Here is the last ILEAnet scientific newsletter, which aimed at providing scientific news in the security research area. Published every two months, it was intended to highlight and promote the scientific work in the field of technology, human and social sciences. The scientific coordination within the ILEAnet project has been led by Professor Patrick Laclémence.

In this last issue, you will find:

➢ **PORTRAIT OF A PRACTITIONER ACTIVELY INVOLVED IN SECURITY RESEARCH**

Discover a person actively engaged in security research

➢ **RESEARCHER'S TOOLBOX: "EUROPEAN INSTRUMENTS IN FAVOUR OF RESEARCHERS – CASE APPLIED TO UKRAINE"**

Learn more about the European initiatives for Ukrainian researchers

➢ **KNOWLEDGE FACTORY DIGEST**

Find here a selection of recent scientific and technical resources extracted from the Knowledge Factory on the main themes of the ILEAnet project

➢ **IT'S TIME TO REVIEW THE ILEANET SCIENTIFIC ACTIVITIES!**

An assessment of ILEAnet work with scientists

PORTRAIT OF A PRACTITIONER ACTIVELY INVOLVED IN SECURITY RESEARCH

NATHALIE GUTTER / CHON-SEN

PhD in Particle Physics

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The ILEAnet scientific coordination team interviewed Nathalie Gutter/Chon-sen. She is a law enforcement practitioner and a researcher working in the French Forensic Police.

Can you tell us more about you?

I have an engineering degree and a PhD in Particle Physics, obtained at the Institut Pluridisciplinaire Hubert Curien (Strasbourg, France). During my PhD, I worked on designing detectors for particle physics experiments and developing the associated data analysing tools.

I have always wanted to understand how the world was created but at the end of my post-doctoral contract, I wanted to put my skills at service and decided to embrace a carrier as a civil servant. I passed the exams to enter the French National Police in the forensic field. Ten years on the field enabled me to acquire a solid operational experience. After 7 years as chief of departmental French forensic police units (SDPTS), I was appointed deputy chief of the zonal delegation representing the French forensic police office in the East of France (DZ SNPS) a few months ago.

How do you balance your professional life in the Forensic Police and your research work?

I am a member of the French National Police Doctors' Network (RDPN) since the end of 2014. The network was born from the reflections of ENSP (French National Police Academy) in order to develop collaborations between scientists and law enforcement practitioners, to better meet the challenges of security. The French National Police Doctors' Network is a network of competences brought together to exchange through a dynamic virtual community. This powerful tool enables me to interact with other national and European law enforcement networks, such as ILEAnet.

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DE LA POLICE NATIONALE

In addition, I am a researcher associated to the research center of ENSP since early 2020.

The research I carry out is achieved on my own free time. I am not currently involved in a research project but I am regularly consulted to give an insight on studies or projects financed by the research center of ENSP. The last project I was consulted upon was the study called "Analysis of social networks in new dynamics of contestation to improve the anticipation and adaptation of the public order response". The output of the research was an exploratory study of open data in social networks. I also volunteered to take part in the "focus group" of PREVISION project, funded under H2020, where I intervened as an expert on the subject of the social acceptance of AI tools by the population, in particular on the topic of the "Perception of the citizens towards science and new technological solutions".

What is your most striking research experience?

I have participated in a number of research projects as I am involved in the French National Police Doctors' Network but my most striking research experience was my contribution to the MEGA project between 2018 and 2019 [MEGA is a French acronym, which stands for "public safety needs assessment modeling for a large urban area"]. The research center of ENSP invited me to participate in this 10-month project led by the Institut de Recherche Informatique of Toulouse and funded by the CHEMI. The objective was to create a tool to support the police in anticipating the evolution of its resources in the two-fold context of the implementation of the French everyday security policy and the expansion of large cities. The city of Montpellier was selected as the site of experimentation. This ambitious project was very innovative for the police but also for the research area and it gathered high level French partners.

In the MEGA project, I helped the team working on the programming of multi-agent simulation, which predicted the evolution of delinquency at a metropolitan scale. I was at the junction between the research and the law enforcement communities. In addition to the development part, I actively took part in the coordination of the project and exploitation of its outputs by local agencies. We will continue this project and submit a project proposal to the ANR [French National Research Agency] later this year.

What is the interest of having a double hat profile like yours in research projects?

In the MEGA project, without knowing it, I found myself playing the role of the interface between the academic world where I come from and the law enforcement practitioners' work. Their languages are completely different, for instance there are many acronyms used in the law enforcement field that is difficult to understand for academics. So I had a unique position in the project and I think that having a law enforcement practitioner in the team enabled researchers to understand and assimilate the processes specific to public safety, which is a prerequisite to the construction of any model. It was also a matter of trust and I am grateful to have had the confidence of the project leader; this enabled me to help translate the operational objectives directly in the architecture of the programming code.

There are two types of research: fundamental and operational research. As a practitioner, I am now focused on operational research and am happy to put my skills at the service of my co-workers. Thanks to my hands-on experience, the tools I have created help improving my colleagues' working environment.

What difficulties have you encountered when working in research projects for the law enforcement?

My research work is done on my free time, during days off, nights and weekends. The time that I managed to dedicate to my research was a limitation I encountered: I often wished there were more than 24 hours in a day! I also lacked some computing resources (computing performances and accessibility), but with the support of the MEGA project leader, I remotely installed the simulation on a dedicated laptop from scratch. It gave us an interesting insight on the difficulties we would have to anticipate when creating tools that are aimed to be used on the operational field.

According to you, what are the required skills to be both a practitioner and a researcher?

There are numerous qualities needed to work in the research area and especially in law enforcement environment such as loyalty, discipline, curiosity, courage and resilience, just to name a few!

What is the benefit of networks such as the French National Police Doctors' Network?

The French National Police Doctors' Network uses a digital platform where project proposals are displayed and where members can candidate upon. Thanks to this platform and regular videoconference meetings, information is a little bit easier to access. This represents an opportunity to triggers new ideas coming directly from the field for the field.

I think we can improve the dynamic of the platform and increase the collective intelligence by sharing and meeting even more, and leveraging the digital tools (for instance recording meetings and making them available to all participants on replay).

Thank you very much Nathalie for taking the time to answer to our questions. We wish you good luck for your future projects! For further information about Nathalie's work, please contact her directly.

RESEARCHER'S TOOLBOX: "EUROPEAN INSTRUMENTS IN FAVOUR OF RESEARCHERS – CASE APPLIED TO UKRAINE"

We shook up this last edition of the Researcher's toolbox because of the international news and the war in Ukraine. The EU has a wide range of structuring initiatives for research and innovation. Using the Ukrainian situation, this article is an opportunity to draw attention to several specific initiatives used to support researchers.

Academic freedom and freedom of scientific research are core principles of the European Union (see the Charter of Fundamental Rights of the EU). The solidarity and mutual aid provided by the European Union and the researchers all around Europe help maintain the principles of the European research and explain why the European Commission took some immediate targeted actions to help researchers from Ukraine.

ERA4Ukraine

On 22 March 2022, the European Commission launched the 'European Research Area for Ukraine' (ERA4Ukraine) portal, a one-stop-shop for information and support services to Ukraine-based researchers and researchers fleeing Ukraine. Launched on the EURAXESS platform, which supports researchers by connecting more than 600 centres and 43 national portals across the EU Member States and countries associated to Horizon Europe, it brings together existing supportive actions at European and national levels, but also from associated countries:

- **housing** (how those fleeing the war in Ukraine can apply for residency, find accommodation and access other services)
- **job offers**
- where to find an **embassy** or consulate general
- recognition of **diplomas**
- and other **services**.

On the ERA4Ukraine portal are also reported prominent bottom-up non-governmental initiatives, such as ScienceforUkraine, a community of volunteer students and research scientists from academic institutions in Europe and around the world who collect and disseminate information about support opportunities at the university, national, and international level for graduate students and researchers directly affiliated to an academic institution in Ukraine. ScienceforUkraine offers a number of security-related opportunities, for instance in cybersecurity.

Science4Refugees

The Science4Refugees initiative provides research refugee friendly internships, part-time and full-time jobs, access to a European Research Community, as well as a complete range of information and support services on working and living in Europe. Ukrainian researchers are eligible to benefit from the Science4Refugees initiative **without the need of holding the refugee status**.

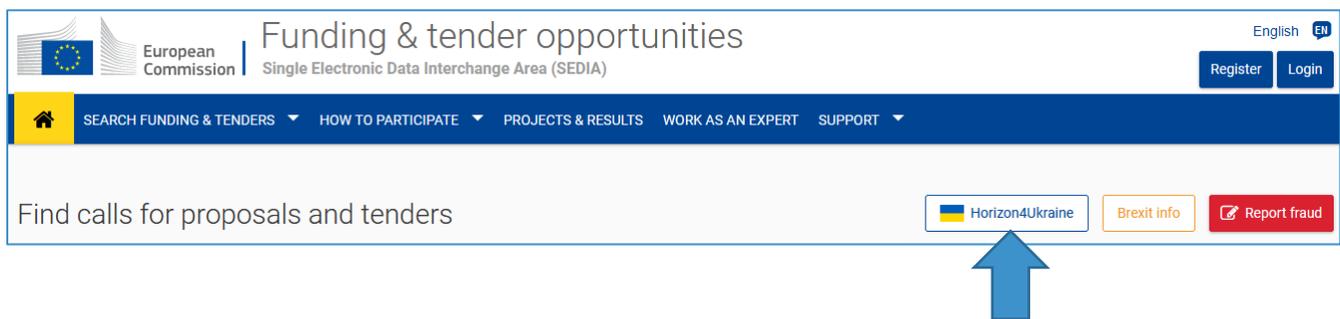The 3 core functionalities of Science4Refugees are:

- Search for refugee friendly jobs from all over Europe
- Free and easy access to the Science4Refugees community
- Post CV for best opportunities.

ERC for Ukraine

The **European Research Council (ERC)** asked its grantees to provide temporary employment to refugee researchers and support staff from Ukraine. More than 500 job offers in ERC-funded research teams are displayed here.

Horizon4Ukraine

It is also possible for projects funded under the Horizon Europe programme to publish opportunities addressed to researchers or other specialists from Ukraine in the Funding and Tenders Portal.

Additional initiatives

Many research-related associations or organizations have expressed their support for Ukraine or took actions to support Ukraine and its scholars. In addition, administrative steps have been taken to ensure Ukrainian entities are eligible for EU funding under Horizon Europe and a flexible approach is applied to implementation deadlines for the Ukrainian entities in ongoing projects based on force majeure.

Sources

- https://euraxess.ec.europa.eu/ukraine
- https://scienceforukraine.eu/
- https://euraxess.ec.europa.eu/jobs/science4refugees
- https://www.scienceeurope.org/our-priorities/ukraine/other-initiatives/
- https://erc.europa.eu/funding/additional-opportunities/ERC-for-Ukraine-research-jobs
- https://euraxess.ec.europa.eu/ukraine/offers
- https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT_22_1528
- https://ec.europa.eu/info/strategy/priorities-2019-2024/stronger-europe-world/eu-solidarity-ukraine_en

KNOWLEDGE FACTORY DIGEST

The ILEAnet scientific coordination team provides here a selection of recent scientific and technical resources related to the main themes of the ILEAnet project. Some resources are open access and all can be found in the ILEAnet Knowledge Factory.

ILEAnet collects the most recent or relevant publications in the following areas, but does not necessarily endorse their contents.

Cybercrime

Cybercrime law enforcement practitioners network (Cyclopes). Joint Live Exercise on Digital Forensics: Mobile Forensics and Wearable Technologies. 10th - 12th May 2022, University College Dublin, Ireland. Website: https://www.cyclopes-project.eu/news/join-live-exercise-on-digital-forensics-mobile-forensics-wearable-technologies

After compiling a list of relevant technologies and research actions dedicated to Digital Forensics issues from the elicited gaps and needs, the Cyclopes project organises an event that will allow law enforcement officers to interact with several solutions during a free physical meeting.

Insoll Tegan, Ovaska Anna K, Nurmi Juha, *et al.* Risk factors for child sexual abuse material users contacting children online: results of an anonymous multilingual survey on the dark web Journal of online trust and safety 02/2022: 1-24. Available at: https://tsjournal.org/index.php/jots/article/view/29/17

This study analyses whether certain risk factors are linked to a higher likelihood of contacting children after viewing child sexual abuse material (CSAM).

Open access. Wall David S. The Transnational Cybercrime Extortion Landscape and the Pandemic: Changes in ransomware offender tactics, attack scalability and the organisation of offending. European law enforcement research bulletin, Special conference edition 2022 ; 5: 45-50. Available at: https://bulletin.cepol.europa.eu/index.php/bulletin/article/view/475/365

Drawing upon an analysis of 4000+ cases of ransomware attacks collected for two research projects, this paper charts the evolution of ransomware as a modern cybercrime and also changes in the organisation of cyber-criminals as well as highlighting some of the implications for transnational policing.

Terrorism

Lakomy Miron. Why Do Online Countering Violent Extremism Strategies Not Work? The Case of Digital Jihad. Terrorism and political violence 2022. doi: https://doi.org/10.1080/09546553.2022.2038575

This article discusses the reasons why content moderation and control in cyberspace, being a primary means of online countering violent extremism (CVE), does not work as intended.

Regan Joshu. Pathways of radicalization: contrasting the Boston Marathon Bombers and Mohamad Merah. Behavorial sciences of terrorism and political aggression 02/2022. doi: https://www.tandfonline.com/doi/full/10.1080/19434472.2022.2039750

This paper evaluates two acts of terrorism: the Toulouse and Montauban Terror Attack of 2012 and the 2013 Boston Marathon Bombing and integrates three criminological theories to explain why these atrocities were committed.

Scrivens Ryan. Examining Online Indicators of Extremism among Violent and Non-Violent Right-Wing Extremists. Terrorism and political violence 2022. doi: https://doi.org/10.1080/09546553.2022.2042270

This study analyses and compares the content of postings from a unique sample of violent and non-violent right-wing extremists as well as from a sample of postings within a sub-forum of the largest white supremacy web-forum, Stormfront.

Organised crime

Open access. Daniele Gianmarco, Dipoppa Gemma. Fighting Organized Crime by Targeting their Revenue: Screening, Mafias, and Public Funds. The Journal of Law, Economics, and Organization 2022. doi: https://doi.org/10.1093/jleo/ewac002

Repressive policies to fight criminal organizations are often met with a violent response from criminal groups, but are non-repressive strategies more effective? We study an Italian policy designed to tackle mafia misappropriation of public funds by screening companies applying for subsidies over 150,000 Euros.

EUIPO, Europol. Intellectual Property Crime Threat Assessment 2022 Publications Office of the European Union. 03/2022. 51 pages. Available at: https://www.europol.europa.eu/publications-events/publications/intellectual-property-crime-threat-assessment-2022

The latest Intellectual Property Crime Threat Assessment, produced jointly between Europol and the European Union Intellectual Property Office (EUIPO), casts new light on the scope, magnitude and trends in counterfeiting and piracy in the EU.

Riccardi Michele. Organised crime infiltration of the Covid-19 economy: emerging schemes and possible prevention strategies. European law enforcement research bulletin, Special conference edition 2022; 5: 33-43. Available at: https://bulletin.cepol.europa.eu/index.php/bulletin/article/view/475/365

By providing case studies and empirical data in selected countries, this paper proposes a classification of the infiltration strategies employed by organized crime networks as a consequence of the COVID-19 pandemic, of the most common targets and victims, and discuss potential prevention and investigation strategies to curb and mitigate this risk.

Migration

European border and cost guard agency (Frontex). VEGA handbook: children at land borders, children at risk on the move. Guidelines for border guards. Frontex. 2019. 76 pages. Available at: https://frontex.europa.eu/documents-and-publications/vega-handbook-children-at-land-borders-lqVyxl

The handbook contains suitable operational actions at green borders and entry and exit checks, including situation of particularly high migratory pressure at the borders. The guidelines also try to reflect and ensure at all times an approach based on the rights and best interests of the child, taking also into account the concrete needs of the children and obligations of border guards' activities at the same time.

INTERPOL. FIELDS database: A global resource to help detect counterfeit and forged travel and identity documents. INTERPOL. interpol.int. Available at: https://www.interpol.int/en/How-we-work/Border-management/FIELDS-database

The Frontex INTERPOL Electronic Library Document System (FIELDS) gives police officers and border guards visual information on the key markers that can indicate a counterfeit or forged document.

Mahoney Jamie, Le Louvier Kahina, Lawson Shaun, *et al*. Ethical considerations in social media analytics in the context of migration: lessons learned from a Horizon 2020 project. Research Ethics 2022. Available at: https://journals.sagepub.com/doi/10.1177/17470161221087542

In this paper, we discuss how the opportunities and challenges related to social media research in the context of migration impact on the development of large-scale scientific projects. Building on the EU-funded research project PERCEPTIONS, we explore the concrete challenges experienced in such projects regarding profiling, informed consent, bias, data sharing and ethical approval procedures, as well as the strategies used to mitigate them.

Open access. Shaikh Sarang, Yildirim Yayilgan Sule, Zoto Aejon, *et al.* Towards understanding of user perceptions for smart border control technologies using a fine-tuned transformer approach. Proceedings of the Northern lights deep learning workshop 2022: 1-10. doi: https://doi.org/10.7557/18.6292

This study proposes a fine-tuned transformer model along with an automatic sentiment labels generation technique to perform sentiment analysis as a step towards getting insights into user acceptance of border crossing points (BCPs) technologies.

You may also be interested in the following information:

Open access. Akhgar B, Bayerl PS, Bailey K, *et al.* Accountability Principles for Artificial Intelligence (AP4AI) in the Internal Security Domain: AP4AI Framework Blueprint. Europol. 2022. 124 pages. Available   at: https://www.europol.europa.eu/cms/sites/default/files/documents/Accountability_Principles_for_Artificial_Intelligence_AP4AI_in_the_Internet_Security_Domain.pdf

Five EU Justice and Home Affairs Agencies collaborated together with CENTRIC researchers to create the world-first "AI accountability framework" to guide the deployment of AI tools by security practitioners.

Arcos Ruben, Gertrudix Manuel, Arribas Mato Cristina, *et al.* Responses to digital disinformation as part of hybrid threats: a systematic review on the effects of disinformation and the effectiveness of fact-checking/debunking. Open Research Europe 2022; 2: 1-19. Available at: https://www.researchgate.net/publication/357811212_Responses_to_digital_disinformation_as_part_of_hybrid_threats_a_systematic_review_on_the_effects_of_disinformation_and_the_effectiveness_of_fact-checkingdebunking

The paper's objective is to synthetize the main scientific findings on disinformation effects and on the effectiveness of debunking, inoculation, and forewarning strategies against digital disinformation.

eu-LISA Industry Roundtable - June 2022 - Call for Industry. eulisa.europa.eu: https://www.eulisa.europa.eu/Newsroom/News/Pages/eu-LISA-Industry-Roundtable-June-2022.aspx

The 15th edition of the Industry Roundtable, on 16 June 2022, will focus on the application of biometric technologies in identity management and verification in the context of the large-scale IT systems operated by eu-LISA.

Halford Eric, Smith Jonathan. Operation provide: a multi-agency response to increasing police engagement in cases of intimate partner violence during the COVID-19 pandemic. Police practice and research 01/2022. doi: https://doi.org/10.1080/15614263.2022.2033621

This study evaluates the effectiveness of a multi-agency pilot program put in place to increase the engagement in both the criminal investigation and safeguarding actions of the police and other agencies for victims of intimate partner violence. In this program, independent domestic violence advocates and independent sexual violence advocates work side by side in a police patrol capacity, conducting joint incident response to reports of domestic abuse in an effort to provide enhanced, immediate victim support.

Open access. ILEANET. Final brief on the information sharing mechanism study. ILEANET. 03/2022. 37 pages. Available at: https://www.ileanet.eu/news/news-events/tx_news/final-brief-on-information-

sharing-mechanisms-study/?tx_news_pi1%5Bcontroller%5D=News&tx_news_pi1%5Baction%5D=detail&cHash=02b1b74fce491ae600a34f30e7707ce4

The study has been conducted in the framework of the ILEAnet project to investigate European LEAs' needs for more efficient information-sharing processes and mechanisms. The final brief summarises the main findings of the study and presents the recommendations developed.

Open access. Islam Md Jahirul, Mazerolle Paul. Nexus between police attitudes and responses to domestic and family violence in Australia: does training matter? Policing and society: an international journal of research and policy 01/2022. doi: https://doi.org/10.1080/10439463.2022.2029436

Using survey data collected from a statewide sample of police officers in one jurisdiction in Australia, this study investigates the influence of police attitudes toward domestic and family violence (DFV) on their decision-making in relation to providing support services, taking proactive actions, and seeking domestic violence protection order applications in response to DFV.

Open access. Neiva Laura, Granja Rafaela, Machado Helena. Big Data applied to criminal investigations: expectations of professionals of police cooperation in the European Union Policing and society: an international journal of research and policy 01/2022. doi: https://doi.org/10.1080/10439463.2022.2029433

Based upon a set of qualitative interviews, our analysis explores the expectations of professionals involved in police cooperation in the European Union for the application of Big Data techniques in criminal investigations by using DNA data held in national criminal DNA databases and, therefore, potentially increasing the interoperability between genetic and non-genetic data.

Open access. Quezada Tavarez Katherine. Augmented reality in law enforcement from an EU data protection law perspective: the DARLENE project as a case study. International review of penal law 2021; 92: 69-86. doi: https://lirias.kuleuven.be/3630075?limo=0

This paper aims to contribute to the growing literature on AI in criminal justice by examining AI-based Augmented Reality solutions in law enforcement through the lens of EU data protection law. Focus is placed on three major issues, namely data minimisation, processing of special categories of data and automated decision-making.

Tzevelekakis Konstantinos, Stefanidi Zinovia, Margetis George. Real-Time Stress Level Feedback from Raw Ecg Signals for Personalised, Context-Aware Applications Using Lightweight Convolutional. Neural Network Architectures Sensors 2021; 21(23): 7802-7817. doi: https://doi.org/10.3390/s21237802

In this work, we propose two CNN (Convolutional Neural Networks) architectures for the stress detection and 3-level (low, moderate, high) stress classification tasks, using ultra short-term raw electrocardiogram signals.

IT'S TIME TO REVIEW THE ILEANET SCIENTIFIC ACTIVITIES!

The ILEAnet project ends at the end of May 2022 and it is time to take stock of these 5 years of research and innovation. What have we managed to do?

The project has **connected LEAs with solution providers, including European researchers**, to address their needs and challenges in their fight against crime. The most obvious example is the completion of **two in-depth scientific studies** on important subjects for LEAs: the cross-cutting issue of **information sharing** between European security forces and the very specific issue of **age assessment** in a migratory context. These two subcontracted studies were completed a few weeks ago and the European security community was invited to participate in workshops to discover the results. After very positive feedback from the participants, we are proud to share the reports presenting the results and recommendations of the studies (here for Information Sharing, the one on age determination will be published very soon). These two studies fit perfectly with the objectives of ILEAnet call: monitoring Research & Innovation, expressing common requirements regarding innovation to fill in capability gaps, and indicating priorities regarding domains requiring more standardisation. The results of those studies will be communicated to the European Commission and might be reflected in future research programmes.

For 5 years, the scientific coordination team and the whole ILEAnet team has also been mobilized to **bridge the gap** between LEAs and researchers through **many joint activities**: brainstorming on how to better involve LEAs in research projects, LEA-oriented webinars presenting solutions addressing LEAs needs, etc.

Crossed views between practitioners and researchers for decision-making innovation

This **scientific newsletter** has allowed us to present active profiles in European security research (LEA-researchers or pure researchers), keep you up to date with the scientific news in security, and introduce LEAs (and sometimes even researchers) to the world of research and its rules of the game. We addressed for instance the topics of open science, the importance of standards in Research & Innovation, the assessment of researchers or professional social networks for researchers.

Achievements: bonds of trust

We also remember that, at the very beginning of the project, we had to **build a community of law enforcement practitioners and researchers from scratch**. For this we needed to inject **trust** in our network, and this has been achieved by the excellent work of **ILEAnet National Contact Points**, including our **scientific referents**, who were the scientific relays between ILEAnet and the national research communities within EU countries.

At the same time, the Scientific Coordination has always sought to **promote the research work** of ILEAnet associated researchers, both internally (through the ILEAnet online platform) and externally (through our LinkedIn). We have endeavoured to be **open to** and **connect with the European Research, Development and Innovation stakeholders** in order to bring the latest knowledge to the ILEAnet community of LEAs, and hence developing an applied scientific research having an operational impact.

What will happen to our ILEAnet scientific community? Several avenues are currently being explored, including the use of the Europol Platform for Experts (EPE). Members of our community will be informed of these developments and will be invited to continue interacting with the LEA community through these European initiatives.

What is our contribution to the Europe of Security and Research? The Europe of Defence will perhaps materialize, but the Europe of Security exists and has an identity, it involves the scientific world in particular thanks to projects such as ILEAnet that helped building it. At the same time, the Europe of Research is already on its way, with European universities for instance. We would like to **thank** every practitioner and every researcher who were involved in the project and supported the construction of the Europe of Research and Security. See you very soon and stay safe!

Professor Patrick Laclémence, Scientific Coordinator of the ILEAnet project and Eloïse Chassaing, Scientific facilitator

CONTACT

You would like to have information about the ILEAnet project and the scientific coordination? Do not hesitate to contact us!

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