий, формально-юридичний, прогнозування, моделювання, аналіз і синтез). З'ясовано, що історія виникнення, формування та специфіка наповнення криміналістичних ДНК-обліків мають свої особливості в кожній країні й залежать від багатьох чинників, поміж яких владні режими (авторитаризм — як, наприклад, у Китаї), історичне минуле (культурний слід диктатури та недовіра до поліції, як у Португалії), стан захисту прав людини та ін. Бази даних генетичних ознак можна групувати за різними принципами, основними з яких є такі: наповненість (кількість наявних профілів), критерії включення (обмежувальної або експансивної дії), коефіцієнт ефективності. Аналіз становлення української системи ДНК-ідентифікації свідчить про поступовий перехід від поодиноких експертиз до створення централізованої системи, яка за своєю структурою та принципами наближена до європейських моделей середнього наповнення.

Ключові слова: криміналістичні ДНК-обліки; історія становлення; пер-

спективи розвитку; кількість ДНК-профілів; критерії включення; коефіцієнт ефективності.

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Declaration of Competing Interest

Author declares no conflict of interest.

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Application of Non-price Evaluation Criteria to Public Procurement in Ukraine: Role and Place of Forensic Economics

Volodymyr Lezhnin *

* Postgraduate Student at NSC «Hon. Prof. M. S. Bokarius FSI», Kharkiv, Ukraine,
ORCID: <https://orcid.org/0009-0007-6376-1711>,
e-mail: Lezhnin.Volodymyr@nncise.org.ua

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This article is devoted to the administrative and legal aspects of reducing corruption risks when customers apply non-price criteria in public procurement. The purpose of the article is to summarize the theoretical provisions regarding the role and place of judicial economic expertise as a means of reducing corruption risks when customers use non-price criteria in public procurement, and to formulate practical proposals for reforming legislation in this area. To achieve this goal, a system of general scientific and special research methods was used: dialectical, legal modeling, statistical analysis, comparison, linguistic, formal-legal, economic-legal, etc. Statistical data and judicial practice on this issue were analyzed. A comparative analysis of the legislation of Great Britain, the European Union, and Ukraine was conducted. It was proposed to specify the mechanisms for applying non-price criteria (in particular, by obliging the customer to calculate the specific weight of non-price quality criteria and with a measurable economic impact). A scientific and legal assessment of the role and place of judicial economic expertise in the study of the application of non-price criteria by customers in public procurement is provided. Proposals for amendments to the draft law on public procurement are formulated.

Keywords: public procurement; horizontal targets; non-price criteria; forensic economic examination; corruption risks; quoted price.

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Research Problem Formulation

European integration of Ukraine is impossible without the implementation of best practices, in particular, the rejection of an exclusive price criterion for the benefit of quality. Formal borrowing of foreign rules of law without taking into account the context of martial law and a rather short period (compared to the EU countries) of the existence of this legal institution can lead to an increase in corruption risks in this area.

Although Ukraine provides for non-price criteria for evaluating bids, in recent years the share of such procurement does not exceed 0.03% of the total number of bids. Since the formal availability of relevant legislation without developing an effective mechanism for justifying, applying, monitoring and verifying procurement with non-price criteria makes this method illusory.

Insufficient and contradictory legal regulation, the discrepancy between the explanations of the Ministry of Economy, the practice of the Antimonopoly Committee of Ukraine and the legal positions of the courts leads to the emergence of corruption risks in this area. Sometimes quite legitimate and reasonable conditions of the tender documentation of the customer are canceled due to far-fetched reasons. Otherwise, non-price criteria become a way for unscrupulous customers

to limit competition in favor of a certain participant.

This article examines the issues of administrative and legal aspects of the application of non-price criteria in public procurement, the latest recommendations of the European Commission, the experience of the European Union, the “phenomenon of Croatia” (almost 100% of procurement with non-price criteria), the directions of reforming Ukrainian procurement legislation in this area, the practice of the court and the Antimonopoly Committee of Ukraine, statistical information, features of forensic economic examination when determining losses in public procurement with non-price criteria, as well as promising directions for the development of forensic science in this area.

Therefore, there is a need for a comprehensive study of the basis and documentary justification for the use of non-price criteria in public procurement in conjunction with forensic economic examination.

Analysis of Essential Researches and Publications

The problem of public procurement as a subject of forensic economic examination was raised in their research papers by V. Khomutenko with co-authors ¹, O. Anishchenko and O. Danylchenko ², V. Ivankov ³ et al. Similarly, the theoretical and

- 1 Хомутенко В. П., Хомутенко А. В., Костін О. Ю. Проблематика проведення судово-економічних експертиз в умовах юридичної невизначеності окремих норм закупівельного законодавства. *Наукові записки Львівського університету бізнесу та права. Серія економічна. Серія юридична*. 2023. Вип. 38. С. 4–11. URL: <https://surl.luvn.org/zunyjp> (date accessed: 06.12.2025).
- 2 Аніщенко О. В., Данильченко О. Л. Збитки як предмет судової економічної експертизи у кримінальному провадженні. *Теорія та практика судової експертизи і криміналістики*. 2019. Т. 20. № 2. С. 367–377. DOI: [10.32353/khrife.2.2019.28](https://doi.org/10.32353/khrife.2.2019.28) (date accessed: 06.12.2025).
- 3 Іванков В. М. Еволюція предмету судової економічної експертизи. *Проблеми системного підходу в економіці*. 2023. Вип. 3 (92). С. 148–155. DOI: [10.32782/2520-2200/2023-3-20](https://doi.org/10.32782/2520-2200/2023-3-20) (date accessed: 06.12.2025).

practical principles of horizontal goals and non-price criteria in public procurement were studied by V. V. Malolitneva⁴, Ya. Korol and L. Korol⁵ et al.

However, the issue of applying non-price criteria in the context of forensic economic examination has not been sufficiently studied, which became the subject of this research.

Article Purpose

Summarize theoretical provisions on the role and place of forensic economic economics as a way to reduce corruption risks if the customer applies non-price criteria in public procurement, as well as formulate practical proposals for reforming legislation in this area.

Research Methods

Theoretical basis is the conceptual research of modern legal theory, legislative acts of Ukraine, the United Kingdom and the European Union, the public analytics module *BI Prozorro*, the Unified State Register of Court Decisions. To achieve the goal, general scientific and special research methods were used: dialectical, legal modeling, classification, statistical analysis, comparison, linguistic, formal legal, economic and legal, etc.

Main Content Presentation

Global trends in the development of the institute of public procurement indicate

a variety of tasks and types of procurement, which include, in particular, green, innovative and social procurement. The economic purpose of public procurement is not only to save money, but also to stimulate certain areas of management and the national producer, to solve environmental or social problems, etc.

In the 2025 report on Ukraine, European Commission rightly determined the direction of public procurement development aimed at expanding non-price criteria for evaluating bids of participants in order to ensure the quality of the subject of procurement⁶.

As noted by V. Malolitneva, the institution of public procurement has a greater purpose than the purchase of goods, works, and services to meet the needs of the state and local communities. This institution is a means of implementing an additional goal of state policy, which is not limited to a purely economic “price-quality” approach, since the customer stands out among other buyers in the market in that it meets the needs of the state or local community (“satisfies the general interest”). From this, we conclude that in the context of public procurement, achieving economic efficiency alone is not the sole purpose of procurement. There are a number of targets that go beyond the concept of efficiency, including social protection, environmental aspects, ensuring sustainable development, supporting domestic producers, etc. These objectives of the public procurement institution are referred to as horizontal, as they are

4 Малолітнева В. К. Господарсько-правовий інститут публічних закупівель : монографія. Київ, 2020. 412 с. URL: <https://surl.lu/ylhcho> (date accessed: 06.12.2025).

5 Король Я., Король Л. Нецінові критерії як інструмент підвищення ефективності публічних закупівель. *Collection of Scientific Papers «SCIENTIA»* (Kraków, Poland; Sept 26, 2025). Kraków, 2025. Pp. 14–18. URL: <https://previous.scientia.report/index.php/archive/article/view/3022> (date accessed: 06.12.2025).

6 Ukraine Report 2025 / European Commission : web. 4 Nov 2025. URL: https://enlargement.ec.europa.eu/ukraine-report-2025_en (date accessed: 06.12.2025).

implemented in parallel with the main objective — the direct procurement of goods, works, and services to meet the needs of customers ⁷.

Normative confirmation of the existence of such goals in our state is the Constitution, according to which Ukraine is a social state with a social orientation of the economy, ensuring environmental safety and maintaining environmental balance on its territory ⁸. And although the “horizontal” goals are not directly provided for in the Law of Ukraine “On Public Procurement” (hereinafter referred to as the *Law on Procurement*), their application is conditioned by the Constitution of Ukraine as norms of direct action.

In the scientific literature, according to the criterion of “horizontal goals that are implemented in procurement”, the following types are distinguished:

- in order to protect the environment (green procurement);
- socially responsible;
- for the development of innovations;
- to protect national producers, individual territories, support small and medium-sized businesses, etc. ⁹

Turning to foreign practices in implementation of horizontal goals, it is worth noting: Article 67 of Directive 2014/24/EU of the European Parliament and of the Council (hereinafter referred to as *Directive 2014/24/EU*) of February 26, 2014 on

public procurement and on the invalidation of Directive 2004/18/EU provides for the possibility of applying non-price criteria (in particular, social, qualitative, environmental) related to the subject of the relevant public contract. In addition, the award criteria cannot provide the customer with unlimited freedom of choice aimed at effective competition and can be reliably verified ¹⁰.

In the practice of the European Union, the following requirements for non-price criteria have developed:

- Related to the subject of procurement;
- focus on choosing the most cost-effective offer;
- objectivity;
- non-discrimination and impartiality towards different participants;
- sufficient transparency;
- measurability (however, if the evaluation criteria and their weight cannot be measured accurately, the customer can prioritize them) ¹¹.

Directive 2014/24/EU does not provide a specific methodology for evaluating tenders using non-price criteria, so procuring entities develop them independently. This led to the variability of methods, which has both positive and negative consequences. Thus, the courts of the EU countries may invalidate the methodology for assessing non-price criteria, in particular, in case

7 Малолітнева В. К. Зазнач. твір. С. 26. URL: <https://surl.luhcbo> (date accessed: 15.12.2025).

8 Конституція України : Закон України від 28.06.1996 р. № 254к/96-ВР (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/254k/96-вр#Text> (date accessed: 06.12.2025).

9 Малолітнева В. К. Зазнач. твір. С. 41. URL: <https://surl.luhcbo> (date accessed: 15.12.2025).

10 Directive 2014/24/EU of the European Parliament and of the Council of 26 February 2014 on public procurement and repealing Directive 2004/18/EC. *Official Journal of the European Union*. 28.3.2014. Pp. 65–242. URL: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0024> (date accessed: 06.12.2025).

11 Даденко В., Русіна К. Нецінові критерії у публічних закупівлях. Європейський досвід і поради для України. *Transparency International Ukraine*. 2023. С. 7. URL: <https://ti-ukraine.org/wp-content/uploads/2023/09/Netsinovi-kryteriyi-v-publichnyh-zakupivlyah.-YEvropejskyj-dosvid-i-porady-dlya-Ukrayiny.pdf> (date accessed: 06.12.2025).

of non-compliance with the principle of equal treatment and the selection of a proposal that is not economically most profitable (*Most Economically Advantageous Tender, the "MEAT"*)¹².

As stated in the report: *Non-price criteria in public procurement. European experience and advice for Ukraine*, in the 2010s, 99% of procurements in Croatia selected the winner based solely on price criteria, as Croatian law allowed the customer to choose which evaluation criteria to apply: price only or price and non-price. However, since July 1, 2017, i.e., with the adoption of the new public procurement law, price and other costs could no longer be the sole evaluation criterion. Their weight had to be a maximum of 90% and, with proper justification, could be reduced to less than 50% (i.e., non-price criteria became mandatory, which led to almost 100% of procurements being conducted with non-price criteria). At the same time, such an imperative and uncompromising method of introducing non-price criteria is questionable, since their application without analyzing the effectiveness of procurement or without determining the cost equivalent may not have a positive economic and social effect, but will lead to a restriction of competition and an increase in corruption risks¹³.

Analyzing the experience of the United Kingdom of Great Britain and Northern Ireland, we state that its legislation aims

to optimize the use of public funds by ensuring a balance between efficiency, effectiveness and economy, taking into account socio-economic and environmental benefits. This is done to prevent inefficient use of funds due to low cost and, moreover, low quality. Achieving the best value for money is always a priority in public procurement and is covered by the concept of the most advantageous tender offer (*Most Advantageous Tender, the "MAT"*).

The UK Public Services Social Value Act 2012 also obliges the public authorities of England and Wales (in part) to address the following issues at the preparatory stage:

- "How exactly can the intended subject matter of the procurement improve the economic, social and environmental well-being of the community concerned?";
- "In what way, by carrying out the procurement procedure, can the authority contribute to achieving such an improvement?";
- "Should there be any consultation on this?"

The answers to these questions are aimed at the following values:

- economic one (e.g. employment or internship / training opportunities, energy efficiency);
- social one (for example, activities that promote community cohesion);
- environmental one (for example, combating climate change)¹⁴.

12 Heard E. Price / quality evaluations — what legal considerations are there regarding choice of model, and what does recent analysis tell us about price evaluation in particular? // Bevan Brittan : web. 19/06/2017. URL: <https://www.bevanbrittan.com/insights/articles/2017/procurement-challenges-pricequality-evaluations/> (date accessed: 06.12.2025).

13 Даценко В., Русіна К. Знач. твір. С. 10. URL: <https://ti-ukraine.org/wp-content/uploads/2023/09/Netsynovi-kryteriyi-v-publichnyh-zakupivlyah.-YEvropejskyj-dosvid-i-porady-dlya-Ukrayiny.pdf> (date accessed: 06.12.2025).

14 PPN 002 Guide to using the social value model (HTML) : guidance / GOV.UK : web. 5 March 2025. URL: <https://www.gov.uk/government/publications/ppn-002-taking-account-of-social-value-in-the-award-of-contracts/ppn-002-guide-to-using-the-social-value-model-html> (date accessed: 06.12.2025).

UK Public Procurement Act 2023 (*Procurement Act 2023*) gives customers flexibility in including social and environmental criteria in procurement. In addition, customers should:

- ensure that any evaluation criteria they apply are relevant to the subject matter of the contract and are a proportionate means of evaluating tenders taking into account the nature, complexity and value of the contract (Section 23(2)(a) and (d)). For example, if the procurement contract provides for high labor costs, the application of criteria to the personnel working on its implementation will be justified;
- ensure equal treatment of suppliers (Section 12(2) and 12(3));
- not to discriminate against suppliers from States that are party to trade agreements, i.e. suppliers who benefit from any free trade agreements concluded by the United Kingdom (Section 90) ¹⁵.

Foreign experience in the application of non-price criteria in public procurement indicates a significant spread of such practices in order to improve quality of procurement subject, as well as the fulfillment of social obligations of procuring entities.

In Ukraine, one of the mechanisms for implementing horizontal goals is the use of non-price criteria for evaluating the tender offer using the calculation of the reduced price. It should be noted

that the Ukrainian procurement legislation does not contain the term *non-price* criteria, but has the concept of *other evaluation criteria*.

In judicial practice, it has developed that the effectiveness of procurement is to fully meet public needs for the rational use of public funds. The implementation of the efficiency principle is reflected in the possibility of announcing a procurement, which will take into account not only the bid price, but also other factors (in particular, the quality of the goods, the warranty period, maintenance, the conditions for the fulfillment of contractual obligations, etc.) ¹⁶: that is, the non-price criteria of the institution of public procurement perform two functions: ensuring efficiency of procurement and implementation of horizontal goals.

The legislator has provided that evaluation of tender bids submitted by participants in open tenders or open tenders with special conditions (during the period of martial law) ¹⁷ may be carried out not only on the basis of the lowest price, but on the basis of life cycle costs or a combination of price and other non-price criteria. The latter include, in particular: environmental protection, warranty period, innovation, staff training, payment terms, social protection, etc. At the same time, such non-price criteria must be related to the subject of the procurement, directly specified in the tender documentation, and their weight in relation to the price

15 Procurement Act 2023 / Legislation.gov.uk : web. 26.10.2023. URL: <https://www.legislation.gov.uk/ukpga/2023/54/contents/enacted> (date accessed: 06.12.2025).

16 Рішення Київ. окруж. адмінсуду від 20.08.2023 р. № 320/28584/23. Провадж. П/320/28584/23/ЄДРСР : вебсайт. URL: <https://reyestr.court.gov.ua/Review/112919233> (date accessed: 06.12.2025).

17 Особливості здійснення публічних закупівель товарів, робіт і послуг для замовників, передбачених Законом України «Про публічні закупівлі», на період дії правового режиму воєнного стану в Україні та протягом 90 днів з дня його припинення або скасування : затв. постанов. КМУ від 12.10.2022 р. № 1178. URL: <https://zakon.rada.gov.ua/laws/show/1178-2022-%D0%BF#Text> (date accessed: 06.12.2025).

may not exceed 30% (except for competitive dialog, which is not applied during martial law; Article 29 of the Law on Procurement)¹⁸. In addition, the Ministry of Economy emphasizes that the list of such non-price criteria is not exhaustive¹⁹.

In addition, since April 19, 2020, the legislator has excluded the rule that the application of non-price criteria requires a combination of two prerequisites: the complex or specialized nature of the subject of the procurement and the absence of a permanent market for similar services²⁰. Such changes have expanded the list of procurements in which non-price criteria can be applied.

Non-price criteria can be classified as follows:

- have an additional economic effect for the customer (which can theoretically be calculated and verified);
- not related to the economic effect (social, environmental, innovative and other characteristics that do not have a direct impact on the productivity, economy and durability of the subject of procurement)²¹.

In the draft: *Approximate Methodology for the Application of Non-Price Evaluation Criteria* developed by the Ministry

of Economy, according to the method of determining the impact and calculating the specific gravity, non-price criteria are grouped as follows:

- criteria with a measurable economic impact that directly affect the cost of meeting the customer's needs (terms of payment or delivery, energy consumption of the goods, equipment performance, cost of additional service or cost of training the customer's personnel, etc.);
- quality criteria related to the quality of meeting the customer's needs (technical characteristics (specifications), additional equipment or functionality, reliability (reliability) of work or additional warranty obligations of the supplier, etc., provided that such characteristics have a significant impact on meeting the needs);
- social criteria and other criteria not related to the direct impact on the customer's needs (social inclusiveness, environmental friendliness, innovation, social impact, availability of specialized equipment, employees of appropriate qualifications, special experience, etc.)²².

18 Про публічні закупівлі : Закон України від 25.12.2015 р. № 922-VIII (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/922-19#Text> (date accessed: 06.12.2025).

19 Щодо критеріїв оцінки тендерних пропозицій : лист Мінекономіки України від 02.04.2021 р. № 3304-04/20327-06. URL: <https://me.gov.ua/InfoRez/DocumentsList?id=f2e30594-ba6c-420f-9c24-2a852415a884&tag=InforezKnowledgeDb&lang=uk-UA&fNum=3304-04%2F20327-06> (date accessed: 06.12.2025).

20 Про внесення змін до Закону України «Про публічні закупівлі» та деяких інших законодавчих актів України щодо вдосконалення публічних закупівель : Закон України від 19.09.2019 р. № 114-IX (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/114-IX#Text> (date accessed: 06.12.2025).

21 Даценко В., Русіна К. Зазнач. твір. С. 14. URL: <https://ti-ukraine.org/wp-content/uploads/2023/09/Netsinovi-kryteriyi-v-publichnyh-zakupivlyah.-YEvropejskyj-dosvid-i-porady-dlya-Ukrayiny.pdf> (date accessed: 06.12.2025).

22 Примірна методика застосування нецінових критеріїв оцінки / Docs.google.com : web. 33 с. URL: <https://docs.google.com/document/d/1u3VQxRmFRYUBswCgWLTjh8pUTUI4q5Lp-poi1QeY07Y/edit?tab=t.0> (date accessed: 06.12.2025).

Analyzing the trends in the development of Ukrainian procurement legislation, it is worth noting the draft law on public procurement № 11520 dated on 23.08.2024 (hereinafter referred to as the *draft law*).

According to paragraph 3 of Part 3 of Article 32 of the Draft Law, the evaluation criteria are, in particular, the price together with other evaluation criteria that should be related to the subject of the procurement²³ (that is, examples of non-price criteria have been removed to eliminate disputes about their exhaustive nature).

As the Committee on Anti-Corruption Policy of the Verkhovna Rada of Ukraine rightly noted, the draft law contains corruption-related factors. In particular, unlike the provisions of the current Law on Procurement, the draft law does not contain a condition on the minimum specific weight of the price of at least 70%, which will allow to level the price of the goods and create artificial advantages in the form of non-price criteria for individual procurement participants²⁴.

Directive 2014/24/EU does not limit the weight of non-price criteria to 30%, as stipulated by the current Ukrainian procurement legislation, while focusing on procurement efficiency and requirements for non-price criteria.

Given the Ukrainian realities, the absence of such a fuse may lead to a restriction of competition.

If we analyze the mechanism for applying non-price criteria, the Law on Procurement provides for the automatic calculation of the reduced price through

the electronic procurement system (hereinafter referred to as the *Prozorro* system) based on the proposals of the participants. The winner of the bidding is determined at the lowest quoted price.

“Given price is a monetary amount specified by the bidder in the tender offer / proposal and recalculated according to a mathematical formula, taking into account the indicators of other evaluation criteria specified by the customer in the tender documentation / announcement of a simplified procurement” (clause 23 of Part 1 of Article 1 of the Law on Procurement)²⁵.

As determined by the Ministry of Economy, the e-procurement system calculates the given price automatically by the formula:

$$PP = P / (1 + (F1 + F2 + \dots Fn) / PV),$$

where:

PP is adjusted price

P is price

F1 ... Fn is the share of other evaluation criteria proposed by the participant;

PV is the specific weight of the *price* criterion²⁶.

Although the bidding is conducted at the lowest given price, however, the procurement contract does not indicate the given price, but the price offered by the bidder for the subject of procurement (that is, the given price is an intermediate monetary amount that is adjusted to non-price criteria and by which the winner of the bidding is determined).

An example of an algorithm for applying non-price tender evaluation criteria is indicated in Fig. 1.

23 Проект Закону про публічні закупівлі від 23.08.2024 р. № 11520. URL: <https://itd.rada.gov.ua/billinfo/Bills/CardByRn?regNum=11520&conv=9> (date accessed: 06.12.2025).

24 Там само.

25 Про публічні закупівлі ... URL: <https://zakon.rada.gov.ua/laws/show/922-19#Text> (date accessed: 06.12.2025).

26 Щодо критеріїв оцінки ... URL: <https://me.gov.ua/InfoRez/DocumentsList?id=f2e30594-ba6c-420f-9c24-2a852415a884&tag=InforezKnowledgeDb&lang=uk-UA&fNum=3304-04%2F20327-06> (date accessed: 06.12.2025).

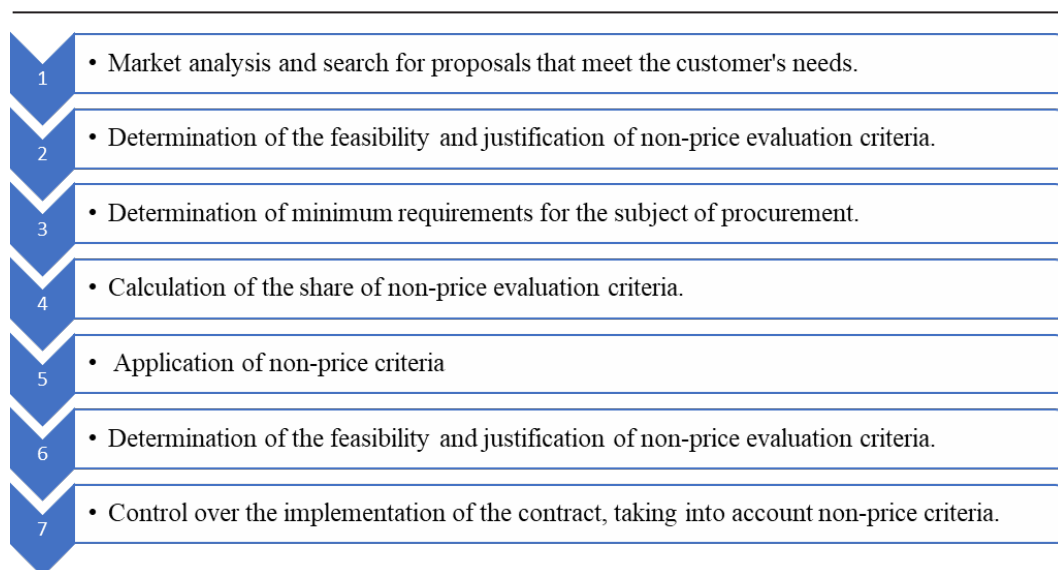


Fig. 1. Stages of the customer's application of non-price evaluation criteria

Note: Developed by the author of the article on the basis of the project “Approximate methodology for the application of non-price evaluation criteria”²⁷.

For example: in the procurement of lubricants for gasoline tools according to the procedure, bidding with features was opened (announcement № UA-2025-11-10-002611-a), the customer in the tender documentation identified three non-price criteria with a specific weight of 30% (price – 70%):

- deferred payment – 10% (of which 180 calendar days – 10%; 120 calendar days – 5%; 60 calendar days – 0%);
- delivery time – 10% (including 2 working days – 10%; 5 working days – 5%; 10 working days – 0%);
- warranty obligations – 10% (of which 3 years – 10%; 2 years – 5%; 1 year – 0%)²⁸.

If the participant chooses the maximum non-price criteria (deferred payment of 180 calendar days – 10%; delivery time of 2 working days – 10%; warranty obligations of 3 years – 10%), then the price of the participant who offered the price of UAH 1,000,000.00 will be UAH 700,000.00 (the price = UAH 1,000,000.00 / (1 + 30% ÷ 70%) = UAH 700,000.00), that is, 30% less than the price offered by the participant.

If such a participant is selected as the winner, the price proposed by the participant shall be UAH 1,000,000.00, as well as the pre-determined terms of payment, delivery and guarantee.

At the same time, the customer may use non-price criteria by mistake or in order to limit competition and winnings by a predetermined participant.

27 Примірна методика застосування ... URL: <https://docs.google.com/document/d/1u3VQx-RMrFRYUBswCgwLTjh8pUTUI4q5Lppoi1QeY07Y/edit?tab=t.0> (date accessed: 06.12.2025).

28 Мاستильні засоби для бензоінструменту : оголошення UA-2025-11-10-002611-a / Prozorro : вебсайт. URL: <https://prozorro.gov.ua/uk/tender/UA-2025-11-10-002611-a> (date accessed: 06.12.2025).

Thus, during the procurement of a diesel generator according to the announcement № UA-2024-08-16-010383-a under the open bidding procedure with features, the customer indicated in the tender documentation the criteria for evaluating the bids: compliance with the declared technical characteristics (40%); price (40%); reliability (reliability, safety, maintainability, durability) (20%), that is, with a violation of the price threshold limit of 70%.

In addition, the *Prozorro* system establishes other criteria for selecting the winner: price — 70%, compliance with the declared technical characteristics — 15%; maintainability — 15%.

Consequently, the non-price criteria specified in the documentation did not meet the non-price criteria specified in the procurement procedure announcement. Under such circumstances, the Commission of the Antimonopoly Committee of Ukraine for Consideration of Complaints on Violations of Legislation in the Field of Public Procurement (hereinafter referred to as the AMCU Commission) concluded that the participants were deprived of the opportunity to properly formulate their proposals in connection with the existing discrepancies. This distorted the results of the bidding. That is why the AMCU Commission obliged the procuring entity to cancel the procurement procedure²⁹.

Analyzing another procurement (according to the announcement № UA-2024-05-17-008967-a), the customer established other evaluation criteria when purchasing fuel (in the form of coupons) to determine the most cost-effective tender offer, in addition to the price (specific gravity 80%). Namely, the distance from the gas station

(hereinafter referred to as the *gas station*) to the customer with a specific weight of 20%:

- if the distance from the gas station is less than 1.5 km, then 20%;
- if the distance from the gas station is from 1.51 to 2.50 km, then 10%;
- if the distance from the gas station is more than 2.51 km, then 0%.

This tender documentation defines the reduced price as the price specified by the seller in the tender offer and calculated taking into account the indicators of other evaluation criteria (distance from the gas station) according to the mathematical formula: the reduced price = the offer price/correction factor.

The Employer motivated the application of such a non-price criterion by the fact that it will incur additional monetary and time costs for the road, which will negatively affect the efficiency of the customer's work, and will offset the benefit of determining only the lower price of the tender offer of the potential winner. According to the author, such wording is not properly justified. This non-price criterion has an *additional economic effect for the customer*, so it could be calculated on the basis of an estimate of the average fuel consumption of the customer's fleet, multiplied by the distance.

Thus, during the appeal against this condition of the tender documentation, the AMCU Commission noted that such a criterion does not belong to other evaluation criteria provided for in paragraph 3 of Part 3 of Article 29 of the Law on Procurement, which, in the author's opinion, contradicts the inexhaustible list of non-price criteria, as evidenced by the use of

29 Рішення Комісії Антимонопольного комітету України з розгляду скарг про порушення законодавства у сфері публічних закупівель від 25.09.2024 р. № 15848-р/пк-пз / Prozorro : вебсайт. URL: <https://prozorro.gov.ua/uk/tender/UA-2024-08-16-010383-a/complaints> (date accessed: 06.12.2025).

the insert word “in particular” in this provision.

The Appellate Body also considers that such conditions do not allow participants to properly formulate their tender proposals, which is discriminatory, and obliged the customer to amend the tender documentation³⁰.

Subsequently, the customer canceled the open bidding procedure altogether due to a reduction in the volume of expenditures for the procurement of goods, works or services³¹.

As can be seen, an unreasonable determination of the share of non-price criteria can give significant competitive advantages to predetermined participants. That is why, in order to reduce corruption risks, the legislation should provide for the obligation of the customer to calculate the share of non-price criteria with a measurable economic impact.

Ministry of Economy proposes to apply the following formulas in the draft methodology:

$$1) F = Se / C \times 100 \%,$$

where:

F is calculation of the share of non-price evaluation criteria;

Se is amount of the economic effect of the non-price criterion in accordance with the planned indicators of supply and/or possession of the subject of procurement; estimated value of procurement;

In turn, Se is calculated by the formula:

$$Se = S_{B1} - S_{B2},$$

where:

S_{B1} is amount of the customer's expenses on terms that do not meet the non-price evaluation criterion (basic requirements);

S_{B2} is amount of the customer's expenses on terms that meet the non-price evaluation criterion (non-price criterion option);

2) by quality criteria:

$$F = \Delta C / C \times 100\%,$$

where ΔC is the difference in the value of goods on the market with different quality characteristics, which is calculated as follows:

$$\Delta C = C_1 - C_2,$$

where:

C₁ is average cost of goods (works or services) on the market with conditions (characteristics) that meet the non-price evaluation criterion;

C₂ is the average cost of goods (works or services) on the market with conditions (characteristics) that do not meet a certain non-price evaluation criterion.

C₁ and C₂ are defined as the average value of offers on the market with uniform conditions according to a certain non-price criterion³².

Use of calculations by customers will make possible to reasonably assess the impact of non-price factors on the procurement, make it effective and avoid corruption risks during its conduct.

If the determination of the specific weight of the non-price criterion is impossible, in particular for the application of social criteria, a threshold of the specific

30 Рішення Комісії Антимонопольного комітету України з розгляду скарг про порушення законодавства у сфері публічних закупівель від 08.07.2024 р. № 11754-р/пк-пз / Prozorro : вебсайт. URL: <https://prozorro.gov.ua/uk/tender/UA-2024-05-17-008967-a/complaints> (date accessed: 06.12.2025).

31 Бензин А-95 (талони); Дизельне паливо (талони) : оголошення UA-2024-05-17-008967-a / Prozorro : вебсайт. URL: <https://prozorro.gov.ua/uk/tender/UA-2024-05-17-008967-a> (date accessed: 06.12.2025).

32 Примірна методика застосування ... URL: <https://docs.google.com/document/d/1u3VQx-RMrFRYUBswCgwLTjh8pUTUI4q5Lppoi1QeY07Y/edit?tab=t.0> (date accessed: 06.12.2025).

weight of such factors should be set at the legislative level not more than 10% (that is, a threshold that will not have a decisive impact on the procurement results). A complete rejection of the application of social criteria will contradict the horizontal goals of public procurement.

Thus, when implementing the social functions of the state, procuring entities can provide non-price criteria that will contribute to the social integration of veterans, persons with disabilities, and internally displaced persons³³. In particular, the involvement of a certain number of veteran employees in the implementation of the procurement contract can become a competitive advantage of the participant as a non-price criterion and will contribute to the employment and integration of veterans. In the tender documentation, this may look like this: the share of the price criterion is 90%, and non-price — 10% (in terms of the number of veteran employees involved in the implementation of the contract, where 10% corresponds to more than 10 people inclusive, 5% — from 1 to 10 people, and 0% — 0 people).

Turning to judicial practice, it is worth noting that the courts generally support the reasonable and non-discriminatory application of non-price criteria.

Thus, Sixth Administrative Court of Appeal noted that the establishment of non-price evaluation criteria by the customer is the right of the customer in accordance with the Procurement Law. That is why the customer, during the development of ten-

der documentation and the publication of the procurement announcement, had the right to establish non-price evaluation criteria, which does not contradict the provisions of Article 19 of the Constitution of Ukraine³⁴. At the same time, such non-price criteria cannot duplicate the qualification criteria (personnel, financial, material and technological, experience in the implementation of similar contracts)³⁵.

Ya. Korol considers non-price criteria as an effective tool for increasing the effectiveness of procurement, and not as an unnecessary complication in the conduct of bidding³⁶.

In order to popularize the use of non-price criteria in Ukraine, the “Designer of non-price criteria” was developed, available at <https://nk.prozorro.ua> under the administration of the *Prozorro* State Enterprise.

This resource provides examples of non-price criteria depending on the type of procurement item (CPVcode). In particular, the characteristics given in Table are proposed for food products.

The constructor of non-price criteria immediately offers examples of justification for the expediency of application and confirmation of compliance with a certain non-price criterion.

The disadvantage of this system is the lack of an approximate calculation of the share of the non-price criterion, which would be useful not only for customers, but also during the audit or monitoring of the procurement.

33 Примірна методика застосування ... URL: <https://docs.google.com/document/d/1u3VQx-RMrFRYUBswCgwLTjh8pUTUI4q5Lppoi1QeY07Y/edit?tab=t.0> (date accessed: 06.12.2025).

34 Конституція України ... URL: <https://zakon.rada.gov.ua/laws/show/254к/96-вр#Text> (date accessed: 06.12.2025).

35 Постанова Шост. апеляц. адмінсуду від 18.06.2025 р. Справа № 640/16892/20. Провадж. А/855/3096/25 / ЄДРСР : вебсайт. URL: <https://reyestr.court.gov.ua/Review/128329329> (date accessed: 06.12.2025).

36 Король Я., Король Л. Зазнач. твір. С. 18. URL: <https://previous.scientia.report/index.php/archive/article/view/3022> (date accessed: 06.12.2025).

Table

Examples of non-price evaluation criteria for food³⁷

Characteristic name	Criterion Type	Criterion Example
Efficiency	Other criteria not related to the direct impact on the customer's needs (however, may be with a measurable economic impact depending on the wording)	Use seasonal or locally sourced ingredients in food preparation
		Energy efficiency of electrical equipment
	With measurable economic impact	Deferred payment
Quality	Qualities	Availability of an implemented quality management system or an integrated system, which is confirmed by a certificate in accordance with ДСТУ ISO 9001
Safety	Qualities	Availability of an implemented food safety management system, which is confirmed by a certificate in accordance with ДСТУ ISO 22000
Environmental precautions	With measurable economic impact	Use of reusable cutlery, dishes, tablecloths
	Other criteria not related to the direct impact on the customer's needs	Use of road transport
		Use of eco-friendly food products, eco-friendly paper products (paper napkins, paper towels), detergents
		Waste sorting
		Management of environmental aspects in the process of providing services
Innovativeness	Other criteria not related to the direct impact on the customer's needs	Use for cooking / availability of organic products in the menu in accordance with the Law of Ukraine: <i>On Basic Principles and Requirements for Organic Production, Circulation and Labelling of Organic Products</i> ³⁸

Studying the statistics of public procurement with non-price criteria using the public analytics module of *BI Prozorro*, it should be noted that for the period from 01.01.2024 to 30.10.2025, 1.84 thousand lots of public procurement were conducted using non-price criteria for a total

expected value of UAH 14.38 billion (see Fig. 2). During this period, 31 complaints were filed with the AMCU Commission, 22 of which were resolved and implemented. The expected value of the lots with the complaint is UAH 1.97 billion, or 13.72% of the expected value of all purchases

37 Конструктор нецінових критеріїв / Prozorro : вебсайт. URL: <https://nk.prozorro.ua> (date accessed: 06.12.2025).

38 Про основні принципи та вимоги до органічного виробництва, обігу та маркування органічної продукції : Закон України від 10.07.2018 р. № 2496-VIII (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/2496-19#Text> (date accessed: 06.12.2025).

with non-price criteria for this period (see Fig. 3). At the same time, the total number of lots of competitive procurement conducted through the *Prozorro* system is 7.01 million, that is, the share of “non-price” procurement is 0.026% ³⁹.

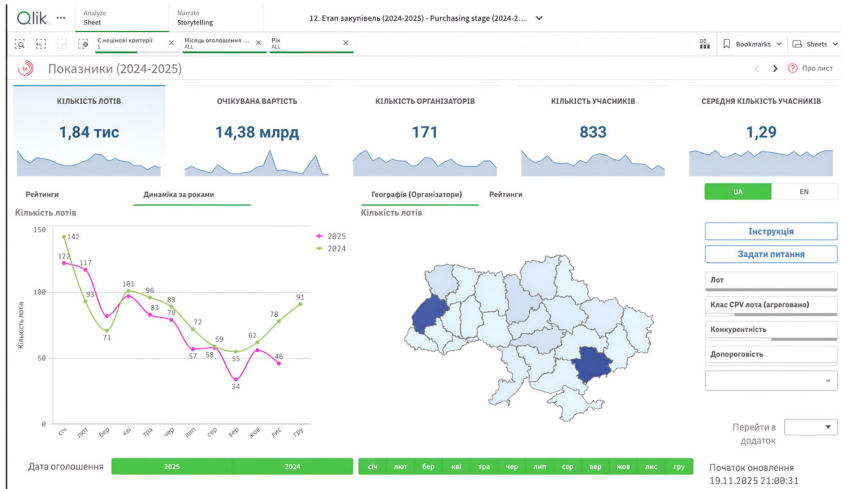


Fig. 2. Public procurement statistics with non-price criteria for the period from 01.01.2024 to 30.10.2025, generated using the public analytics module *BI Prozorro* ⁴⁰

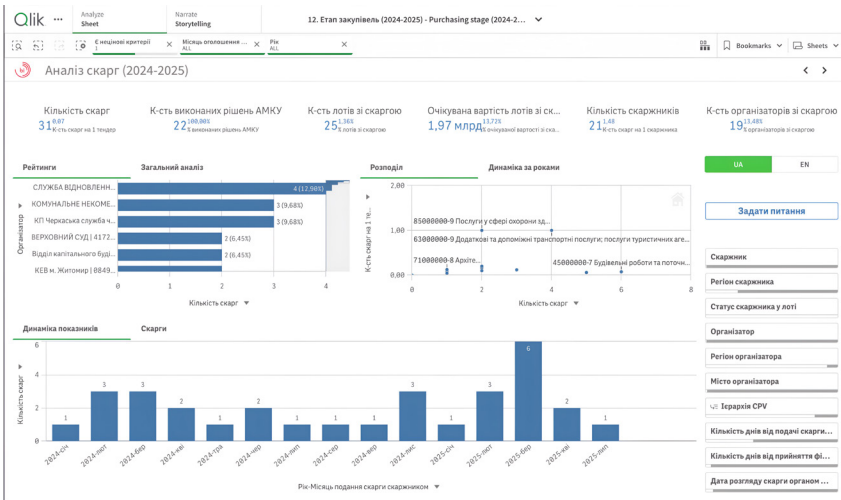


Fig. 3. Statistics of complaints in public procurement procedures with non-price criteria for the period from 01.01.2024 to 30.10.2025, generated using the public analytics module *BI Prozorro* ⁴¹

³⁹ Публічний модуль аналітики / Prozorro : вебсайт. URL: <https://bi.prozorro.org/hub/stream/aaec8d41-5201-43ab-809f-3063750dfaf> (date accessed: 06.12.2025).

⁴⁰ Там само.

⁴¹ Там само.

Despite the small share of procurement with non-price criteria, participants filed complaints in 13.72% of lots (at the expected cost).

Given the imperfect legislative regulation, it is difficult for the customer to justify the expediency and non-discrimination of applying non-price criteria. At the same time, for those who inspect (the State Audit Service of Ukraine, the Antimonopoly Committee of Ukraine, the Accounting Chamber, public control, etc.) and law enforcement agencies, there are difficulties in proving violations and justifying the amount of damage for such procurement.

Only involvement of a forensic expert, in particular an economist, will make it possible to solve the problem of documentary justification of financial and economic transactions for the purchase of goods, works, and services; the documentary justification of calculations of the economic indicator of property damage (losses, lost profits) carried out by financial and economic control entities, pre-trial investigation bodies, or stated in claims; the documentary justification of the calculation of the specific weight of non-price evaluation criteria, etc.

Research within the scope of economic expertise is based on studying the economic activities of an enterprise, the processes of forming financial indicators for transactions carried out, and the correctness of their reflection in accounting.

In addition, the most common type of damage in public procurement is, in particular, *irrecoverable loss of assets*: payment for work that has not actually been performed (services not provided), purchase of goods (services) at above-market prices, theft (shortage, damage) of inventory, accounts receivable (in particular, current) of counter-parties⁴².

It should be noted that the resolution of issues falling within the competence of state financial control bodies (conducting audits by economic experts of certain aspects or specific issues of the financial and economic activities of institutions, organizations, and enterprises in order to identify violations of the law and establish the guilty officials and materially responsible persons involved in such violations), as well as legal issues, do not fall within the scope of forensic economics⁴³.

“Resolving issues that go beyond the qualifications of a forensic expert in the relevant field of expertise, including legal issues” is a disciplinary offense for a forensic expert (clause 5, part 3, Article 14 of the Law of Ukraine: On Judicial Examination)⁴⁴.

For example, a forensic expert may be asked: “Is there documentary evidence that the customer violated the principle of maximum economy and efficiency of public procurement when concluding a procurement contract, which resulted in damage? If so, what is the amount of damage?”⁴⁵. Such a question does not

42 Аніщенко О. В., Данильченко О. Л. Зазнач. твір. С. 368. DOI: 10.32353/khrife.2.2019.28 (date accessed: 06.12.2025).

43 Інструкція про призначення та проведення судових експертиз та експертних досліджень і Науково-методичні рекомендації з питань підготовки та призначення судових експертиз та експертних досліджень : затв. наказ. Мін'юсту України від 08.10.1998 р. № 53/5 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/z0705-98#Text> (date accessed: 06.12.2025).

44 Про судову експертизу : Закон України від 25.02.1994 р. № 4038-XII (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/4038-12#Text> (date accessed: 06.12.2025).

45 Хомутенко В. П., Хомутенко А. В., Костін О. Ю. Зазнач. твір. С. 7. URL: <https://surl.lu/zuny-jp> (date accessed: 06.12.2025).

fall within the competence of the expert, since the latter does not resolve legal issues regarding violations of procurement principles and does not have the authority to independently calculate the amount of damage.

The Central Expert Qualification Commission under the Ministry of Justice of Ukraine (hereinafter referred to as the Commission of Minjust) brought a forensic expert to justice on the basis of his performance of a task that falls within the competence of state financial control bodies, but not within the scope of forensic economic expertise (the expert also allegedly provided a legal assessment by identifying the person who caused the damage).

According to the expert's conclusion, material damage (losses) to the local budget of a certain territorial community was established as a result of the conclusion and execution of a contract for a construction project. In accordance with the *Methodology for confirming the amount of material damage (losses) of enterprises (organizations, institutions)* (registration code: № 11.0.57), when deciding on issues related to the application of such a form of civil liability as compensation for damages, an expert economist must bear in mind that the issue of the illegality of conduct in connection with its legal nature cannot be resolved during a forensic economic examination, since the resolution of such an issue is the competence of the investigator or the court.

At the same time, both the court of first instance and the court of appeal overturned the decision of the Ministry of Justice Commission to hold the expert

liable. The courts justified their decisions by stating that the initiator of the examination had in fact requested verification of the amount of damage caused to the local budget, as indicated in the conclusion of the construction and technical examination, namely to establish the correspondence of this amount to the primary accounting documents and to confirm or refute the existence of material damage in this amount. Since the initial data on the injured party and the amount of damage were contained in the question, during the examination the expert only verified the reliability and validity of these hypotheses, and the question posed to the expert did not go beyond his competence.

The Seventh Administrative Court of Appeal noted that the category of "questions of law" may include such expert conclusions in which the expert determines the composition of the offense (the guilty person, legal qualification, etc.), while the question of the amount of damage caused and to which budget is not a question of law. Such an approach would completely delegitimize the expert's authority when conducting any examination ⁴⁶.

Scientists share this opinion, noting that the subject of judicial economic expertise in determining damages is to establish the documentary validity of the economic component of the calculation of damages, carried out by the relevant supervisory (authorized) body ⁴⁷.

Conclusions of forensic economic expert reports on the calculation of damages, taking into account the conclusions of other experts, are mostly conditional rather than categorical. In addition, the terms of the procurement contract must

46 Постанова Сьом. апеляц. адмінсуду від 28.05.2025 р. Справа № 600/3728/24-а / ЄДРСР : вебсайт. URL: <https://reyestr.court.gov.ua/Review/127881751> (date accessed: 06.12.2025).

47 Аніщенко О. В., Данильченко О. Л. Зазнач. твір. С. 374. DOI: 10.32353/khrife.2.2019.28 (date accessed: 06.12.2025).

be taken into account in comparison with contracts concluded on market terms for private funds ⁴⁸.

As noted by V. Ivankov, the organizational and methodological support for forensic economic examinations belatedly reflects the wide range of requests and challenges facing forensic examination in modern conditions ⁴⁹.

Such challenges include, in particular, the specifics of conducting judicial economic expertise on procurement with non-price factors. Thus, it is necessary to develop and implement methods for calculating the specific weight of non-price quality criteria and measurable economic impact using modeling and economic analysis methods. Examples of formulas are provided in the research.

As for calculating the reduced price, in the *Prozorro* system it is calculated automatically using a single formula, and the customer cannot influence this calculation. That is why, as of today, developing a methodology for documenting the validity of non-price criteria calculations is not relevant.

As the research indicates, the use of non-price criteria and, as a result, the selection of the winner with the lowest discounted price is exclusively a method of conducting a tender procedure, which must be justified and aimed at the effectiveness of the procurement. The discounted price is an intermediate price and is not specified in the procurement contract. Thereby, while determining losses, an expert economist must apply the final

price of the procurement item specified in the contract (and not the discounted price), taking into account the terms of the contract (non-price quality criteria and measurable economic impact: warranty period, payment terms, quality characteristics, etc.).

In addition, forensic expert cannot take into account social and other non-price criteria that are not directly related to the customer's needs, as they have no economic effect and are aimed at implementing the horizontal functions of the state and the customer. Such criteria are legal in nature and cannot be assessed by forensic economist.

Conclusions

Enhancing ability of customers to use non-price criteria in a reasonable and non-discriminatory manner is one of the priority areas for the development of public procurement in Ukraine. Such non-price criteria should be used, first, to ensure the effectiveness of procurement by improving the quality of goods, works, and services; and second, to achieve the horizontal goals of the state and local communities: environmental protection, social adaptation, innovation development, etc.

At the same time, unjustified determination of the specific weight of non-price criteria may lead to restrictions on competition and the creation of artificial barriers for bona fide participants. In the long term, involving a forensic economist will be an effective way to reduce corruption

48 Олексієнко Т. Особливості проведення судових економічних експертиз у провадженнях щодо завищення вартості закупівель. *Діджиталізація судово-експертної науки в умовах воєнного стану* : зб. мат-лів Міжнар. наук.-практ. конф. (Харків, 08.11.2024). Харків, 2024. С. 245. URL: <https://drive.google.com/file/d/1cDRJ14KDOGIxe5Y6HdNVBzqAS7gbR-ML/view> (date accessed: 06.12.2025).

49 Іванков В. М. Зазнач. твір. С. 149. DOI: 10.32782/2520-2200/2023-3-20 (date accessed: 06.12.2025).

risks when a customer applies non-price criteria in public procurement. This requires both amendments to the current procurement legislation and the development of forensic science, in particular through the development of appropriate methods for conducting forensic examinations.

With the aim of implementing best international practices into Ukrainian procurement legislation and reducing corruption risks in this area, we propose the following in the draft law of Ukraine on public procurement:

- retain the condition regarding the minimum specific weight of the price of not less than 70%;
- directly indicate the inexhaustible list of non-price criteria;
- provide a classification of non-price criteria depending on the method of determining the impact and calculating the specific weight of non-price criteria;
- require the customer to include in the tender documentation a calculation of the specific weight of non-price quality criteria with a measurable economic impact;
- limit to 10% the weight of social criteria and those not directly related to the customer's needs.

Застосування нецінових критеріїв оцінки до публічних закупівель в Україні: роль і місце судово-економічної експертизи

Володимир Лежнін

Статтю присвячено адміністративно-правовим аспектам зниження корупційних ризиків під час застосування замовниками нецінових критеріїв у публічних закупівлях. Мета статті — узагальнити

теоретичні положення щодо ролі й місця судової економічної експертизи як способу зниження корупційних ризиків у разі користування замовником неціновими критеріями в публічних закупівлях, сформулювати практичні пропозиції щодо реформування законодавства в цій сфері. Для досягнення мети застосовано систему загальнонаукових і спеціальних методів дослідження: діалектичний, правове моделювання, статистичний аналіз, порівняння, лінгвістичний, формально-юридичний, економіко-правовий та ін. Проаналізовано статистичні дані та судову практику із цього питання. Проведено порівняльний аналіз законодавства Великої Британії, Європейського Союзу й України. Запропоновано конкретизувати механізми застосування нецінових критеріїв (зокрема, за допомогою зобов'язання замовника проводити розрахунки питомої ваги нецінових критеріїв якості та з вимірюваним економічним впливом). Надано науково-правову оцінку ролі й місця судової економічної експертизи під час дослідження застосування замовниками нецінових критеріїв у публічних закупівлях. Сформульовано пропозиції щодо внесення змін до законопроекту про публічні закупівлі.

Ключові слова: публічні закупівлі; горизонтальні цілі; нецінові критерії; судова економічна експертиза; корупційні ризики; приведена ціна.

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research, writing and editing and assumes responsibility for its content and interpretation.

Declaration of Competing Interest

Author declares no conflict of interest.

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Application of Electrostatic Image Reproduction Method to Detect Traces of Papillary Patterns on Paper-Based Documents

Oleh Haiduk *

* Ukrainian Research Institute of Special Equipment and Forensic Science of the Security Service of Ukraine, Kyiv, Ukraine,
ORCID: <https://orcid.org/0009-0007-5492-3846>, e-mail: gog1307@meta.ua

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Numerous forensic sources reveal the main stages of fingerprint identification introduction in law enforcement activities, the work of researchers to develop a reliable method of forensic registration based on taking into account and using physiological peculiarities of the skin of human fingers and other aspects related to the conduct of fingerprint examination, the introduction of relevant automated databases, etc. At the current stage, forensic science is constantly developing. The range of methods and technical means for detecting fingerprints is expanding depending on the type of trace carrier, conditions of trace formation, as well as the tasks facing pretrial investigation bodies. Development of latest achievements of criminal investigation technique requires constant updating methods of using modern forensic technology and adoption of positive experience of applying achievements of science and technology in activities of law enforcement agencies of foreign countries, in particular Great Britain, during investigation of crimes and further work with physical evidence within the limits of forensic researches. The purpose of this article is to expand and deepen understanding of law enforce-

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ment staff of mastered method and conditions for its application for detection of traces of papillary patterns on paper surfaces. For achieving this goal, general scientific, as well as special optical and microscopic research methods were applied. Methodological aspects of detecting traces of papillary patterns on paper surfaces by the method of electrostatic reproduction of images with visual examples of the results of using the ESDA 2/B device are considered. Difference between this method of research and existing methods of detecting traces of papillary patterns is analyzed.

Keywords: forensic science; fingerprint research; traces of papillary pattern; ESDA 2/B device; method of electrostatic image reproduction.

Research Problem Formulation

Detection effectiveness of traces of papillary patterns depends on the choice of research methods and sequence of their application, as well as on the surface of probable placement of traces. A separate problematic task is the detection of traces of papillary patterns on paper-based documents, since the research is complicated as by material structure as by the color of the background and handwritten records, printed texts and prints of seals and stamps available on.

It is known that forensic expert determines the application sequence of research methods and appropriate technical means independently. In addition, forensic expert should use the most non-destructive methods and only if the research purpose is not achieved, it is advisable to resort to destructive methods. The application sequence of research methods should be based on the principle that each previous method should not

be an obstacle to application of the following (i.e. from non-destructive to destructive ones).

In modern forensic expert practice, the following methods and means are used to detect and fix papillary patterns:

- 1) *Physical* one including optical (based on a visual inspection of objects using optical devices: magnifying glass, microscope, etc.) and powder (based on adsorption of powdered substances by a fatty substance);
- 2) *Chemical* one, from which the interaction (binding) of components of trace fatty substance with various chemical reagents occurs;
- 3) *Physicochemical* one, based on two processes: physical (adsorption of a substance on the surface of traces) and chemical (reaction with unsaturated fatty acids) ¹.

Visual inspection of objects at different angles using forensic magnifier in scattered and directed light and in ultraviolet rays does not change the characteristics of the trace and precedes the use of

1 Борзов О. П., Костилюва О. А., Кузнецов В. А., Щавелев А. В., Єрмолаєва А. О. Комплексне дослідження слідів рук на вогнепальній зброї : метод. рек. Київ, 2011. 23 с.

physical methods based on properties of adhesion and selective adsorption of the trace substance, as well as chemical or physicochemical methods.

In Ukraine, as in most countries of the world, to determine the location of hidden fingerprints invisible to the naked eye on most non-porous surfaces, the *RUVIS* optical imaging system is used, based on the technology of forming an image by reflected ultraviolet radiation. In this case, no prior use of fingerprint powders, chemicals, or fumigation treatment is required. Unlike systems that use special light sources and lasers, *RUVIS* device does not depend on ambient lighting: it can be used in different conditions: in daylight or in complete darkness, indoors or outdoors ². Although examination in ultraviolet rays with light filters is neutral with respect to physical properties of sweat, DNA sections can be damaged in this way.

As for the use of powders, not only the fatty substance is exposed, but the surface on which it is placed.

Chemical methods for detecting fingerprints affect as surface background of the carrier as color of papillary lines themselves. For example, among the mastered and recommended methods for detecting traces of papillary patterns on paper surfaces (in particular, with handwritten records available), method of using ninhydrin solution in petroleum ether is common and quite non-destructive. However (in spite of influence lack of solution on the handwritten notes) during its application, surface damage occurs in the form of a slight deformation of the paper due to wetting due

to the treatment with the solution, and papillary lines are painted with a resistant colored product called Ruhemann purple ³.

Experts face a difficult choice between the use of appropriate method and technical means for detecting traces of papillary patterns, especially on paper, and the negative impact on original state of the document.

Thus, let us consider in more detail possibility of using electrostatic image reproduction method to detect traces of papillary patterns, primarily on paper-based documents.

Article Purpose

Expand and deepen knowledge of those involved in the law enforcement system about the mastered method of electrostatic image reproduction, to analyze the conditions of its application for detecting traces of papillary patterns on paper surfaces. It should be noted that we have omitted the topic of the influence of electrostatic charge on the possibility of conducting further biological studies of human samples that could potentially remain in fingerprints on the objects under research.

Research Methods

For achieving this goal, as general scientific as special optical methods (reflex, shadow and in oblique rays of daylight), as well as microscopic research methods were used.

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- 2 Мусієнко О. Л. Використання цифрових технологій при розслідуванні злочинів. *Інноваційні методи та цифрові технології в криміналістиці, судовій експертизі та юридичній практиці* : мат-ли міжнар. «кругл. столу» (Харків, 12.12.2019). Харків, 2019. С. 99—102. URL: <https://surl.li/lidspo> (date accessed: 20.02.2026).
 - 3 *Ruhemann's purple* is a dark blue or purple pigment formed by a chemical reaction between ninhydrin and amino acids, peptides, or proteins.

Analysis of Essential Researches and Publications

Analysis of many information sources on the history of development of fingerprinting and its application in investigation and disclosure of crimes since 1904 on territory of Ukraine (during its time as part of Russian Empire and the USSR, as well as during the time of independent Ukraine) makes possible to identify a number of problematic issues ⁴.

The issues of updating already mastered and developing as new methods for detecting hand traces and new algorithms for collecting trace information during investigative actions remain unresolved.

Not enough attention is paid to the issues of detecting hand traces using, in particular, the method of electrostatic image reproduction, since this method is used mainly in Questioned document examination.

Theoretical and practical aspects of detecting traces of papillary patterns on paper surfaces using *ESDA 2/B* device are given in the methodological recommendations prepared by a group of authors: O. Haiduk, D. Baniev, Ye. Riabokon ⁵. However, these guidelines are intended for employees of state specialized institutions that carry out forensic activities on the basis of Law of Ukraine: *On Judicial Examina-*

tion ⁶, as well as for teachers of specialized educational institutions.

Main Content Presentation

Development analysis of modern foreign forensic technology indicates the need to use current pilot projects and introduce technical and forensic tools of Ukrainian manufacturers, as well as use the latest samples of foreign origin.

Technical means, methods and materials for detecting traces of fingerprint origin, presented on the Ukrainian market by manufacturing companies, are various, allowing to qualitatively detect these traces on different surfaces with different statute of limitations ⁷.

As part of forensic research on documents for detection of invisible or weakly visible (hardly visible) pressed images on paper, effective non-destructive method for their detection is the method of electrostatic reproduction of images. This method is based on distribution phenomenon of charged particles formed by a corona discharge, and the subsequent development (visualization) of obtained electrostatic image using a toner sensitive to electromagnetic fields ⁸.

One such device is the *ESDA 2/B (foster+freeman)* (cf.: Fig. 1), the first prototype

4 Кофанова О. С. Сучасні можливості та новітні розробки в сфері виявлення слідів дактилоскопічного походження. *Криміналістика і судова експертиза*. 2017. Вип. 62. С. 228–237. URL: <https://surl.li/pojtpq> (date accessed: 20.02.2026).

5 Гайдук О. Г., Банев Д. І., Рябоконь Є. А. Виявлення слідів папілярних узорів на паперових поверхнях із використанням приладу *ESDA 2/B (foster+freeman)* : метод. рек. Київ, 2025. 15 с.

6 Про судову експертизу : Закон України від 25.02.1994 р. № 4038-XII (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/4038-12#Text> (date accessed: 20.02.2026).

7 Техніко-криміналістичне забезпечення діяльності інспектора-криміналіста / НАВС : офіц. вебсайт. URL: https://arm.navs.edu.ua/books/insp_krym/technique/forensic_technique1_2.html (date accessed: 20.02.2026).

8 FOSTER+FREEMAN : web. URL: <https://fosterfreeman.com/> (date accessed: 20.02.2026).

of which was created by Doug Foster and Bob Freeman with the support of the UK Home Office in Doug's garage.

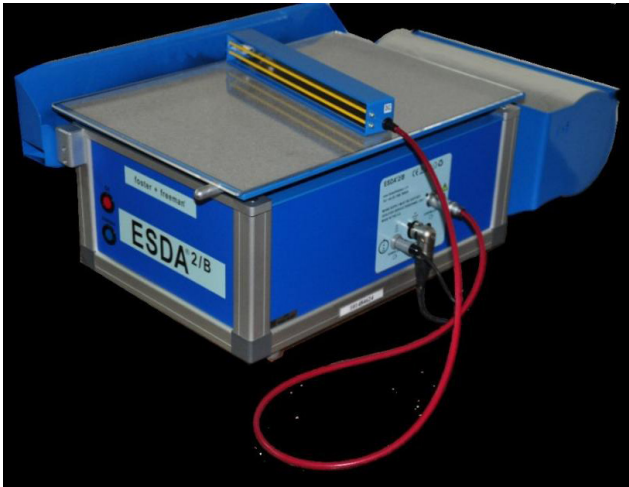


Fig. 1. General view of ESDA 2/B appliance (foster+freeman)

Table

Main components of the ESDA 2/B device (foster+freeman) and their functions

Component	Function
Main unit	Central system that controls other components containing
Control panel	Located on the main unit, it allows the operator to control various ESDA functions: for example, adjusting corona discharge or controlling the vacuum
Toner tray	Toner accumulation tray after surface treatment
Original holder (working surface)	Surface on which the document is placed. It has a vacuum function to firmly hold the document during examination
Crown Wand	Portable device acting on document with an electrostatic charge
Image Processing Film Holder	Holds a thin transparent polymer film that is used to develop an electrostatic charge

Procedure for using the ESDA 2/B contains the following operations.

1. The document is fixed on original holder (working surface) of the device. It is placed, straightened and the vacuum pump is switched on using control buttons. Vacuum ensures that the document is held securely without air bubbles preventing any movements that may affect the result. If the device is used for the

first time or when it has not been used for a long time, it is recommended to check the device using a control sample that is close in its characteristics to the test object.

2. Document is covered with an ultra-thin polymer film that matches the paper contours and allows you to draw it into recesses or copy contours of the protrusions.

3. Apply an electric charge using a portable device *Crown Wand*. The device moves evenly over the polymer film and paper. In this stage, static charge is applied to the polymer film and paper. It should be uniform and controlled, last for a constant glow of the control blue indicator. Recommended time for electrostatic charging and distribution (spreading) of the charge after the coronation completion is up to 5 minutes.

4. Working surface is lifted and turned at an angle to the tray, polymer film within the test document is evenly sprinkled with powdered toner to create positively charged marks of irregularities of the sheet surface and make them visible by creating contrast image. Specially for *ESDA*, almost 200 g of cascade developer is used, containing a mixture of small-diameter glass balls with toner acting as a carrier.

5. Capture the developed image using photography, as well as subsequent copying using adhesive tape "AT" or fingerprint film. It is recommended to place captured image on the film against a light

background to increase the contrast of the detected image.

During practical application of this device, traces of papillary patterns were searched for by electrostatic reproduction of images on sheets of paper with different densities and thicknesses (sheet of notebook, envelope, fiscal receipt, pieces of newspaper and advertising booklet) with a limitation period of up to 6 days, from 6 to 14 days and more than 14 days (some surfaces of the objects contained handwritten notes and marks made with a ball-point pen with a blue dye and a marker).

It is worth noting that objects-carriers on working surface can be placed both individually and in groups, since the size of the surface allows to place documents in A3 format inclusive.

Let us give an example from our own practice. As a result of the application of the method of electrostatic reproduction of images using the *ESDA 2/B* device, traces of papillary patterns, single papillary lines and their fragments were displayed on the surface of the polymer film, which covered the objects-traces (cf.: Fig. 2–4).



Fig. 2



Fig. 3

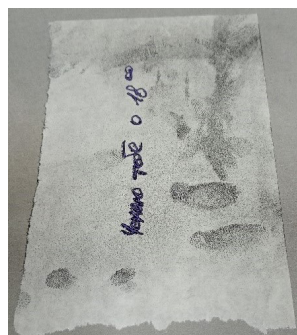


Fig. 4

Fig. 2–4. Images of the studied objects with traces of papillary patterns displayed on

The traces displayed on the polymer film were copied in two ways: using adhesive tape "AT" followed by gluing on

a sheet of white paper (cf.: Fig. 5) and using a transparent fingerprint film (cf.: Fig. 6).

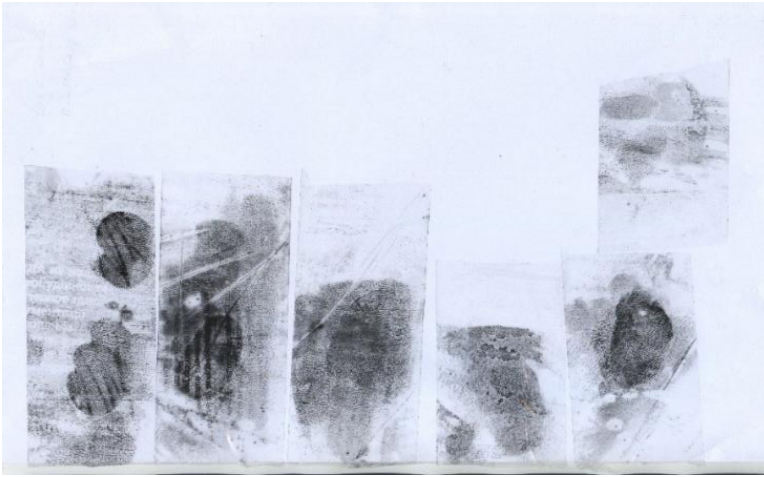


Fig. 5. Image of sheet of paper with glued adhesive tapes “AT”, on which traces of papillary patterns are copied



Fig. 6. Image of a light fingerprint film with copied traces of papillary patterns

After copying the traces, the trace objects were inspected for damage to the existing handwritten records and marks. As a result of the study, it was found out that the handwritten records remained clear and did not suffer any damage.

Next, we performed a research on the copied “fresh” traces using a mag-

nifying glass (magnification: 4.5×) using various lighting methods: reflex, shadow and in the peripheral rays of daylight. According to the results of the survey, traces were selected, in which the general signs of papillary patterns were displayed to some extent informatively (*cf.*: *Fig. 7–13*).



Fig. 7



Fig. 8

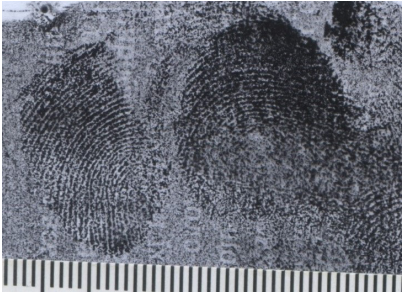


Fig. 9



Fig. 10



Fig. 11



Fig. 12

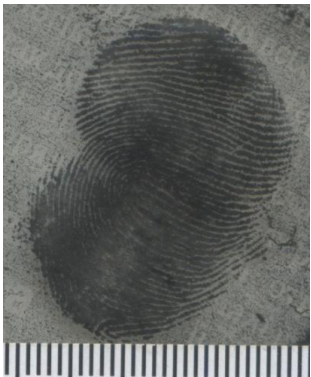


Fig. 13

Fig. 7–13. Enlarged image of detected traces of papillary patterns

For further study of the traces of papillary patterns, we selectively selected the same traces of papillary patterns found on a sheet of newsprint, which were first cop-

ied onto “AT” adhesive tape and after repeated detection onto light fingerprint film.

By studying the copied traces of papillary patterns on the adhesive tape “AT”

and the light fingerprint film, it was found that the traces are positive, they reflected a sufficient number of individual signs of papillary pattern of high and low identification weight in the form of beginnings, endings, mergers, branches of papillary lines, dots, etc. Existing general and individual signs of traces of papillary patterns formed a set sufficient to recognize them as suitable for identification.

For determining quality of displaying traces of papillary patterns, a comparison was made of the clarity of displaying individual signs of papillary patterns displayed in the above traces, as well as in the papillary pattern of the fingerprint from the fingerprint map (cf.: Fig. 14–16).

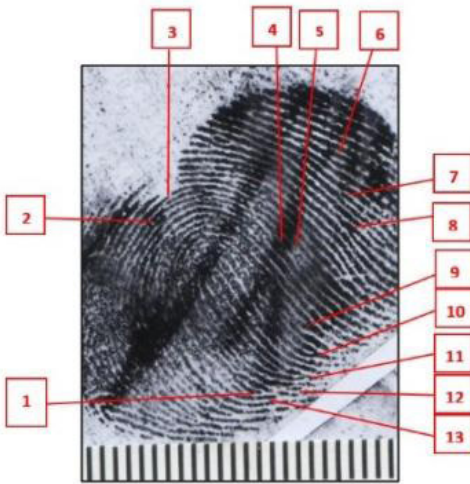


Fig. 14

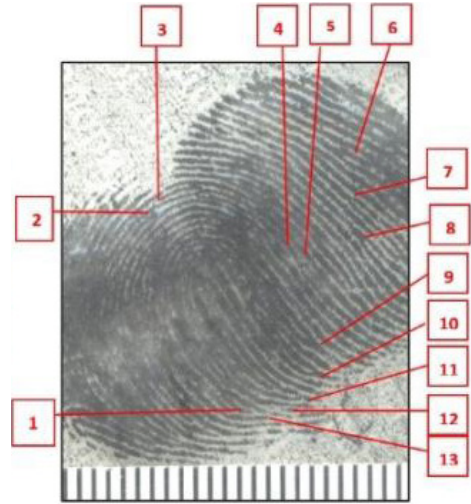


Fig. 15

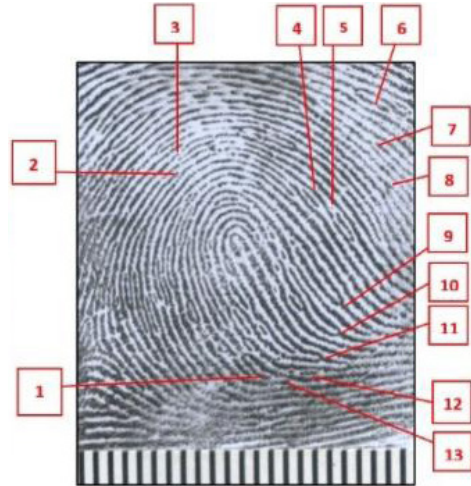


Fig. 16

Fig. 14–16. Image of traces of papillary patterns found on a sheet of newsprint and copied to adhesive tape “AT”, light fingerprint film, as well as an enlarged image of the corresponding fingerprint from the fingerprint card

During comparison, it was found that the detected traces reflected such general features as the number and direction of papillary line flows, and the distance between them was the same. Individual features of the papillary pattern (in particular, such small individual signs as

“fragments of papillary lines” and “dots”) were clearly reflected, and their location and mutual arrangement corresponded to similar signs in the fingerprint map.

However, during research on detected traces for possibility of conducting pore and edgeoscopic researches, it was found that

even if highest quality traces were selected from among detected traces, such signs as availability and mutual arrangement of pores, their shape and size were not reflected

in the traces. The configuration of the contours of the papillary lines in the traces and the fingerprint images on the fingerprint map are not identical (*cf.*: Fig. 17–20).



Fig. 17



Fig. 18



Fig. 19



Fig. 20

Fig. 17–20. Image of detected trace of papillary pattern, copied to light fingerprint film, and fingerprint on fingerprint map, as well as enlarged image of their fragments

Ability of the method to detect “ancient” fingerprints on surfaces of sheets of paper has been studied. Previous objects, on which traces of papillary patterns were already detected, were re-examined from 6 to 14 days after their abandonment using the ESDA 2/B device.

According to research results, traces of papillary patterns were found on the sheets of thick paper of the advertising booklet (*cf.*: Fig. 21).

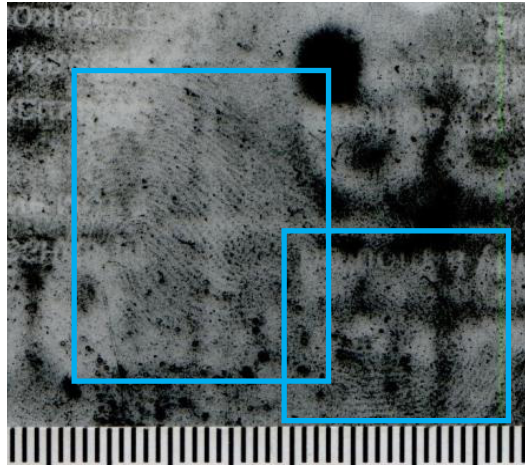


Fig. 21. Images of fragments of fingerprint films with copied traces of papillary patterns (indicated by blue frames)

During research of these traces of papillary patterns using magnifying glass (magnification: 4.5") using various lighting methods, it was found that these traces were displayed less intensively and on a smaller plane compared to “fresh” traces. The traces are positive, but despite the fact

that sufficient number of individual signs of the papillary pattern are reflected in the traces, which form a set sufficient to recognize some traces as suitable for identifying the person (s) behind them, their number has decreased significantly, as has their identification significance (*cf.*: Fig. 22, 23).



Fig. 22



Fig. 23

Fig. 22, 23. Enlarged image of copied traces of papillary pattern of the same finger on documents with different statutes of limitations

Conclusions

Based on performed researches conducted, it has been determined that the method of electrostatic reproduction of images using the ESDA 2/B device can belong to physical non-destructive methods for detecting traces of papillary patterns.

Application of this method:

- allows to detect traces of papillary patterns suitable for identification of a person, but they are unsuitable for identification of a person on the basis of microrelief of papillary lines;
- does not require any chemical processes due to the use of an electrostatic process that leaves the document unchanged chemically;
- does not change or affect visible handwritten records or any other marks on the paper that allows to conduct other types of forensic researches;
- lasts a relatively short time for the detection of traces of papillary patterns, but is not suitable for use in the “field” conditions;
- inappropriate for detecting traces left more than 14 days ago.

**Застосування методу
електростатичного репродукування
зображень для виявлення
слідів папілярних узорів
на документах
з паперовою основою**

Олег Гайдук

Численні криміналістичні джерела розкривають основні етапи запровадження дактилоскопії у правоохоронну діяльність, роботу дослідників з розроблення надійної методики криміналістичної реєстрації, яка базується на врахуванні

й використанні фізіологічних особливостей шкірного покриву пальців рук людини, та інші аспекти, пов'язані з проведенням дактилоскопічних експертиз, запровадженням відповідних автоматизованих баз даних тощо. На сучасному етапі наука криміналістика невпинно розвивається. Розширюється спектр методів і технічних засобів для виявлення слідів рук залежно від виду слідоносія, умов слідоутворення, а також завдань, які стоять перед органами досудового розслідування. Розвиток новітніх досягнень криміналістичної техніки потребує постійного оновлення методики користування сучасною криміналістичною технікою та перейняття позитивного досвіду застосування досягнень науки й техніки в діяльності правоохоронних органів іноземних держав, зокрема Великої Британії, під час розслідування злочинів і подальшої роботи з речовими доказами в межах судово-експертних досліджень. Мета цієї статті — розширити та поглибити розуміння причетними до правоохоронної системи особами опанованого методу й умови його застосування для виявлення слідів папілярних узорів на паперових поверхнях. Для досягнення поставленої мети застосовано загальнонаукові, а також спеціальні оптичні й мікроскопічні методи дослідження. Розглянуто методологічні аспекти виявлення слідів папілярних узорів на паперових поверхнях методом електростатичного репродукування зображень з наочними прикладами результатів користування приладом ESDA 2/B. Проаналізовано відмінність цього способу дослідження від наявних методів виявлення слідів папілярних узорів.

Ключові слова: судова експертиза; дактилоскопічне дослідження; сліди папілярного узору; прилад ESDA 2/B; метод електростатичного репродукування зображень.

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Disclaimer

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Participants

Author contributed solely to the intellectual discussion underlying this document, case law research, writing and editing and assumes responsibility for its content and interpretation.

Declaration of Competing Interest

Author declares no conflict of interest.

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The Issue of Personal Safety During Forensic Examinations Involving Violation of Health and Work Safety Requirements

Mykhailo Kuzmenko ^{*a}, Serhii Ostapov ^{**b}

* Kyiv Scientific Research Forensic Center of the Ministry of Internal Affairs of Ukraine, Kyiv, Ukraine, ORCID: <https://orcid.org/0009-0006-9083-8262>, e-mail: mixa01@ukr.net

** Kyiv Scientific Research Forensic Center of the Ministry of Internal Affairs of Ukraine, Kyiv, Ukraine, ORCID: <https://orcid.org/0009-0003-8088-7261>, e-mail: ssstapov@gmail.com

^a Writing – original draft, Validation, Visualisation.

^b Resources, Software, Project administration, Methodology, Supervision, Formal analysis.

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The primary focus of this paper is on the absence of relevant criteria for determining personal safety breaches by victims of accidents in current foreign and national methodologies and reference literature on the conduct of forensic examinations involving violation of health and work safety requirements. The Article Purpose is to define signs of employees' non-compliance with personal safety requirements that have led to accidents, with a view to establishing factual circumstances of failure to comply with regulatory requirements during forensic examinations involving violation of health and work safety requirements. To achieve this goal, the method of systemic-structural analysis has been employed. During forensic examinations involving violation of health and work safety requirements, research is conducted to establish facts of non-compliance with corresponding legal regulations and any causal link between such non-compliance and the occurrence of an accident, as well as to identify those responsible for such violations. These forensic examinations are carried out to determine facts and circumstances related

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to victims' adherence to/failure to observe personal safety measures. Where there is no evidence that employees failed to observe personal safety measures, forensic experts are free to interpret actions or inaction by victims as a result of their own negligence. This also results in ambiguous interpretations of the same initial data used in research, resulting in fundamentally contrasting opinions. Based on findings of forensic examinations conducted in various forensic expert institutions, patterns have been identified that led to accidents resulting from personal negligence of employees. Signs of employees' disregard for personal safety have been identified and schematically illustrated; these will contribute to the development of appropriate research methodologies and methods for establishing factual circumstances of non-compliance with regulatory requirements when conducting forensic examinations involving violation of health and work safety requirements.

Keywords: *forensic examinations involving violation of health and work safety requirements; personal safety; obvious danger; disregard for personal safety.*

Research Problem Formulation

When conducting forensic examinations involving violation of health and work safety requirements, research is undertaken to determine whether there has been a failure to comply with the requirements of legal regulations and whether there are cause-and-effect relationships between such non-compliance and the occurrence of an event; persons responsible for these breaches are also identified.

The purpose of this research is to establish how well employees in question have complied with or failed to comply with personal safety regulations.

Art. 14 of the Law of Ukraine: *On Labor Protection*¹ stipulates Art. 14 of the Law of Ukraine: *On Labour Protection* sets out an employee's obligations to comply with labour protection regulations, specifically they are expected to take care of their own

safety and health in the course of any work or while on site. Furthermore, this article imposes direct liability on the employee for breaching the aforementioned regulation.

Unfortunately, as of today, current methodologies for conducting forensic examinations in the field of 10.5: *Forensic examinations involving violation of health and work safety requirements* do not specify signs of disregard for personal safety by accident victims. However, they are required to be listed in order to establish factual circumstances of failure to comply with health and work safety regulations.

A lack of evidence that employees neglected their own safety suggests that forensic experts, at their sole discretion, attribute actions or inaction of victims to their own negligence, thereby demonstrating that there is no uniform approach to conducting such research.

1 Про охорону праці : Закон України від 14.10.1992 р. № 2694-XII (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/2694-12#Text> (date accessed: 27.01.2026).

Article Purpose

Determine signs of employees' failure to observe personal safety regulations so that they can be subsequently used in forensic examinations involving violation of health and work safety requirements.

To fulfil this goal, it is essential to:

- Analyse whether current methodologies for conducting forensic examinations involving violation of health and work safety requirements contain definitions of signs of employees' failure to observe work safety regulations.
- Elaborate on research findings presented in experts' opinions, revealing employees' disregard for their own safety.
- Identify signs indicating employees' failure to observe health and safety regulations.
- Illustrate signs of employees' failure to comply with health and safety regulations.

Research Methods

To achieve this goal, the method of system-structural analysis has been employed.

Analysis of Essential Researches and Publications

A methodology proposed by O. Shmereho et al.² sets forth a framework for determining causality surrounding an event in circumstances where causes (if there are more than one) stem from a single chain of events (see Fig. 1).

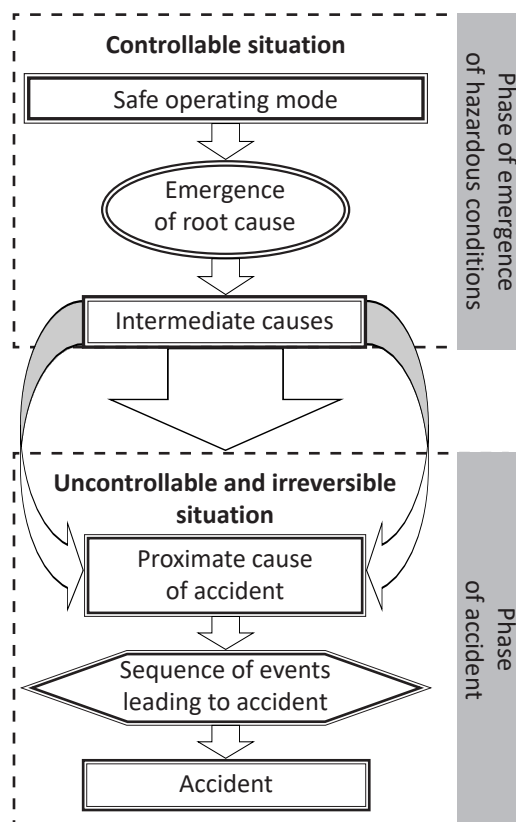


Fig. 1. Causality surrounding accidents

According to this methodology, determination of causality is heavily dependent on the principle that *"a person's action is to be recognised as a mandatory condition for changes that have occurred in external world; otherwise, had that action not taken place, the change would not have occurred"*³.

A methodology developed under the guidance of V. Sabadash provides the same scheme and specifies that direct cause-and-effect relationships should be complemented by inadequate actions on the

2 Шмерего О. Б. та ін. Методика проведення судових експертиз з безпеки життєдіяльності / КНДІСЕ Мін'юсту України. Київ, 2019. 200 с. // Реєстр методик проведення судових експертиз : вебсайт. Реєстр. код 10.5.13 від 28.01.2021 р. URL: <https://rmpse.minjust.gov.ua/search> (date accessed: 27.01.2026).

3 Там само.

part of an employee involved in an event. For example, where the employee's performance of assigned operational tasks in line with established rules and regulations would almost certainly have prevented such an event from occurring ⁴. If it resulted from a combination of breaches of requirements stipulated in statutory and regulatory acts on health and work safety committed by more than one person, then the direct causality factor should be supplemented by those violations that, if selectively and hypothetically removed from the specified set, would have prevented the occurrence of an emergency situation in question.

According to a methodology developed by O. Mieshkov et al ⁵, the majority of emergencies (accidents and incidents) in the workplace occur as a result of the following causes: *organisational* (actions by heads, officials and other staff members relating to production processes and workplaces that fail to comply with health and work safety requirements; positioning of equipment and workers, etc.), *technical* (usually resulting from improper technical condition of equipment, machinery, mechanisms, tools, production facilities, protective and monitoring equipment, etc., or from breaches of rules governing technical operation of production facilities) and *health and hygiene-related* (various environmental factors associated with

production capable of causing harm to the human body: high or low temperatures, industrial noise or vibrations, gas or dust contamination of workplaces and premises, etc.).

The aforementioned methodologies show no signs of employees failing to observe personal safety.

For instance, the requirement to wear safety helmets on construction sites is laid down in legal regulations on health and work safety (orders, instructions, etc.). Therefore, wearing a safety helmet is a regulatory requirement. However, it is sometimes interpreted as a disregard for personal safety, which is flawed assertion, since the absence of a safety helmet does not expose one to an obvious danger (e.g., in the event of objects falling on the head), but rather increases the likelihood of injury should such a danger occur.

A methodology proposed by O. Konvalova et al. ⁶ indicates that an accident and its consequences can stem from a violation of health and work safety requirements governing the occurrence of such accidents/incidents.

Only those actions by persons involved in an accident that directly triggered a hazardous working situation, in which conditions arose for a person to be exposed to a dangerous occupational hazard or harmful factor, will be in a direct cause-and-effect relationship. Furthermore, this

- 4 Розробка методики дослідження нещасних випадків, пов'язаних з невиконанням виробничих вимог на виробництві ; звіт про НДР (остат.) / кер. В. В. Сабадаш. Реєстр. № 0118U004616, 0220U102670. Харків, 2019. 65 с.
- 5 Мешков О. О. та ін. Методика комплексного експертного дослідження нещасних випадків, пов'язаних з електротравматизмом / ННЦ «ІСЕ ім. Засл. проф. М. С. Бокаріуса» Мін'юсту України. Харків, 2019. 36 с. // Реєстр методик проведення судових експертиз : вебсайт. Реєстр. код 10.5.15 від 28.01.2021 р. URL: <https://rmpse.minjust.gov.ua/search> (date accessed: 27.01.2026).
- 6 Коновалов О. Д. та ін. Методика проведення судової експертизи з безпеки життєдіяльності та охорони праці / ДніпроНДІСЕ Мін'юсту України. Дніпро, 2021. 36 с. // Там само. Реєстр. код 10.5.17 від 28.04.2023 р. URL: <https://rmpse.minjust.gov.ua/search> (date accessed: 27.01.2026).

methodology does not specify criteria for employees' failure to observe personal safety.

In another methodology by V. Sabadash et al.⁷, it is stipulated that actions of specific officials bear a causal link to a hazardous event if such actions are unsuitable (contradict regulatory requirements), have led to hazardous placement of equipment and dangerous operating conditions, as well as the performance of work in violation of established operational procedures, the admission of untrained staff to carry out operations, etc. All of the above contribute to a probable occurrence of a hazardous event or to its occurrence.

Inaction on the part of certain officials is causally connected to a hazardous event and is perceived as a prerequisite for transforming a cause into an effect. Such inaction is deemed impermissible, given that regulatory requirements governing similar situations stipulate that the official must take steps in order to identify the presence or possibility of a specific

hazard and to implement appropriate preventive measures (for example, use of personal or collective protective equipment). Should this person fail to take corresponding measures, it may lead to a hazardous event due to neglect of safety precautions. This procedure also shows no signs of employees failing to observe personal safety measures.

Analysis of Ukrainian methodologies suggests that they only contain an algorithm for establishing cause-and-effect relationships between the occurrence of an event and an employee's actions. However, they do not explicitly state which criteria should be used when determining instances of employees' failure to observe personal safety regulations.

Foreign literature presenting studies into the causes of accidents also do not cite any evidence of employees disregarding personal safety. Rather, these papers focus on the human factor and how it contributed to technical malfunctions leading to accidents⁸. Considerable attention has

7 Сабаш В. В. та ін. Методика встановлення причинно-наслідкових зв'язків та зв'язків обумовленості при вирішенні ситуаційних завдань в інженерно-технічних експертизах / ННЦ «ІСЕ ім. Засл. проф. М. С. Бокаріуса» Мін'юсту України. Харків, 2020. 40 с. // Там само. Реєстр. код 10.5.16 від 28.01.2022 р. URL: <https://rmpse.minjust.gov.ua/search> (date accessed: 27.01.2026).

8 Joe-Asare Th., Amegbey N., Stemn E. Human Factor Analysis Framework for Ghana's Mining Industry. *Ghana Mining Journal*. 2020. Vol. 20. No. 2. Pp. 60–76. DOI: [10.4314/gm.v20i2.8](https://doi.org/10.4314/gm.v20i2.8) (date accessed: 27.01.2026) ; Abdillah G., Caraka M. K., Arioyudanto R. A., et al. Studi Kasus Penyebab Kecelakaan Kerja Fatal di Tambang Mineral: Analisis Faktor Manusia, Teknis, dan Lingkungan. *Journal of Educational Innovation and Public Health*. 2024. Vol. 2. Is. 2. Pp. 42–51. DOI: [10.55606/innovation.v2i2.2843](https://doi.org/10.55606/innovation.v2i2.2843) (date accessed: 27.01.2026) ; Zhao D. Discussion on Accident Management Based on Foreign Accident Investigation. *Advances in Petroleum Exploration and Development*. 2020. Vol. 20. No. 1. Pp. 68–71. DOI: [10.3968/12105](https://doi.org/10.3968/12105) (date accessed: 27.01.2026) ; Fuentes-Bargues J. L., Sánchez-Lite A., Gonzalez-Gaya C., et al. A study of situational circumstances related to Spain's occupational accident rates in the metal sector from 2009 to 2019. *Safety Science*. 2022. Vol. 150. Art. 105700. DOI: [10.1016/j.ssci.2022.105700](https://doi.org/10.1016/j.ssci.2022.105700) (date accessed: 27.01.2026) ; Cham-mout B., Ahmed M. O., El-adaway I. Exploring the Root Factors Impacting Work Zone Accidents: A Mixed-Methods Study. *Construction Research Congress 2024: Health and Safety, Workforce, and Education* (Des Moines, Iowa; March 20–23). 2024. Pp. 406–416. DOI: [10.1061/9780784485293.041](https://doi.org/10.1061/9780784485293.041) (date accessed: 27.01.2026) ; Vigneshkumar C., Salve U. R. A scientometric analysis and review of fall from height research in construction. *Construction Economics and Building*. 2020. Vol. 20. No. 1. Pp. 17–35. DOI: [10.5130/AJCEB.v20i1.6802](https://doi.org/10.5130/AJCEB.v20i1.6802) (date accessed: 27.01.2026).

been paid to human error as a trigger for accidents. There is a human factor in any accident, which is rooted in a lack of training, supervision of staff members, and violations of safety procedures.

A study by Ch. D. Nwankwo et al.⁹ conceptualizes the human factor and human error as causes of disasters in the oil and gas industry.

N. M. Shahar et al. analyse an employee's negligent behaviour as a cause of an accident¹⁰.

A research paper by Sh. N. A. S. Zakaria et al. discusses how workers' refusal to use personal fall protection equipment may result in accidents¹¹.

A work by B. M. Hester and P. I. Fusch addresses issues of personal safety in cases of distractions, personal matters, stress, carelessness, and safety-related errors¹².

Sh. Ahmed¹³ lists the following as the causes of accidents involving personal

safety: a lack of expertise, experience or proper training in the use of equipment, irregular supervision by managers, and inadequate safety policies adopted by senior leadership.

J. F. S. Tenorio attributes the causes of most workplace accidents to employee carelessness, laziness, poor posture (leading to back injuries), a lack of financial incentives, faulty or outdated protective equipment, and exposure to corrosive chemicals¹⁴.

A study by O. S. Williams et al.¹⁵ elaborates on measures to prevent accidents, including monitoring compliance with safety standards and use of personal protective equipment (safety belts, safety nets, etc.), on adequate supervision to ensure proper placement of devices and equipment, on ongoing training in the choice and use of equipment and tools, design, and on regular inspection of equipment.

- 9 Nwankwo Ch. D., Arewa A. O., Theophilus S. C., Esenowo V. N. Analysis of accidents caused by human factors in the oil and gas industry using the HFACS-OGI framework. *International Journal of Occupational Safety and Ergonomics*. 2022. Vol. 28. Is. 3. Pp. 1642–1654. DOI: [10.1080/10803548.2021.1916238](https://doi.org/10.1080/10803548.2021.1916238) (date accessed: 27.01.2026).
- 10 Shahar N. M., Abas N. H., Basirun N. F., Memon M. H. Perspectives of Contributing Factors and Prevention Measures of Struck-by Accidents in from Experienced Safety Personnel. *International Journal of Sustainable Construction Engineering Technology*. 2023. Vol. 14. No. 5. Pp. 468–475. DOI: [10.30880/ijscet.2023.14.05.039](https://doi.org/10.30880/ijscet.2023.14.05.039) (date accessed: 27.01.2026).
- 11 Zakaria Sh. N. A. S., Abas N. H., Ta'at N. H. M., et al. Causal Factor Analysis of Fatal Accidents in Johor Construction Industries Based on Korean Occupational Safety and Health Agency Classification. *International Journal of Integrated Engineering*. 2023. Vol. 15 (6). Pp. 135–142. DOI: [10.30880/ijie.2023.15.06.015](https://doi.org/10.30880/ijie.2023.15.06.015) (date accessed: 27.01.2026).
- 12 Hester B. M., Fusch P. I. A Near Miss: The Lived Experiences of Telecommunication Technicians' Injurious Accidents and Near Misses. *The Qualitative Report*. 2020. Vol. 25. No. 11. Art. 3. Pp. 3810–3829. DOI: [10.46743/2160-3715/2020.4590](https://doi.org/10.46743/2160-3715/2020.4590) (date accessed: 27.01.2026).
- 13 Ahmed Sh. Causes of Accident at Construction Sites in Bangladesh. *Organization, Technology and Management in Construction*. 2019. Vol. 11 (1). Pp. 1933–1951. DOI: [10.2478/otmcj-2019-0003](https://doi.org/10.2478/otmcj-2019-0003) (date accessed: 27.01.2026).
- 14 Tenorio J. F. S. Analysis of personal and work-related factors contributing to construction industry accidents in Peru. *Revista del Instituto de Investigación de la Facultad de Ingeniería Geológica Minera Metalúrgica y Geográfica*. 2023. Vol. 26. No. 51. Art. e25265. 9 p. DOI: [10.15381/iigeo.v26i51.25265](https://doi.org/10.15381/iigeo.v26i51.25265) (date accessed: 27.01.2026).
- 15 Williams O. S., Hamid R. A., Misnan M. S. Causes of building construction related accident in the south-western states of Nigeria. *International Journal of Built Environment and Sustainability*. 2019. Vol. 6. Is. 1. Pp. 14–22. DOI: [10.11113/ijbes.v6.n1.313](https://doi.org/10.11113/ijbes.v6.n1.313) (date accessed: 27.01.2026).

A research paper by B. Fabiano et al. is focused on the human factor influence as a cause of accidents ¹⁶.

Analysis of foreign information sources has revealed that they likewise lack evidence testifying to employees' failure to observe personal safety measures.

A lack of evidence testifying to the fact that employees have failed to observe personal safety measures means that forensic experts interpret actions or inaction by accident victims exclusively as the result of their own negligence. Consequently, it is possible to arrive at radically opposing conclusions based on the same initial research data.

Main Content Presentation

An analysis of case-based scenarios completed at Kyiv Scientific Research Forensic Center of the Ministry of Internal Affairs of Ukraine and Ukrainian Research Institute of Special Equipment and Forensic Expertise of the Security Service of Ukraine (as part of forensic examinations involving violations of health and work safety requirements) between 2015 and 2025 has enabled us to identify two sets of patterns associated with personal safety of accident victims: awareness of common hazards and knowledge of potential hazards in the course of undertaking certain activities.

Cases where victims had disregarded their personal safety included cases where a person was aware of obvious dangers (e.g., significant elevation changes, open voids in structures or pits in the ground, open flames, rotating mechanisms on various types of equipment, etc.).

A good example is monument cleaning. As can be observed in Fig. 2, a worker is standing on the monument high above the ground. In addition, he is not using any personal fall protection equipment (a safety harness or safety railing). This shows that this worker is disregarding his own personal safety, as, whilst being aware of the danger (the potential for a fall from height), he nevertheless continues to work at height without taking any measures to protect himself against a possible fall.

Another example of victims' disregard for their personal safety is working from a bucket of a JCB telescopic loader (telehandler). Fig. 3 clearly shows two employees working at height without any fall prevention equipment.

One of the workers is standing one foot on the edge of the bucket and the other on the slope where material laying works are carried out. It shows that workers are neglecting their work and health safety: they must be aware of the obvious danger posed by the height, yet they ignore it and just keep working. This type of behaviour increases the likelihood of an accident resulting from a fall from a height.

Let us provide another instance. A team member from the *Dzvinochok* household waste collection service who neglects his personal safety whilst dumping trash from containers into a specialised vehicle equipped with a lifting device: the worker sits on the top of the truck body wall, at a significant height above the asphalt pavement, and the container is being moved into the truck using a lifting device. All this happens right next to the worker (see Fig. 4).

16 Fabiano B., Pettinato M., Currò F., Reverberi A. P. A field study on human factor and safety performances in a downstream oil industry. *Safety Science*. 2022. Vol. 153. Is. 2. Art. 105795. DOI: 10.1016/j.ssci.2022.105795 (date accessed: 27.01.2026).



Fig. 2. Performing work on the monument in violation of health and work safety requirements



Fig. 3. Working from the bucket of the JCB telehandler in violation of health and work safety requirements

The worker should have been aware of potential hazards: falling from the top of the truck body wall as a result of losing his balance, or being struck by a moving container.



Fig. 4. Performing work using lifting equipment in violation of health and work safety requirements

The provided examples demonstrate that actions of workers (such as performing works at height) are factors sufficient to cause an accident resulting from a fall from a height. This is evidence of a causal link between the workers' actions and the occurrence of an event (as opposed to incidental connection).

Therefore, one of the signs that workers are neglecting personal safety measures is an *understanding of common hazards*: an employee is aware (or should be aware) of an obvious danger threatening their life or health, however, they refuse to respond to these circumstances.

The second set of patterns surrounding personal safety of accident victims concerns workers' awareness of hidden hazards, including of dangerous condi-

tions associated with operation of industrial production equipment.

Let us illustrate it with an example of an accident that took place at a paper mill. An employee had been learning how to operate a paper making machine safely, had attended relevant safety briefings and had passed a test on health and work safety. He should therefore have been aware of all safety requirements that must be followed when working on such machinery, including of the rule prohibiting standing on the machine's rotating parts, even when it is not in operation. The worker had climbed onto the shaft of the paper making machine to clear a paper jam on another shaft, but the shafts began to rotate and trapped the worker, resulting in fatal injuries (see Fig. 5).

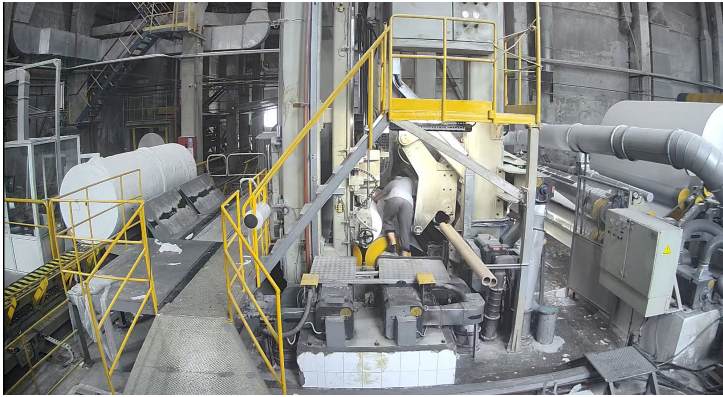


Fig. 5. Working on a paper making machine in violation of health and work safety requirements

Another example is an incident that happened at a postal service enterprise. The worker had been briefed on health and work safety regulations, particularly on safety measures to be observed when unloading goods (including a ban on moving mesh containers by pushing them

towards oneself). However, during the transportation of one of the containers, a worker was pushing it towards him (*see Fig. 6*). As the lorry's hydraulic tail-lift did not fit tightly against the concrete surface of the loading dock, the container tipped over and injured the worker.



Fig. 6. The accident at a postal service enterprise resulting from safety violations

Another accident took place at a wood processing plant. Prior to this accident, a worker had undergone specialised health and work safety training; he had also been instructed on not to stand near timber log stacks when they were being moved by lifting equipment. While the crane was moving the logs, the wor-

ker entered the restricted area; the logs crashed down from the stack, pinned the worker down and caused him severe injuries (*see Fig. 7*).

Summary: the provided examples illustrate how employees' failure to comply with safety requirements can result in accidents involving these staff members.



Fig. 7. Circumstances of the accident at a timber processing plant involving safety violations

Signs of employees' failure to observe personal safety measures are schematically represented in Fig. 8.

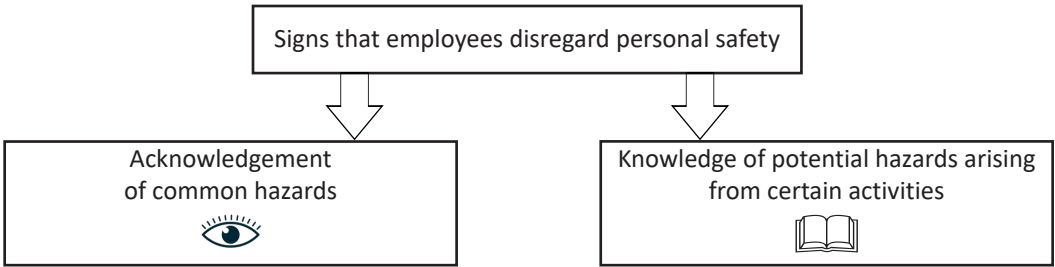


Fig. 8. Scheme of signs indicating employees' failure to observe personal safety measures

Conclusions

Having analysed Ukrainian methodologies and foreign information sources, it can be concluded that they do not contain evidence of employees disregarding

personal safety. We outlined the issues stemming from a lack of such signs, which are inextricably linked to the absence of corresponding procedures and methodologies for conducting research within the scope of forensic examinations involving

violation of health and work safety requirements. Approaches to addressing issues pertaining to the research on failure to observe personal safety measures have been proposed. Identifying signs of employees' failure to adhere to personal safety regulations is crucial for the smooth conduct of forensic examinations involving violation of health and work safety requirements. Signs of employees' disregard for personal safety have been identified and illustrated schematically.

**Питання дотримання
особистої безпеки
під час проведення судових експертиз
безпеки життєдіяльності
та охорони праці**

Михайло Кузьменко, Сергій Остапов

Увагу акцентовано на відсутності в чинних іноземних та національних методиках і довідковій літературі з питань проведення судових експертиз безпеки життєдіяльності та охорони праці ознак, за якими необхідно встановлювати факти недотримання особистої безпеки потерпілими від нещасних випадків. Мета — визначити ознаки фактів недотримання працівниками особистої безпеки, що спричинили нещасні випадки, з метою встановлення фактичних обставин недотримання нормативних вимог під час проведення судових експертиз безпеки життєдіяльності та охорони праці. Для досягнення поставленої мети застосовано метод системно-структурного аналізу. Під час проведення судових експертиз безпеки життєдіяльності та охорони праці проводять дослідження з метою визначити факти недотримання вимог нормативно-правових актів, які перебувають у причиново-наслідковому зв'язку з настанням нещасного випадку, а також осіб, винних у такому недотриманні.

Проведення цих досліджень пов'язане з визначенням фактів та обставин дотримання / недотримання особистої безпеки потерпілими. Відсутність ознак недотримання працівниками особистої безпеки призводить до того, що судові експерти на власний розсуд визначають дії або бездіяльність постраждалих осіб як підсумок їх необережності. Це так само призводить до неоднозначного трактування тих самих вихідних даних для проведення досліджень, наслідком чого є кардинально відмінні висновки. За результатами проведених досліджень, що ґрунтуються на практиці проведення досліджень у різних експертних установах, виокремлено закономірності, що призвели до настання нещасних випадків, спричинені особистою необережністю працівників. Визначено та схематично відображено ознаки факту нехтування особистою безпекою працівниками, що надалі сприятиме розробленню відповідних методик і методів дослідження з метою встановлення фактичних обставин недотримання нормативних вимог у межах проведення судових експертиз безпеки життєдіяльності та охорони праці.

Ключові слова: судова експертиза безпеки життєдіяльності та охорони праці; особиста безпека; явна небезпека; нехтування особистою безпекою.

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Participants

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writing and editing, and assume responsibility for its content and interpretation.

Declaration of Competing Interest

The authors declare no conflict of interest.

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UN Workshop on Countering Conflict-Related Sexual Violence



In April 2026, a workshop titled: *Local Solutions for Global Challenges* on conflict-related sexual violence (hereinafter referred to as CRSV) was held in Kharkiv Region.

The event was attended by **Analee Pepper**, Senior Advisor on CRSV at the Office of the United Nations Resident Coordinator in Ukraine; **Tamar Tavartkiladze**, Senior Adviser at the United Nations Office for the Coordination of Humanitarian Affairs; **Olena Sibilova**, Representative of the Ukrainian Parliament Commissioner for Human Rights in Kharkiv Region; and **Valeriia Dziuba**, Deputy Head of the Kharkiv Regional Council. The National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute» of the Ministry of Justice of Ukraine was represented by **Yevheniia Kovkina**, Head of the Laboratory of Handwriting, Linguistic, Psychological, and Art Studies, and **Olha Herasymenko**, Head of the Psychological Research Sector of that laboratory.

The workshop was held as part of a joint field mission by the Peace and Development Advisors team to strengthen coordination among local self-government bodies, law enforcement agencies, experts and civil society representatives in order to improve the system for monitoring, reporting and responding to cases of CRSV. The participants paid particular attention to identifying gaps in assistance to survivors and strengthening community resilience in frontline regions.

The participants were presented with the Framework of Cooperation between the Government of Ukraine and the United Nations on the prevention of and response to conflict-related sexual violence; the updated Implementation Plan for this agreement for 2026–2027; and the related UN–Ukraine Development Cooperation Framework 2025–2029, *A Partnership for Recovery and Development*.

Prepared by **Yevheniia Kovkina**,
Head of the Laboratory of Handwriting, Linguistic,
Psychological, and Art Studies
of the NSC «Hon. Prof. M. S. Bokarius FSI»

Countering Illicit Firearms Trafficking: Practical Workshop Held by the European Union Advisory Mission Ukraine

On May 5, 2026, **Vitalii Nikitiuk**, Head of the Weapons and Explosives Research Sector of the Laboratory of Forensic and Military Research at the National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute» of the Ministry of Justice of Ukraine, delivered a presentation titled “Forensic Aspects of Firearms Deactivation” at a two-day practical workshop on countering illicit firearms trafficking, organized by the European Union Advisory Mission for Civilian Security Sector Reform Ukraine (EUAM Ukraine), held in Odessa.

In his presentation, the speaker discussed the classification of deactivated weapons, the specific features of examining blank-firing and neutralized specimens and methods of their illegal reactivation. He emphasized that blank-firing weapons, in accordance with the current *Methods for Establishing Whether an Object Belongs to Firearms and Is Suitable for Firing*, do not meet the set of forensic requirements for firearms, since they have lost their original intended purpose and cannot be used to fire either factory-made live cartridges of the corresponding caliber or any other ammunition.

Vitalii Nikitiuk paid particular attention to cases of falsified deactivation, from the replacement of parts to the removal of



technical restrictions that make firing impossible. He reached an important conclusion: existing expert experience and current methods make it possible to reliably distinguish genuinely neutralized firearms from falsified specimens, which is critical for security and the future circulation of trophy weapons.

The workshop participants also considered possible steps to harmonize Ukrainian legislation with EU standards and strengthen cooperation among law enforcement agencies in the field of firearms circulation control.

Such events contribute to the development of Ukrainian firearms legislation in harmony with EU law and to improving law enforcement practice, including the effective exchange of firearms-related information among law enforcement agencies at the national and international levels.

*Prepared by **Vitalii Nikitiuk**,
Head of a Sector of the Laboratory
of Forensic and Military Research
of the NSC «Hon. Prof. M. S. Bokarius FSI»*



ENFSI Annual Meeting in Zurich

On May 5–8, 2026, a delegation of the National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute» of the Ministry of Justice of Ukraine (hereinafter referred to as NSC «Hon. Prof. M. S. Bokarius FSI») took part in the annual meeting of the European Network of Forensic Science Institutes (hereinafter referred to as ENFSI) in Zurich, Switzerland.

Anastasiia Kupriianova, Director of NSC «Hon. Prof. M. S. Bokarius FSI», gave a presentation on the institution's practical experience in ensuring the functioning of forensic science under current challenges and on the development of NSC «Hon. Prof. M. S. Bokarius FSI» during the full-scale war. She emphasized that the war had become a driver of profound transformation for the institution: "Despite the evacuation of some units and working under security risks, we have significantly strengthened the institution's expert capabilities," Ms. Anastasiia noted. "In recent years, we have modernized our technical infrastructure, opened new laboratories, expanded the areas of forensic examination and increased the number of forensic experts in relevant specialties. Today, NSC «Hon. Prof. M. S. Bokarius FSI» is actively implementing modern digital technologies, developing international partnerships and participating in projects related to documenting Russia's war crimes in Ukraine. We are ready to share this experience and jointly implement new projects."

Ms. Anastasiia outlined three important areas of activity for a forensic science institution to ensure continuous development, maintain quality and scientific potential and remain accountable for its work: adaptation, development and efficiency.

The speaker emphasized the expansion, despite the full-scale war in Ukraine, of the areas of forensic research conducted by employees of NSC «Hon. Prof. M. S. Bokarius FSI» including engineering and environmental research, video and audio analysis, examinations of military property, intellectual property examinations and art studies. She reported on the results achieved in developing expert capabilities and science:





the opening of new laboratories and specialized units, including a comprehensive forensic laboratory, a road surface analysis laboratory and special rooms for working with vulnerable categories of victims, including children.

The meeting participants expressed interest in developing international expert cooperation, in particular in deepening cooperation with NSC «Hon. Prof. M. S. Bokarius FSI» on the implementation of joint research and grant projects.

During the meeting in Zurich, the ENFSI Strategic Plan for 2026–2029 was approved, the main areas of preparation for the 2027 meeting were defined and new members of the network were elected.

ENFSI annual meetings facilitate the effective exchange of knowledge, training, consistent implementation of relevant quality standards and the development of innovative methods.

*Prepared by **Viktoriia Hrokhovska**,
Researcher at NSC «Hon. Prof. M. S. Bokarius FSI»*



International Advocates' Forum “KHARKIV UNBREAKABLE 2026”



The International Advocates' Forum “KHARKIV UNBREAKABLE 2026,” dedicated to current issues in the functioning and development of the bar amid Ukraine's European integration, was held on May 14–15, 2026, at Yaroslav Mudryi National Law University.

The event brought together Members of the Verkhovna Rada of Ukraine, judges of the Supreme Court and the Constitutional Court of Ukraine, representatives of research institutions of the Ministry of Justice and the Ministry of Internal Affairs of Ukraine, law enforcement agencies, state and international institutions, the highest bodies of advocates' self-government of Ukraine, Azerbaijan, the United Kingdom, Spain, Lithuania, Moldova, Germany, the United States, Croatia and Switzerland, representatives of other legal professions, and prominent legal scholars and practitioners from various countries around the world.

The participants considered issues related to the transformation of standards in the legal profession, the implementation of European approaches to guarantees for advocates' professional activity, strengthening the role of the bar in the justice system and shaping a modern model of legal education, among other matters.

In her speech, **Anastasiia Kupriianova**, Director of the National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute» of the Ministry of Justice of Ukraine (hereinafter referred to as NSC «Hon. Prof. M. S. Bokarius FSI»), emphasized that respect for human rights and freedoms remains



an unwavering priority in the work of NSC «Hon. Prof. M. S. Bokarius FSI» while conducting forensic examinations and forensic researches.

“Effective communication among forensic science institutions, the defense, law enforcement agencies and courts directly affect the quality and timeframes for conducting examinations. A complete and

well-founded expert conclusion becomes one of the important sources of evidence in criminal proceedings,” she noted.

The Director of NSC «Hon. Prof. M. S. Bokarius FSI» paid particular attention to the challenges facing the forensic science system during the war. In particular, the number of researches related to determining losses and damage caused by shelling and missile strikes has increased significantly.

Employees of NSC «Hon. Prof. M. S. Bokarius FSI», Tetiana Kharina and Tetiana Yehorova, took part in the international panel discussion: *The Polygraph in Defense Counsel Strategy: From Ensuring Guarantees of Individual Rights to Defense in Court*, held jointly with the All-Ukrainian Association of Polygraph Examiners.

“Polygraph use in expert activity provides participants in judicial proceedings with additional opportunities,” Tetiana Kharina noted in her report *Effective Communication between the Advocate and the Forensic Expert When Appointing a Forensic Psychological Examination Using the Polygraph: Legal, Methodological and Ethical Aspects*. She observed that effective communication between the advocate and the forensic expert when appointing a forensic psychological examination is important for building a successful defense of human rights and freedoms, minimizes possible misunderstandings and contributes to lawful means of resolving a judicial dispute, while the use of the polygraph in expert activity provides participants in judicial proceedings with additional opportunities to protect their rights and interests.

Tetiana Yehorova focused on manipulative technologies used by the parties to criminal proceedings, as well as the epistemological foundations for the use of the computerized polygraph and the need to develop a unified methodology in this field.

The forum facilitated discussion of strategic challenges facing the legal profession and the expansion of interinstitutional cooperation, among other matters.



Prepared by **Oksana Chala**,
Researcher at NSC «Hon. Prof. M. S. Bokarius FSI»

International Scientific and Practical Conference *Current Issues of Forensic Science and Criminalistics*

With the support of the Ministry of Justice of Ukraine, the International Scientific and Practical Conference: *Current Issues of Forensic Science and Criminalistics* was held on May 15, 2026, at the National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute» (hereinafter referred to as NSC «Hon. Prof. M. S. Bokarius FSI»).



The conference was opened by Anastasiia Kupriianova, Director of NSC «Hon. Prof. M. S. Bokarius FSI». “For the specialists of our Center, the words: *forensic examination* has long been more than an office-based term. The specifics of the present day include work at the sites of ‘hits,’ research on remnants of the latest weapons, buildings and structures damaged by shelling, air strikes and missile attacks, and participation in the most complex DNA identifications, among other tasks. We are not merely conducting researches; we are building the foundation for future judgments in international courts, including compensation for losses from the funds of the aggressor state,” she noted.

Welcoming remarks wishing the participants fruitful discussion and new scientific achievements were delivered by Andrii Haichenko, Deputy Minister of Justice of Ukraine for Enforcement Service; Nataliia Tkachenko, Director of the Department for Expert Support of Justice of the Ministry of Justice; and the heads of the FSIs of the Ministry of Justice, the SRFCs of the Ministry of Internal Affairs and the Security Service of Ukraine.

The event brought together more than 300 participants online and offline: forensic experts, scholars, representatives of the FSIs of the Ministry of Justice, the Ministry of Internal Affairs and the Security Service of Ukraine and higher education institutions, as well as other specialists actively engaged in scientific and practical research in the field of expert support of justice and criminalistics in Ukraine and other countries around the world. International partners from Germany, the Netherlands, Moldova, Montenegro, Brazil, Latvia, Israel, Turkey and Poland also joined the conference.

Olga Cataraga, Director of the National Centre for Judicial Expertise under the Ministry of Justice of the Republic of Moldo-

va, noted cooperation among forensic science institutions, academia and practitioners from various countries around the world as an important component in helping improve the quality of forensic examinations, strengthen the professional independence of forensic experts and increase trust in expert conclusions, as well as the role of specialized scientific institutions in developing applied research and shaping the scientific and methodological framework necessary for forensic expert activity.

Inga Kudeikina, Associate Professor at Rīga Stradiņš University (Latvia), presented a report titled “Challenges of Forensic Evidence in Cross-Border Proceedings: Standardization and Reliability in International Cybercrime Cases.” The speaker emphasized that forensic evidence plays an important role in cross-border proceedings, especially in the context of international cybercrime. However, differences in legal systems, forensic methodologies and quality standards hinder the consistent evaluation and use of such evidence across jurisdictions. Summarizing her presentation, Inga Kudeikina noted that the regulation of forensic medical examination in cross-border proceedings is characterized by fragmentation resulting from different national approaches to expert qualifications, methodologies and quality assurance, as well as incomplete harmonization at the level of European Union law. Thus, the effective use of forensic medical examination in cross-border proceedings is closely linked to the need for a unified approach to quality criteria and methodology, which would enhance the reliability of evidence and facilitate its use in international judicial cooperation.

Other participants delivered reports on the specific features of conducting forensic examinations under martial law; obtaining samples for forensic research; forensic expert support for administrative proceedings concerning illicit firearms trafficking; prospects for introducing innovative foreign equipment into Ukrainian forensic expert practice and other topics.

The participants also discussed other current theoretical and applied issues in the development of forensic science and criminalistics and exchanged scientific achievements and practical experience.

During the scientific event, a collection of abstracts was presented, comprising 141 scientific works by 230 Ukrainian and foreign authors. The collection of materials has been posted on the website and in the institutional repository of NSC «Hon. Prof. M. S. Bokarius FSI».

*Prepared by **Viktoriiia Hrokhovska**,
Researcher at NSC «Hon. Prof. M. S. Bokarius FSI»*

VI All-Ukrainian Forum of Forensic Experts in Lviv

On June 5, 2026, employees of the National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute» (hereinafter referred to as NSC «Hon. Prof. M. S. Bokarius FSI») took part in the VI All-Ukrainian Forum of Forensic Experts: *Modern Forensic Examination: Current State, Problems and Prospects for Development amid Global Challenges* (hereinafter referred to as the Forum), organized by the Lviv Scientific Research Institute of Forensic Expertise of the Ministry of Justice of Ukraine.

The Forum was opened by **Andrii Haichenko**, Deputy Minister of Justice of Ukraine for Enforcement Service.

The participants were welcomed by **Anastasiia Kupriianova**, Director of NSC «Hon. Prof. M. S. Bokarius FSI», who noted that forensic science had faced unprecedented challenges and the need to adapt to the realities of war. She identified the development of new research methods that take into account the realities of martial law, modernization of the material and technical base of forensic institutions, implementation of digital technologies, including artificial intelligence, and expansion of international cooperation as priorities for development of the forensic science field.

Since the full-scale war has led to a significant increase in the volume of researches related to determining losses from destruction, documenting war crimes, examining remnants of weapons and ensuring the evidentiary basis for Russia's crimes in Ukraine for international justice, and since DNA researches and examinations for identifying the dead have become among the most in demand, forensic anthropological researches are being introduced for the first time in Ukraine at NSC «Hon. Prof. M. S. Bokarius FSI».

Ms. Anastasiia emphasized the growing role of military, psychological, linguistic, computer-technical and telecommunications examinations in the investigation of war crimes, crimes against the foundations of national security and facts of collaboration activities.





The participants discussed current issues of forensic expert activity, problems in the process of appointing and conducting forensic examinations under current conditions and prospects for its development.

The Forum proceedings included 14 printed abstracts authored by 33 employees of NSC «Hon. Prof. M. S. Bokarius FSI», including: *Forensic Science under Martial Law: Issues and Solutions* (Anastasiia Kupriianova), *Main Approaches to Establishing the Public Nature of Information in Forensic Linguistic Examination* (Yuliia Brailko, Yevheniia Kovkina, Nataliia Kysla), *Transformation of Forensic Psychological Examination According to the European Model: Problems and Challenges* (Tetiana Yehorova), *Comparative Analysis and Optimization of Methods for DNA Extraction and Preparation from Bone Tissue in Mass Identification Contexts* (Oleh Trufanov, Oleksandr Pakhomov, Maryna Furs), *Algorithm and Tactical Features of Questioning a Forensic Veterinary Expert* (Ivan Yatsenko, Ella Simakova-Yefremian, Viktor Shevchuk, Vadym Khosha), *Forensic Science in Ukraine and Japan: From Comparative Characteristics to Prospects for Improving Legislation* (Viktoriia Alieksieichuk), *Forensic Economic Examination under the Legal Regime of Martial Law and the Transformation of Forensic Expert Activity* (Inna Bratchyna, Alona Skalozu-bova, Tetiana Ratushna, Nina Pevna) et al.

Prepared by **Nataliia Zhyla**,
Researcher at NSC «Hon. Prof. M. S. Bokarius FSI»

Requirements for Research Papers

Requirements for content

According to the Edition subject matter, content regarding coverage of criminalistic current issues, relevant issues of performing various types of forensic examinations and specific expertise application in legal proceedings is published on the pages of the Scientific Edition.

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