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## The role of transnational electronic evidence in the investigation of crimes

### Роль транскордонних електронних доказів у розслідуванні злочинів

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
#### Abstract


The purpose of the study was a comparative analysis of the police practice of EU member states and Ukraine regarding transnational electronic evidence. Taking into account the goal, the practice of law enforcement of EU member states and Ukraine was chosen for comparative analysis. The method of comparative law and statistical methods were effective methodological tools and the basis of this research. The conducted research revealed that the international community is making a lot of efforts to reform the procedure for obtaining transnational electronic evidence when adapting to the current requirements. The new EU rules on the provision and storage of transnational electronic evidence cover the categories of subscriber data, access to transactions, and content. It was established that the SIRIUS and TREIO projects are important tools for supporting EU law enforcement agencies in matters related to transnational electronic evidence. In Ukraine, it is necessary to improve


#### Анотація


Метою дослідження був порівняльний аналіз поліцейської практики країн ЄС та України щодо транснаціональних електронних доказів. З огляду на поставлену мету для порівняльного аналізу було обрано практику правозастосування країн ЄС та України. Ефективним методичним засобом і основою цього дослідження були метод порівняльного правознавства та статистичні методи. Проведене дослідження показало, що міжнародне співтовариство докладає багато зусиль для реформування процедури отримання транснаціональних електронних доказів під час адаптації до сучасних вимог. Нові правила ЄС щодо надання та зберігання транснаціональних електронних доказів охоплюють категорії даних абонентів, доступу до транзакцій та контенту. Встановлено, що проекти SIRIUS і TREIO є важливими інструментами для підтримки правоохоронних органів ЄС у питаннях, пов'язаних з транснаціональними електронними доказами. В Україні необхідно вдосконалити

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the legislation on the procedure for obtaining transnational electronic evidence with due regard to the international practice. The use of the recommendations of the SIRIUS and TREIO projects in Ukraine can contribute to improving the procedure of international cooperation regarding access to transnational electronic evidence in criminal investigations.

**Keywords:** communication infrastructure, digitization, electronic evidence, investigative actions, pre-trial investigation.

## Introduction

The development of information and communication technologies is directly related to the increasing transnational data flows. The evolution of the provision of electronic communication services and information society with the help of hosting and cloud computing is ongoing. The most acceptable conditions of interaction between Internet users are created. Internet infrastructure service providers assign domain names and numbers to users, are responsible for confidentiality and the creation of proxy servers.

This evolution is characterized by new challenges in the process of criminal prosecution in cyberspace (Casino et al., 2022). The number of crimes that have an electronic trail and do not belong to cybercrimes is increasing. Information and communication technologies and their technical devices facilitate traditional crimes, such as crimes against property and those that cause harm to personal health. Access to electronic evidence, such as text messages, emails, and instant messaging applications, is becoming an important component of investigations.

Law enforcement agencies began to use transnational requests for access to electronic evidence more often. Requesting an IP address as well as an access number and related information are becoming essential components in criminal investigations to identify the user. The introduction and intensification of the use of transnational exchange of electronic evidence entails an increasing effectiveness of investigations. The technical requirements of such investigations are becoming very important, the role of cooperation between law enforcement agencies of different countries is growing.

A secure communication channel provides opportunities for the exchange of electronic

законодавство щодо порядку отримання транснаціональних електронних доказів з урахуванням міжнародної практики. Використання рекомендацій проєктів SIRIUS та TREIO в Україні може сприяти вдосконаленню процедури міжнародного співробітництва щодо доступу до транснаціональних електронних доказів у кримінальних розслідуваннях.

**Ключові слова:** комунікаційна інфраструктура, оцифрування, електронні докази, слідчі дії, досудове розслідування.

documents between law enforcement agencies of different countries, conducting the necessary consultations (Vyshnevska et al., 2021). There is also a growing need to adapt jurisdictional issues when collecting and sharing electronic evidence. Attention must be paid to the fact that the retention of different types of data may represent different levels of interference with the right to respect for private life (Gascón, 2023).

A problem in obtaining transnational electronic evidence for EU countries is a disparate legal framework consisting of national, European, and international laws and regulations. Bilateral and multilateral agreements have a major impact on regulating the collection, analysis and sharing of digital evidence (Tudorica & Bonnici, 2023). The role of electronic service providers and the terms of implementation of the necessary procedures has become the focus to overcome the relevant problems.

International cooperation with Ukraine is carried out in the areas of combating international terrorism, crime, and cyber threats, regardless of the military aggression on the part of the Russian Federation. The use of transnational electronic evidence in the investigation of war crimes is becoming increasingly relevant. It becomes necessary to study new initiatives of countries regarding the organization of cooperation at the international level during criminal proceedings regarding the procedure for obtaining electronic evidence.

In view of the foregoing, the aim of the article is to determine the role of transnational electronic evidence in the investigation of crimes. The aim of the research involves the fulfilment of the following research objectives:

- 1) determine the current trends in the legislative regulation of the procedure for

obtaining transnational electronic evidence in the investigation of crimes using the example of the EU and Ukraine;

- 2) group and propose new tools for supporting EU law enforcement agencies in matters related to the procedure for providing transnational electronic evidence for further implementation of positive experience in Ukraine.

The first section of the study is devoted to a comparative analysis of the legal regulation of cross-border exchange of electronic evidence on European territory. This section introduces the reader to the leading e-evidence tools used in the EU. Special attention was paid to such a tool as the European Investigation Warrant Training Project - TREIO, as well as to the definition of the main tasks of this tool.

The second section of the work reveals the main vectors of reforming Ukrainian legislation in the field of cross-border electronic evidence. At this stage, the positive practices of the SIRIUS and TREIO projects discussed in the previous section and other EU law enforcement support tools were considered. This section provided statistical data on the number of criminal offences in Ukraine for which it is necessary to receive electronic evidence. Also, the problems hindering the effective exchange of electronic evidence have been revealed.

### Literature Review

Marandici et al., (2022) notably influenced the author's position, highlighting the need for a comprehensive analysis of the European legal framework for the transnational collection of electronic evidence. However, despite these advances, there are significant gaps, as evidenced in the findings of Gascón (2023), which highlight the problems in the European Union's decisions on access to electronic evidence for criminal investigations. These gaps and challenges in the existing literature justify the need for our current study to determine the role of transnational electronic evidence in investigating crimes. In the course of solving existing problems, it becomes important to evaluate existing alternatives and determine their advantages and limitations. In this regard, it is worth referring to the scientific work (Abraha, 2021), which examines various initiatives to improve law enforcement agencies' access to cross-border electronic evidence. The work concludes with the suitability and sustainability of various approaches compared to the stated goals and

some key principles, making it possible to choose the optimal approach.

In separate works, it is proposed to use new tools for collecting electronic evidence across borders to solve existing problems. Toza (2020) emphasizes the importance of an appropriate enforcement and protection procedure and examines the systemic implications of the implementation tools of the European production order model.

Some studies have emphasized the need to establish proper cooperation between relevant national authorities regarding the exchange of electronic evidence. Ontsanou (2023), whose achievements were considered in the author's research, notes the importance of communication between competent national authorities during the collection of evidence. In this context, the scientist analyzed the decentralized information technology system used in this process to facilitate access to justice with digital support. The researcher concludes that the new procedure for providing cross-border electronic evidence will work taking into account national and EU realities. Roishchak (2022) analyzes the new rules for the exchange of cross-border electronic evidence from the point of view of facilitating cooperation between law enforcement agencies. The author concludes that there is a need to introduce obligations on digital service providers.

The author emphasized that it is possible to create data exchange rules addressed to foreign service providers only with the simultaneous harmonization of national criminal laws.

The studies (Tudorica & Bonnici, 2023; Amato & Velicogna, 2022) consider the importance of new central legal instruments for the exchange of transnational digital evidence in EU countries. The need to use the experience of the TREIO project was noted. The importance of using a secure and reliable communication infrastructure based on e-CODEX is emphasized. A conclusion was made about the need to make significant investment in relevant educational initiatives. The author took the mentioned works into account during the formation of the approach to the implementation of the positive experience of the EU countries in Ukraine. At the same time, problems existing in Ukrainian practice were identified, in which the author noted the position (Akhtyrskaya & Kostyuchenko, 2022). Researchers paid attention to the issues of international cooperation during criminal proceedings, the collection of electronic evidence, which are

managed by a foreign service provider. The gaps in the current legislation of Ukraine regarding the procedure of international mutual legal assistance for obtaining electronic evidence were noted.

An active study of the issues under research points to the need to pay special attention to the procedure for providing and storing transnational electronic evidence in the investigation of crimes. The diversity of research in this field is also stated. Therefore, it is necessary to carry out studies according to new research criteria.

### Methodology

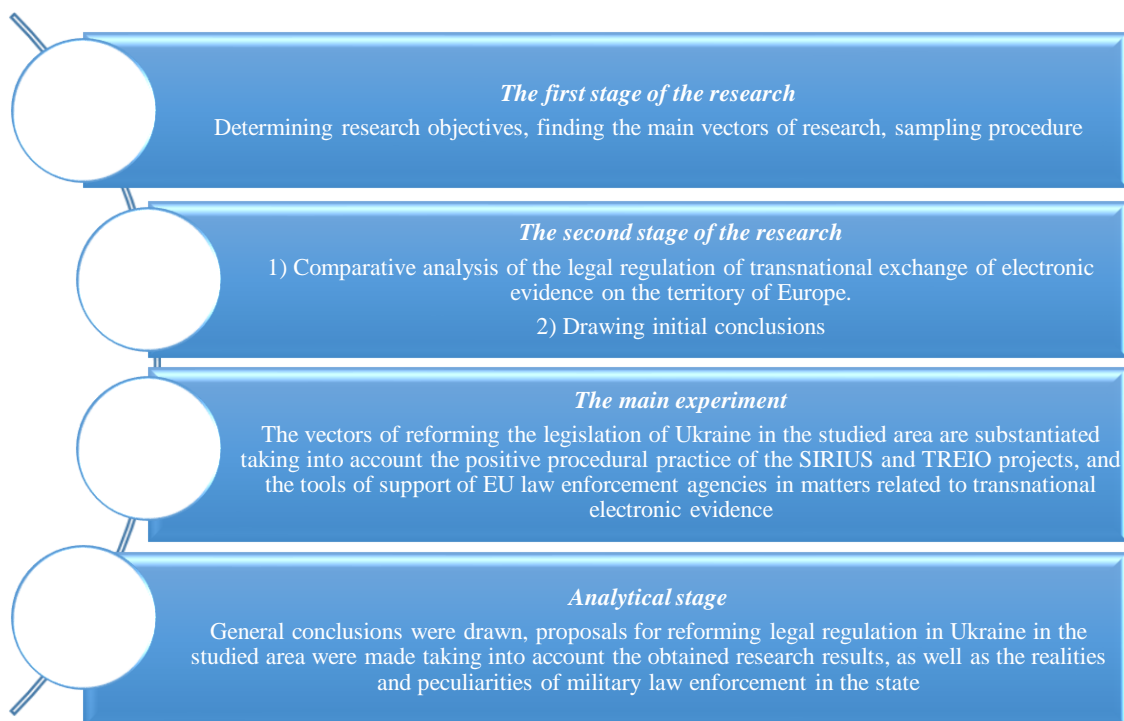
This research is framed as a descriptive study that seeks to exhaustively explore the current state and prospects for implementing procedures for the transnational exchange of electronic evidence. A mixed approach was used that integrated the statistical method, comparative legal analysis, synergistic approach, the historical legal method and the logical method.

In the statistical method, requests for cooperation in the specified area of Ukraine towards other

states were analyzed, paying special attention to communication with Great Britain, Germany and Italy. The comparative legal analysis focused on identifying the procedural components of the electronic exchange of evidence in international cooperation, comparing legal regulation in the European Union and Ukraine. The synergistic approach identified the sequence of rationalization of the procedure for electronic exchange of evidence in the context of globalization and digitalization.

Furthermore, the historical legal method was used to analyze the genesis of transforming the legal basis of the transnational exchange of electronic evidence. The logical method was applied when studying the transformation of approaches to transnational exchange of electronic evidence in the context of current realities.

The sample was formed in a reasoned manner, processing a large amount of data from 25 sources, which are referenced in detail in the text of the article. Figure 1 presents the step-by-step structure of the study, providing a visual guide for the reader's understanding.



**Figure 1.** Research design

Source: (developed by the author)

## Results

### *Comparative analysis of the legal regulation of transnational exchange of electronic evidence on the territory of Europe*

In EU countries, electronic evidence appears in approximately 85% of criminal investigations, in 65% of which electronic service providers are located in different jurisdictions (Official Journal of the European Union, 2018). According to the statistics, 55% of the total number of investigations in the EU contain a request for transnational access to electronic evidence.

During criminal investigations related to cyberspace in EU countries, it became necessary for law enforcement agencies to have modern tools for the use of electronic evidence (Official Journal of the European Union, 2017). European investigative orders (EIOs) are the main mechanism for obtaining transnational electronic evidence (Official Journal of the European Union, 2022).

EU judicial cooperation tools of the Mutual Legal Assistance (MLA) (Council of Europe, s.f) help EU countries to cooperate in cross-border criminal cases and exchange digital evidence. The Digital Electronic Evidence Exchange System (eEDES) was developed by the European Commission to support EU countries in managing EIOs and MLA procedures.

The main problem with EIO/MLA requests is that their implementation can be time-delayed at many stages of the process, resulting in reduced efficiency. The task of the EU was to introduce initiatives to simplify and accelerate the access of law enforcement agencies to transnational electronic evidence. This is reflected in the 2021 Additional Protocol to the Budapest Convention (Council of Europe, 2021). On July 28, 2023, the European Parliament and the Council adopted the relevant Regulation (European Union Magazine, 2023) and Directive (Official Journal of the European Union, 2023). The documents cover the categories of subscriber data, traffic, and content.

The competent EU judicial authority has the right to oblige electronic service providers (OSPs) to store and provide electronic evidence during criminal proceedings (European Union Magazine, 2023). The basis is for OSPs to obtain a European Presentation Order Certificate (EPOC) or a European Production Order Certificate (EPOC-PR).

The new rules guarantee reliable protection of fundamental rights, including guarantees of the right to personal data protection. OSPs must ensure direct transmission of the requested data in accordance with the EPOC at the end of the 10-day period. In emergency cases — within 8 hours. OSPs must retain requested data under the EPOC-PR for a maximum of 60 days. The required extension is 30 days. A decentralized IT system should be in place to ensure secure written communication between competent authorities. The access points of the decentralized IT system must be based on the e-CODEX system. The provider of electronic services can provide a reasoned refusal to perform EPOC or EPOC-PR. The Regulation (European Union Magazine, 2023) should be applied in all transnational cases.

Service providers in this case are electronic communication service providers and specific information society service providers that facilitate interaction between users. The service provider must appoint an institution, a legal representative in another state that is part of the EU (Official Journal of the European Union, 2023). In the case of unmotivated non-fulfilment of the relevant requirements, the member states provide for the possibility of imposing monetary fines. The amount is up to 2% of the total global annual turnover of the service provider for the previous financial year.

At the international level, relevant reforms implemented by the United Nations Office on Drugs and Crime (UNODC) and Interpol have been developed. In 2018, UNODC developed a Practical Guide to International Request for Electronic Evidence for Law Enforcement in collaboration with its partners (UNODC, 2018). The current SHERLOC UNODC portal allows for the exchange of necessary electronic resources. Interpol's e-MLA initiative aims to overcome the lack of international and secure networks for the exchange of necessary requests.

According to the 2022 SIRIUS report, 45% of EU law enforcement officers had never received training on cross-border e-evidence requests (European Union Agency, 2022). A total of 26% of EU law enforcement officers have access restrictions on their main work computer to some online services, such as social networking platforms. The relevant restrictions exist in 18 EU member states. More than 30% of officers commented that OSPs usually provide only partial answers or take too long to answer. Moreover, 18% of respondents indicated short storage periods of digital data as the main

problem (European Union Agency, 2022). In 2022, the project developed recommendations for improving the procedure for filing international requests for access to electronic evidence in criminal investigations.

An essential support tool for obtaining cross-border evidence in the EU is the Training on European Investigation Order (TREIO, 2023). The basis of this project is the implementation of

EXEC, EVIDENCE2e-CODEX, and e-Evidence. One of the tasks is the creation of a secure infrastructure, which is necessary for the exchange of EIO forms and evidence between law enforcement agencies.

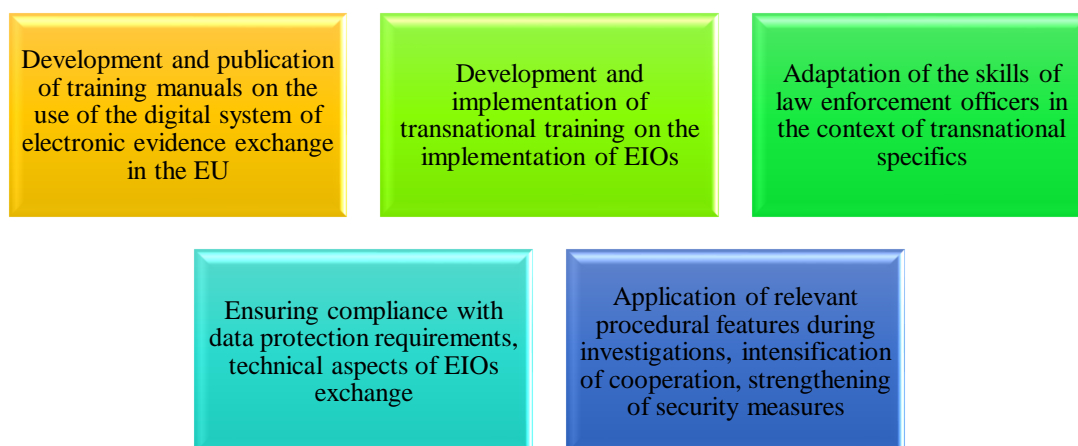
The essence and content of the elements of the TREIO project (TREIO, 2023) are shown in Table 1.

**Table 1.**  
*The essence and content of the elements of the TREIO project*

EXEC	e-Evidence	EVIDENCE2e-CODEX
It is developed on the basis of the independent and secure transnational e-delivery infrastructure e-CODEX. The EXEC is responsible for the fully electronic exchange of EIOs between Member States.	It is an appropriate instrument of digital exchange applied at the national level together with national instruments. Law enforcement agencies use EIO/MLA forms digitally, send them as a message. It is possible to attach necessary documents to each message.	is a standard evidence exchange package application, a web-based application for creating and/or preparing evidence packages and facilitating their exchange through the e-CODEX Infrastructure Implementation Reference Portal.

In the context of the differentiation of the electronic evidence exchange process, the

leading tasks of TREIO acquire special importance (Figure 2).



**Figure 2.** *The main tasks of TREIO*  
*Source (grouped by the author)*

***The vectors of reforming the legislation of Ukraine***

The level of international cooperation of investigative and judicial bodies of Ukraine with EU member states is increasing in connection with the development of the latest technologies, the increasing public danger of crimes. The mechanism for the international legal assistance is implemented at the stage of pre-trial investigation by the General Prosecutor’s Office of Ukraine (Order No. 223, 2015), at the stage of court proceedings by the Ministry of Justice of

Ukraine (Order No. 2599/5, 2019). Requests, including those for the provision of electronic evidence in criminal cases, are processed.

The scope of legal assistance, the order of communication, requirements regarding the form and content of the request, specifics of the execution of requests are determined by the Criminal Procedure Code of Ukraine (Code of Ukraine No. 4651-VI, 2023), provisions of the international treaty of Ukraine (Law of Ukraine No. 1906-IV, 2022). In the absence of an international agreement between Ukraine and the

relevant state, international legal assistance is requested on the basis of the reciprocity principle. In urgent cases, requests to Ukraine are sent from the competent body of a foreign state through Interpol, Eurojust.

In case of a decision to send a request, the request is sent to the authorized (central) body of the requested party directly or through diplomatic channels within ten days. It is also possible to send requests directly in case of having the relevant authorities. In the event of a request from another country, it shall be executed within one month from the date of its receipt by the direct executor.

It is worth noting that in 2021, 208 petitions for the granting of a special permit for the provision

of international legal assistance were submitted to the courts of first instance (DIIA, 2022). Only 65 petitions were received in 2022 during the hostilities on the territory of Ukraine. The indicated trend shows a decreased activity of law enforcement agencies in terms of increased international cooperation in criminal proceedings.

Table 2 shows the number of criminal proceedings, for example, under Articles 200, 361-363 of the Criminal Code of Ukraine (Code of Ukraine No. 2341-III, 2023), which were under review by the courts of first instance in 2021 and 2022 (DIIA, 2022) and recorded according to the reports of the General Prosecutor's Office (DIIA, 2023).

**Table 2.**  
*Statistics on the number of criminal offences criminalized under Articles 200, 361-363 of the Criminal Code of Ukraine*

Articles of the Criminal Code of Ukraine	Types of criminal offences	The number of proceedings pending in court in 2021	The number of proceedings pending in court in 2022	Criminal offences recorded for 2021 (report of the General Prosecutor's Office)	Criminal offences recorded for 2022 (report of the General Prosecutor's Office)
200	Illegal actions with transfer documents, payment cards and other means of access to bank accounts, equipment for their production	32	16	1569	928
361-363	Criminal offences in the field of use of electronic computing machines (computers), systems, computer networks and telecommunication networks	391	437	3310	3 415

Source: (Code of Ukraine No. 2341-III, 2023)

The given example of the number of relevant proceedings and registered offences for 2021 and 2022 shows the further need to obtain transnational electronic evidence.

There are a number of problems in the field of exchange of transnational electronic evidence in Ukraine. The quality assessment of electronic evidence obtained within the scope of international legal assistance remains problematic. The peculiarities of the type of electronic evidence and the method of obtaining

it in another jurisdiction are mostly overlooked. The legislation of other countries is not fully taken into account for the effective use of organizational rules. The terms of storage of electronic evidence are not clearly defined.

Ukraine seeks to expand international cooperation in this area. For example, the General Prosecutor's Office of Ukraine cooperates with the Interpol's initiative on the secure electronic transmission of mutual legal assistance (e-MLA). At the same time, the

revision of legal regulation in the area under research will be the subject of comprehensive work by legislators and the public during the period of post-war recovery of the state.

### **Discussion**

The conducted research showed that obtaining transnational electronic evidence is a global necessity. This confirms the analysis of the positive experience of the EU countries regarding the use of various tools for obtaining such evidence. The study of Ukrainian practice also confirms the need for cross-border electronic evidence. At the same time, the study of Ukraine's legislative framework in the researched area indicates the presence of some obstacles to the exchange of cross-border digital evidence.

#### ***Obstacles in the exchange of cross-border digital evidence have been identified***

One of these obstacles can be defined as insufficiently effective cooperation between competent national authorities and lack of proper coordination. In turn, an uncoordinated change in the traditional system of cross-border legal cooperation may lead to the proliferation of uncoordinated initiatives. The result may be further jurisdictional conflict and legal uncertainty (Abraha, 2021). According to the researcher, a possible solution is cross-border cooperation and coordination. The cooperation can be bilateral, multilateral, regional or global.

It can be concluded that the adopted EU legislative initiatives regarding the procedure for providing cross-border electronic evidence will require adaptation of funding and technical development. The newly created transnational evidence collection system has a different philosophy, procedure, law enforcement and protective structure (Tosza, 2020). There may be difficulties with approbation in the initial period, as the components of the procedure are calibrated with the practice of the relevant courts and authorities (Onțanu, 2023). According to the researcher, it is extremely important to increase the number of access points to the e-CODEX system.

In general, it will be necessary to find a balance between flexibility and the possibility of development of legal and technical national systems (Magno, 2023). The further development of agreed rules of international cooperation in criminal cases in the field of obtaining transnational evidence should contain

components that will be applicable outside the EU (Rojszczak, 2022). In support of researchers, the study proved that the introduction of permanent and more convenient rules of cooperation with other democratic countries in this area will be of crucial importance for the success of the transformations.

It can be stated that the e-service provider, which is the executing body, will be the only one who can object to the fulfilment of EPOC or EPOC-PR requirements. The direct involvement and responsibility of electronic service providers in evaluating data requests from law enforcement agencies is problematic and deserves close attention (Gascón, 2023). There must be an awareness that internet mediators are turning into judges or human rights defenders when they may not be adequate to the task.

#### ***Ways to optimize the exchange of electronic evidence***

It can be concluded that the development of the e-CODEX system contributes to the optimization of the capabilities of electronic justice systems. Increasing accessibility and overcoming barriers in offline transnational legal proceedings should be assessed from the end-user perspective (Velicogna, Steigenga, Taal & Schmidt, 2020).

According to the researchers, further initiatives should be aimed at increasing theoretical and practical contributions. It is necessary to ensure careful monitoring of changes, early detection of problems, and the possibility of rapid intervention.

It is established that, apart from available modern ICT tools, the process of electronic evidence exchange between countries can only work in a transnational working environment. Equal and effective conditions must be guaranteed. This is only possible with significant investment in training initiatives to familiarize practitioners with existing legal options and improve their skills and abilities (Amato & Velicogna, 2022). There is a particular need to create the necessary awareness of the actors involved through the proper dissemination of information and knowledge via such projects as TREIO (Biasiotti, 2023). Besides, we note that it is extremely important to create special cross-border training for magistrates and court employees to facilitate the exchange of transnational electronic evidence.

It is proven that Ukraine, needs the development of the effective use of electronic evidence that is



under the jurisdiction of foreign states in the context of a full-scale invasion and active hostilities on the territory of the state. It is important to adopt a special law On Electronic Evidence, which defines the concept of electronic evidence, types, methods of collection, evaluation, and use (Akhtyrskaya & Kostyuchenko, 2022). The researchers believe it is necessary to establish procedural deadlines for filing a request for the electronic evidence storage.

### Conclusions

The international community recognizes the problems and gaps in the digital evidence exchange. It directs its efforts to bring this procedure into line with the current realities. The new EU rules on the provision and storage of cross-border electronic evidence have been developed in response to the variability of the existing procedure. The need to develop the international aspect of electronic evidence is determined by the specifics of criminal activity in the age of digital technologies. The application of the same EU rules regarding the access of law enforcement agencies to the information of OSPs should improve legal certainty when receiving and storing transnational electronic evidence.

The SIRIUS project supported by Eurojust and Europol is worth noting. The project's tools assist law enforcement agencies by creating a repository of applicable procedures for obtaining transnational digital evidence from OSPs. The project also guides cooperation processes between competent authorities, contact information and investigative tools.

EXEC, EVIDENCE2e-CODEX and e-Evidence projects provide assistance in obtaining transnational evidence in the investigation of crimes. They include the development of useful, legally binding tools for sharing digital evidence related to EIO/MLA procedures. The TREIO project focuses on the implementation of these projects. TREIO is a necessary tool for methodical support of law enforcement agencies in obtaining transnational evidence in the EU. In addition, important tasks of TREIO are: the development and publication of specialized training manuals, implementation of cross-border training, appropriate adaptation of law enforcement officers' skills, ensuring compliance with security requirements, etc.

There is a need to improve the legislation on the procedure for obtaining transnational electronic evidence in the course of Ukraine's integration into the EU legal space. The conducted research

will be the basis for further research and reform of the national legislation of the state in the post-war period.

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