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## Forensic information sources during the investigation of war crimes

### Джерела криміналістичної інформації під час розслідування воєнних злочинів

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#### Abstract

The relevance of studying the forensic information sources in the investigation of war crimes is determined by the specifics of these acts, the impact of the armed conflict on the activities of law enforcement officers, and the need for information exchange between national and international agencies. The aim of the study is to determine the specifics of working with forensic information sources in the investigation of war crimes. The research employed the logical method, comparative method, forecasting. The commission of war crimes in wartime determines the specifics of the choice of forensic information sources. The legal status of information affects the possibility of its use in the investigation process. Working with data sources depends on regulatory, infrastructural support, and staffing. Subjects of work with forensic information sources are national and foreign law enforcement agencies and international institutions. The appropriateness of data exchange using European platforms is substantiated.


#### Анотація


Актуальність дослідження джерел криміналістичної інформації при розслідуванні воєнних злочинів визначається специфікою цих діянь, впливом збройного конфлікту на діяльність правоохоронців, необхідністю обміну інформацією між національними та міжнародними структурами. Метою дослідження є визначення особливостей роботи з джерелами криміналістичної інформації при розслідуванні воєнних злочинів. У дослідженні використані практичні методи: логіко-юридичний, порівняльний, прогнозування.


Вчинення воєнних злочинів в умовах війни обумовлює специфіку вибору джерел криміналістичної інформації. Правовий статус відомостей впливає на можливість їх використання в процесі розслідування. Робота з джерелами даних залежить від нормативного, інфраструктурного та кадрового забезпечення. Суб'єктами роботи з джерелами криміналістичної інформації є національні та зарубіжні правоохоронні структури і

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The academic novelty of the research consists of analysing the sources of forensic information in the context of the specifics of war crimes and the specifics of cooperation between national and international agencies.

The study reveals the prospects of algorithmization of work with sources of forensic information on war crimes in the context of armed conflict.

**Keywords:** War crimes, criminal proceedings, investigations, effectiveness of evidence, forensic information.

## Introduction

The uniqueness of war crimes is determined by the duality of regulation, which determines different contexts of analysis:

- when war crimes are committed, international humanitarian law emphasizes the protection of war victims, international criminal law focuses on ensuring law and order and responsibility for the committed acts (Banjarani et al., 2023);
- due to the highest degree of public danger of war crimes, their criminalization in national law is not mandatory (Hathaway et al., 2019). However, the international criminal law prohibition (International Criminal Court, 2010) does not limit individual states to determine their own approaches to these acts (Ortynska et al., 2022);
- prosecution for war crimes falls under the jurisdiction of the International Criminal Court (ICC), but the capabilities of national law enforcement and judicial authorities are not diminished (Mayans-Hermida & Hola, 2020; Colvin & Orchard, 2022);
- war crimes are systemically linked to transnational crimes (illegal trafficking of cultural values, weapons, money laundering, etc.) (Caianiello, 2022).

Accordingly, the investigation of war crimes involves the specifics of the forensic information sources and the peculiarities of their processing (Freeman, 2018; Paliy, 2022). This raises a number of conceptual, organizational and applied problems in identifying and processing forensic information sources, in particular:

- a large number of data sources with all the structured and unstructured information contained in them, with a focus on

міжнародні інституції. Обґрунтовується доцільність обміну даними з використанням європейських платформ.

Наукова новизна дослідження полягає в аналізі джерел криміналістичної інформації у контексті особливостей воєнних злочинів та специфіки співробітництва між національними та міжнародними структурами.

Дослідження відкриває перспективи алгоритмізації роботи з джерелами криміналістичної інформації щодо воєнних злочинів в умовах збройного конфлікту.

**Ключові слова:** Воєнні злочини, кримінальні провадження, розслідування, ефективність доказування, криміналістична інформація.

identifying and using digital traces (Freeman, 2021);

- a wide list of owners of data sources (from the state to specific individuals) (Blahuta & Movchan, 2020), which requires establishing communication with them on the part of law enforcement agencies;
- the specifics of working with victims of conflict-related violence and witnesses of such crimes (Murad Code, 2022);
- communication of national and international law enforcement agencies, use of platforms for exchanging information about war crimes (Aksamitowska, 2021; Moussa, 2021);
- determining the possibilities of using forensic information on war crimes to solve and investigate other crimes (Tsybulskyi, 2022).

The latest forensic information sources increase the speed and efficiency of war crimes investigations. At the same time, they urge the issue of security and compliance with human rights in criminal proceedings (Akbari et al., 2022), which determines the appropriateness of discussing the standardization of their investigation process (Dufeniuk, 2022).

So, the study of forensic information sources on war crimes is determined by the specifics of such acts and the objective impossibility of using traditional approaches to collecting evidence (Schmitt, 2022; Fedoriv, 2022). In general, all problematic aspects are relevant to theory and practice. However, only their comprehensive critical consideration can increase the effectiveness of criminal prosecution for the commission of such acts.

### Aim

The aim of the study is to examine the forensic information sources as a component of ensuring the effective investigation of war crimes and to determine areas for improving work with those sources.

The aim involved the fulfilment of the following research objectives:

- a) generalize the approaches to understanding war crimes, present their classification;
- b) identify the types of forensic information sources in the context of the specifics of the investigation of war crimes;
- c) outline promising directions for improvement of war crimes investigation procedures.

The results of the study can be conditionally divided into three sections. The first introduces readers to approaches to defining war crimes. This section provides statistical information on the main categories of crimes committed on the territory of Ukraine by the Russian Federation - crimes of aggression and war crimes, crimes against national security, and crimes against children. Also, the relationship between war crimes and transnational acts in the conditions of armed conflict is described. The second section reveals the classification of forensic information sources, highlighting the problems of their processing. This section provides information on subjects of work with forensic information sources and data exchange between them. In particular, the importance of forming some international cooperation instruments is emphasized, their examples and key tasks are given. The third section summarizes the analysis, identifying the problems that complicate the work with forensic information sources during the investigation of war crimes. This section proposes directions for improving the processing of forensic information sources.

### Literature Review

The literature review was conducted regarding the main aspects on which the research is based. The sources of scientific information were divided into groups depending on the identified aspects, and the most representative ones in the study context were analyzed. In particular, the main attention is paid to the classification of war crimes, the participation of national and international actors in the investigation of war crimes, the understanding of the category of forensic information, the identification of

sources of forensic information and the prospects for improvement. The results of the conducted review according to the defined categories are as follows:

1. Classification of war crimes. The international legal regulation of the elements of war crimes (International Criminal Court, 2010) contributes to the diversity of approaches to their generalization. In particular, broad (Ghosh, 2022) and narrow (Banjarani et al., 2023) approaches are proposed. Along with this, the limitations of the features of international criminalization for the further study of war crimes are emphasized (Hathaway et al., 2019). The number of types of war crimes determine the use a situational approach to specialized methods of their investigation (Dufeniuk, 2022).
2. Participation of national and international actors in the investigation of war crimes. The importance of the ICC in responding to war crimes is emphasized (Colvin & Orchard, 2022). The leading role of nation states in criminal prosecutions is noted (Mayans-Hermida & Hola, 2020). The problem of admissibility of evidence collected by national investigators is outlined (Braga da Silva, 2020; United Nations, 2022b).
3. Understanding forensic information and its importance in the process of investigating war crimes. The study of the nature and types of forensic information clarified its purpose (Tsybul'skyi, 2022) and gave grounds to analyse the technical support for data collection and processing (Filipov, 2022). The formation of the newest branches of forensic activity, which specialize in the study of large amounts of information, is noted (Kozytska, 2022; Dufeniuk, 2022). The issues of ensuring the security of the received information, its availability, and the protection of human rights in criminal proceedings are urged (Freeman, 2018; Akbari et al., 2022).
4. Forensic information sources. The dominance of open sources is emphasized (Nizamani et al., 2019; Blahuta & Movchan, 2020). images on the Internet and on personal media occupy a special place among them (Meng et al., 2020). In general, it is stated that war crimes leave digital traces, which fundamentally changes their investigation (Freeman, 2021). However, the discourse on traditional sources of forensic information remains relevant. These include forensic examinations

(Morgan & Levin, 2019; Cioffi & Cecannecchia, 2023). Work with victims is important (Institute for International Criminal Investigations, 2022; Human Rights Center, 2022). The studies on data exchange is a separate block of research. In particular, the need for international cooperation agreements on the storage of digital evidence (Moussa, 2021), the effective use of a platform for such an exchange based on Eurojust (Caianiello, 2022) are emphasized. The experience of Ukraine shows the effectiveness of combining work with the latest and traditional sources of information during the investigation of war crimes (Ministry of Temporarily Occupied Territories and Internally Displaced Persons of Ukraine, 2019; Office of the Prosecutor General, (s.f)).

5. Prospects for improving work with forensic information sources. In particular, the following methods are considered appropriate:
  - a) standardization of the investigation of war crimes (Dufeniuk, 2022);
  - b) implementation of technical and technological means of detection and identification of traces (Filipov, 2022);
  - c) using the capabilities of international humanitarian agencies (Ortynska et al., 2022).

Special attention is paid to the training of specialists both in the process of exchanging experience and on the platforms of international non-governmental organizations (OECD, 2021; Institutefor International Criminal Investigations, 2022). So, the literature presents a number of conclusions regarding the work with forensic information sources during the investigation of war crimes. However, they mainly cover certain problematic issues and do not fully use the possibilities of analysing war crimes at the current stage.

## Methodology

### Research design

The problems of the research determined its procedure, which is presented in the form of successive stages of achieving the set aim (block diagram). The text of studying the experience of Ukraine in the investigation of war crimes in the context of the military conflict chronologically limited the research to the period of armed aggression.

### Methods

The following methods were used during the research:

- the method of descriptive analysis was used to study the factors that influence the work with the sources of forensic information on war crimes. Among other things, with the help of this method, the limitations faced by subjects of work with sources of forensic information according to each of these sources were determined (for example, if the source of information is victims, the limitation may be a reluctance to report the crime, problems with access to information etc);
- the logical method in law made it possible to identify the specifics of the regulation of responsibility for war crimes and the specifics of their investigation by national and international institutions (ICC, Eurojust). With the application of this method, the process of information movement between such institutions, as well as the specifics of international cooperation tools, was revealed;
- the comparative method was applied to compare the experience of Ukraine with the standardized practices of processing forensic information sources in the investigation of war crimes. This made it possible to reveal the positive experience of Ukraine in this field, in particular, the fruitfulness of combining work with new and traditional sources of information during the investigation of war crimes, which is an important practical achievement of the work;
- the forecasting method was used to determine the prospects for improving the forensic information support for the investigation of war crimes, taking into account their types and the specifics of data sources. Such perspectives were formed based on the problems identified during the research in working with forensic information sources. Each of the identified perspectives solves a separate task to overcome the corresponding problem.

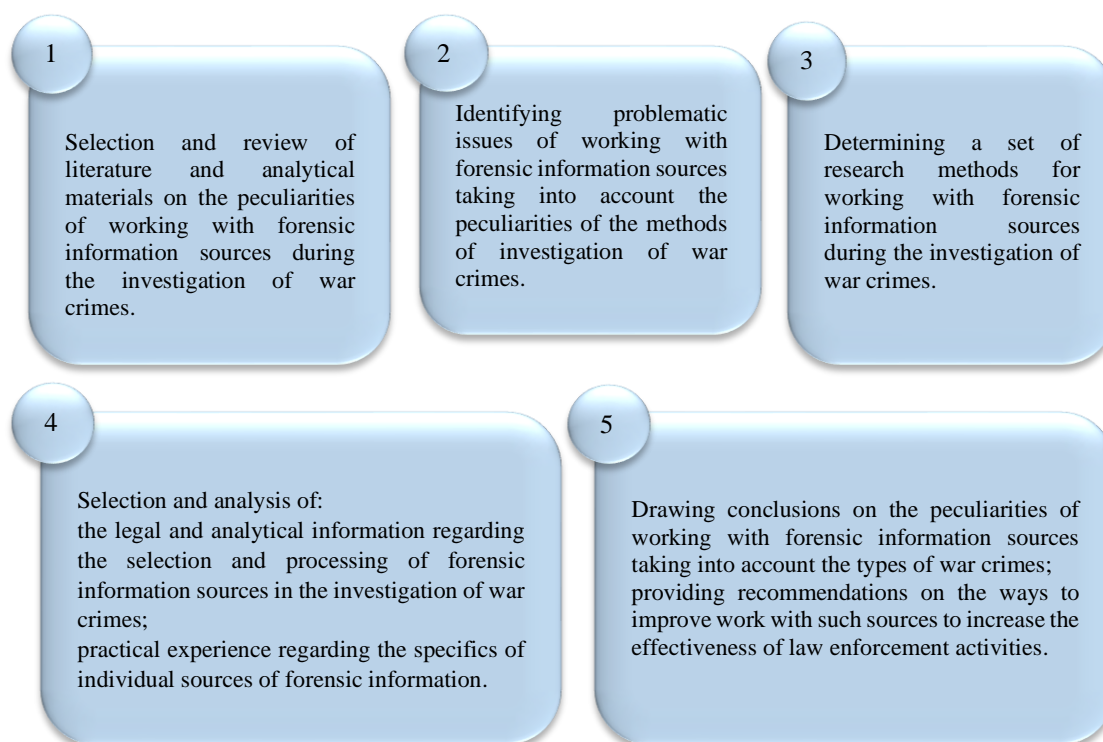
The validity of the specified methods is explained by the fact that their use made it possible to solve all the tasks specified in the work and, ultimately, to achieve the research goal. The reliability of the methods is supported by the use of information from official sources, appropriate standards of work with forensic information sources, current investigation

practices, and expert opinions during their implementation.

### Sample

Along with specialized studies, the following sources were processed in the course of the research:

- standards for working with sources of forensic information on crimes related to armed conflict (in particular, Berkeley Protocol on Digital Open Source Investigations; Prevention and Response to Conflict Related Sexual Violence (United Nations, 2022a); The Global Code of Conduct for Gathering and Using Information about Systematic and Conflict-Related Sexual Violence);
- current practices of investigating war crimes in the context of armed conflict in Ukraine (in particular, Ukraine: UN expert urges all war crimes investigators work closely with national authorities; Guide to collecting evidence for the International Criminal Court and documenting international crimes);
- expert generalizations regarding the prospects for improving the investigation of war crimes (in particular, the Annual Report of the Institute for International Criminal Investigations; Performance of the Prosecution Services in Latvia).

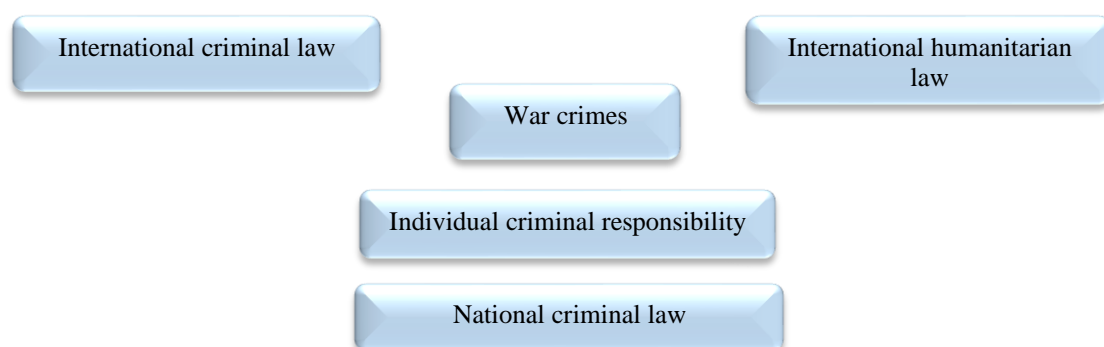


**Figure 1.** Block diagram of the research stages.  
 Source: (developed by authors)

### Results

The choice of the necessary forensic information and its sources is significantly influenced by the understanding of war crimes. In general, its basis

is the connection between international criminal and international humanitarian law, as well as the reflection of their provisions in national criminal legislation (see Figure 1A).

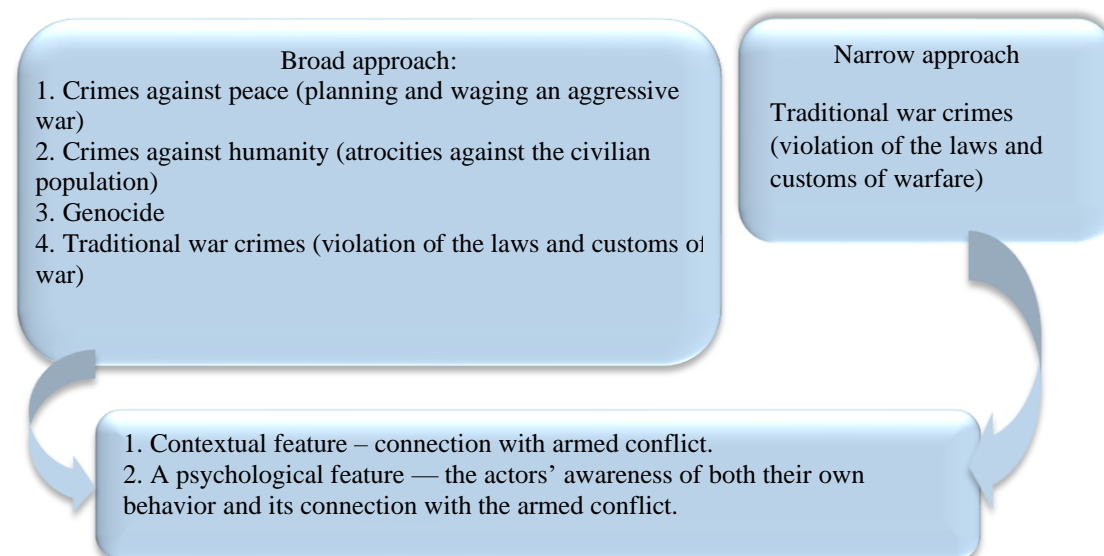


**Figure 1A.** War crimes in the context of international and national law.

Source: (developed by authors)

At the same time, the grounds of individual criminal responsibility determine the need for a certain approach to defining the list of acts that are considered war crimes. Broad and narrow

approaches can be distinguished in this regard. Within each of them, all war crimes are characterized by two common features – contextual and psychological (see Figure 1B).

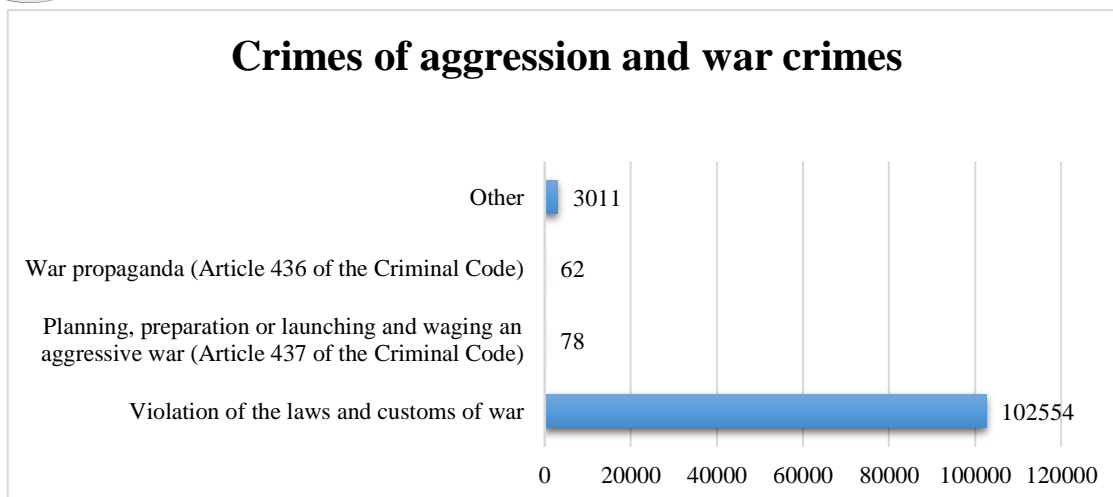


**Figure 1B.** Broad and narrow approaches to the list of war crimes.

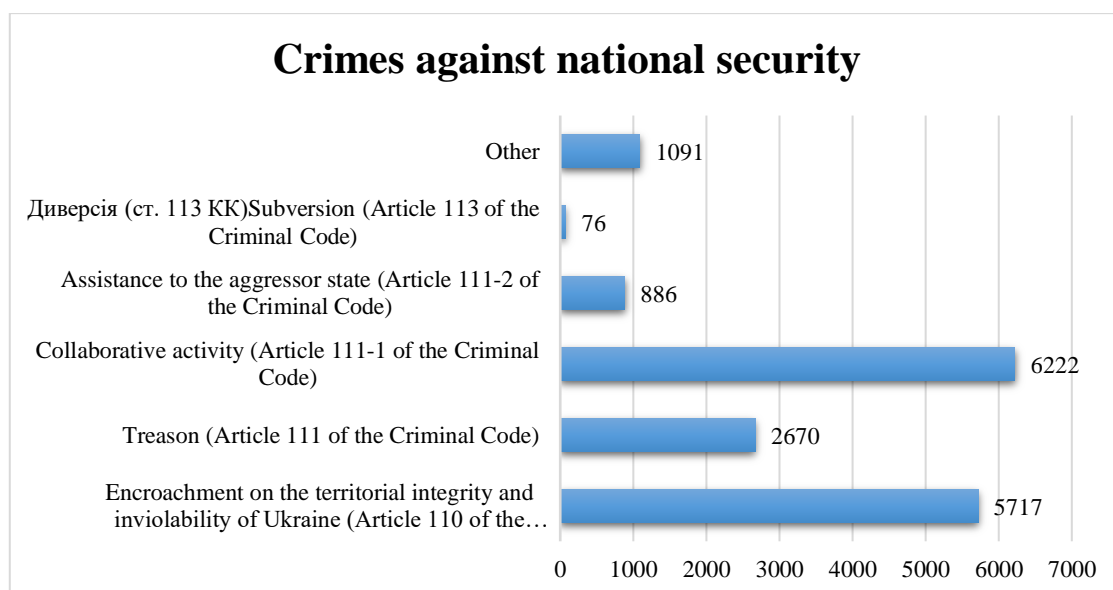
Source: (developed by authors)

According to the Office of the Prosecutor General of Ukraine, since the beginning of the full-scale invasion of the Russian Federation into Ukraine, crimes of aggression and war crimes, crimes against national security, and crimes against children have been the main categories of crimes committed by the invaders. Figures 1C-1E show statistics on the number of crimes of the specified categories as of September 1, 2023.

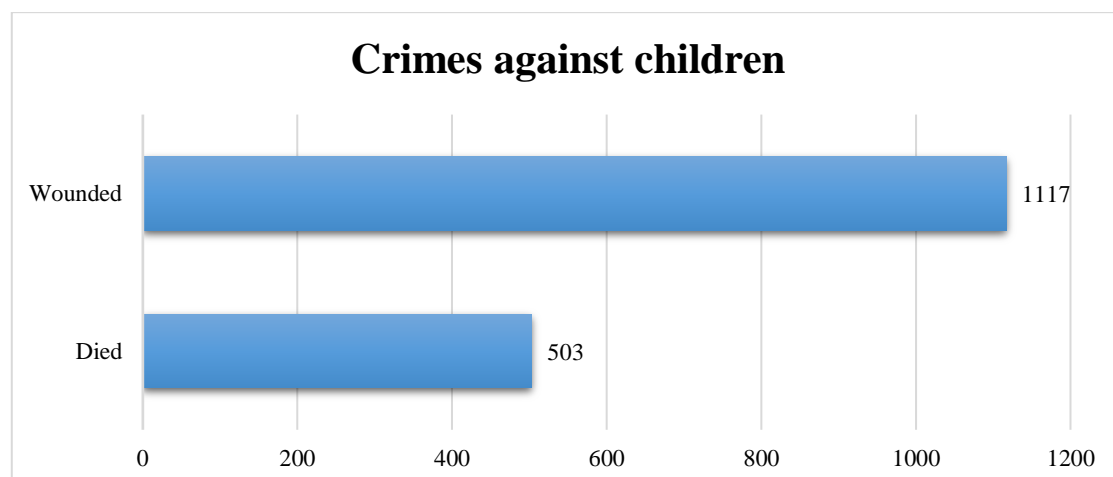
Effective law enforcement control both over temporarily occupied territories and in areas where hostilities continue is objectively difficult in the conditions of an international armed conflict. This determines the importance of connections between war crimes and other crimes, primarily transnational ones (see Figure 1E).



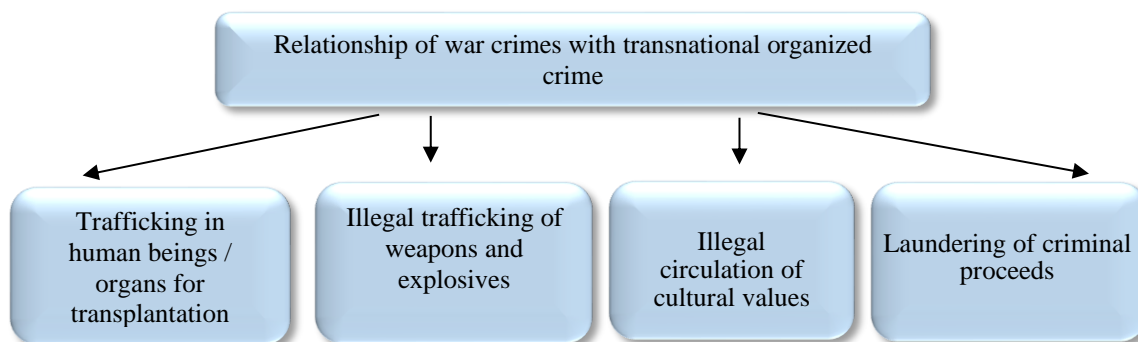
**Figure 1C.** Crimes of aggression and war crimes.  
Source: (built by the author based on ArmyInform, 2023)



**Figure 1D.** Crimes against national security.  
Source: (built by the author based on ArmyInform, 2023)



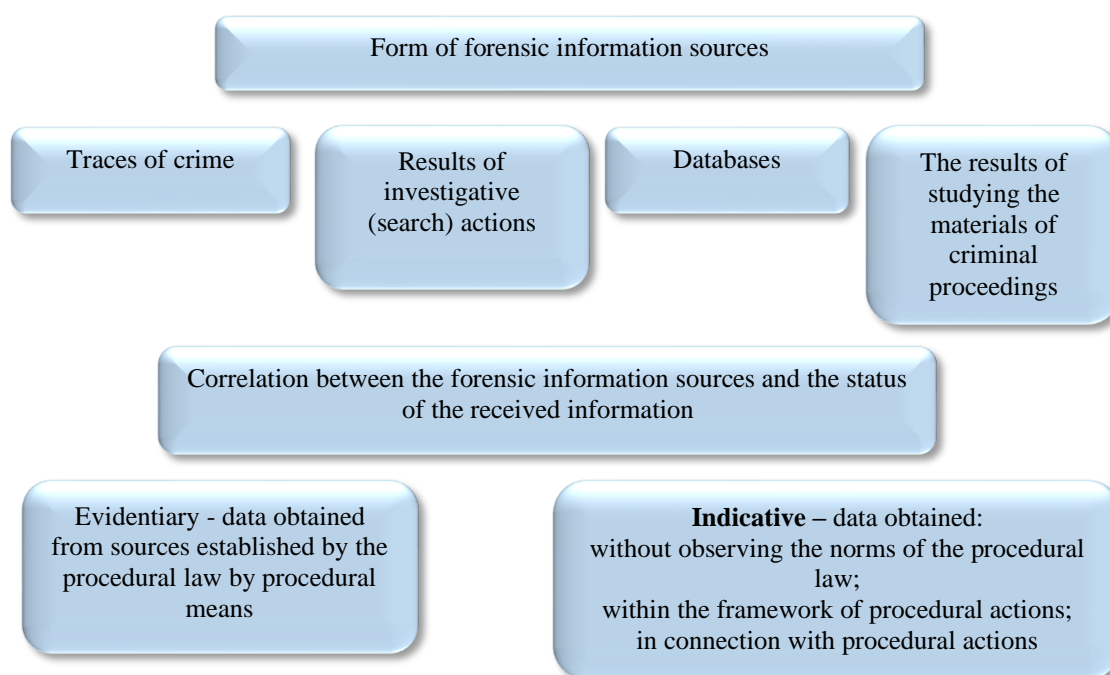
**Figure 1E.** Crimes against children.  
Source: (built by the author based on ArmyInform, 2023)



**Figure 1F.** War crimes as an element of the totality of illegal acts of a transnational nature.  
Source: (developed by authors)

Certain forensic information is collected and processed in the process of investigating war crimes: information about a specific set of circumstances of the crime, which are studied using forensic means and methods. A significant

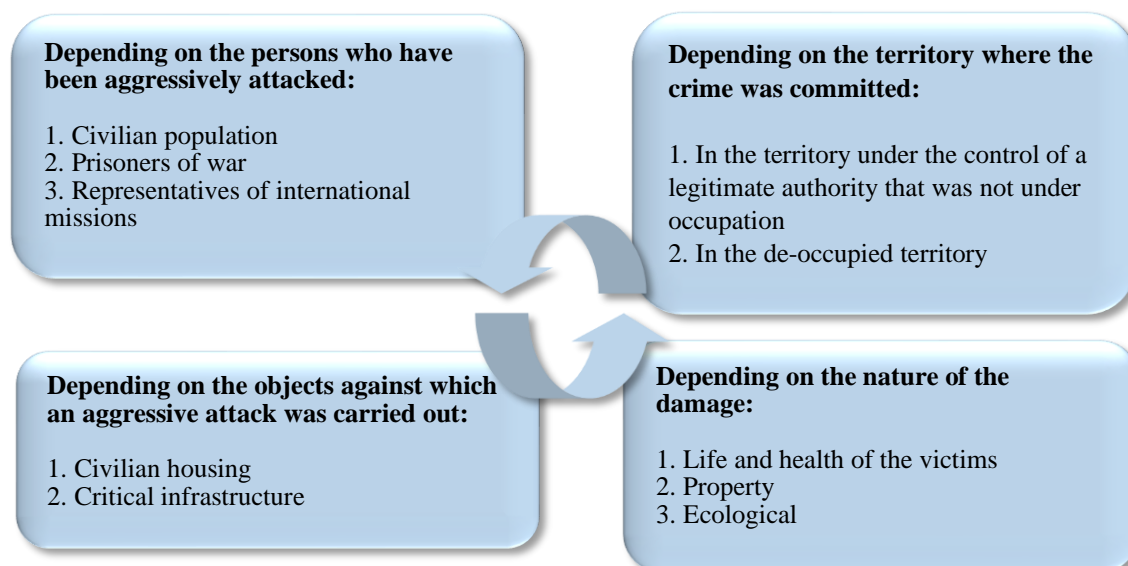
volume of data determines the appropriateness of classifying the sources of forensic information, in particular, according to the form and the connection between obtaining information and its legal status (see Figure 2).



**Figure 2.** Classification of forensic information sources.  
Source: (developed by authors)

A complex vision of war crimes determines the specifics of the selection of forensic data in the context of an armed conflict. Regardless of the

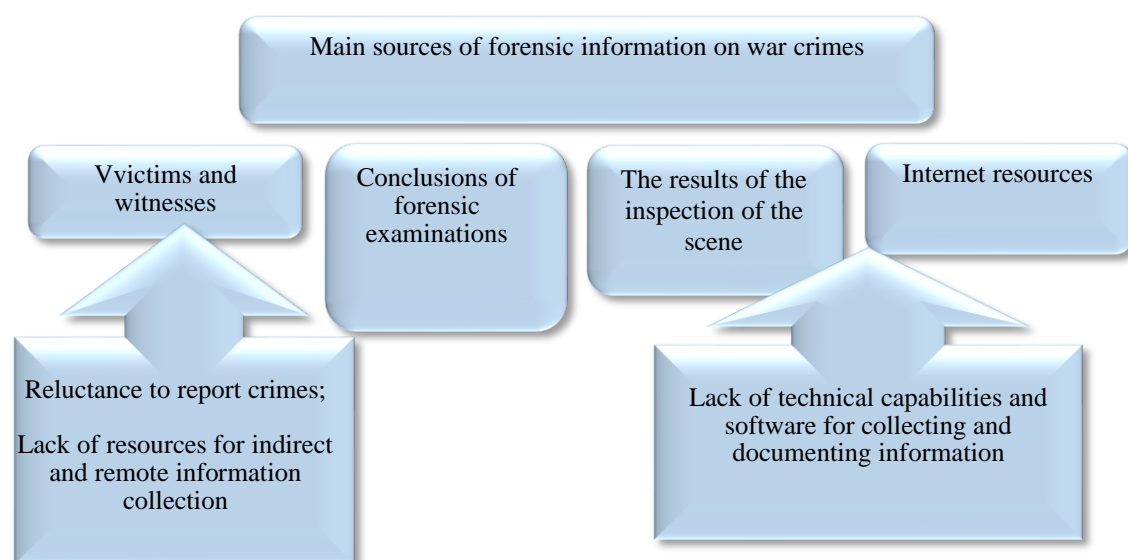
approach to understanding such crimes, attention in the process of their investigation is focused on interconnected sets of data (see Figure 3).



**Figure 3.** Collections of forensic data on war crimes.  
Source: (developed by authors)

Correlation of the specifics of war crimes and the specifics of forensic information makes it possible to determine relevant sources of forensic information. As war crimes are caused by an armed conflict, the choice of such sources in wartime is determined by the intensity of hostilities and the situation in particular territories.

The experience of Ukraine shows the importance of these conditions when working with certain forensic information sources. In particular, the list of data sources that can actually be processed is limited due to the mining of the territory, the impossibility of simultaneously involving a large number of investigators and experts, problems of technical and forensic support for work at the scene (see Figure 4).



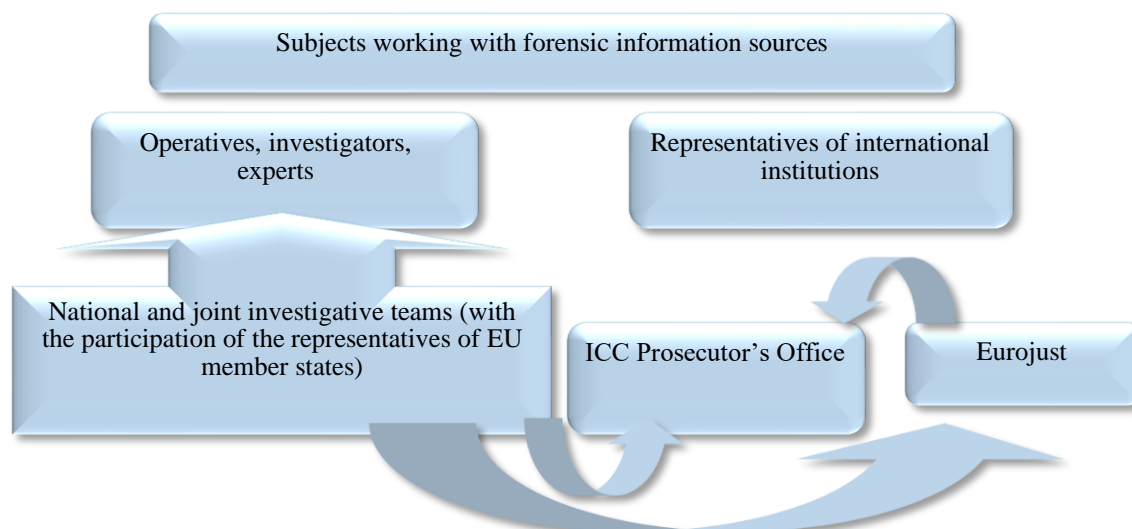
**Figure 4.** The main sources of forensic information on war crimes and the problems of their processing (using the example of Ukraine)  
Source: (developed by authors)

Based on the experience of Ukraine, the subjects working with the sources of forensic information on war crimes include national, foreign, and

international specialists - employees of law enforcement agencies and special institutions. In this case, an important aspect is the exchange of

evidentiary forensic information. In the current context, the information exchange platforms are of great importance. For example, Eurojust

accumulates information on war crimes and ensures their transfer to the Prosecutor's Office of the ICC (see Figure 5).



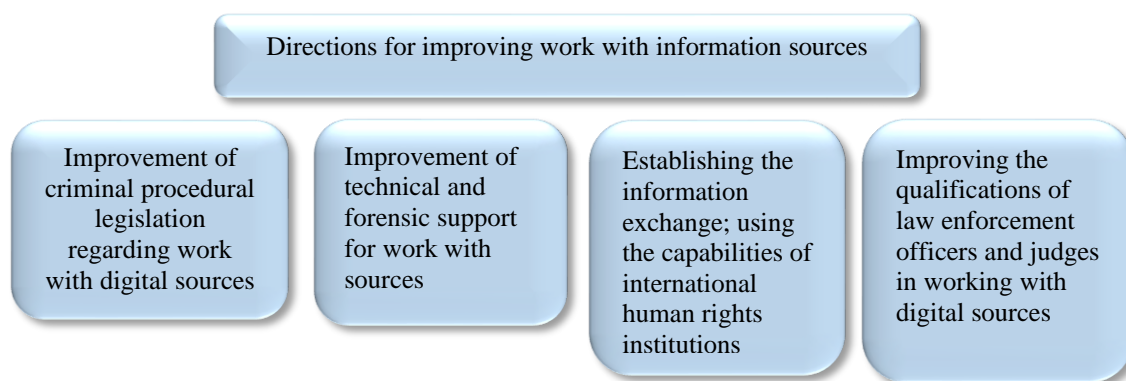
**Figure 5.** Subjects working with sources of forensic information and exchange of data on war crimes (using the example of Ukraine)

Source: (developed by authors)

Today, the formation of such international instruments of cooperation as the Joint Investigation Team (JIT) and the International Centre for the Prosecution of the Crime of Aggression against Ukraine (ICPA) are of great importance for the collection and exchange of evidentiary information). The JIT investigates serious international crimes, and the members of the group concluded an agreement not only to investigate war crimes, but also genocide crimes. The JIT was established on March 25, 2022, with the participation of Ukraine, Lithuania, and Poland, but later the composition of the group expanded by joining of Estonia, Latvia, Slovakia (May 31, 2022), and Romania (October 13, 2022). On March 3, 2023, JIT member countries signed a Memorandum of Understanding with the US Department of Justice. Europol also joins Eurojust and the ICC Prosecutor's Office as the JIT members (Europol, 2021). ICPA started its work on July 3, 2023 in The Hague. Ukraine is represented in it by the Eurojust Liaison Prosecutor. ICPA is integrated into Eurojust as a

unique judicial centre for supporting investigations of the crime of aggression arising in connection with the war in Ukraine. The centre employs the prosecutors from different states, who quickly and efficiently exchange information and agree on aspects of the investigation and prosecution strategy (Eurojust, 2023).

In view of the above, it is possible to formulate a number of problems that complicate the work with forensic information sources during the investigation of war crimes: gaps in the regulation of the collection and use of digital evidence; lack of technical resources and personnel to work with certain data sources; imperfect information exchange between national law enforcement agencies and international institutions, etc. The above provides grounds for determining directions for improving the processing of forensic information sources (see Figure 6).



**Figure 6.** Directions for improving the processing of forensic information sources.  
 Source: (developed by authors)

## Discussion

The approaches to the concept of war crimes were summarized, the appropriateness of their international legal criminalization was emphasized in the course of the study. The relationship between war crimes committed during hostilities and the sources of forensic information about them is shown. Emphasis is placed on the need to process modern and traditional data sources. The data sources are selected taking into account the possibilities of their processing in the context of an armed conflict and under the condition of technical and forensic support. The inappropriateness of specialized methods of investigating war crimes is substantiated taking into account their specific characteristics. It is shown that international institutions participating in the investigation of war crimes should also be considered subjects of work with forensic information sources. The importance of the exchange of evidentiary forensic information, including the use of European data exchange platforms, was emphasized. The main directions for improving the work with forensic information sources are outlined, which should contribute to the standardization of the investigation of war crimes in the context of the armed conflict.

In view of the obtained results, we share the position regarding the appropriateness of the discussion about the understanding of war crimes (Caianiello, 2022; Ghosh, 2022). However, we do not agree with the reasoning about the untimeliness of prosecuting war criminals during hostilities (Eichensehr, 2022). The approach to abandoning international criminalization is also controversial (Hathaway et al., 2019). We consider that this will not contribute to the unification of the regulation and the development of algorithms for the investigation of war crimes.

We justify the correlation of the features of war crimes and the specifics of forensic information. The position regarding the dominance of open sources of information (Nizamani et al., 2019; Blahuta & Movchan, 2020) can be supported. However, we emphasize that victims and witnesses are an equally popular source of data. This is confirmed by analytical reports and standardized practice guidelines (Institute for International Criminal Investigations, 2022; Human Rights Center, 2022). Along with this, such evidence is relevant for proving harm caused to crime victims (Schmitt, 2022), as well as to infrastructure and the environment. In general, one should agree with the promising nature of digital information (Meng et al., 2020). However, we showed the effectiveness of combining work with the latest (Freeman, 2021) and traditional (Morgan & Levin, 2019; Cioffi & Cecannecchia, 2023) sources of information during the investigation of war crimes using the experience of Ukraine as an example. We point out the impracticality of developing specialized methods of investigating war crimes taking into account their specifics (Dufeniuk, 2022), as the grounds for classifying such crimes actually describe one act in different contexts.

We agree with the considerations regarding the range of subjects in responding to war crimes (Mayans-Hermida & Hola, 2020; Colvin & Orchard, 2022). However, we draw attention to the subject composition, which includes national, foreign, and international institutions. This vision urges the issue of different data exchange formats (Moussa, 2021), while supporting the appropriateness of using European platforms (Caianiello, 2022).

As for the improvement of the work with the forensic information sources, we support the position about realistic and attainable proposals (Weyermann et al., 2023). That is why we share

those proposals that do not require long-term implementation as priority, for example, regarding thorough training of national judges, investigators and prosecutors regarding the investigation of war crimes (Aksamitowska, 2021). However, we share the possibility of standardizing this investigation (Dufeniuk, 2022). At the same time, we emphasize the necessity of improving the procedural legislation. This will provide opportunities to technically and infrastructurally meet the needs of law enforcement activities, including data exchange platforms. Moreover, we emphasize the need to ensure the security of the received information.

### *Limitations*

Studying the sources of forensic information in the investigation of war crimes is limited by the specifics of these acts and the conditions of armed conflicts. A limiting factor is the growth of varieties of open sources of information, the processing of which requires the development of special algorithms and platforms for data exchange.

### *Recommendations*

regarding the improvement of law enforcement activities - algorithmization of the processing of forensic information sources as a component of the standards of investigation of war crimes; regarding the legal support of the investigation – regulation of work with the latest sources of information, as well as interaction between national and international law enforcement agencies, including data exchange; regarding prospective studies – modernization of the approach to the understanding of war crimes and the standards of their investigation in the context of an armed conflict and after it.

### **Conclusions**

The academic novelty of the study is a critical consideration of the work with forensic information sources during the investigation of war crimes in the context of: discussions about the definition of war crimes; specifics of data sources in the context of the armed conflict; features of cooperation between national and foreign law enforcement agencies and international institutions.

The approaches to the definition of war crimes are summarized, the strengthening of the links between war crimes and transnational acts in the context of the armed conflict is emphasized. The

classification of forensic information sources is presented, the importance of the legal status of data for their use in the investigation process is emphasized. The correlation between war crimes committed in wartime and forensic information sources is proven. The comprehensive processing of modern and traditional data sources is emphasized, the dependence of work with sources on its technical and forensic support is shown. The circle of subjects working with forensic information sources is determined. The importance of the exchange of evidentiary forensic information between national and international institutions is emphasized. The promising nature of using European data exchange platforms is emphasized.

The directions for improving the work with the forensic information sources during the investigation of war crimes are outlined. Special emphasis is placed on: the regulatory and technical forensic support for the processing of forensic information sources in the context of the armed conflict; increasing the efficiency of data exchange between national and international institutions; strengthened specialized professional training of national law enforcement and judicial bodies. The appropriateness of standardizing the investigation of war crimes in the context of the armed conflict is argued, which will contribute to strengthening the protection of human rights in the field of criminal justice.

The applied significance of the study is the following recommendations: intensification of training of national employees of law enforcement agencies in working with data sources, which in practice means the inclusion of materials containing theoretical and methodological aspects of such work, as well as the formation of relevant practical skills, in the training and retraining programs of employees; improvement of procedural legislation in terms of work with the latest sources of forensic information and data exchange, which consists in defining clear processes, norms and restrictions regarding work with the latest sources of information; development of standards for the investigation of war crimes in the context of the armed conflict and after it, which may include the development of standards for each of the stages of such an investigation, possible investigation methods, etc.

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