

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.s 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/64e5d4a1196a4b000eb26345/69cd0c4c702a2f08095afd8e> (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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