# MÉTODOS DE SEGURANÇA DA INFORMAÇÃO NA INVESTIGAÇÃO DE DELITOS DE CORRUPÇÃO

# METHODS OF INFORMATION SECURITY IN THE INVESTIGATION OF CORRUPTION OFFENCES

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Abstract: This article aims to identify information support methods within the investigation of corruption offenses, using the EU and Ukraine as case studies. Employing comparative legal analysis, the research underscores the significance of Europol and corruption investigations, Eurojust in highlighting hybrid cybernetic methods and the increasing role of electronic data. Given corruption's transnational impact, the necessity of cross-border evidence tools becomes evident. Particularly notable is the joint initiative of Europol and Eurojust, the SIRIUS project, which offers vital support to EU law enforcement agencies in handling electronic evidence-related issues. By applying SIRIUS project recommendations, Ukraine can enhance international cooperation in accessing electronic evidence during criminal investigations. Notably, Ukraine's anticorruption entities have shown adaptability even amidst internal conflicts. The research identifies adaptive methodologies used by EU member states, offering valuable insights for potential legal framework reforms and methodological tool implementation in Ukraine. Further research will focus on the mechanisms of implementation of the proposed methodological tools in the post-war period in Ukraine.

**Keywords:** International crime. Digital forensics. Electronic communications. Corruption risks. CPI.

Resumo: Este artigo visa identificar métodos de apoio à informação na investigação de crimes de corrupção, utilizando a UE e a

Ucrânia como estudos de caso. Utilizando uma análise jurídica comparativa, a investigação sublinha a importância da Europol e da Eurojust nas investigações de corrupção, destacando os métodos

cibernéticos híbridos e o papel crescente dos dados eletrónicos. Dado o impacto transnacional da corrupção, a necessidade de ferramentas de prova transfronteiriças torna-se evidente. Particularmente notável é a iniciativa conjunta da Europol e da Eurojust, o projeto SIRIUS, que oferece apoio vital às agências responsáveis pela aplicação da lei da UE no tratamento de questões relacionadas com provas eletrónicas. Ao aplicar as recomendações do projeto SIRIUS, a Ucrânia pode reforçar a cooperação internacional no acesso a provas eletrónicas durante investigações criminais. Nomeadamente, as entidades anticorrupção da Ucrânia demonstraram adaptabilidade mesmo no meio de conflitos internos. A investigações valiosas para potenciais reformas do quadro jurídico e implementação de ferramentas metodológicas na Ucrânia. A investigação futura centrar-se-á nos mecanismos de implementação das ferramentas metodológicas propostas no período pós-guerra na Ucrânia.

Palavras-chave: Crime internacional. Perícia digital. Comunicações eletrónicas. Riscos de corrupção. IPC.

## 1. Introduction

Abuse of official position by representatives of state departments for personal purposes has not been eliminated in democratic countries and remains urgent. Corruption exists to a certain extent in mature democracies. Current forms of corruption are defined as transnational and may involve the use of technology to illegally acquire, transfer or dispose of assets. The development of international crime, which is based on elements of corruption, has intensified. The globalization of electronic communications also leads to an increase in corruption manifestations through simple transfers, cross-border money laundering (ARDIANSYAH et al., 2022; YUNIN et al., 2022). Corruption transactions have become more frequent to pass through several jurisdictions, which makes further investigation of crimes extremely difficult. Corruption crimes and methods of combating them are especially important in wartime. In Ukraine, there is currently an opportunity to obtain potential benefit from a corrupt act due to significant resources in the defence sector. This situation is also influenced by the needs of secrecy, urgency or national interests. There is a significant amount of foreign humanitarian and financial aid in Ukraine. As a result, it is possible for public servants to use this situation for personal gain. Moreover, corruption began to strengthen the favourable ground for the development of international organized crime in the country.

The necessary amount of quality information makes it possible to respond to the processes taking place in society. It provides the potential for timely measures to combat corruption in order to preserve law and order. The rapid development of artificial

intelligence and virtual/augmented reality (VR, AR) has a significant impact on the quality of information. This requires necessary transformations in the field of investigation of corruption offences (PRIETO, 2023). Improvements in ways of combining large volumes of information and digital technologies provide an opportunity to obtain data that contribute to the improvement of the investigation of corruption offences (PATSO, 2022; DUMCHIKOV et al., 2022). Digital forensics, which is based on the analysis of information on all devices that store digital data, is developing. Countries are paying attention to the issue of adapting the legal framework capable of withstanding the pressure arising from the commission of corruption offences for the purpose of combating the manifestations of corruption. The investigation of corruption offences must be based on indisputable, reliable evidence leading to the establishment of the truth, which is clearly relevant to the cases of corruption offences (MAGHERESCU, 2020; SHABLYSTYI, 2020). Therefore, the organizational and legal regulation of the information support for the disclosure of corruption offences is urgent. Attention should be paid to the collection of evidence, methods of its detection, storage and analysis of information. The use of effective methods of information support in the investigation of relevant offences is an important issue.

In view of the foregoing, the aim of the article is to determine the methods of information support in the investigation of corruption offences in the context of transformation of social relations. The aim involves the fulfilment of the following research objectives:

1) Determine current trends in legislative regulation and methods of information support of law enforcement agencies investigating corruption offences using the example of the EU and Ukraine;

2) Analyse the adaptation of information support methods in the investigation of corruption offences using the example of the relevant activity of EU law enforcement agencies for the possible implementation of positive experience in Ukraine.

# 2. Literature Review

The work of Magherescu (2020) was an essential background, which was focused on the role of the criminal investigation of corruption in an interdisciplinary context. Particular attention is paid to the elements of forensic investigation, as well as information

support. The researchers concludes about the importance of collecting indisputable, reliable evidence, methods of their detection, storage, and analysis. Patso (2022) carried out a comprehensive analysis of corruption investigation methods. This work had an impact on the author's position on the issue under research. Attention was paid to the impact of the investigation on the fight against corruption. During the research, attention was paid to improvements proposed by Petkov and Ivanov (2020) regarding theoretical aspects of information support. The importance of the main information processes that take place during the information support for law enforcement agencies is emphasized. The essence and features of subjects and objects of information support for law enforcement agencies are identified.

Ardiansyah et al. (2022) studied the theory of international cooperation in the fight against corruption, jurisdiction, and the concept of transnational crime. They concluded about the need to establish international data exchange mechanisms based on a diplomatic approach, speed of coordination, accuracy in communication strategies, and obligation. The findings by Prieto (2023) regarding need for innovative investigation of corruption offences, implementation of new key information and communication technologies, including artificial intelligence, are worth noting. The importance of digitization, availability and access to large data volumes, which are becoming important elements in the investigation of corruption offences by law enforcement agencies, is emphasized.

The study by Casino et al. (2022), which emphasizes the importance of crossborder criminal investigations, their complexity caused by the heterogeneity of the legal framework, was taken into account when shaping the author's position. The current state of the practice of collecting and arranging evidence in cross-border investigations is analysed. A conclusion is made about the need for law enforcement practitioners to use horizontal strategies when accessing cross-border digital evidence. The article by Pérez Souto (2023) on the analysis of the expansion of Europol's powers regarding the information exchange with private individuals is worth noting. It is concluded that the enlargement gives Europol sufficient potential to effectively prevent and fight serious transnational crime in the EU. The author emphasized the need for national law enforcement agencies of EU countries to turn to the Europol's information potential and experience during the investigation of corruption-related offences.

The studies by Sopilnyk et al. (2020) and Sanakoiev et al. (2022) covered the issues related to Ukraine's international cooperation in the investigation of corruption offences.

Concerns about accompanying of requests for international legal assistance in Ukraine by subjective and objective shortcomings were expressed. The importance of interaction and cooperation with EU countries and the implementation of effective practices in combating cross-border crime and corruption in Ukraine was emphasized. They concluded about the necessity of implementing licensed software into the activities of law enforcement agencies, in particular, Serious and Organised Crime Threat Assessment (SOCTA). Temnyk and Kolisnyk (2021) noted the importance of the functioning of forensic records. Attention is paid to the need for the development of dactyloscopic records. The appropriateness of creating a state multifunctional dactyloscopic registration system in Ukraine was clarified.

An active study of the issues raised in the article indicates that special attention should be paid to the methods of information support in the investigation of corruption offences. The diversity of studies in this field is also noted. Therefore, it is necessary to carry out research according to new research criteria.

## 3. Methodology

This study employed a thorough methodological tools to achieve the aim and objectives of the research, as well as to determine the research design (Figure 1).



### The first stage of research

Outline the main research objectives, formation of conceptual foundations and vectors of research.

## The second stage of research

 A comparative and legal analysis of the regulatory framework of the methodological tools of information support in the investigation of corruption offences in the EU and Ukraine was carried out
 Drawing preliminary conclusions

Main experiment

1) The appropriateness of strengthening international cooperation for ensuring information exchange of evidence in the field of corruption offences is substantiated

2) The methodological tools of information support in the investigation of corruption offences are grouped

### Analytical stage

The author's position was formed regarding the expediency of approving the recommendations of the SIRIUS project in Ukraine during the post-war recovery period, ensuring the implementation of a new methodological toolkit in the area under study

## Figure 1. Research design

The regulatory legal acts in the field of combating corruption offences of the European Union and Ukraine were chosen for the research. The sample was formed taking into account the appropriateness of introducing innovative European approaches on the territory of Ukraine and finding optimal models of information support for the investigation of corruption offences under martial law in Ukraine. Special attention was paid to statistics and the corruption perceptions rating in the territory of European states.

The observation method was used in the article in combination with other empirical methods. It made it possible to identify external problematic factors in the detection and investigation of corruption offences in the context of the intensification of digital processes. This method was applied when analysing the state of fighting corruption in EU countries. The formalization method was used to ensure the completeness of covering the studied area of problems, the generalization of the approach to their solution.

The statistical method revealed the real state of combating corruption risks and crimes in the EU, showed the low effectiveness of European law enforcement agencies in the field of countering those risks. Empirical analysis and synthesis were used at the stage of familiarization with the issue under research, sampling, and drawing preliminary conclusions. This method helped in making the list of methodological tools for support during the investigation of corruption offences and their analysis.

The comparative legal method was applied to recognize that European law enforcement agencies collect, accumulate, and analyse information related, among other things, to corruption offences. It was proved that national law enforcement agencies significantly increase their effectiveness in solving corruption offences thanks to this work.

The comparison method was employed during the analysis of related methods of information support in the investigation of corruption offences in Ukraine and the European Union. This method justified the fact that a thorough investigation of corruption offences is a key factor in solving criminal cases based on real evidence. The experiment was used to prove that globalization technological processes, which expand the possibilities of obtaining the necessary information, the spread of corruption beyond the borders of countries, increase the need for access to cross-border digital evidence.

## 4. Results

Stagnation in the fight against corruption has lasted for more than ten years in the EU countries. Two-thirds of criminals regularly resort to corruption in Europe, more than 80% of criminal networks use legal business structures (EUROPOL, 2021a). The results of the Corruption Perceptions Index (CPI) in 2022 (TRANSPARENCY INTERNATIONAL, 2023a) confirm that EU countries are in a state of stagnation in the field of fighting corruption (Table 1).

EU countries that	EU countries that worsened in	EU countries that did not
improved in CPI in 2022	the CPI in 2022	change the CPI in 2022
Bulgaria	Austria	Belgium
Croatia	Cyprus	Estonia
Czech Republic	Finland	Latvia
Denmark	Spain	Portugal
France	Netherlands	Italy
Greece	Luxembourg	-
Ireland	Malta	

Table 1. Grouping of states according to the Corruption Perceptions Index



Lithuania	Germany	
Romania	Poland	
Slovakia	Slovenia	
	Sweden	
	Hungary	

Source: Transparency International (2023a).

So, only 10 countries out of the 27 EU countries improved their CPI in 2022, 5 countries did not change their indicators, 12 countries worsened their respective indicators.

Europol uses a mixed approach, which includes methods of qualitative and quantitative analysis, a set of clearly defined indicators. In accordance with its Strategy 2020+, one of the main goals of Europol is to provide effective information support in the investigation of offences in EU member states. The Europol's Operational Centre is the centre for the exchange of operational, informational and communication data between Europol, EU member states and third parties on illegal activities. The Europol Information System (EIS) (EUROPOL, 2021b) is a central database of criminal information and operational data, including corruption. EIS is used to create structured picture of the criminal case. Analytical projects are divided depending on the areas of crime. The purpose of the Corruption analytical project is to help law enforcement agencies of EU countries in preventing and fighting corruption. There has been a direct exchange of personal data between Europol and private parties since 2022, Europol's data processing powers have been expanded (DECREE 32022R0991, 2022).

The annual Serious and Organized Crime Threat Assessment (SOCTA) informs the European law enforcement community about developments and threats in this area. A particular emphasis in the Interpol's SOCTA report is on networks that undermine the rule of law because of corruption. The European Financial and Economic Crime Centre (EFECC) under Europol provides analytical, technical, operational, and strategic support to EU member states and other strategic countries. Special attention is paid to investigations of financial and economic corruption-related crimes.

EU judicial cooperation instruments — Mutual Legal Assistance (MLA) and European Investigation Orders (EIOs) — are the main mechanisms for obtaining electronic evidence across borders. In 2021, the volume of requests to other online service providers (OSPs) increased by 36%, and the number of emergency data requests (EDR) increased by 29% (EUROPOL, EUROJUST & THE EUROPEAN JUDICIAL NETWORK, 2022). The SIRIUS project, jointly implemented by Europol and Eurojust in partnership with the European Judicial Network, is noteworthy. It is one of the main

sources of support for EU law enforcement officers in matters relating to electronic evidence. SIRIUS provides information on OSPs, investigative tools, and information needed by OSPs. These resources are open to law enforcement and judicial authorities from EU member states and countries that have an operational agreement with Europol and Eurojust. SIRIUS (EUROPOL, EUROJUST & THE EUROPEAN JUDICIAL NETWORK, 2022) has prepared recommendations to improve the procedure for granting international requests for access to electronic evidence in criminal investigations (Table 2). Special attention in the SIRIUS project recommendation is paid to the reliability and performance issues.

 Table 2. SIRIUS recommendations to improve the procedure for granting international requests for access to electronic evidence in criminal investigations

For EU law enforcement	For EU judicial authorities	For OSPs
agencies		
1) Create a single point of	1) Improve the modality	1) Pay close attention to
contact (SPoC);	and processing of the	the submission of requests
2) Introduce appropriate	request and receipt of	from unauthorized
training into training	electronic data;	persons and prevent
programmes for investigators	2) Increase the level of	unauthorized requests for
and persons involved in the	exchange of relevant	data disclosure;
investigation of crimes;	experience among	2) Pay attention when
3) The security of e-mail	practicing EU judges.	introducing new products
systems should be based on the		to the impact of artificial
use of strong passwords, two-		intelligence, VR and AR
factor authentication.		on electronic evidence.

The development of innovative technologies significantly affects territoriality and jurisdiction. This situation required the adoption of the necessary decisions, which is reflected in the 2021 Additional Protocol to the Budapest Convention (DOCUMENTS CM(2021)57-addfinal, 2021). On June 27, 2023, the Council of Europe adopted a regulation and directive on cross-border access to electronic evidence (e-evidence). Judicial authorities can directly request e-evidence from service providers located in another Member State.

In corruption-related cases of EU member states, states often request information from Eurojust regarding the admissibility of evidence due to differences in national procedural legislation. Eurojust provides assistance in the form of organizational charts, which combine all the information available to the Member States. Relevant corruptionrelated cases include parallel investigations in several states, a variety of national legal frameworks. Eurojust may provide recommendations or written non-binding opinions.

They facilitate discussions between national authorities without the risk of undermining the effectiveness of internal investigations. The European Multidisciplinary Platform Against Criminal Threats (EMPACT) is based on an integrated approach to EU internal security. It facilitates cooperation between various law enforcement agencies, information management, innovation, training.

Ukraine is strengthening international cooperation in this area. In 2022, Ukraine ranked 116<sup>th</sup> out of 180 countries in the Corruption Perceptions Index (TRANSPARENCY INTERNATIONAL, 2023b). The country's indicators improved by 6 points compared to 2021. But the old schemes of misuse of budget funds, the sale of humanitarian aid, kickbacks at customs resumed during the hostilities in the country.

In Ukraine, a corruption offence refers to an action that has corruption signs in its composition (DECREE 1700-VII, 2014). The law establishes criminal, disciplinary, and civil liability for the relevant illegal acts. Specially authorized entities in the field of combating corruption are the Prosecutor's Office, the National Police, the National Anti-Corruption Bureau of Ukraine (NABU), the National Agency on Corruption Prevention (NACP) (DECREE 1700-VII, 2014). The Specialized Anti-Corruption Prosecutor's Office (SAP) and the High Anti-Corruption Court have also been established in Ukraine. The relevant law enforcement agencies developed the necessary legal principles for structuring their information space. The regulatory legal acts governing public relations regarding the creation of informational electronic resources were legislated. Since February 2019, the NACP has been administering a Unified State Register of Persons that Committed Corruption or Corruption-Related Offences. During the period of martial law, the NACP does not control and verify the declarations of the declarants, nor conduct monitoring of the lifestyle of the declarants. The Unified Whistleblower Portal has also been operating in Ukraine since 2023. During the period of military operations, the personnel of anticorruption agencies spend a lot of time helping the armed forces of Ukraine. As a result, direct activity was partially reduced.

Information in Ukraine means any records and/or data that can be stored on physical media or displayed in electronic form (DECREE 2657-XII, 1992). For example, the information and communication system Information Portal of the National Police of Ukraine was created in the country (DECREE No. 676, 2017) (Figure 2).



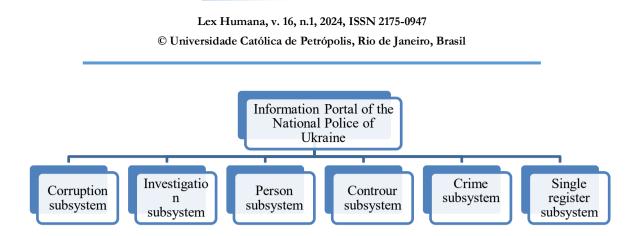


Figure 2. Structure of the main subsystems of the information and communication system Information Portal of the National Police of Ukraine

In 2018, a unified information system of the Ministry of Internal Affairs was created in Ukraine (DECREE 1024-2018-II., 2018). It is planned to launch the information and communication system 112 and the Electronic Register of Human Genomic Information. An automated information system for the operational purpose of the unified information system of the Ministry of Internal Affairs was introduced. Centralized records are kept by the State Scientific Research Forensic Centre (SSRFC) of the Ministry of Internal Affairs of Ukraine. There are also regional and local records.

Europol actively cooperates with Ukrainian law enforcement agencies during the period of hostilities on the territory of Ukraine. Initiatives are underway to introduce the Europol SOCTA methodology into the law enforcement system of Ukraine. The EMPACT platform held a meeting in Ukraine in April 2022. The goal was to develop the adaptation of operational actions in response to threats to the internal security of Ukraine that may arise in connection with the consequences of the war. In April 2022, the EFECC initiated Operation Oscar (EUROPOL, 2022). It was organized together with EU member states, Eurojust and Frontex, the European Border and Coast Guard Agency. The task is to conduct financial investigations into criminal assets belonging to individuals and legal entities that are under sanctions in connection with the Russian invasion. The task is also to identify, with the help of appropriate information support, the facts of corruption that may occur in case of circumventing trade and economic sanctions introduced by the EU. The operation is ongoing and more than €2 milliard in assets have been seized so far.

## 5. Discussion

The conclusion on the need to coordinate the tools to fight corruption and economic crimes is substantiated in the study. Other researchers supported the author's

position and indicated the appropriateness of creating a public register of beneficial owners, which would lead to difficulties in hiding money through the activities of fictitious companies (DURI, 2021). According to the researcher, it is also necessary to expand international cooperation of law enforcement agencies. The authors of the article additionally proved that such activity will become a tool for eliminating transnational corruption and economic crime schemes.

It was proved that the complexity of corrupt criminal activity combined with the development of modern technologies is a serious current challenge for investigations. This situation requires constant cross-border cooperation between various law enforcement agencies (SOPILNYK et al., 2020). The strengthening of Europol's powers of direct access and processing of large data volumes requires special attention to respect, guarantees, and democratic control mechanisms (PÉREZ SOUTO, 2023). According to the researcher, it is necessary to monitor more closely the activities of the European Data Protection Supervisor (EDPS) regarding Europol and the observance of basic democratic rights.

It is noted that countries are making ongoing efforts to facilitate cross-border investigations with tools, technologies, research projects, and revisions in the legislation. Supporting the author's position, the researchers indicated that the recognition of technologies such as blockchain can improve the verification processes and transparency of some procedures that are carried out during investigations (CASINO et al., 2022). According to the researchers, blockchain can be used, for example, to automate the exchange of evidence. The latter can increase trust in legal systems and reduce delays in investigations (CHAUHAN; BANSAL, 2021).

It is substantiated that there will be a need for an immediate response of law enforcement agencies to corruption offences after the end of hostilities in Ukraine. The researchers supported this thesis and indicated that they relate to the distribution of humanitarian aid and funding for the recovery of the country. The National Anti-Corruption Bureau of Ukraine (NABU) and Specialized Anti-Corruption Prosecutor's Office (SAPO) should take an active part in the operational investigation and the issuing of substantiated suspicions in corruption war-related crimes (KOS, 2022). According to the researcher, it will be necessary to create special units in these areas, or have their own investigators and prosecutors who specialize in these issues.

It was established that the prospect of improving information technologies directly depends on the internal policy of the state. This policy should be aimed at improving the information systems of the National Police (PETKOV; IVANOV, 2020). According to researchers, it is also necessary to involve specialists who could create these systems and implement measures to protect them.

Tymoshenko et al. (2022) substantiated the appropriateness of developing a comprehensive strategy for the investigation of crimes in the digital age in Ukraine in view of the development of electronic technologies. The main component should be a forensic investigation using electronic information. According to researchers, special attention should be paid to the development of automated methods of crime investigation. The use of specialized licensed software by law enforcement agencies can increase the effectiveness of the fight against organized crime and corruption. The researchers supported the authors' conclusions and proved that Ukraine needs to implement an automated SOCTA-based information collection system and integrate it into the Unified Information System of the Ministry of Internal Affairs of Ukraine (SANAKOIEV et al., 2022).

It was proved that forensic registration is considered as a record-keeping system of in Ukraine. There is a need to create a concept of dactyloscopic registration (TEMNYK; KOLISNYK, 2021). According to the researchers, an important component should be the theoretical substantiation and development of the draft Law of Ukraine "On Dactyloscopic Registration".

The study proved the appropriateness of borrowing Europol and Eurojust SIRIUS developments to support law enforcement agencies of Ukraine in matters related to electronic evidence, especially in the field of corruption offences. It was established that the state's approval of the recommendations of the SIRIUS project will lead to the intensification of international cooperation in the field of access to electronic evidence in criminal investigations. The results of the conducted research can become the basis for the development of the concept of reforming the national legislation of Ukraine in the studied area.

## 6. Conclusions

The innovative component of the methodological tools for the investigation of corruption offences is becoming increasingly important in the context of globalization and the rapid development of information technologies. European states are making maximum efforts to reform the national legislation in the studied area field while simultaneously developing effective mechanisms for its implementation. In the current conditions, information provides the necessary potential for timely measures to combat corruption in order to preserve law and order. It was proved that the methods of information support in the investigation of corruption offences are characterized by a complex orientation. Hybrid cybernetic methods deserve special attention in the context of the constant transformation of social relations. The phenomenon of creating forensic collections for the use of prompt search and reference data in the detection, investigation and prevention of corruption offences is becoming increasingly frequent.

Anti-corruption authorities of Ukraine were able to successfully reform their work, adapt to new realities, and continue to investigate corruption offences during the military operations. It is necessary to introduce the latest information systems and technologies in order to increase the efficiency of the organization of the investigation of corruptionrelated crimes.

Currently, Europol provides assistance in the detection of corruption offences to EU countries through the activities of EFECC, the Europol Information System (EIS), the Corruption analytical project, and SOCTA reports. The SIRIUS project is an important source of information and support for EU law enforcement officers in matters relating to electronic evidence.

Further implementation of the automated SOCTA-based information collection system and its integration into the Unified Information System of the Ministry of Internal Affairs of Ukraine is justified. The use of the recommendations of the SIRIUS project can help Ukraine in implementing the procedure of international requests for electronic evidence in corruption-related criminal investigations. The area of further research will be the study of the peculiarities of the implementation of European experience by Ukraine in the field of investigation of corruption offences in the period of post-war recovery.



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