INTEGRATED DATABANKS (INFORMATION SYSTEMS) AS AN EFFICIENT TOOL OF PRE-TRIAL INVESTIGATION OF CRIMINAL OFFENCES

The article studies the features of existing information systems (databases) and, with the aim of optimizing the information and analytical support of pre-trial investigation of criminal offences, considers the possibility of consolidating such systems to form one integrated system with common access.

Keywords: integrated databank; information system; criminal records; operational records; information technologies; Internet; information; analytical search complexes.

Problem formulation. As a rule, promptness of investigative activities is crucial for investigation of a criminal offense. One of the classical scholars said, «A crime should be investigated hard on the heels». However, swollen bureaucracy penetrating all levels and branches of the government pulls up the investigation process and is fatal in some cases.

It is up-to-date information technologies that open up a possibility for faster investigation of criminal offenses. Computerization of a huge bulk of criminalistic and other information and its transformation into the form suitable for electronic management is just the first step towards creating a system that would allow investigating criminal offenses in a highly competent manner. The next step would be to consolidate the existing information management systems of internal affairs bodies into a single integrated databank with a function of automatic link building.

Analysis of recent studies and publications. The issue of creation and use of various criminalistic and operational information databases and their consolidation was in the center of attention of many scholars, such as: Dyomina R., Amniev F,

The purpose of this Article (objective) is to study the condition of existing databases and the possibility of their integration into a single system with the aim of accelerating criminal offense investigation.

Description of basic research material. Owing to the current stage of information technology development, a range of technological capabilities has emerged for prompt investigation of criminal offenses:

1) Information accumulation on a scale never before possible, since almost everything can be registered and stored now.

2) Computer equipment development makes it possible to store, transmit and process information in a comprehensible form, without the need for additional encoding and formalization ensuing from inevitable loss and distortion of input data.

3) The information stored can be retrieved immediately and this feature is very important as such.

4) Information can be instantly transmitted and becomes available irrespective of the addressee’s location.

5) With communication means and up-to-date computer technologies, information registered by various institutions can be compared and correlated within a very short time span [1].

It should be noted that information support of internal affairs bodies (IABs) and coordination of their activities is a ramified and complex system covering the following activities:

- analysis of statistical information on crime rate, structure and dynamics collected by law enforcement bodies;

- analysis of information on circumstances and modus operandi of the most frequent crimes, development of efficient methods and means of combating such crimes;

- introduction of information accumulated in criminalistic, operational, statistical and other police records systems into the analysis and synthesis process;

- use of information from databases maintained by other governmental agencies and non-governmental institutions and organizations (the State Treasury, the Ministry of Revenue, banks, the Pension Fund, the State Registration Service, employee work time logging databases, databases of personalized employee access to any information systems, databases of video surveillance systems, databases of sessions of all kinds of communication services provided to population, databases of providers rendering Internet services to their users etc.);

- use of modern communications to ensure conditions for logical and technical integration of different information arrays for the purpose of solving records keeping and registration issues [2; 15].
Given the need for information support of criminal proceedings, a conclusion may be made in favor of an integrated database representing an integration of information systems, each performing its functions independently from the other ones, with the aim of collective use of information assets and technical resources of these systems. Each of the systems making up the distributed system is capable of local data processing, but as a component of the system of a relatively higher level it can transmit data to its organizational center upon request [2; 46].

So, it should be emphasized that there is a need for integration of isolated information arrays by using modern communication systems, because today the majority of applications used to maintain any automated information and reference records system are autonomous and not connected with other similar ones. As a result of this situation, information and software is duplicated and any proper interaction between relevant services is lacking. If we create a single information analytical system which comprises well-elaborated structures of objects interacting with each other, the only thing left to do would be to establish links between them. A single object, for example a collection of banknotes, would not be duplicated and would not re-appear in separate programs or software systems but would become available to all users through a virtual network [3; 208].

This idea is gradually introduced into practice. For example, there is the Integrated Information Retrieval System (IIRS) used by the Ukrainian internal affairs bodies which was introduced based on the Regulations on the Integrated Information Retrieval System for the Ukrainian internal affairs bodies as approved by Order № 436 of the Ministry of Internal Affairs of Ukraine on October 12, 2009 (hereinafter – Regulations) [4].

According to cl. 1.3 of the Regulations, IIRS is a set of organizational and administrative measures, software and information telecommunication means ensuring formation and maintenance of information reference and operational search records and providing authorized access to IIRS information resources.

As can be seen from the analysis of the IIRS structure, it consists of traditional classical databases customary for information units of departments of the Ukrainian Interior Ministry in the regions. However, the IIRS structure does not comprise expert criminalistic record functions, including those having information reference purpose. In this regard, it is essential that IIRS include the main types of expert criminalistic record functions: trace evidence, dactyloscopic, ballistic, cold arms, banknotes, document blank forms, securities and plastic payment cards, appearance-based records of individuals, explosives, arson, narcotic drugs, psychotropic substances, their analogues and precursors, genetic-based records of individuals, human voice and speech recordings, identification signs of vehicles and details of documents (signatures, seals, stamps), record of materials, substances and products [3; 210].

That is why there are proposals to integrate electronic information databases of operational search and expert criminalistic units into a single system with the use of computer networks to find a comprehensive solution of some issues with a view to enhancing the efficiency of criminal offense investigation, since there is a much greater potential in joining databases of separate automated information
systems into integrated databanks with a possibility of access to the totality of all information thus consolidated from any remote access point via one address – the core of an integrated databank [5]. Such a system would consolidate all databases which accumulate information about each registered criminal offense with full and comprehensive details characterizing the manner in which a crime is committed [3; 210–211]. It is clear that under such circumstances a search procedure involves larger volumes of information scattered across different information systems, integrated databanks etc. [5].

For instance, it is common knowledge that one of the most efficient ways to detect a crime is to search for an offender proceeding from the crime’s modus operandi because it allows to arrive at a conclusion about the offender’s possible criminal activity; consolidate several criminal proceedings into one and conduct a targeted search by comprehensive use of information on each particular case. As a rule, a crime’s modus operandi as a set of offender’s actions reveals itself not through a single trace but through a combination of various material traces interconnected by a common mechanism of trace formation [6]. Unfortunately, today there are no finalized forms of trace complex registration capable of displaying the specific features of offender’s actions. Information about signs characterizing a criminal offense’s modus operandi is scattered across various databases of operational, investigation, information and expert divisions and since they are isolated from each other, this task can not be implemented in the full scope [3; 210–211].

Currently, such information and analytical systems are implemented in a number of internal affairs bodies. For example, the Main Department of the Ukrainian Internal Affairs Ministry in Kyiv, as well as other Main Departments of the Internal Affairs Ministry in the regions use the automated information retrieval system ARMOR which contains databases of criminal offenses, persons, registered things, etc. There is also a subsystem «Contour» which allows to make a search in the database of persons who were registered as offenders based on subjective portraits made when they were put on a wanted list; besides, a system is implemented to control the passing of drugs from the stage of their seizure and examination to adjudication, and there are plans to introduce available palm print data obtained in criminal proceedings and data on their use. This system does not have the function of processing other information [3; 211]. There is also the ARMEKS system (expert’s computerized workstation) used in the State Scientific, Research and Forensic Centre (hereinafter – SSRFC) of the Main Department of the Ukrainian Internal Affairs Ministry in Ternopil region, which provides access to all information and reference record systems available at SSRFC and converted into computer form. ARMEKS was created based on the information system which was previously tested at SSRFC and which allows to computerize the Center’s information and analytical work and consists of two subsystems – «Expert Support» and «Control». The ARMEKS database structure is built with a view of ensuring information support according to the expert service’s lines of activities and comprises the following databases: «Crime», «Expert Examination», «Info» and «Criminalistic Record». The last database incorporates the function of electronic card indexes of unsolved crime traces and electronic informational images [7].
Using such a function implemented in modern automated information systems as automatic link building between information fields of different record units which contain information on different objects but have the same parameters, any sought-for information can be retrieved from different subsystems much faster [5].

Given that most database objects are linked, if sufficient information about an object contained in a database is available, it is possible to pass from one object to another one penetrating into such links deeper and deeper [8]. For example, by a person’s name it will be possible to establish promptly whether he or she has a criminal or administrative liability record, or has any other procedural status (claimant, witness, victim, etc.), place of residence (registration) or employment, family or criminal ties, pictures of appearance, any immovable and movable property owned, legally binding deeds performed by the person and other urgently needed information.

In this respect, it should be added that although the information system in its automatic mode is capable of establishing certain links between objects, the qualitative nature of such links can be checked and confirmed only by an investigator or an operational officer who receives this information and can evaluate the data critically. In other words, the results offered by a particular information system are just advisory in nature and by no means rule out the «human factor» because only a human makes the final interpretation of the information received and uses it depending on the circumstances [2; 246–247].

With the accumulation by databanks of criminalistic information – information about movement of sentenced persons or persons with police record etc. – new possibilities open up for the comprehensive use of information about intentions of criminals getting ready for a crime. Access to information contained in the integrated databank from remote locations creates appropriate conditions for high awareness of each operational officer involved. Owing to the use of an integrated databank, the pattern of information units interaction can be presented as a single picture, be it the links of some registered element or description of a committed crime [2; 252].

The expediency of creating a single integrated database of offenders and committed criminal offenses with a detailed description of key signs is supported by the experience of use of the global police communications system known as 1-24/7, which is used by Interpol.

Since criminals and criminal organizations are, as a rule, involved in multiple interaction, System 1-24/7 can significantly change the ways in which authorities cooperate with each other. Certain portions of unconnected information can be used to provide an overall view and solve international criminal search problems.

By using 1-24/7, Interpol through the National Central Bureau can find and obtain double-checked data within several seconds owing to direct access to databases which contain information on suspected terrorists, wanted persons, fingerprints, DNA profiles, lost, stolen or forged travel documents identifying individuals and other urgent data.

These multi-use resources provide the police with instant access to potentially critical information, thus facilitating the criminal investigation process.
1-24/7 also allows to access every national database which uses a «business to business» (B2B) communication system. The Party States maintain their own national databases of criminal records and registration. They also have an opportunity to make these databases accessible to the international legal services through 1-24/7 [9].

Automation and integration of information systems and specialized software used to work with databases and databanks turn them into unique analytical search complexes capable of automatically analyzing large amounts of information and finding relations between objects which would otherwise remain undiscovered without their use. If other techniques are used, many years, significant financial resources and efforts of many employees would be necessary to establish such links and facts [2; 255].

Conclusions. Therefore, the following arguments speak in favor of an integrated database:

1) consolidation of many record functions interconnected via the central data core;
2) use of a uniform information processing technology, whereby all interconnected record functions of the system are functioning as a single whole;
3) accumulation and guaranteed storage of large amounts of information;
4) productivity optimization in the «client-server» system with the configuration of multiple use;
5) enhanced data access with the possibility of remote user access to integrated database components and support of multiple data types, including a wide range of industry standards relating to graphical, audio and video objects [2; 48, 255];
6) automatic analysis of large amounts of information;
7) finding the links between objects and facts which can not be found by other methods;
8) no need to spend time and efforts to obtain numerous papers and submit inquiries to various institutions and organizations.

Thus, all-round creation of automated information retrieval systems of reference data and their consolidation into nation-wide integrated databases will open up unlimited and currently unavailable possibilities to access relevant information with the aim of investigating criminal offenses.

LIST OF REFERENCES:

4. Про затвердження Положення про Інтегровану інформаційно-пошукову систему органів внутрішніх справ України: наказ Міністерства внутрішніх справ України від 12 жов-

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Досліджено характеристики існуючих інформаційних систем (баз даних), з метою оптимізації інформаційно-аналітичного забезпечення досудового розслідування кримінальних правопорушень розглянуто можливість їх об’єднання в інтегровану систему з єдиним доступом.

Ключові слова: інтегрований банк даних; інформаційна система; криміналістичний облік; оперативний облік; інформаційні технології; Інтернет; інформація; аналітично-пошукові комплекси.

ІНТЕГРИРОВАННЫЕ БАНКИ ДАННЫХ (ИНФОРМАЦИОННЫЕ СИСТЕМЫ) КАК ЭФФЕКТИВНЫЙ ИНСТРУМЕНТ ДОСУДЕБНОГО РАССЛЕДОВАНИЯ УГОЛОВНЫХ ПРАВОНАРУШЕНИЙ

Исследованы характеристики существующих информационных систем (баз данных), с целью оптимизации информационно-аналитического обеспечения досудебного расследования уголовных правонарушений рассмотрена возможность их объединения в интегрированную систему с единим доступом.

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