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# THE USE OF INNOVATIVE TECHNOLOGIES IN THE PREVENTION, DETECTION AND INVESTIGATION OF CRIMES

The use of electronic means of monitoring the conduct of persons released from prison on parole and suspects for whom preventive measures are applied without detention, including those under house arrest. Electronic search and identification systems. The modernization of the law enforcement system should be carried out by means of simplifying the process of justice, freeing it from unnecessary bureaucratic procedures with the active introduction of new information technologies. The purpose of this article is to investigate the latest computer programs and their application in the activities of the internal affairs agencies. The article also speaks about application of special knowledge and skills of specialists, i.e. about other level of application of scientific and technical knowledge and means in criminal proceedings. Computerization has accelerated the transfer and exchange of forensic information received during the investigation between the subjects of criminal activity. In the investigation of crimes, the investigator often resorted to the assistance of specialists and experts. Specialists exist in various fields of science, technology, art and professional skill. With the knowledge and skills of knowledgeable persons, various crimes are solved.

**Key words:** innovative technology, electronic media system, smart technology, type of weapon, information technology, development, influence.

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## Қылмыстың алдын алуда, ашуда және тергеуде инновациялық технологияларды пайдалану

Бас бостандығынан айыру орындарынан шартты түрде мерзімінен бұрын босатылған, сондай-ақ қамауға алынбай бұлтартпау шаралары қолданылған күдіктілердің, оның ішінде үй қамақта жүрген адамдардың мінез-құлқын қадағалаудың электрондық құралдарын қолдану. Тұлғаны іздеу және сәйкестендірудің электрондық құралдарының жүйелері. Құқық қорғау жүйесін жаңғырту жаңа ақпараттық технологияларды белсенді енгізу кезінде оны артық бюрократиялық рәсімдерден арылтып, сот төрелігін іске асыру процесін оңайлату құралдары бойынша жүзеге асырылуға тиіс. Осы мақаланың мақсаты – жаңа компьютерлік бағдарламалар мен оларды ішкі істер органдарының қызметінде қолдану. Мақалада сонымен бірге мамандардың арнайы білімі мен дағдыларын, яғни қылмыстық процесте ғылыми-техникалық білім мен құралдарды қолданудың әртүрлі деңгейіне қатысты айтылған. Компьютерлендіру сот-сараптама қызметі субъектілері арасында тергеу барысында алынған соттық ақпараттың берілуін және алмасуын жеделдетті. Тергеуші қылмыстарды тергеу кезінде мамандар мен сарапшылардың көмегіне жүгінеді. Мамандар әртүрлі ғылым, технология, өнер және кәсіби шеберлік саласында жұмыс істейді. Білімді адамдардың білімі мен дағдыларының көмегімен түрлі қылмыстар ашылады.

**Түйін сөздер:** инновациялық технологиялар, электрондық медиа-жүйелер, зияткерлік технологиялар, қару түрі, ақпараттық технологиялар, даму, әсер ету.

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## Использование инновационных технологий в предупреждении, раскрытии и расследовании преступлений

Применение электронных средств слежения за поведением лиц, освобожденных из мест лишения свободы условно-досрочно, а также подозреваемых, в отношении которых применены меры пресечения без заключения под стражу, в том числе находящихся под домашним

 

арестом. Системы электронных средств поиска и идентификации личности. Модернизация правоохранительной системы должна осуществляться посредством упрощения процесса отправления правосудия, избавив его от излишних бюрократических процедур при активном внедрении новых информационных технологий. Цель данной статьи заключается в исследовании новейших компьютерных программ и их применении в деятельности органов внутренних дел. Так же в статье говорится о применении специальных познаний и навыков специалистов, то есть об ином уровне использования научно-технических познаний и средств в уголовном судопроизводстве. Компьютеризация ускорила передачу и обмен полученной в ходе следствия криминалистической информацией между субъектами криминалистической деятельности. При расследовании преступлений следователь часто прибегает к помощи специалистов и экспертов. Специалисты существуют в различных областях науки, техники, искусства и профессионального мастерства. С помощью знаний и навыков сведущих лиц раскрываются различные преступления.

Ключевые слова: инновационные технологии, электронные медиасистемы, интеллектуальные технологии, тип оружия, информационные технологии, развитие, влияние.

## Introduction

During the years of Kazakhstan's independence, a law enforcement system has developed and generally operates effectively, meeting the needs of a democratic and legal state. At the same time, the law enforcement activities of the state require their further development and improvement of the forms and methods of ensuring the rule of law and public security of their work on the basis of best practices. The modernization of the law enforcement system should be carried out by means of simplifying the process of justice, freeing it from unnecessary bureaucratic procedures, with the active introduction of new information technologies. It is necessary to carry out work in this area using modern methods and introducing world experience into the domestic activities of law enforcement agencies based on innovative technologies. Solving the problems of fighting crime at the present stage requires a significant improvement in the activities of law enforcement agencies. There are a number of new specific circumstances in the case of the internal affairs authorities (Belonovskaya I.D., Filippova E.O. 2011:163-168).

Firstly, the increased level of professionalism of criminals, their use in their criminal activities of the latest technical advances, the use of new organizational forms. Secondly, the crime rate has increased significantly, and hence the workload of law enforcement officers. Third, a certain "discount" and metamorphosis of testimony. Fourthly, the need to improve the effectiveness of the use of NTS in the recording of administrative offenses, the use of the data as evidence and in the preventive activities of the internal affairs bodies of the Republic of Kazakhstan. Fifth, effective response by law enforcement agencies and other government agencies (prosecutor's office, financial police and internal affairs, media authority, local executive authorities of regions (cities of republican importance, capital) on the facts of violation of the media legislation. Sixthly, creating conditions for modern modernization and improvement of available technical means and information channels, constant study of foreign best practices in this area (Vasiliev V.L. 2009:431).

## Main Part

In this regard, the use of scientific and technological advances in the identification, consolidation and study of objective evidence is of particular importance. In addition, the ever-increasing possibilities of using the achievements of science and technology in administrative and investigative practice allow a new, new level to address the specific issues of disclosure and investigation of offenses. Scientific and technological progress brings a lot of new things to the theory and practice of combating wrongdoing, changes the methods of proof and content of the professional level of law enforcement and court, poses important problems further improving the activities of the police department on a scientific basis. It is obvious that the needs of law enforcement practice are predetermined by a lack of scientific knowledge and practical recommendations in this area of criminal prosecution. One of the main aspects of improving the activities of the police department is to identify ways and means to eliminate or significantly reduce the gap between the scientific potential of investigation and the real capabilities of law enforcement agencies. The noted evidence of the relevance of the targeted study of opportunities to improve the use of scientific and technical advances in the activities of the police department for the prevention, detection and investigation of crimes. This paper reviews and analyses innovative technologies used in the prevention, detection and

investigation of crimes that can be integrated into the activities of the internal affairs authorities of the Republic of Kazakhstan.

In the modern era, the reasons for the use of advances in criminal justice and administrative practice are:

- features of the functioning of certain elements of the work process of investigators and administrative bodies (physical and spiritual capabilities of persons investigating and reviewing criminal and administrative cases, objectively Need to be strengthened by the use of technical means; In addition to material means of work, there are also spiritual, which include knowledge);

Increasing the social importance of fighting crime and, as a result, the need to improve the quality of administrative and criminal justice agencies, largely through the use of achievements Science and technology progress;

Significant expansion in the context of the scientific and technological revolution of the range of achievements provided by science and technology to the service of fighting crime; The availability of personnel capable of applying scientific and technological advances with knowledge;

The need to use advances in scientific and technological progress on the part of process actors not involved in the investigative functions (experts, lawyers, etc.); The use of documents (materials) in criminal proceedings and administrative practice, the content of which requires the use of scientific knowledge and technical means;

The inability to improve the activities of administrative and investigative bodies by extensive methods, which makes it necessary to move to intensive methods, which involve widespread use of the achievements of science and technology. The reality of these causes is manifested at three levels: in the practice of administrative and criminal justice bodies; In the provisions of the current administrative and criminal procedure legislation; research in science.

The study identified a number of reasons for the effectiveness of the use of scientific and technological advances in the police department: the lack of proper attention to the modernization of the services of the police by technical means; Insufficient funding for the area; lack of specialists in the system of internal affairs (employees of the technical service of the Ministry of Internal Affairs when entering the service do not have the proper skills of knowledge of programming languages (level of SJ, August1), use of AIS, network administration); fear and challenge of using new technologies; distrust of technical means in the police department; weak regulatory framework and lack of a systematic approach to innovative modernization of the police department; the use of proprietary software5, which in turn leads to unnecessary expenditure of budget funds, creates problems in optimizing or expanding functionality, creates confusion and ambiguous interpretation of the right to use in plan for the licensing purity of the software being used, as well as making the problem of combating viral activity a priority. As the world practice and experience of government agencies in various countries (including Russia) shows, the introduction of open source software (Orin Source), on the GPL, etc. (primarily Linux-dazed) allows solve these and a number of other problems. In this regard, we believe that this should be addressed in the formation of the Information Development Strategy of the Police Department; a lot of money for the use of modern technologies (electronic databases, software, optical communication channels, satellite channels). The reason for this is the belonging of all modern systems to commercial organizations, which independently set prices for their purchase, lease and maintenance; disparate sources of operational information and the difficulty in obtaining it (Volkov V.N. 2015:368). Each authorized body accumulates information, archives, databases on the information available to it, which are allowed only in accordance with formal procedures, which often causes difficulties in the activities of police officers; lack of methods for conducting examinations of technical equipment and computer technologies, these examinations are carried out for a very long time, which affect the timing of the investigation and before the investigation; Complexity in the peculiarities of the use of NTS in the police department. For example, the Living Scanner complex cannot be used if there is contamination of the hands or surface of the scanner, which is not always possible to eliminate when working in difficult conditions. For this reason, the purchased equipment is not used, and criminologists work the old-fashioned way with paper dactocards; The need for compact printing devices. To date, there are no battery-powered compact printers on the market, compact printers, or their cost is greatly overstated; Further development of cctv systems. Measures should be taken to phase out video cameras with “smart” software that allow you to independently monitor and analyze the situation in the field of view of the camera. In this regard, it is necessary to continue to replace existing analog video cameras with modern digital video surveillance installations. These measures will improve the quality of the transmitted video image, especially

at night, automatically record traffic violations, respond to crowds, and traffic in the prohibited zone, running, left items, etc. (Babin A.N. 2015:136-137).

The government of Kazakhstan approved a list of special means used by police officers to stop, detain and bring to the internal affairs authorities, the authorities of October 30, 2001. Rubber sticks, handcuffs, tear-gas products (grenades, cartridges, aerosol cylinders), aerosol complex, light noise devices, smoke-forming devices, forced stop vehicles, products to protect against mechanical impacts.

However, in most cases, a police officer, while on duty, has at his disposal only a limited list of special means, which he can apply if necessary, to the offender – a rubber stick and handcuffs. Often, employees have to rely only on their strength and abilities. Only operational services, stepping into the daily outfit, are armed with a service firearm. But even in this case, the intended effect is not guaranteed, as the use of firearms is accompanied by the risk of causing consequences, including serious consequences, both for the offender and for third parties, especially in urban environments with high population density. The lethal outcome of the use of firearms is not ruled out. In this regard, I would like to draw attention to the problem of psychological readiness of police officers to use firearms, since in practice officers have developed a stereotype for fear of being prosecuted or become the object of a long trial (Ishin A.M. 2013:116-123).

The above-mentioned problems are the reason for the increase in the number of complaints by the civilian population against law enforcement agencies, due to the increase in recent cases of abuse of office related to the infliction of bodily harm harm in stopping the illegal actions of offenders. The current situation lends itself to a reasonable explanation, as law enforcement officers, realizing their tasks and responsibilities inevitably resort to the use of special means and physical force, which in turn, against the background the declining level of authority towards employees generates a negative response from the public. At the same time, it should be noted that the special means used are not quite humane and when they are used inevitably because harm to the health of the person against whom the special means was used.

Modern conditions, the level of development of innovative technologies and technology in the field of weapons science allow us to find the best solution in the current situation on the example of international experience. For example, in the United States and a number of western European countries in the broad use of the police are stun guns, which have long proved the effectiveness of their use (Vehov V.B. 2017:271-272).

A stun gun is based on the direct effect of an electrical discharge on a target. It belongs to the class of non-lethal weapons, is divided into a contact stun device and a remote stun device.8 In neighboring countries (Russia, China) and far (Israel, USA, England, etc.) the following are used abroad types of stun weapons, which are in the service of police units: Taser – remote stun gun, firing two electrodes called probes, with compressed gas, at a distance of 4.5 m to 10 m. connected by thin insulated wires with a high voltage source in the arms hull. When probes hit the target, the electrical spark discharge transmitted through the wires is able to pierce a layer of outer clothing up to five centimeters thick. Tension of 50 thousand. volt effectively paralyzes the offender while the current goes on the wires (Figure 1, 2).

Stinger-remote electroshock weapon of the same name of the company Stinger Systems, the principle of operation of which is similar to the “Teizer” but the probes are fired not pneumatically, but with a small powder charge.

The Taser XREP is a Taser International electric bullet fired from a 12-gauge smooth-bore weapon. The bullet weighs 14 grams and has a speed of about 90 m/c. The bullet has a range of about 30 m, which is about 3 times the range of a conventional stun device (Zhakulin A., 2012).

Active Countermeasures System Active Denial System (ADS) is one of several weapons developed under the Managed Effects Weapons program, a device that emits electromagnetic vibrations in the millimeter wave range at a rate of about 94 GHz, which has a short-term shock effect on people. The powerful transmitter generates a narrow directional microwave – a 95GHz beam that penetrates the human skin to a depth of 0.3mm, heats it above 45oC, causing searing pain. It feels similar to that experienced by a person, to the skin of which is close to the included light bulb, heated to a temperature of 120-130oC. The pain reaction is intense enough to force the enemy to leave the battlefield. The reaction to radiation occurs within 2-3 seconds, becomes unbearable after 5 seconds and disappears after the generator is turned off or after the person leaves the radiation zone. If a person does not leave within 250 seconds, he will earn a skin burn. The expected range of enemy manpower is up to 700 yards. Metal objects, which are under the action of the beam, are strongly heated and therefore if a person has keys, coins, etc. in his pockets, he can get a severe burn. Even metal buttons and just glasses pose a danger (Kusainov D., Akhmetova A.A. 2012:219-223).



Due to the power adjustment, the body's irradiated tissues may not be damaged. Studies conducted by U.S. Air Force scientists have established a safe level of microwave radiation for humans at 10 mWh/cm2. Exceeding the level of 2 Vt/cm2 after 3 seconds resulted in damage to the cornea in the rhesus macaque (Mityshin D.A. 2012 a: www.bnti.ru).

The Pentagon conducted certification tests of the ADS installation on volunteers (military personnel and reservists) who experienced pain shock and reflexive desire to escape from the strike zone immediately during radiation exposure. About 10,000. tests showed that the pain threshold was reached within 3 seconds of exposure, and after 5 seconds the pain became unbearable. However, only

in 6 cases did the subjects suffer mild burns in the form of redness and bloating of the skin, and in one case, even a second-degree burn (Mityshin D.A. 2012 b: www.bnti.ru).

Intelligent CCTV cameras, with the function of assessing the criminal situation and illegality of the actions of surveillance objects. Researchers from Carnegie Mellon University are working on a project that aims to eliminate the human factor in the analysis of images obtained from a large number of CCTV cameras. The system being developed uses a number of technologies that are used in the Microsoft Kinect game controller and Google's robotic car control systems. Thanks to these technologies, with the help of conventional cameras, it is possible to accurately identify and identify objects in the image. The next step that researchers are already doing is developing a self-learning and cognitive software "engine" using which the computer will be able to determine how bad objects behave in the images and what they are going to take the next moment of time.

This technology can be equally well used in various areas of law enforcement activity, such as airport surveillance of an individual who has left a suspicious package or luggage unattended. The advantages of a computerized system over humans are obvious, the computer can analyze simultaneously data coming from all cameras, the human capabilities from this point of view are very limited (Burnam U. 2006:12-16).

The project is far from complete, but all the works go according to the plans without any unforeseen situations. Unfortunately, more information about the project is missing due to the fact that some of its parts are secret developments. But in any case, this project will ever be completed because it is another step in Skynet's attack on our world, the coming of which will sooner or later come to pass (Butov V.N. 2018:200).

By the way, video surveillance systems in the Republic of Kazakhstan have justified their use, now in general the country operates in places of mass gathering of people, in yards – 2.7 thousand. 694 in Astana and 156 in Almaty. With their help, about 290,000 were identified. offences, more than 1.7 thousand cases have been solved. Crimes (Slusar V. 2010: www.electronics.ru).

Taking into account the world experience of remote surveillance (tracking) and its identification of positive aspects, the introduction of the electronic monitoring system (SEM) is a promising direction to improve the law enforcement activities of the police department Kazakhstan.

The law of the Republic of Kazakhstan of 18.01.2011 amended the current legislation, according to which, criminal-executive inspections (article 53, 182, 184 PEC of the Republic of Kazakhstan) and investigative bodies (V. 140 CPC of the Republic of Kazakhstan) have the right to use electronic means of tracking. In addition, two Government Regulations have been adopted approving a list of electronic tracking tools used in the supervision of persons serving sentences in the form of restriction of liberty and the probation service of the criminal executive inspections: No 977 of July 26, 2012, No. 1061 of August 17, 2012

Also issued is the Order of the Minister of the Interior of the Republic of Kazakhstan No. 141 of March 14, 2012 – "Some issues of execution of punishments not related to the isolation of a convict from society" affirming the Rules of electronic tracking and the criminal-executive inspection to oversee those serving sentences in the form of restriction of liberty.

Studies in this area have shown:

- Significant economic benefits (the cost of electronic monitoring costs up to 5 times cheaper than the detention of a convict in correctional facilities and detention facilities);

- Savings (there is no need to expand the staff while increasing the contingent under control);

- Reducing the number of repeat crimes and offences (by introducing SEM is projected to decrease from 40% to 10%) At the same time, despite the fact that the administrative police are responsible for protecting citizens from criminal encroachment, public order and public safety, preventing recidivism, to ensure the monitoring of previously convicted persons and to prevent the commission of offences on their part – the legal regulation of the use of electronic means of tracking in this area of activity has not been carried out in any way

## Conclusion

Based on the study of the experience of law enforcement agencies of foreign countries, as well as the domestic practice of using modern technical devices and innovative technologies, the most effective and efficient technical and software devices that have been tested and confirmed their viability in the field of public order and public safety are proposed.

The paper also proposes revolutionary technologies, which, based on the characteristics and results of the tests confirm their importance in the fight against crime. In this regard, we consider it necessary to introduce into the activities of the internal Affairs bodies of the Republic of Kazakhstan:

- non-lethal weapons (laser, electroshock); – intelligent video surveillance cameras; – unmanned aerial vehicles; – the use of electronic means of tracking the behavior of persons released from prison on parole, as well as suspects against whom preventive measures are applied without detention, including those under house arrest;

- intelligent software: systems “Blue CRUSH”: retrospective forecasting of crime; systems of combating crime Domain Awareness System (DAS); Analytical decision-making systems in crisis situations. The use of modern technical achievements in the police will improve the quality of work and expand opportunities in the fight against crime. In addition, the studies conducted in this direction have shown: significant economic benefits, savings of forces and means of employees; reducing the number of repeated crimes and offenses, ensuring the scale of preventive work in the areas of law enforcement; ensuring public order and safety of citizens of the Republic of Kazakhstan.

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