

INNOVATIONS IN CRIMINALISTIC TECHNIQUE: MODERN PROBLEMS, TENDENCIES, PROSPECTS

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Abstract: *The article is devoted to the researchers of current problems of innovations in criminalistic technique. The theoretical bases of development of criminalistic innovations in criminalistic technique and problems of their application in practice are analyzed. The main innovative areas of use of criminalistic technique in law enforcement activities, which ensure its efficiency and effectiveness, are identified. It is noted that one of the most important tasks of further development of criminalistics is to improve the structure of criminalistic technique in view of the emergence, development and current state of certain innovative areas of this branch of criminalistics. Research of new branches of criminalistic technique largely determines the innovative directions of modern criminalistic research in the field of criminalistic technique.*

Introduction. In modern conditions, the tasks of criminalistics are determined by her social function — to assist your own receptions, methods and means to combat criminal phenomena. In this regard, the main task of criminalistics is to support law enforcement agencies in the fight against crime, full and timely technical criminalistic support and accompaniment the investigation and prevention of crimes, their judicial

trial. This task can be realized on the basis of comprehensive use of the achievements of modern science and technics [2, p. 95-100; 8, p. 338; 12]. Therefore, in today's conditions in the formation and implementation of criminalistic knowledge must take into account the processes of informatization, digitalization, globalization in society, their impact on the state and nature of crime, the level of civilization and the presence of global threats to the world community. As rightly noted by V.Yu. Shepitko crime accompanies global problems of society in the field of economy, politics, ecology, provision of resources and supplies, energy, demography [15], including a significant impact and the current exacerbation of the epidemic situation in the country and the world.

In our opinion, the technical-criminalistic direction has received the most active development in terms of innovation, but in the researches of this issue there are now many debatable and unresolved issues that need special study and resolution. As the study of special literature and practice shows, today not enough attention is paid to the study and analysis of innovative areas of criminalistic research and problems of their application in the practice of law enforcement agencies to improve efficiency and optimize their work. Therefore, the problems of innovations in criminalistic techniques, which are not sufficiently developed in criminalistics today and need in-depth research and analysis, are becoming especially relevant and important today. The creation and introduction of innovative criminalistic products, their active practical use, today is considered a priority task of criminalistics at the present stage and the urgent need for law enforcement practice.

Results and discussion. Today in the criminalistic doctrine there are a number of debatable problems concerning the study of innovations in criminalistics and the problems of their introduction into the practice of investigative, judicial and expert activities. Thus, a separate in-depth study, critical analysis and further research developments require problems: the study of the theoretical foundations of innovation in criminalistics, determining their place and role in the system of criminalistic knowledge; development of the concept and features of criminalistic innovations; identification and research of types of innovations in criminalistics, their characteristics; problems and directions of creation of innovative criminalistic products and technologies; research and analysis of the introduction of innovations in the practical activities of combating crime; efficiency and practical value of the proposed innovations in criminalistics; identification and research of promising areas of innovative development of criminalistics, including innovations in criminalistic techniques, theoretical and methodological foundations of their development and problems of introduction and application of criminalistic innovations in practice.

As known, the construction of any scientific concept involves the formulation of the concept of the studied category. This axiomatic statement applies to innovations in criminalistics and criminalistic technique, the definition of which has not only theoretical but also practical significance. At the same time, starting to formulate the concept of "criminalistic innovation", it should be borne in mind that today in the theory of criminalistics the concept of this category is one of the most controversial, underdeveloped, which can not but affect the final development and study of innovation in criminalistics.

In our opinion, the main essential features of criminalistic innovation are as follows: 1) the novelty of developed, proposed and implemented in practice products (products), technologies, services, solutions is manifested in the fact that they are associated with the creation and emergence of new properties improve its parameters and characteristics, so they are newly created, or newly used, or

improved; 2) developed, proposed and implemented in practice the latest technical, tactical, methodological and forensic means (innovative criminalistic means) are in demand and used in a constant mode in practice, they are implemented in the form of new products (products), technologies, services, solutions; 3) developed, proposed and put into practice the latest technical, tactical, methodological and criminalistic means *are the result of scientific-research or research-construct* development, in demand and applied in practice, forms of implementation (application) of such innovative criminalistic means are new products (products), technologies, services, solutions; 4) the use of such innovations is *carried out by special entities* (investigator, judge, etc.), which ensures the qualification and efficiency of the use of developed and implemented in practice innovative means; 5) *the focus* of innovative tools on the effective solution of criminalistic problems, ensuring optimization, improving the quality and effectiveness of law enforcement practice and further innovative development of criminalistics [13].

Thus, *criminalistic innovation* – is developed, implemented and put into practice the latest technical, tactical, methodological and criminalistic means that are the result of scientific-research or research-construct development, embodied in the form of a new product (products), technologies, services, solutions used by qualified special entities in practice and aimed at effective solution of criminalistic problems, optimization, improving the quality and effectiveness of law enforcement practice and further innovative development of criminalistic science.

Today, criminalistic technique, harmoniously combining the achievements of natural, technical, humanities, is considered by most criminalistic scientists (V.P. Bakhin, R.S. Belkin, V.G. Goncharenko, V.Y. Karlov, N.I. Klymenko, M.V. Saltevsky, V.Yu. Shepitko, etc.) as a section of criminalistics, which is a system of scientific knowledge, as well as developed on their basis technical means, technique and methods designed to collect, research and use the use of criminalistical significant information in order to establish truths in litigation.

It is known that the emergence of criminalistic technique as a system of criminalistic knowledge and a variety of practical activities is associated with the introduction of the achievements of natural and technical sciences in the practice of combating crime [7, p. 7]. Criminalistic technique were formed on the basis of the use of data from the natural and technical sciences in criminal proceedings in order to detect and investigate crimes. Methods of chemistry, physics, ballistics, medicine and other fields of knowledge were adapted to identify traces of crime, their study and interpretation, and ultimately – to solve the problems of criminal proceedings. Along with this, and developed their own criminalistic technique and means. Thus, in the field of criminalistics there is a coherent system of scientific and technical means, adapted and specially designed for the detection, investigation and prevention of crimes [10, p. 21-30]. The purpose of the use of criminalistic technique is to identify and study the reflections (traces) of a criminal event and extract evidence from them [6, p. 118, 121].

Developing the idea of relevance and significance of innovations in criminalistic technique, it is rightly noted in the literature that today we can note one important natural trend in criminalistics, namely - the constant increasing role and importance of criminalistic technique in crime investigation and trial. First of all, this is primarily due to the growing need of society and individuals to ensure personal safety, protect themselves and their families from criminal encroachment. Secondly, the use of criminalistic technique in the framework of procedural activities contributes to a comprehensive and more complete establishment of factual data during the

investigation of crimes, their proper procedural consolidation and objective investigation. This, in turn, significantly increases the efficiency of the detection, fixation, examination and evaluation of physical evidence, ensures their reliability and individualization, while preventing the substitution of some objects and physical evidence by others. Innovative means and methods of criminalistic technique provide detection and fixation of criminalistic signs of criminal offenses, further create appropriate conditions for cognitive activity of investigators, detectives, prosecutors and court, objectivity and completeness of evidence, promote guarantees of rights of all participants in criminal proceedings, etc. [3, p. 62-69].

In the modern realities in the field of criminalistic technique there is a tendency of active search for the development and implementation of innovative criminalistic products aimed at optimizing the investigation of crimes and trials. As noted in the criminalistic literature, such innovative products include new developed or adapted to the needs of investigative (judicial) practice criminalistic means, modern information technology, electronic knowledge bases, methods of recording, analysis and evaluation of evidence, and others. Examples of innovations in law enforcement are identification biometric systems based on static and dynamic human characteristics (electronic human identification systems based on biometric characteristics — fingerprints, appearance, appearance of the iris, DNA, gait, handwriting, etc.), automated workplaces (in particular, the workstation of the investigator "Insight"), automated information retrieval systems and databases ("Investigative Practice", "Investigative Precedent", etc.), etc. [14, p. 40].

Importance is given to *biometrics*, that is those that allow you to measure the physical and behavioral characteristics of a person in order to identify him or solve diagnostic problems. Original attempts to find new ways to solve the problems of personal identification are the use of means, in particular: identification of a person by his external signs through video systems, using thermal imaging equipment; by voice, by articulation during the pronunciation of individual sounds, words. The capabilities of the polygraph are also underutilized in determining the suitability for investigative and detective activities and the presence of professional deformity; in the diagnosis of the veracity of evidence; in revealing involvement in a crime, etc. In this regard, the use of *nanotechnology for criminalistic purposes*, in particular, the development of innovative methods and technologies that expand the possibilities of human identification in genotypic examination are of scientific and practical interest. The development of a biochip, which allows to establish the identity of the subject on a tiny trace of DNA with a probability of 99.6%, allows today to identify individuals when detecting at the scene, say, crumpled napkin or cigarette butt with a small amount of saliva, which was impossible before. [4, p. 121].

Moreover, the development of criminalistic technique involves the *development of information-reference systems such as Automated Workplaces (AWP)*. Examples of such AWP's are: AWP of the investigator "Insight", AWP of forensic experts of various expert specialties (trasologist, ballist, economist, phonoscopist, polygraphologist examiner, etc.). Therefore, criminalistic technique today is developing in the direction of introducing innovative information, digital and telecommunications technologies in law enforcement activities. This development is also associated with the improvement and creation of criminalistic means for the study of sound, electronic traces, human DNA; adaptation of the latest technics for technical-criminalistic support of tactics of investigative (search) actions and unspoken investigative (search) actions.

In this context, relevant in the field of criminalistic technique are *research and retrieval of ideal traces in human memory with the help of technical-criminalistic means*. Innovative means and technologies are: the use of computer polygraph, "PhotoRobot", digital photography, audio and video recording, spectrograph, unmanned aerial vehicles, surveillance and video surveillance systems, etc. So, in our opinion, the statements of some scientists and practitioners that research in the field of using technical means such as a polygraph to diagnose the information state of the individual is quite reasonable [8, p. 338].

Investigating the role of criminalistic technique in combating crime, V.Yu. Shepitko points out that at the present stage the use of the latest scientific-technical means and technologies is proposed in the investigative activity: audio, video control, surveillance systems, digital photography and video recording, electronic controllers, unmanned aerial vehicles (UAVs) – quadcopters and criminalistic aerial photography. There are certain peculiarities in the introduction of innovations and in the application of criminalistic means and technologies in remote pre-trial proceedings, during interrogation, identification by videoconference, presentation for identification of a person outside of his visual and audio surveillance, etc. The use of the latest scientific-technical means is quite important when conducting unspoken investigative (search) actions: removal of information from transport telecommunications networks, removal of information from electronic information systems, inspection of public places, housing or other property, locating electronic means, monitoring person, thing or place, audio, video control of a person or audio, video control of a place, etc. [12, c. 146]. To increase the efficiency of this direction of activity, it is necessary to make greater use of geodetic satellite systems and aerial photography, carried out with the help of unmanned aerial vehicles [1, p. 47-57].

In our opinion, today a very promising and innovative direction of further research in criminalistics is the practice of *using the capabilities of "BIG DATA" technologies and global satellite positioning systems* in investigative and operational activities aimed at her optimization. Recently, fitness trackers or "smart bracelets" have become widespread, information from which provides an opportunity to obtain important information for the investigation of crimes. An illustrative example is the information published in The Washington Post. "The Global Heat Map, compiled by Strava based on fitness trackers, revealed the location of US military bases abroad" [9]. Therefore, among the promising areas that have important criminalistic significance in the investigation of crimes, we can highlight the use of technology "BIG DATA"[11, p. 74-78].

Promising areas for the *use of innovative technologies in combating the spread of Covid-19 coronavirus infection* are the following: 1) using of unmanned aerial vehicles; 2) application of surveillance and video surveillance systems; 3) using of electronic control over the movement of persons in space and air; 4) development and application of identification systems for facial recognition; 5) using of "BIG DATA" technologies; 6) introduction of various applications, services and platforms used in the fight against the spread of coronavirus; 7) using of a system for detecting people with increased temperature, which can be installed at the entrance to the building; 8) using of automated systems to identify potential patients and prevent the spread of coronavirus, etc. Thus, the prospects for the development of this branch are associated with the creation of new such means, innovative technologies, as well as taking into account foreign experience (China, South Korea, USA, etc.). Therefore, the work on the use of artificial intelligence to ensure the solution of practical problems

in the fight against crime, including combating the spread of the coronavirus epidemic, should be significantly intensified.

In our opinion, a promising area in criminalistics is the use of innovative means and technologies of criminalistic technique in various areas of law enforcement, expanding the application of criminalistic knowledge in various types of legal practice, which in today's reality is quite relevant and requires further research. We are talking about the possibility of using criminalistic technique in court proceedings, in criminal and civil proceedings, administrative proceedings, in the prosecutor's office, advocacy and notarial activities [16, p. 43] etc.

Conclusions. In view of the above, we can conclude that improving the efficiency and quality of the investigation is inextricably linked with the active introduction into investigative practice of modern advances of science and technology. Criminalistics, integrating the latest advances of science and technics, creates for law enforcement agencies in line with modern threats of innovative means, receptions and methods of combating crime" [5, p. 20]. This fully applies to criminalistic technique, as a system of criminalistic knowledge and a variety of practical activities. The purpose of the use of criminalistic technique is to identify and study the reflections (traces) of a criminal event and extract evidence from them. Therefore, the successful and skillful use of innovative means of criminalistic technique ensures the completeness, accuracy, efficiency and effectiveness of the investigation and trial, contributes to the optimization of these activities and the solution of the main tasks of criminal proceedings.

One of the most important tasks of further development of criminalistics is to improve the structure of criminalistic technique in view of the emergence, development and current state of certain innovative areas of this branch of criminalistics. As practice shows, a promising area of research in modern criminalistics is the study of non-traditional branches of criminalistic technique (criminalistic odorology, phonoscopy, polygraphology, etc.). To a large extent, they determine the innovative directions of modern criminalistic research in the field of criminalistic technique. Of particular importance are the possibilities of using criminalistic technique in today's global threats, informational influences and the situation of the epidemiological crisis associated with the coronavirus pandemic. The use of criminalistic technique permeates all types of activities (investigative, judicial, expert, prosecutorial, legal, detective, operational and investigative, etc.), which takes into account the trend of expanding the scope of criminalistic knowledge in legal practice.

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