



innovation - law enforcement agency's dialogue

# Practitioner Workshops Report 2020



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## **INTRODUCTION TO THE I-LEAD PROJECT**

The I-LEAD project is funded by the EU Commission Horizon 2020 (H2020), 2016-2017 Work Programme under the heading of, “Secure Societies – Protecting the Freedom and Security of Europe and its Citizens”. The I-LEAD project commenced in September 2017 with a duration of 5 years, coordinated by the Dutch National Police (NPN). Consortium members include 12 Law Enforcement Agencies (LEA’s) and 7 research institutions who represent 13 Member states.

I-LEAD builds upon the work of the European Network of Law Enforcement Technology Services (ENLETS) that brings EU law enforcement together to share best practices, activate co-creation and stimulate research for operational purposes.

I-LEAD’s key focus is to contribute to the development of new and existing crime fighting capabilities of LEA’s across Europe. I-LEAD will achieve this objective by firstly, engaging and consulting with operational police officers and supporting staff from all Member States. This will be undertaken via a series of bespoke practitioner workshops, that have been exclusively designed to identify and define end-user priorities in 25 subject specific areas of law enforcement. The findings from the workshops will be used to identify ‘fit for purpose’ solutions within the market place, and/or direct research and innovation within academia, with Small and Medium-sized Enterprises (SME’s), and/or those organisations within the security industry environment. The overall

results of this work will effectively contribute to the development and enhancement, where relevant and required, of the existing policing ‘crime fighting tool kit’.

I-LEAD will also examine and recommend opportunities for standardisation and joint procurement, concentrating on the technical, human, organisational and regulatory elements. This work aims to produce a positive impact that will improve connectivity and enhance interoperability between European LEA’s.

I-LEAD recognises that science and innovation have a leading role to play in the future of policing. However, history has taught us that it is the policing community that should be giving direction to this work. It is this very principle that lies at the heart of the I-LEAD project, and embraces the ‘triple-helix’ concept, that being; promoting a pro-active collaboration between law enforcement, the scientific community and industry. Having this conviction will ensure that maintaining public safety and security for all citizens across Europe is optimised.

The need to identify, develop and implement technologies and methodologies within the security arena to support policing across Europe has never been as vital to society as it is at this present time. Therefore, I-LEAD will be committed to undertake an active role in the future of policing by contributing to the momentum of partnerships between policing and research and innovation.

## **WELCOME FROM OUR PROJECT COORDINATOR**



Patrick Padding

Dear participant of the i-Lead Practitioners meeting

I would like to welcome you to the Innovation Law Enforcement Agencies Dialogue project ( i-Lead). I-lead is the first law enforcement coordinated Horizon 2020 research project and reaches it's fourth year already.

In the past years we have welcomed many experts in many area's of interest. With their knowledge and passion we have been able to define the gaps and requirements for their daily work, transferring them in potential solutions.

Law enforcement is confronted with huge challenges. For example: the need to establish an increased automation of our work and handling a tsunami of data, will mean that we need to handle this in

transparent and trustworthy way towards our citizens.

And it is not only "data" that keeps us awake. A new way of Policing lies ahead of us, in which we need to protect and serve our society, sometimes being a referee, a social worker and sometimes using our legislative powers.

Law enforcement technological innovation should therefore always be in pace with the legislation and trust that we work in an ethical and transparent way. As we al know, law enforcement entities are not always the most adaptable for implementing new technology, and legislation needs even more time.

So, if we would like to kickstart innovation in time, this project is the cradle where the experts are sharing their daily challenges and needs, and new ideas are born.

I would like to challenge you to share your dreams and ideas, how we all together can make those required "next steps".

To make these next steps we need very basic and simplistic good ideas, and sometimes it is a bit more complicated. But I am sure that no one can determine these next steps better than you as an expert and participant of our project as you are daily working in the field.

Welcome to our project and enjoy!

Patrick Padding

## ***SAFER COMMUNITIES FOR ALL EUROPEAN CITIZENS***

The key driver for the I-LEAD project is the safety and security of all European citizens including those visiting from around the globe. It is vital that the highest possible standards are achieved, and this can only be done by ensuring that police services, academia and industry pool all available and significant resources, and work in close partnership. This will ensure that initial innovative solutions and the emerging technologies and methodologies to address the public safety issue are unrivalled, second to none and remains relevant. Furthermore, I-LEAD's work demands that there is a continuum of research and development to guarantee that all criminal activity is not only adequately and speedily dealt with, but that law enforcement agencies are one step ahead of the law breakers.

## ***THE WORK OF I-LEAD***

There are a number of major strands of work being undertaken within the project and these are as follows:

### ***European Law Enforcement Networks***

I-LEAD will establish a sustainable and permanent cooperation framework; (preferably with a legal entity endorsement), that will represent

European LEA's. This will be based on the insights and mechanisms developed within the I-LEAD project. Its programme of work includes the following:

- Monitor research and innovation
- Standardisation and procurement recommendations
- Improved collaboration with industry and research
- Capacity building and knowledge exchange

Dissemination and interaction with other networks

### ***Common End-User Priorities***

I-LEAD will investigate end-user; capability gaps, baseline capabilities and the current use of technology in the respective law enforcement practitioner groups and identify policing priorities.

### ***Monitor Research and Innovation***

I-LEAD will conduct smart monitoring of relevant research and innovation projects, undertake technology watch activities and scan pipe-line technology including those in other security domains and sectors (e.g. defence and intelligence and health). Additionally, an assessment of promising technological solutions will be provided to LEA's in the Member States.

## ***Standardisation and Procurement Recommendations***

I-LEAD will investigate appropriate ways in which standardisation in Law Enforcement domains can be achieved, and where required 'make it happen'. Additionally, I-LEAD will make recommendations for LEA's in relation to collaborative procurement, based on the scanned technology and PCP and PPI.

## ***Improved Collaboration with Industry and Research***

I-LEAD will set up community forums for enhanced knowledge exchange between the project and EU LEAs, research organisations, SME's, industry and academia.



## ***Capacity Building and Knowledge Exchange***

I-LEAD will build and maintain project repositories for knowledge exchange and

provide a pool of resources to support relevant activities. I-LEAD will act as the gateway for interaction with external partners in Europe by enabling peer to peer exchanges, answering questions on LEA innovation needs and providing expert advice.

## ***Dissemination and Interaction with other Networks***

I-LEAD will establish links with other European Networks in relevant areas and disseminate project results to an extended audience across Europe.



## ***THE I-LEAD PRACTITIONER WORKSHOPS***

This I-LEAD practitioner workshops bring together practitioners working within Law Enforcement Agencies across Europe. Over the duration of the project, 25 workshops will be delivered hosted by the project's consortium members. The workshops present a unique opportunity

for experts to work as a collective and consider and discuss common issues and challenges within their field. The workshops also provide a forum that facilitates open dialogue to identify 'fit for purpose' end user priorities. Furthermore, the bringing together of likeminded individuals from an international arena offers an opportunity for the real time sharing of local solutions to address national issues. The workshops also promote the development of building new working relationships and support those collaborations that already exist.

## ***I-LEAD'S SUCCESS STORY SO FAR***

In 2020, I-LEAD was successful in bringing together experts from operational law enforcement from across 17 Member States to deliver 4 subject specific practitioner workshops. The first event took place in Brussels, Belgium, whereas the rest of these facilitated events took place through Virtual Teleconference (VTC) due to the COVID-19 pandemic restrictions and provided a conducive virtual environment for participants to collaborate as a community, discuss end-user requirements, and ultimately identify an agreed set of priorities in the following topics:

- ✓ *Forensic Crime Scene Recording and Documentation – Brussels, Belgium*
- ✓ *Digital Investigations – VTC*
- ✓ *Cybercrime:*  
*Crime as a Service (CaaS) - VTC*
- ✓ *Vehicle Mitigation - VTC*

The results of these workshops are documented in the following pages of this brochure.



### ***Forensic Crime Scene Recording and Documentation***

The scene of a crime is always regarded as the starting point of a criminal investigation and therefore the effective management of the crime scene is a critical component of the forensic process. Law Enforcement Agencies (LEA's) locate and collect trace materials which can either be examined onsite using 'Real Time

Forensics', or at a later stage in a dedicated forensics laboratory.

The crime scene management process adopts a logical approach to ensure that the forensic processes are carried out to maximise the information available. A crucial element of the crime scene examination is to record the crime scene at the earliest possible opportunity. Using all means of recording methods, ranging from hand-drawn sketches to modern 3D image acquisition using airborne drones, an accurate account is made of the scene that was encountered by the first responders who attended. Especially important in this context is the place and condition of material evidence and the relevant visible traces recovered. Secondly, the located traces and objects need to be preserved and recovered to ensure that the integrity of any evidence collected can be relied upon in any future legal proceedings.

A crime scene is usually only available for a limited amount of time - particularly crime scenes that are situated outdoors, in a public area or in a location where they impede traffic. Factors such as weather, human activity surrounding the scene and the need to restore the environment back to its operational state can also impact a crime scene. Identifying areas in respect of the use of technology in crime scene investigations could be therefore be hugely beneficial in recording and documenting crime scenes.

### *Priorities of the Forensic Community of Practitioners*

The general consensus amongst practitioners was that whilst there were a number of technologies available, they were large, expensive and typically weren't principally designed for use at

crime scenes. As such, it was suggested that these technologies weren't as effective as they could be had they been specifically designed for use at crime scenes. Also, finding ways of managing and processing the mass volume of data now being collected at crime scenes was seen as a priority of the community. It was agreed that the community would benefit from technological development in the following areas:

### *Opportunities for Development with Forensic Crime Scene Recording*

#### *➤ Data volume and retention*

Large amounts of data can now be collected at crime scenes. This is creating issues with how to store it, process it, access it and retain it. Current data storage capabilities seem to be inadequate. Practitioners would like to see data stored centrally on a network which could be easily accessed and shared.

#### *➤ Single chain of custody*

An integrated, electronic, single entry point platform for the chain of custody. All physical evidence would be barcoded and scanned directly at the crime scene so all evidence had a digital signature. The electronic chain of custody would then be used for the duration of the investigation.

## ➤ Data transfer

The ability to transmit information in real time from the crime scene was seen as important. More widespread use of 360° video live streaming would give CSIs the ability to easily share information with colleagues, the courts and different LEAs not present at the scene.

## ➤ Suitability of solution

A small tablet device, that would be cost effective and had a number of capabilities such as converting speech to text, live capture, visualisation capture, 360° video live streaming, ability to transfer and access data to and from cloud storage, sketch software, evidence barcoded and scanned, semantic reasoning tools and GPS.

## ➤ Drones / Robotics

It was agreed that if the imaging capabilities of drones were enhanced and more functionalities (i.e. sensors) added then it could increase their usefulness at crime scenes.



## Digital Investigations

The amount of information and data that law enforcement officers must handle and manage daily, and the challenges posed by new and innovative digital technologies is enormous. This has increased immensely over the last two decades, and it is envisaged that this growth will continue exponentially. Most crimes have a digital element, therefore to ensure successful investigations and effective crime prevention, investigators must acquire and maintain high level skill sets within the technological domain.

In an era of digitalisation, the need for innovation and cooperation amongst law enforcement is stronger than ever, so to respond adequately to the increasingly sophisticated global threats such as cyber-crime, large scale organized crime and terrorism. Additionally, it is critical for law enforcement be open to new approaches for combating and preventing crime.

Nowadays, the pace of technology development tends to increase rapidly within an environment that has no physical borders. IT companies, researchers and even criminal concepts are moving towards a world embedded within virtual reality, rather than an entity of a palpable nature that has an existence within the streets of our communities. People's digital identity, 5G, artificial intelligence, internet of things, social activities, currencies, transactions, legal procedures and in general all the data digitalisation, in the short and medium term will grow in an exponential manner.

## *Priorities of the Digital Investigation Community*

Practitioners agreed that one of the biggest issues facing digital investigations is that virtual crimes have no borders. Presently, LEAs often have to investigate a crime where the victims and perpetrators can span over several different jurisdictions which can create a number of issues. As one practitioner stated "we are often still analogue policing in a digital world". The community would like to see greater connectivity and data sharing between international partners. During the workshop, practitioners also identified the following priorities:



## *Opportunities for Development within Digital Investigations*

### *➤ Volume of data and subsequent storage and analysis*

LEAs current storage and analysis capabilities were deemed by practitioners

to be insufficient to deal with the large volume of data that can often be collected during digital investigations. There is a need for much larger storage capabilities, on a central network, which could be easily accessed (remotely if required) and shared.

Practitioners were keen to explore whether AI and other learning technologies could be further utilised to analyse data. It was suggested that AI could greatly assist LEAs with fraud detection, predictive policing, dark web analysis and financial forensics data analytics.

### *➤ Encryption / Decryption of information*

LEAs are increasingly facing difficulties with accessing encrypted devices and messaging platforms. The development of machines, such as quantum computers, which could be used to rapidly decrypt encryptions could be hugely useful but it was felt that this type of technology was still potentially a few years away for use by LEAs.

### *➤ Access to cloud storage*

The way in which people store data, and the amount of data people have to store, has changed significantly over the last few years. Rather than storing data on personal devices, individuals are increasingly storing their data remotely on third party servers. Investigators therefore are more frequently needing to access and extract evidence from suspects cloud storage in the course of their investigations and this can present with a number of issues.

### ➤ *Connectivity and data sharing between local and international partners*

Digital crimes can often spill over into several jurisdictions. As nearly all crimes today involve to some degree a digital element, practitioners agreed that being able to share and exchange intelligence, data and evidence with local and national partners quickly was becoming increasingly important. A central online sharing platform would allow for faster connectivity and more data sharing between partners.



### ***Cybercrime: Crime as a Service (CaaS)***

Internet usage is continuing to grow each year. With these statistics in mind, it's inevitable that this has also become a playground for cyber criminals. Cyberattacks and cyber treats have become a regular occurrence. Cybercriminals are taking advantage of the ever-increasing internet usage and devices that are linked to the internet, using new

technologies, methods and strategies to commit cybercrimes.

A growing trend is the commercializing of cyber criminality so-called Crime-as-a-Service, in which the 'as-a-Service' part is based on business models from the legal corporate culture and incorporated in cybercriminal markets (underground economy). The aim is to provide easier access to digital means for the lesser skilled cybercriminal to achieve cybercrime. This lowering of the threshold may lead to an increase in the number of cybercrimes committed.

On these flourishing 'underground' markets, a broad array of tools and services are offered. The cybercriminal can choose to purchase or rent entire packages, so-called 'toolkits', or to buy or rent parts of the toolkit. These toolkits can include malicious software, supporting infrastructure, stolen personal and financial data and the means to monetize criminal assets. The prices for these 'services' are completely out of proportion to the damage they can cause and can be paid by anyone who has a little bit of money and enough motivation for bad intentions.

### ***Priorities of the Cybercrime: CaaS Community***

The CaaS scheme provides easier access to digital means for the lesser skilled cybercriminal to achieve cybercrime. Moreover, due to the diversity of the crimes involved, the organized criminal structure of CaaS and even more geographical diffusion of the crimes involved, investigations are very time consuming and difficult to solve. The Cybercrime community need to determine

how Crime-as-a-Service will affect the future of policing. During the practitioner workshop, the following opportunities were identified:

### *Opportunities for Development within Cybercrime: CaaS Investigations*

#### ➤ *Encryption / Decryption*

As flagged in other workshops, encrypted devices are proving to be a big challenge for LEAs and the need for more decryption capabilities was repeatedly discussed by practitioners. Specifically, practitioners would like to see the ability to decrypt in real-time and tools which allow for dynamic interventions with more on-site capabilities.



#### ➤ *Single tool to carry out all functions*

Practitioners felt that whilst there were a large number of tools available, many had

capabilities that weren't required in criminal investigations. Practitioners would like to see a number of these tools integrated in to one which was straightforward to use. Suggested capabilities discussed were visualisation software that could make complex structures easier to understand, tools to layer data sets, automation of basic analysis and data science skill enhancement.

#### ➤ *Co-operation with Internet Service Providers (ISPs) and Private Institutions*

One of the main frustrations of the Cybercrime CaaS community is the lack of cooperation from ISPs and private institutions.

#### ➤ *International co-operation*

Many cybercrimes are transnational and as such there needs to be a common strategy amongst countries greater cooperation. As one practitioner stated they would like to see 'a fluid conversation with other countries.' A secure international sharing platform, where intelligence and strategy relating to transnational crimes could be shared between LEAs was a common requirement amongst practitioners.

#### ➤ *Companies under-reporting*

There is a reluctance for some companies to report cyber-attacks because they are worried that their reputation could be damaged.



## **Vehicle Mitigation**

Pursuit activity and use of pursuit tactics are likely to place members of the public and police officers under a significant degree of risk. Wherever possible, trying to prevent a pursuit from taking place must be a primary consideration.

Preventative tactics are those which can be used to prevent a pursuit from taking place. An officer may find themselves behind suspect vehicles and drivers in the normal flow of traffic. The driver of the subject vehicle may remain unaware of the police interest or decide to continue driving normally in the hope the officer's presence is coincidental. During this period, there is time to consider the use of preventive and pre-emptive tactics. Where preventive or pre-emptive actions are clearly proportionate to the intelligence available, their use is preferable to pursuit.

Where an intervention before the subject vehicle moves off is not possible or is unlikely to succeed before the subjects alight then police may have little choice but to conduct an intervention against a moving or a momentarily stationary vehicle.

## *Priorities for Development within Vehicle Mitigation Investigations*

To assist with improving police and public safety in this operational context, law enforcement agencies need to consider how they might better use science and technology to provide a solution to the operational needs. Police require the ability to immobilise many types of vehicles from mopeds to lorries whilst they are moving or stationary. Solutions therefore need to take into account the requirement for the different approaches in tackling these crimes. During the workshop three major priorities were identified:

### *Opportunities for Development within Vehicle Mitigation Investigations*

#### ➤ *Effective stopping solutions*

A solution that is effective in bringing a vehicle to stop safely every time it is deployed. Ideally the solution would be 100% effective every time it is deployed, be able to be operated from a distance and stop the vehicle immediately and in a controlled manner.

#### ➤ *Improved pre-emptive tactics*

The ability to be able to prevent high speed pursuits, preferably by pre-emptive tactics. Practitioners would like technologies

which would enhance situational awareness and information gathering, or easily tag, trace and monitor the suspect vehicle from a distance. This solution could be combined with current solutions such as tyre deflation.



➤ *Solutions which can be used  
by mainstream officers*

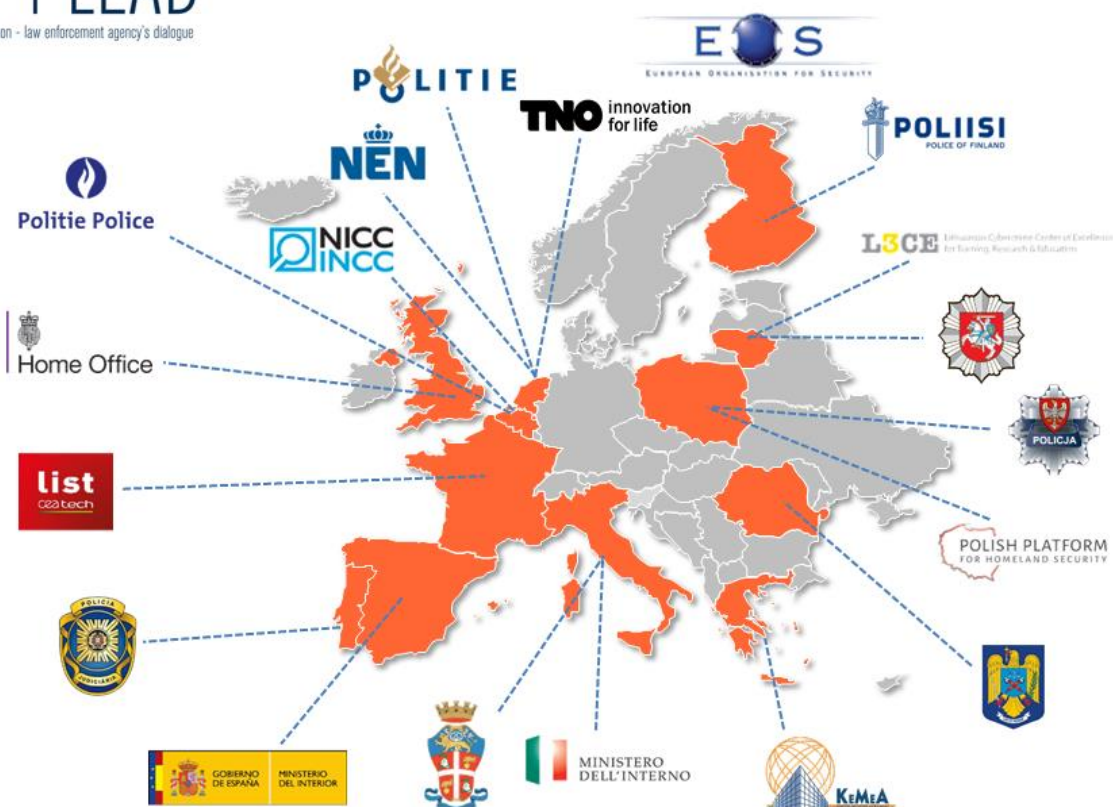
Numerous practitioners stated that they had few specially trained vehicle mitigation officers. For that reason, the development of tools which could be used by mainstream officers was seen as desirable. Tools therefore needed to be compact, simple to operate and the training required to use not onerous.



## 2021 Practitioner Workshops

In 2020 the practitioner workshops have proven to be extremely successful, and has been evidenced by the identification of a list of key priorities. These priorities were attained through careful and methodical discussions amongst the practitioners and moreover have been found to be new and unique requirements that have not previously emerged from the policing community. The impact of these findings will contribute to the formation of a set of 'grand challenges' for those who seek to find or undertake research to address the issues. Thus, directing those to produce 'fit for purpose' solutions and to improve the way LEA's fight crime and keep citizens safe and secure. We now look forward to the 2021 workshops and are confident these will be as successful as those previous. The subjects covered are shown in the table below;

| Subject                             | Hosting Country          | Month            |
|-------------------------------------|--------------------------|------------------|
| <b>Individualisation Techniques</b> | <b>To be held online</b> | <b>March</b>     |
| <b>Cybercrime (TBC)</b>             | <b>To be held online</b> | <b>May</b>       |
| <b>Front Line Policing (TBC)</b>    | <b>TBC</b>               | <b>June</b>      |
| <b>Crime (TBC)</b>                  | <b>TBC</b>               | <b>September</b> |
| <b>Child Sexual Exploitation</b>    | <b>TBC</b>               | <b>November</b>  |



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