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WORK OF INVESTIGATIVE AND FORENSIC AUTHORITIES: INTERNATIONAL EXPERIENCE

In the modern world, criminal offenses increasingly take on a transnational character – from cybercrime to human trafficking and terrorism. It necessitates a profound transformation in the work of investigative and forensic bodies, which must operate not only within national jurisdictions but also actively engage in interstate cooperation. Concerning it, the study of international experience in the organization and functioning of investigative and forensic structures becomes especially relevant.

In many countries around the world, the functioning of forensic and criminalistic examination is based on standards approved by international organizations such as ISO, INTERPOL, Europol, and other specialized bodies. The standardization of examination methodologies, processes of documentation, handling, and storage of evidentiary information ensures uniformity and comparability of results. As Wilson-Wilde notes, international harmonization of forensic standards helps reduce the risk of judicial errors and increase trust in expert findings [1, p. 26].

The unification of forensic protocols is one of the key prerequisites for effective international cooperation . This covers all stages: from securing the crime scene to presenting an expert opinion in court. However, practice shows significant challenges: different countries have unequal technological capabilities, variations in procedural legislation, and varying levels of personnel training. The absence of common accreditation criteria for forensic laboratories is an especially acute problem , which adversely affects trust in the results of investigations.

A methodological shift is occurring in forensic science: from orientation toward “trust in the expert” to “trust in the scientific method.” In other words, the key factor becomes not the authority of

the specialist, but the objectivity, validity, and verifiability of the methodology they employ. Koehler emphasizes that it is necessary to rethink approaches to expert conclusions, forming them with consideration of the probabilistic nature of evidence and the limits of application of specific methods [2, p. 12].

Digital forensics occupies a special place in international forensic practice. Given the global nature of information technologies, criminal investigations increasingly require examination of digital media, servers, mobile devices, and internet communications. Klasén notes that the “invisible evidence” of the digital environment now plays a decisive role in criminal cases and at the same time gives rise to numerous technical and legal challenges.

Exchange of digital evidence across jurisdictions, especially in transnational investigations, is particularly complex. The problems are linked to differing norms of evidence storage, protection of personal data, legitimacy of access to information. In the study by Casino and others it is emphasized that the lack of a unified approach to the circulation of digital evidence often blocks or complicates international cooperation among investigative bodies [4, p. 6].

International experience in investigating potentially unlawful deaths, as set out in the Minnesota Protocol, deserves attention. The document contains clear methodological recommendations regarding forensic pathology examinations, documentation of circumstances of death, human rights, and transparency procedures. In many countries this protocol is officially recognized and used in cases involving possible state abuse.

Standardized genetic procedures play a key role in investigations of missing persons. Use of DNA identification, international databases, and matching algorithms with relatives makes it possible to significantly increase the effectiveness of such investigations. Cordner underscores the importance of harmonizing approaches to the creation and exchange of such databases, especially taking into account ethical and legal aspects [5, p. 19].

Professional training of personnel in forensic science is becoming increasingly interdisciplinary. Specialists must master not only technical skills but also navigate international law, computer technologies, and language training. In a NIST report it is noted that,

expertise risks losing its scientific foundation without adequate training and continuous updating of knowledge.

The international community places special attention on error management and cognitive biases. This concerns not only the methodologies for forming conclusions but also their interpretation phases. Van Straalen notes that the results of expert examinations must be not only justified, but also subject to review by other specialists in formats such as blind review or peer review [6, p. 15].

As technologies evolve, the importance of automation in the work of forensic laboratories grows. Automated workflows allow reducing the burden on experts and accelerating the processing of large volumes of digital evidence. Le-Khac developed a model that enables optimization of resources under heavy workload conditions in investigative and analytical units.

The success of using forensic research results also depends on whether they will be accepted by a court. Judicial instances increasingly require scientifically grounded, validated, and transparent methodologies. This means that experts must not only conduct analysis but also explain its limitations, accuracy, and statistical probabilities [1, p. 31].

Working with evidence, especially digital one, raises serious ethical and legal problems. This pertains to confidentiality, rights to privacy, and preventing abuses of access to data. In the study by Raciti a threat model is formulated that allows accounting for risks at the stage of forensic data analysis and preventing violations in the realm of information protection.

International cooperation in the forensic sphere offers significant advantages, but also numerous obstacles: from divergences in jurisdictions to political distrust. Yet the effective implementation of mutual legal assistance mechanisms, information exchange, the signing of bilateral agreements, and shared platforms such as INTERPOL or Europol can substantially expand the capabilities of investigative bodies in combating international crime [5, p. 9].

For Ukraine, which is actively undergoing modernization of forensic and investigative institutions, it is advisable to integrate the best international practices: adopt international standards, automate processes, develop digital forensics, ensure adequate training of

personnel, and improve the legal framework with regard to the transnational dimension of crime. Through the lens of international experience one can form an effective, transparent, and modern model of investigation capable of meeting the challenges of the 21st century.

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