

## FORENSIC CHARACTERISTICS OF SEXUAL ABUSE CRIMES AGAINST CHILDREN COMMITTED USING INFORMATION TECHNOLOGIES

**Dinu OSTAVCIUC Lilia POPA**

PhD, associate professor, "Criminal procedure, Forensics and Information Security" department of the "Ștefan cel Mare" Academy of MIA of the Republic of Moldova, Chișinău. <sup>2</sup>email: [dinu.ostavciuc@mai.gov.md](mailto:dinu.ostavciuc@mai.gov.md)

PhD candidate, "Ștefan cel Mare" Academy of the Ministry of Internal Affairs, <sup>1</sup>email: [liliapopa@gmail.com](mailto:liliapopa@gmail.com)

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### Abstract

The article examines the forensic characteristics of sexual abuse crimes against children committed through the use of informational technologies, emphasising the importance of a methodological and applied approach to this issue. The authors explore fundamental concepts such as the object of the offence, the personalities of the offender and the victim, and the methods of committing and concealing the crimes. Various types of crime traces and innovative investigative methods are highlighted, underscoring the necessity of international cooperation and the use of advanced technologies for effective combat. Furthermore, the article provides concrete examples and legislative solutions to prevent and combat this type of criminality.

**Keywords:** forensic characteristics, sexual abuse, children, informational technologies, crime traces, criminal investigation, prevention, international cooperation.

### Introduction

The fight against sexual abuse crimes against children facilitated by informational technologies poses a significant challenge for law enforcement agencies due to the complexity and transnational nature of such offenses. Digital technologies enable offenders to conceal their identities, operate across multiple jurisdictions, and create sophisticated networks, complicating efforts to identify and investigate these crimes. In this context, the forensic characteristics of these offenses become an essential tool for developing effective investigative and preventive methods.

This article aims to analyze the fundamental elements of the forensic profile for sexual abuse crimes against children, including the object of the offense, the personality of the offender and the victim, crime traces, as well as the methods used to commit and conceal such crimes. An integrated approach to these factors contributes to identifying the criminalistic specifics of this phenomenon, enabling law enforcement agencies to optimize their actions and adapt their investigative strategies.

Furthermore, the analysis emphasizes the importance of international cooperation and the use of advanced technologies in the investigative process, considering the cross-

border nature of these crimes. Through the lens of concrete case studies and legislative solutions, the article provides an applied perspective on preventing and combating this type of crime, highlighting the necessity of a strengthened legal framework and more effective protective measures for minor victims.

**Methods and Materials.** The preparation of this article relied on theoretical, normative, and empirical materials. The study of the subject was conducted using various scientific methods specific to criminalistic theory and doctrine, including logical methods, comparative analysis, and systemic analysis. These tools facilitated an in-depth and well-founded examination of the topic.

**Research Objectives.** The research aims to examine and analyze the forensic characteristics of sexual abuse crimes against children committed using informational technologies, to identify the criminalistic specifics of this type of crime, and to evaluate how forensic profiling can support the investigation of such offenses.

**Results and Discussions.** Following an analysis of the doctrine regarding forensic characteristics, it has been observed that different authors in the field hold varying opinions on this matter. Our research has noted that the field of forensic science is vast and complex, with definitions and perceptions of forensic characteristics differing based on schools of thought, legal traditions, or theoretical perspectives. Authors from the Republic of Moldova and the Russian Federation consider forensic characteristics essential in solving crimes, identifying them as one of the core elements of crime investigation methods.

From our perspective, forensic characteristics serve as a crucial tool in solving crimes, encompassing specific techniques and procedures utilized in criminal investigations. This approach involves the application of scientific and technological methods to analyze evidence and circumstances related to crimes. The diversity of opinions among theorists highlights the breadth of perspectives on this topic. Discussions surrounding forensic characteristics should continue to focus on their precise definition and role in criminal investigations.

Moreover, the evolution of theory and practice in forensic science may bring clarifications and changes to perceptions of forensic characteristics. In other words, forensic science is a dynamic field, constantly enriched by new technologies and methodologies. These advancements may alter the understanding of the role and significance of forensic characteristics in investigations. Increasing reliance on scientific and technological methods is likely to reshape how forensic characteristics are conceptualized and integrated into forensic science.

In this context, we align with the perspective of doctrinalist Dinu Ostavciuc, who conducted a comprehensive analysis of forensic characteristics (Ostavciuc D. 2015. P42-49).

Regardless of doctrinal opinions, this author noted that “the concept of forensic characteristics has not exhausted its potential and requires deeper research to clearly define its purpose, role, and place in forensic science. Ultimately, this will provide objective and practical answers to questions and problems arising in practical activities, ensuring more productive, objective, and comprehensive work by law enforcement officers and prosecutors.”

Although there is a diversity of opinions regarding the essence and content of forensic characteristics, we aim to adopt a more accessible perspective. Instead of delving

into the detailed aspects of this issue, we focus on a more straightforward approach. "Since every crime has its specific *modus operandi*, this individualizes it, manifesting through the manner of commission, the mechanism of the criminal act, the circumstances of the crime, the perpetrator's personality, and other factors" (A. Vasilyev, 1984, p.16)

"The structure of forensic characteristics is complex and not always identical for individual crimes or categories of crimes. Considering the necessity of the elements within forensic characteristics, they may encompass the object and subject of the crime, the specific traits of the perpetrator and the victim, organized criminal groups, the specific mechanisms of trace formation, etc. (R. Belkin, 1979 p.190) It is essential to note that depending on the type of crimes and the form of culpability, some elements may vary in significance, being major, minor, primary, or derivative" (Ostavciuc D. 2015. P.48) .

From a practical perspective, the methods for identifying and investigating crimes heavily depend on the familiarity of criminal investigators, prosecutors, and law enforcement officers with the forensic model of committed offenses. Their ability to accurately evaluate criminal investigation situations—whether at the initial or later stages of inquiry—as well as their understanding of the specific characteristics of each crime and offender, significantly influences the investigative process.

It is acknowledged that every crime leaves behind material and ideal traces, as well as characteristics that individualize it. Methodologically, investigations typically begin with analyzing these traces, progressing toward establishing the circumstances of the offense, which ultimately leads to the identification of suspects, accomplices, and their specific actions.

The particularity of forensic characteristics, distinguishing it from other fields (such as legal or criminological analysis), lies in its incorporation of data about the criminal event essential for detecting and investigating the offense. Therefore, the primary purpose of forensic characteristics is the identification and investigation of crimes. Unlike legal-penal analysis, forensic characteristics have a functional and applicative nature, necessary for resolving investigative tasks.

"Forensic characteristics, unlike legal-penal analysis, examine the perpetrator's criminal actions not only during the commission of the offense but also during the preparatory stages and the concealment of traces. This approach enables a comprehensive view of the offender's actions and the identification of corresponding traces, which reconstruct the entire crime. Based on the information obtained, hypotheses about the offender, their personality, and their *modus operandi* can be developed. In forensic characteristics, all elements are interconnected, assisting in the investigation process. In cases where an element is missing, as often happens, it can be reconstructed with a certain degree of probability" (S. A. Potapov, 2019. Pp.336-345).

"The purpose of forensic characteristics is, first and foremost, to provide a more complete and objective understanding of the identified criminal act and the individuals who committed it. Secondly, based on the collected information, it helps determine the direction of further case investigation. Thirdly, it facilitates the development of realistic criminal investigation hypotheses, the planning, and execution of necessary procedural actions and operational investigative measures to identify and secure evidence" (Gheorghită M., 2012. Pp11-14).

Within this context, integrating a detailed characterization of offenses as an essential attribute of detection and investigative techniques significantly enhances the effectiveness

of the investigative process. Such characterization allows criminal investigators and prosecutors to identify and analyze the most relevant aspects of the criminal act, correlate them with other evidence, and uncover patterns and principles governing these relationships. Utilizing precise and detailed characterizations deepens the understanding of the crime, thereby strengthening case files and improving the efficiency of the justice process.

“The forensic characteristics of crimes constitute a system of correlated and interdependent information about the typical features of a group of crimes. The natural correlations between these features significantly influence investigative methodologies and are utilized to resolve forensic challenges in crime detection” (N.I. Kulagin, V.V. Sinkevich, 007. Pp 108-110).

(A.S. Cneazikov, 2007 pp.122-128) analyzing the opinions of I.A. Vozgrin, notes that the latter understands the forensic characteristic of a crime as a system of generalized factual data concerning investigated crimes that hold forensic significance. “This is not a random collection of unrelated elements but a system with an integral structure. It consists of generalized factual data that naturally reflect the significant forensic and practical characteristics of a crime; information and scientific conclusions based on them that aid in solving and investigating crimes; data derived from the generalization of investigative practices; and a system of information required by law enforcement agencies for the successful resolution and investigation of criminal cases” .

“When forming the structure of the forensic characteristic of a crime, it is necessary to consider the generally accepted method for developing specific investigative techniques (i.e., the method of organizing investigations). This method represents the correlation between the system’s elements, such as the mechanism of committing a crime, which determines the formation of certain criminal traces, and specific forensic recommendations, techniques, and methods for evidence collection that form the basis of investigative techniques”

As previously mentioned, there is no clear consensus regarding the quantitative and qualitative structure of the elements that make up the forensic characteristic or its precise definition.

Some authors include in the structure of the forensic characteristic the offender, the method of committing the crime, and the circumstances of the crime. These elements are considered the most important from the perspective of the theory of criminal law (for the qualification of the act), procedural law (correlating these elements with the circumstances that must be proven), and forensic science (identifying the perpetrator, the victim, determining the method of committing the crime, etc.).

Other authors , considering the forensic characteristic as “a system for describing the significant forensic features of a type, group, or specific crime, expressed through the specifics of the method, mechanism, and circumstances of its commission, providing an understanding of the crime, the identity of its subject, and other circumstances related to specific criminal activity, aimed at successfully solving the tasks of detecting, investigating, and preventing crimes,” include the following elements: the method of committing the crime, the mechanism of the crime, the circumstances under which the crime was committed, the identity of the offender, and other factors.

Some theorists , in addition to the elements previously mentioned, argue that the structure of the forensic characteristic should include data regarding the personality of the offender and the victim, as well as their behavior.

(O.V. Volokhova 1988, p.201) notes that the content of the forensic characteristic of a crime should encompass: the crime environment (conditions, time, place, etc.), the method of committing and concealing the crime, the mechanism of the crime (specific actions of the offender), the object and subject of the criminal act, the identity of the offender, the identity of the victim, and the circumstances and conditions that contributed to the commission of the crime.

(R.S. Belkin 1979, p.190) established that the structure of the forensic characteristic should include information about: the method of committing and concealing the crime, the typical consequences of its commission, the offender's identity, and the presumed motives behind their behavior, as well as certain circumstances of the crime (location, time, environment, etc.).

(V.F. Ermolovich 2001, p.127) considers that the content of the forensic characteristic should solely consist of elements that aim at detecting the criminal act, excluding juridical elements that form part of the legal characterization of the offense.

In our opinion, the significant forensic traits to be included in the forensic characteristic of a crime should include the following information:

- a) The environment in which the crime is prepared or committed, or where it has already been committed (location, time, and other circumstances);
- b) The methods and techniques of committing and concealing the crime (when this stage of the crime is intentional and essential for criminal investigation);
- c) The mechanism of formation of typical material traces of the crime and their approximate locations (including the mechanism of trace formation);
- d) The object of the crime;
- e) The identity and personality of the offender and the victim (this element of the forensic characteristic is present in almost every committed crime and is, in one way or another, linked to other elements of the forensic characteristic).

Another critical issue is whether the investigative situation can be considered an element of the forensic characteristic. This subject is currently relevant and widely debated in the doctrine. From our perspective, it is correct to assert that "the investigative situation should not be included in the forensic characteristic of the crime, as it characterizes the factual state, the situation at various moments of procedural and investigative actions, and the entire course of the criminal investigation. It provides information about the conditions under which criminal procedural activity takes place. The investigative situation cannot constitute an element of the forensic characteristic of crimes because it describes the process of investigating crimes, not the process of their committing".

It does not make sense to include typical investigative situations (including basic initial information) as part of the concept's elements. First of all, these represent an independent forensic category. Secondly, they are not directly related to the crime mechanism in terms of the logic behind forming the content of forensic characteristics from forensically significant elements but are connected to the organization of the crime investigation process.

Another aspect worth addressing is the relationship between forensic characteristics and the criminalistic model. Considering the structure of the forensic characteristics of a crime, the criminalistic model of offenses of a certain category is formulated. More precisely, based on a set of forensic characteristics for a specific category, a criminalistic

model is developed for one or another category of offenses. This criminalistic model serves as a foundation for investigating and solving these categories of offenses.

The notion of a criminalistic model refers to a concrete system of data reflecting the traces (evidence, features) characteristic of various similar offenses, as well as the properties and intermediations of phenomena of a specific type. Using this model in concrete cases can address forensic and procedural issues. Scientific objections to this opinion have not been recorded to date. The criminalistic model of offenses implies a scientifically grounded system of interrelated and interdependent data (evidence) regarding the most typical traces, features, indicators, and intermediations of criminal acts and offenders of a certain category.

These are manifested in the regularities of preparation, commission, and concealment of crimes and allow for conclusions regarding the optimal ways of investigation and detection.

These elements interact and correlate as particular — the forensic characteristic — with the general — the criminalistic model.

The criminalistic model can be used not only to algorithmize the process of investigating and solving categories of offenses but also to determine the forensic characteristics of specific crimes or aspects of these crimes. The forensic characteristic, in turn, serves to build, refine, and complete the criminalistic model of a particular category of offenses.

“An analysis of the practice of investigating and solving crimes and the study of experiences in combating them allow us to identify the following substantial elements of the criminalistic model: a) data on the frequency of offenses (situations) and their typical scenarios; b) data on the methods and mechanisms of realizing criminal intent; c) data on the traces and consequences of the harmful act; d) data on the specific nature of the object of criminal intent and the victim of the crime; e) data on the personality of the offender and their accomplices; f) data on the causes and circumstances that contributed to the commission of the offense. These elements form the structure and theoretical content of the criminalistic model. Based on this structure, the criminalistic characteristic of specific crimes can also be formulated” .

“As a rule, the forensic characteristic of a crime includes a considerable number of elements. This is due to the fact that it is impossible to unify the content of the forensic characteristic outside the specific investigation methodology characteristic of a concrete group of crimes. The totality of elements constituting the forensic characteristic for each type of crime is purely individual and is determined by their juridical-penal characteristics”

Analyzing the materials of criminal cases involving the sexual abuse of children through the use of informational technologies, we concluded that the knowledge by law enforcement bodies of the typical elements of the forensic characteristics of these offenses enables a correct analysis of the existing criminal situation and the selection of the most rational direction for further investigation of such offenses.

To analyze the forensic characteristics of sexual abuse crimes against children through the use of information technologies, the following elements will be considered:

- The object of criminal intent;
- The method of committing the crime (forms of online sexual abuse against minors);
- Traces of the crime;
- Circumstances of the crime relevant to criminal investigation;

- The personality of the offender and the victim.

The Object of Criminal Intent. The general object of the analyzed crimes is the sexual inviolability of minors. From a legal-criminal perspective, considering the various forms of online sexual abuse actions against minors, the perpetrator's actions may fall under the following offenses outlined in the Criminal Code of the Republic of Moldova, depending on their constituent elements:

- Article 175<sup>1</sup> – Grooming a minor for sexual purposes (specific legal object – relationships concerning the sexual inviolability of individuals under 18 years old);
- Article 206 – Child trafficking (specific legal object (complex in nature): primary – social relations concerning the physical, psychological, spiritual, and intellectual development of the minor; secondary – social relations regarding the psychological freedom, bodily integrity, and health of individuals; prevention of the spread of sexually transmitted diseases or HIV/AIDS);
- Article 208<sup>1</sup> – Child pornography (specific legal object – social relations concerning the social, spiritual, and moral development of minors protected from child pornography);
- Article 208<sup>2</sup> – Engaging a child in prostitution (specific legal object – social relations concerning the social, spiritual, and moral development of minors, protected from child prostitution).

The Method of Committing the Crime. The method of committing a crime is a complex concept that includes a system of actions aimed at preparing, committing, and concealing the crime. These actions are influenced by the situation, the personality traits of the offender, habits, and certain skills, which shape the choice of tools and means used.

“The way of committing a crime from the point of view of the systemic approach is a system of interdependent elements, which has a certain hierarchy and represents an integrity. The system's elements include: preparation for the crime (search for tools, task distribution, discussion of a criminal action plan); use of crime tools; the criminal mechanism (direct impact of the offender on the object of criminal intent); and the method of concealing the crime” .

Due to prior preparation and the victims' naivety, often influenced by their age, offenders can fulfill their criminal intentions without resistance. For example, in criminal case no. 2019560115 , the suspect, through the Messenger mobile application, engaged in sexual discussions with a minor. Using the “lover-boy” technique, the suspect quickly manipulated the victim into producing and transmitting photos and videos showcasing her sexual organs.

Information about the method of committing the crime contains significant forensic clues about the criminal event and its participants. It allows investigators to orient themselves in understanding the illicit act and determining the best methods for uncovering and investigating the crime. Identifying the method of crime enables investigators to model the event's mechanism, identify the offender, and ascertain all other relevant circumstances that must be proven. In criminal case no. 2019560036 , investigative officers efficiently used analytical capabilities to identify, collect, process, analyze, and report data from publicly available sources. This led to the rapid identification of the perpetrator and the cessation of illegal activities, which included creating and managing multiple channels on social media platforms like Instagram and Telegram. These platforms were used to distribute, store, and

sell access to photo and video files containing minors depicted in indecent scenarios, constituting child pornography.

We agree with (A.A. Lomakina, 2016, p.123) who notes that “in most cases, to commit crimes against the sexual inviolability of minors, the offender exploits the victim’s vulnerability. Due to their age, victims cannot always understand and recognize the nature and significance of the offender’s actions, nor can they resist effectively. The offender, aware of the victim’s vulnerable state, commits sexual acts”.

The method of committing online sexual abuse actions against children can vary depending on the form of abuse and the nature of the acts.

Based on the analyzed cases in this study, one of the frequently observed forms of abuse in actions by offenders in Moldova involves the production, importation (downloading), viewing, purchasing/selling, distribution, transmission, and storage of materials (images or representations) depicting child sexual abuse. This form of abuse does not involve direct contact between the victim and the abuser. Offenders often access such materials through restricted platforms, peer-to-peer networks, the DarkNet, or other abusers. In our opinion, viewing materials that sexually exploit children contributes to the demand for their production.

Another form of abuse is “grooming,” which involves gradually gaining a child’s trust with the intention of involving him in sexual actions online or offline. Under the legislation of the Republic of Moldova, these actions are usually classified under Article 175<sup>1</sup> of the Criminal Code. An example is a case in which the perpetrator lured a minor victim into a romantic relationship, gradually gaining her trust (using information technologies), and then involved the victim in offline sexual acts.

Sextortion, or sexual extortion, is a typical form of abuse where a child is blackmailed into providing sexual favors, money, or other benefits under the threat of exposing materials to others. Sextortion involves perpetrators obtaining compromising photos or videos of children and then threatening to distribute these materials unless they receive additional images or the victim participates in further sexual activities.

Exploitation of a child’s sexual services or recourse to child prostitution involves instances where a child participates in pornographic performances, with real-time image transmission.

Child trafficking encompasses the exploitation of victims through online technologies, including live webcam sessions or live streaming. Abusers may coerce children to participate in real-time sexual activities via webcams, which are subsequently recorded and distributed. A relevant case in this regard is from file no. 1ra-702/2019. According to the judgment, the court found that through actions such as recruitment, threats, and obscene discussions about sexual relations via information technologies, the perpetrator, abusing the victim’s vulnerability due to their young age, coerced the minor victim into creating indecent photographs and participating in video sessions. During these sessions, the perpetrator forced the victim to touch their genital organs while being viewed by the abuser, causing the minor psychological distress. The perpetrator’s actions were qualified under Article 206 paragraph (3) letters b) and f) of the Criminal Code and Article 208<sup>1</sup> of the Criminal Code.

Crime traces. The investigative framework for this group of crimes has a distinct specificity, characterized by the secondary importance of usual material and ideal traces,

though they are present. The so-called virtual traces are of utmost importance in the process of detecting and investigating these crimes.

(S.N. Sfistun, citing V.A. Meshcheryakov, 2017, p.48) notes that “virtual traces should be understood as any alteration in the state of an automated information system (‘cyberspace’ it forms) associated with the criminal event and recorded as computer information (i.e., information suitable for mechanical processing) on a physical medium, including the ‘electromagnetic field.’ These traces cannot be physically seized. However, due to their critical importance in the evidentiary process, virtual traces require examination and documentation”.

Virtual traces of online sexual abuse crimes against minors are given special attention in criminal and forensic investigations, as they can provide essential information for offenders’ identifying and prosecuting. The forensic characteristics of these traces include:

- IP address and location: Tracking IP addresses and locations is vital for identifying and locating offenders. An IP address is a unique identifier associated with a device connected to the internet and can provide approximate geographical location information. This can establish the place from where crimes were committed and guide authorities in apprehending offenders;
- Messages and conversations: Online messages and conversations may contain crucial evidence of crimes. These can include explicit or implicit discussions about sexual behavior, requests for sexually explicit images, or other communications that show the offender’s intent to abuse or exploit the minor. Such messages can be retrieved from messaging platforms, social networks, email, or other communication applications and stored as electronic records;
- Images and videos: Sexual content involving minors can serve as clear evidence of the crime. These may be found on the victim’s or perpetrator’s devices, external storage units, or cloud storage services. These files can be identified and analyzed to determine the identities of victims and perpetrators, as well as to evaluate the content’s authenticity;
- Metadata: Metadata provides information about digital files, such as the date and time of creation, location, and device used. This information can establish when and where sexually explicit images and videos were created or modified. Metadata can also reveal whether files have been subsequently altered or edited;
- Browsing history: Tracking an offender’s browsing history can provide clues about their online behavior. This may include searches for terms related to child pornography or other illegal materials, accessing websites with explicit content, or communicating with other offenders or potential victims;
- Online behavior: Tracking the criminal’s browsing history can provide clues about his online behavior. This includes identifying other potential victims or members of criminal networks and observing grooming or manipulation behavior;
- Child pornography databases: Analyzing child pornography databases can help identify and track offenders and their networks. This type of tracking can lead to the discovery of new victims and contribute to eradicating illegal materials.

Thanks to advancements in remote data storage and processing technologies (cloud computing), storage systems can contain information of criminalistic relevance. These may include data about the victim, computerized information subject to the crime, methods used

to commit the offense (e.g., connections between the offender's computer and others), information about the offender (e.g., geolocation data from a mobile device), characteristics of the offender's personality (e.g., social media data), and information identifying the victim (e.g., the victim's digital data). Criminal investigators are particularly interested in the data contained in such cloud systems.

Offenders, in turn, are becoming increasingly aware of the evolving competences of criminal investigators to address online sexual abuse against children. They are implementing measures to counteract detection and investigation efforts. For example, offenders procure illegal or stolen mobile devices or components (e.g., SIM cards), delete crucial digital traces from social media platforms, attempt to gain access to surveillance systems to disable or manipulate them, or tamper with data from third-party organizations.

In this context, methods of concealing and destroying traces of online child sexual abuse crimes can be sophisticated and require technical expertise, but law enforcement and digital forensics experts must work hard to detect and counter them. Among the ways in which criminals can try to hide or destroy the traces of online sexual abuse can be mentioned the following actions taken by the criminal:

- Deleting Messages and Content: Offenders may delete sexually explicit messages, images, or other incriminating content. However, such deletion does not necessarily mean permanent destruction; specialized data recovery software can often retrieve these files;
- Encrypting Communications: Encryption technologies are used to safeguard messages from unauthorized access. Offenders may utilize end-to-end encrypted messaging applications, such as Signal or WhatsApp, to maintain confidentiality;
- Using Virtual Private Networks (VPNs): VPNs obscure the offender's actual IP address, complicating identification and localization efforts. However, law enforcement has methods to detect or block the use of illicit VPNs;
- Creating Fake Identities: Fabricating online identities can make offender identification more difficult;
- Destroying or Altering Devices: Offenders may physically destroy devices containing incriminating evidence. However, advanced data recovery services can often retrieve information from damaged devices.

**Circumstances of Crime's Commission.** The next important structural element of the criminalistic characteristics, which allows for outlining the situation in which the offender acted, is the environment in which the crime was committed. We consider the place and time of the crime to be the main elements of the crime's environment.

Specific to crimes involving sexual abuse and exploitation of children through information technologies, it is observed that these crimes predominantly occur in the afternoon, when minors finish their school classes and return home, during a time interval when parents are still at work. This is the moment when children may be exposed to online risks without the immediate supervision of adults. Thus, in a criminal case, the minor victim declared that she "was chatting with the abuser via the Instagram platform after returning from school, while her parents were at work."

Second in frequency are weekends, during which children have the opportunity to use technological devices throughout the day. This prolonged exposure to technology increases potential vulnerabilities, heightening the risk of unsafe interactions and exposure to inappropriate content.

The third most frequent time interval is nighttime, when children, having access to devices in their bedrooms, browse the internet. The lack of active supervision during this time facilitates unsafe interactions and increases exposure to potential online threats. A notable example of this is a case in which the victim, being alone in her room at night, communicated with the abuser and created photo and video files depicting herself in sexual scenes.

There are cases when children become susceptible to online sexual abuse, even if parents are present at home. This fact is also due to poor parental supervision over children. For example, in one case the minor stated that "(...) she made the respective pictures at the request/insistent demand of the abuser who asked her to "pose naked" at the same time he also sent her examples of pictures such as, naked adult girls after which she would be led to pose as well. Thus, she agreed and took several pictures of herself naked in the bathroom, while the parents were in their room, after which she sent them to the address of the abuser through the Viber application to his phone number".

Cross-border cases, although less frequent, add significant complexity to investigations. The transnational nature of the internet complicates the activities of criminal investigation bodies, fragmenting the situation of victims across various regions and jurisdictions. This geographical dispersion of victims hampers criminal prosecution, making international cooperation crucial for an effective approach to these crimes. Such a situation was observed in the case of the abuse of a minor residing in a village from Orhei district, with the perpetrator operating through the Instagram social media platform from the city of Roeselare, Kingdom of Belgium.

"Given the transnational nature of online child sexual abuse, there is an opportunity for the offender to commit crimes in an automated manner in multiple places at the same time".

Following the analysis, a significant increase in certain crimes within the researched category, particularly child pornography, was observed during the pandemic period. This trend is explained by the shift of students to online education and the increased access to electronic devices. With this transition, minors became more exposed to risks of abuse and sexual exploitation, having easy access to electronic devices and the online environment. For instance, in a criminal case, it was found that during May-June 2020, while the minor VB was at home and his mother was at work in the first part of the day, he was contacted via his mobile phone, through the Viber application, by an unknown man. The man tried to lure VB by contacting him through calls and video calls, offering outings to places like pizza restaurants and McDonald's to gain the child's trust. Later, the adult became more insistent, proposing meetings in exchange for rewards such as candy, money, food, or car rides.

On the other hand, the same situation was noticed among abusers. Changes in work patterns led many adults to transition to remote work, giving them more free time and permanent access to the internet. This context created increased opportunities for those involved in child pornography and sexual abuse to intensify their activities online. For example, in a criminal case, the perpetrator was charged for "between 23.03.2020 and 11.06.2020, using the IP address 89.44.152.6xx, distributing 11 video files on the 'Bittorrent' network. During the same period, he possessed and used 341 graphic files and 436 video files on his mobile phone. According to the specialized database 'ICSE' (International Child Sexual Exploitation), managed by OIPC Interpol, these materials represent child pornography".

At the same time, often the place where the perpetrator of the crime and (or) the instrument of the crime - the device (place of the illegal act committing) was located, may coincide with his place of residence (workplace), but it may be another place especially chosen for the commission of the crime (internet café, etc.).

The most important distinguishing feature inherent within the commission of crimes against the sexual integrity of minors via the Internet is the unlimited expansion of the spectrum of minor victims of obscene acts and the subsequent increase in the circulation of pornographic materials. Social networks offer unlimited possibilities to select profiles for minor users. It is enough just to enter the search criteria of interest: gender, age, place of residence, educational institution and so on. A characteristic feature is the large number of pages of minors with which the attacker communicates almost simultaneously. The number of victims, unlike traditional violent sexual acts, on the Internet is numbered in tens and hundreds, and these acts are committed for a relatively short period of time by a single perpetrator, which greatly increases the public danger of using the Internet by minors and reduces the safety of their use of Internet-connected devices. Consequently, acts of sexual abuse against minors committed via the Internet have a multi-episodic nature.

Among the peculiarities of the Internet functioning there is the fact that users of the global network, starting correspondence in the virtual world, lose their prudence and selectivity in the search for discussion partners. The perceived inaccessibility of remote communication blurs the boundaries of prudence, especially in the case of minors, who, starting communication, rely only on the information provided by the author on his page.

The user's photo (avatar), profile data of the page, which are not checked by the administration of social networks - in fact, this is all the information that the user can find out about the interlocutor. By misleading minors who do not perceive a social network user as potentially dangerous, the attacker has many opportunities to prepare and commit crimes.

If criminals have to use the open segment of the Internet to correspond with minors in social networks, which is primarily due to the predominant presence of the victims themselves on "legal" resources, criminal activity related to child pornography is increasingly carried out within the so-called invisible internet. There are many synonyms for this concept: Invisible web, Deep web, DeepNet, Hidden web, which means "invisible internet", "deep internet".

Since 2005, a technology has appeared and been actively developed on the Internet that ensures the anonymity of users through a specialized route. The active development of the DeepWeb, or the "invisible Internet", has received a negative ramification - the so-called DarkNet or Darknet, a part of the Internet associated with the commission of various illegal acts through the use of anonymization technologies.

"To clarify the definition of a "banned site", two concepts must be distinguished: a blocked resource and a Darknet site. The first one is indexed by search engines, but is excluded from search results by the decision of an authorized state body, while access to it is blocked by telecommunications service providers operating in the country. To access these sites, it is necessary to bypass the block, which is established based on defining the user's IP address as "local". Darknet sites are resources that are not detected by search engines, access to which requires either a fee or a special authorization to use the resources. Such resources can be accessed only by using special services - anonymizers, the most widespread of which is TOR (from The Onion Router) - a free and open software for implementing the so-called second-generation onion route, which is a proxy server system that allows

establishing an anonymous connection to the network with protection against eavesdropping. TOR can be considered an anonymous network of virtual tunnels that carry out the transmission of data in encrypted form .

Using various software tools and network technologies, a user with an elementary level of computer knowledge can disguise his own data, which undoubtedly complicates the work of the criminal investigation body and requires a timely response to the new technological challenges of crime. Correspondingly, the commission of crimes against the sexual inviolability of minors via the Internet is characterized by anonymity, cross-border nature and the possibility of communicating with an unlimited number of users, regardless of age and location.

In such a situation, collaboration between the public and private sectors is essential, as well as the implementation of appropriate regulatory measures, considering that currently there is no solid legal basis for cutting off access to certain web pages, nor effective mechanisms for monitoring pornographic content on the internet. The private information and communication technology sector could contribute by deleting information and blocking sites containing child pornography, as well as by developing and providing content filtering services.

“Regarding the motivation and purpose of committing online sexual abuse actions against minors, two categories of reasons can be identified: material interest (mostly this being related to the creation and dissemination of pornographic materials involving minors) or sexual interest (characteristic for people with psychosexual orientation distortions) ”.

“In the crime preparation phase, the criminal intent appears: for criminal groups, this is to generate income from the systematic distribution of pornographic materials (as a rule), from the production of new pornographic materials, from the advertising of sites that host pornographic materials or services prostitution; for persons with distortions of psychosexual orientation - to coerce minors into acts of a sexual nature, to induce them to have sexual relations or to prepare them for other crimes of a sexual nature mentioned above”. Relevant to the case is the sample in which the accused, acting together and in agreement with his accomplice, between 08.04.2021 and 11.11.2021, imported by copying, distributing, using and owning, as a result of selling 180,966 files, which depict multiple children engaged in explicit, real or simulated sexual activities and images or other representations of a child’s sexual organs, represented by the lascivious or obscene manner, which are part of the category of child pornography, obtaining an income in the amount of 11734.31 US dollars, 11550.26 euros and 196864.96 MDL.

**The Personality of the Offender.** A major importance for the effective discovery of a crime is identifying the most typical personality traits of a possible offender for the corresponding category of crimes. The forensic study of personality should be understood as establishing criminologically significant information about the author of the crime and the victim, which could be significant for the process of uncovering the crime, including information about their anatomical, biological, psychological, and social properties, inherent to them, necessary for identifying the person, solving tactical issues, and establishing the real image of the criminal event during the process of discovery and investigation, as well as for use in the process of crime prevention.

Elements of criminologically significant information regarding the personality of a sexual aggressor include gender, age, marital status, workplace, physical and mental health,

lifestyle, family education conditions, living conditions, presence of addiction (alcohol or drugs), and others. (Nastas A. Cernomoreț S. 2024, p. 311)

(V.I. Brylev and L.A. Lyakh, 2012, p.82) note that “in practical terms, for investigating a crime, the significant information includes:

- Information about the physical and biological features of the person who committed the crime: a) information about the exterior appearance; b) information about possible signs on the hands, feet, teeth, etc.; c) signs of pathologies; d) body injuries; e) the voice of the person; f) other distinctive information;
- Information regarding social and behavioral characteristics: a) identification data; b) information on the method of committing the crime; c) information regarding the skills, habits, cultural level of the person who committed the crime; d) other information of a subjective-psychological nature;
- “Associated” information: a) information about the features of clothing, footwear, or other items the offender possesses (e.g., accessories); b) information about the tools of the crime; c) other information” .

Following the analysis of the materials of criminal cases, understanding the profile of online sexual abusers of minors is crucial for law enforcement agencies for several reasons:

- a) Detecting and identifying offenders: knowing the common traits and behaviors of these criminals helps to identify and track them more effectively;
- b) Victimization preventing: by recognizing potential victims and the way abusers act, authorities can develop prevention and educational programs to protect children online;
- c) Investigations’ conducting: the profile can provide valuable information for ongoing investigations, including details about the offender’s method of operation and possible evidence;
- d) Victims’ protection: with a better understanding of the way abusers act, authorities can provide appropriate support and counseling to victims, helping them overcome trauma.

In investigations of violent sexual acts committed against minors, it is considered appropriate to use the typical characteristics of the offender’s personality. This approach involves a detailed analysis of the socio-demographic, moral-psychological, and biological properties of the individual in question. It is important to note that, in general, the proportion of women among the authors of these crimes is insignificant. In most cases, these offenders are men, and the presence of women is very rare. This aspect may have significant relevance in the process of investigating and profiling the authors of these crimes.

In a study regarding the profile of the abuser in the Republic of Moldova, it was found that most of them are under 45 years old: in 18% of cases, the abuser was 18-20 years old, in 41% of cases – 20–25 years old, in 35% of cases – 40–45 years old. Only in 5% of those 47 cases of online sexual abuse and exploitation analyzed, the abuser was between 50–55 years old. In 76% of cases, children in Moldova become victims of sexual abuse by an adult, a Moldovan citizen. In 24% of cases, children are exposed to online sexual abuse by a foreign citizen.

In another study , three categories of abusers operating in the online environment were determined:

- a) The first category includes those who seek intimacy with the child. This category believes that the relationship with the child should be romantic and consensual and tend to collect

large volumes of materials representing child sexual abuse rather than focus their time and energy on coercive actions;

b) The second category is that of adaptable abusers. They believe their victims are mature enough to express sexual consent, so children can decide whether they want to be in a relationship;

c) The third category consists of “hypersexual abusers”, that is, those who possess massive collections of pornographic materials.

The profile of an online child sexual abuser can vary based on several factors, including age, gender, motivation, and behavior. It is important to remember that there is no universal profile for all online child sexual abusers, but certain common traits and behaviors can be observed. These may include:

- Manipulation and Seduction: Online child sexual abusers employ manipulation techniques to gain children’s trust and persuade them to disclose personal information or participate in sexual conversations or activities. They may present themselves as trustworthy, friendly, and supportive individuals;
- Identity Falsification: Many online abusers hide their true identity and age, pretending to be younger or less threatening than they actually are. They may use fake photos or other methods to conceal their identity;
- Harassment and Threats: Abusers may resort to harassment, blackmail, or threats to control their victims and compel them to continue cooperating or to remain silent;
- Grooming: Grooming involves abusers gradually building a relationship with their victims to gain their trust before initiating sexual abuse. This process may include excessive compliments as well as increasingly inappropriate demands or suggestions over time;
- Collection of Personal Information: Abusers may attempt to obtain personal information from victims, such as names, addresses, phone numbers, and more, to strengthen their control over them or later use it to threaten them;
- Participation in Dangerous Online Communities: Sexual abusers may frequent forums, chat rooms, or websites dedicated to child pornography or other illegal behaviors and use these platforms to identify and contact potential victims;
- Emotional Manipulation: Abusers may use emotional manipulation to instill feelings of guilt or shame in their victims, which can cause them to remain silent or continue cooperating;
- Behavior Escalation: Abusers may try to escalate sexual behavior with victims over time, moving from sexual conversations to requests for explicit photographic or video material, and eventually to proposing physical meetings.

In our research, we identified that limiting the risk of recidivism for offenders, especially concerning protecting children, represents a particular priority. The results suggest that traditional punitive measures, although essential, are insufficient to prevent recidivism completely, especially in cases of crimes involving contact with children.

Thus, to strengthen recidivism prevention measures and ensure adequate child protection, we recommend implementing complementary measures alongside the primary punishment. These measures could include specific prohibitions regarding engagement in professional or voluntary activities involving contact with children. This will help minimize

risks and provide additional protection to the community, improving the efficiency of the criminal justice system in preventing recidivism.

**The Personality of the Victim.** An important element of the criminalistic characterization of the crime is the personality of the victim, whose data occupy a central role in the criminalistically significant information about the offense. In our opinion, the following data should be included in the criminalistic characterization of the victim's personality in cases of violent sexual acts committed against minors online: the victim's gender; age; social status; family composition; behavior; and relationships with the perpetrator. ( Cernomoreț S., Nastas A. 2023, p.44).

According to A.F. Khaliulina, "the criminalistic characterization of the personality of the victim of violent sexual acts should include data regarding age, family composition, social status, lifestyle, behavior before, during, and after the crime, psychological state, as well as the relationship with the perpetrator" .

We agree with this perspective, adding that, in addition to these data, it is necessary to establish the victim's psychological health status, which is determined through comprehensive psychological and psychiatric evaluations. Assessing this factor significantly influences the choice of investigative tactics used by the prosecution to interview the minor victim, evaluate their testimony, and propose investigative hypotheses. In most cases, the risk group includes individuals raised in single-parent or dysfunctional families, often due to a lack of parental attention, hobbies, and interests.

A key factor is the victim's acquaintance with the perpetrator. When analyzing this factor, victims can be conditionally classified into three groups:

- a) The first group includes individuals related to the perpetrator in various familial relationships;
- b) The second group includes victims who did not know the perpetrator but met them before the crime was committed;
- c) The third group includes victims who were well-acquainted with the perpetrator, for example, through school, shared leisure activities, or other connections.

The criminalistic characterization of victims of online sexual abuse against minors includes traits and behaviors commonly observed in children or adolescents who have experienced this type of abuse. While these characteristics vary from case to case, they often include the following elements:

- **Age:** Victims are generally minors, often adolescents or children under 18, and vulnerable to manipulation;
- **Inexperience:** Minors may lack the experience to recognize warning signs and manipulation techniques used by offenders;
- **Sexual Innocence:** They often have a limited understanding of sexuality, making them more susceptible to coercion or blackmail;
- **Silence or Secrecy:** Victims may remain silent or hide their experiences due to feelings of shame, fear, or threats from offenders;
- **Emotional Dependence:** Some minors develop an emotional dependence on their abuser, as the abuser provides attention or affection they may lack elsewhere;

- Engaging in Risky Sexual Behaviors: Victims are often exposed to explicit content or manipulated into engaging in such behaviors online, with potentially severe consequences;
- Behavioral Changes: Many victims exhibit changes in behavior, such as withdrawal, irritability, or declining academic performance, as a result of the trauma caused by online sexual abuse;
- Cooperation with Investigations: It is important to emphasize that, in some cases, minors cooperate with authorities by providing critical information that aids investigations and prosecution of offenders.

These characteristics are essential for law enforcement authorities and mental health professionals when investigating and providing assistance to victims of online sexual abuse. It is important to consider that each victim may respond differently to these traumas and may require tailored support and recovery approaches.

The analysis of the criminalistic characteristics of sexual abuse crimes against children using informational technologies led to the conclusion that the criminalistic characterization of such offenses comprises a series of elements that collectively enable an efficient and thorough investigation of this category of crimes. These elements include the method of committing and concealing the crimes, the environment in which the offense occurred, the characteristics of the offender's personality, the characteristics of the victim's personality, and the traces of the crime.

## Conclusions

The criminalistic characterization represents an essential tool in uncovering crimes, offering an integrated understanding of the methods of commission, the perpetrator's and victim's personalities, and the criminal environment.

Technological advancements require constant updates to forensic methods, with virtual traces playing a critical role in crime investigations.

Sexual abuse crimes against children, committed through informational technologies, are characterized by anonymity, transnational nature, and victim multiplication.

International collaboration and the development of coherent national policies are crucial for improving the efficiency of investigative processes and preventing such crimes.

The legislative proposals and practical measures highlighted in the article contribute to strengthening the legal and methodological framework, ensuring better protection for children against online abuse.

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