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**MODERN PROBLEMS CRIMINALISTIC TECHNIQUE: INNOVATIONS,
TENDENCIES, PROSPECTS**

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Summary. The article is devoted to the study of the problems of modern understanding of criminalistic technique, researchers of current problems of innovations in criminalistics and practice of their realization in law enforcement activity. The modern tendencies of development of criminalistic technique are analyzed, its modern understanding, a subject and tasks taking into account various kinds and directions of activity for the purpose of the effective decision of problems of criminal proceedings are defined. Scientific approaches and author's proposes on the decision of researched debatable problems of criminalistic technique are formulated. The main innovative areas of use of criminalistic technique in law enforcement activities, which ensure its efficiency and effectiveness, are identified. It is substantiated that as a promising innovative direction it is necessary to significantly intensify the work on the use of artificial intelligence to ensure the solution of practical problems in the fight against crime, including counteracting the spread of the coronavirus epidemic. 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.

Key words: criminalistic technique, innovations in criminalistic, technique criminalistic innovation, innovative directions, innovation criminalistic product.

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 [3; 8; 13]. 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. Crime accompanies global problems of society in the field of economy, politics, ecology, provision of resources and supplies, energy, demography, including a significant impact and the current exacerbation of the epidemic situation in the country and the world.

In the context of a pandemic, modern crime has recently changed somewhat, it has acquired new features, trends and characteristics. Practice shows that in such conditions street crime has significantly decreased, while has sharply increased the number of crimes committed by organized criminal groups related to the use of Internet technologies. Fraud perpetrated by organized criminal groups, characterized by "criminal specialization" and a clear division of functions and often an international level of connections, and has become widespread. Such negative trends in the dynamics and structure of crime have posed new tasks and functions to criminalistics, which are related to the "social order" of practice to find adequate means, receptions and methods to combat modern challenges of crime.

In view of the above, we conclude that in today's realities before criminalistics and each of its sections are constantly important theoretical and methodological problems aimed at studying and consideration into account modern innovative advances in science and technique, the impact of scientific and technological progress on development and formation modern criminalistic knowledge, which in today's conditions can be effectively used in combating crime and providing innovative

criminalistic recommendations urgent needs of the investigator, the judicial and expert practice.

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.

Results and discussion. 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. Saltevsy, 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.

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. [5, 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. [15, p. 40].

Among the innovative methods and tools, 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. 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 [6, p. 121].

In the field of criminalistic technique, the search for new biometric methods for use in investigative and judicial activities continues, in particular, the identification of a person by a pattern of the bottom or iris of eye. Thus, according to research and data from American scientists, human fingerprints have 40 unique characteristics, while the iris - 256. That is why scanning the retina of the human eye is quite actively used by the banking security system to identify a person [4, p. 51]. To solve the problem of identification, a *method of scanning the so-called venous map* is used, that is infrared reading of the image of the veins of the hand. The widespread use of computer technology has led to the increasing use of criminals to commit crimes. As a result, it was possible to identify the person by keyboards handwriting [9, p. 267-279].

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, polygrapholog 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].

Recently, along with traditional means of detection, fixation, retrieval, as well as the study of material traces and the situation in general, an innovative and very promising area is the active use of modern three-dimensional digital technologies and artificial intelligence, which aims to create visualization and reconstruction of circumstances and pictures of the crime or its individual episodes (details) using 3D models. Practice shows that law enforcement officers are increasingly faced with the need to study and record material objects located in large areas — the consequences of criminal explosions, fires, accidents and catastrophes on various modes of transport, man-made disasters. For the reconstruction of the scene, the method of laser scanning of certain objects and their reproduction in the form of 3D-visualization systems is becoming more widespread, which allows to capture and reconstruct in millimeter details the scene and its individual objects in three-dimensional space, which is not possible when using conventional means and methods of research of these objects. This makes it possible to investigate and use important criminalistic information during the investigation of criminal offenses and subsequently in the trial of criminal proceedings. The use of laser scanning of terrain and objects, which results in a 3D model, allows to increase several times the informativeness of the data collected at the scene, provides a clear and convenient visualization in three dimensions, which allows to achieve high illustrative quality [10, p. 159].

Innovative and modern application of 3D technologies today is the method of "Virtopsia" (*virtual autopsy*) — the direction of autopsy, which allows you to get the necessary information about injuries to bones and soft tissues without resorting to mechanical dissection of the body. This method has already been introduced in forensic examination of a number of countries (Germany, France, Great Britain, USA, Israel, Australia). Virtopsia allows to get 3D images with the ability to look at an event in virtual reality (for example, a traffic event) [1, p. 13].

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. [16, p. 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 [2, p. 47-57].

Among the promising areas that have important criminalistic significance in the investigation of crimes, we can highlight the *use of technology "BIG DATA"*. In practice, this method is used during investigative (search) actions and unspoken investigative (search) actions, in the methodology of investigation of certain types of crimes, including criminalistic technique. At the same time, the technologies of network analysis, tactical profiling, pattern analysis allow to successfully detect and investigate crimes [11, p. 74-78]. Therefore, 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.

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 [18, p. 43] etc. In our opinion, this shows a manifestation of another important trend in the development of modern criminalistics — the expansion of the application of criminalistic knowledge from the sphere of combating crime to law enforcement and other activities [14, p. 905].

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" [7, p. 20]. Scientific-technological progress directly affects the acceleration of the development of criminalistic science [3, p. 61], and her individual components. 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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